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An Examination of Obesogenic Nutritional Habits in Sedentary Students

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Abstract

Recently, widespread sedentary lifestyles and changing eating habits have increased various health problems among students. The current study examined sedentary students' obesogenic eating habits by their socio-demographic characteristics. The research study group comprised 184 students, of whom 73 were females and 111 males, specified by a simple random sampling method. A Three-Factor Nutrition questionnaire served in the study to measure sedentary students' obesogenic eating habits. While a significant difference existed between sedentary students by gender and age variables, no difference existed in terms of the "presence of obese individuals in the family" and "family income levels." Consequently, the current study suggests the existence of positive relationships between Emotional Eating, Cognitive Restraint, and Sensitivity to Starvation in sedentary individuals.

Keywords: Sedentary, Obesity, Nutritional Habits

1. Introduction

The world has been undergoing a tremendous technological change that has alienated people from active lifestyles (Pate, Mitchell, Byun, & Dowda, 2011). Previous research reported that sedentary life is associated with several health risks (U.S. Department of Health and Human Services, 1996; Pate, O'Neill, & Lobelo, 2008). While scientists associated a sedentary life with reduced longevity and poor health, most also announced that exercise and an active life cure many physical and mental illnesses.

Sedentary behavior refers to activities with a minimal, almost resting level of energy consumption and covers behaviors such as sleeping, sitting, lying, and using a computer, and passive entertainment styles such as watching television (Zhang, Pi-Sunyer & Boozer, 2004). Social changes caused by sedentary life severely affect children and young people as well as adults. These changes boosted the prevalence of overweight among youth in developed countries, and the same trend now appears in some developing countries (Ogden et al., 2010; De Onis, Blössner, & Borghi, 2010; Prentice, 2006). Changes in dietary behavior also contribute to these trends. Decreased physical activity and increased time spent in sedentary behavior are dominant factors underlying the worldwide epidemic of childhood and youth obesity (Pate, Mitchell, Byun, & Dowda, 2011).

A relatively new area of obesity research is the study of sedentary behaviors. Some researchers suggest that sedentary behaviors should be examined differently from physical activity (Spanier, Marshall & Faulkner, 2006). Kautiainen et al. argued that the increasing use of information and communication technologies, especially watching television, playing digital games, and using computers, are critical sedentary factors affecting the boost in obesity (Kautiainen et al., 2005). Such intensive use of communication and information technology causes nutritional disorders and obesity. Nutrition primarily aims to supply individuals with enough energy and protein and prevent complications and physiological stress associated with overnutrition (Choban & Dickerson, 2005). On the other hand, adequate and balanced nutrition is the intake of all nutrients—required for the body's growth, regeneration, and functioning—in sufficient quantities, in required proportion, and benefiting from them for the body. Nutrition is essential for body growth, life maintenance, and health protection (Demirezen & Coşansu, 2005).

In line with these objectives, the current study examined the obesity-related eating habits of sedentary individuals across various variables. Further, despite studies on obesity and nutrition in the relevant literature, few studies appear on obesogenic eating habits in sedentary individuals. This finding reveals the potential importance of the research.

2. Method

2.1. Participants

The study group of the research consisted of 184 sedentary students (age 18 to 24), of whom 73 were females and 111 were males, studying at Osmaniye Korkut Ata University in the 2021-2022 academic year, stating in the questionnaire that they do not do sports.

2.2. Measurement Tools

Three-Factor Eating Questionnaire

The current study utilized the 18-item Three-Factor Eating Questionnaire adapted to Turkish by Kırac et al. (2015). The scale had a 4-point Likert-type rating. The reliability of the items in the Three Factor Nutrition Questionnaire, which did not contain any reversed items, was determined by calculating the internal consistency coefficient (Cronbach's Alpha). The general reliability of the scale was 0.72 in this study, higher than $\alpha=0.65$.

2.3. Data Collection

During the data collection phase, the students selected by simple random sampling method were reached and asked to answer the questions regarding the personal information form and the Three-Factor Eating Questionnaire. Before responding to the questionnaires, all the students filled out an informed consent form. Although 420 students participated in the surveys, the study evaluated the data of 184 students who gave a negative answer to the question, *Do you do sports?*

2.4. Analysis of Data

The sample size of this study, examining the obesogenic eating habits of sedentary individuals, was calculated by taking Power at least 80% and a Type-1 error of 5% for each variable. Kolmogorov-Smirnov ($n>50$) and Skewness-Kurtosis tests checked the normal distribution of continuous measurements in the study, and because the measurements showed a normal distribution, parametric tests were applied. Descriptive statistics for the variables in the study were expressed as mean, standard deviation, minimum, maximum, number (n), and percent (%). Cronbach's Alpha coefficients were calculated for the reliability analysis of the scale questions. Average scores of the scale answers were used in the statistical calculations. Independent T-test and One-Way Analysis of Variance (ANOVA) compared scale scores by the categorical groups, and the Tukey test identified different groups following the analysis of variance. Pearson correlation coefficients were calculated to determine the

relationship between the scales. Statistical significance level (α) was 5% in the calculations. SPSS (IBM SPSS for Windows, ver.26) statistical package program was utilized for analysis.

3. Results

Table 1: Correlation analysis results between scale scores

		Uncontrolled Eating	Emotional Eating	Cognitive Restraint
Emotional Eating	r	,459		
	p.	,001		
Cognitive Restraint	r	,203	,173	
	p.	,006	,019	
Sensitivity to Starvation	r	,659	,614	,131
	p.	,001	,001	,075

r: Pearson correlation coefficients

Table 1 shows the results of the correlation analysis between scale scores. There was a statistically significant positive correlation between the participants' Uncontrolled Eating sub-dimension and Emotional Eating sub-dimension scores (45.9%) ($p=0.001$). In this context, as their Uncontrolled Eating sub-dimension score increased, their Emotional Eating sub-dimension score also increased.

In addition, there were statistically significant and positive correlations both between the participants' Uncontrolled Eating and Cognitive Restraint sub-dimension scores (20.3%) ($p=0.006$) and between their Uncontrolled Eating and Sensitivity to Starvation sub-dimension scores (65.9%) ($p=0.001$).

Similarly, there were statistically significant and positive correlations both between the participants' Emotional Eating and Cognitive Restraint sub-dimension scores (17.3%) ($p=0.019$) and between their Emotional Eating and Sensitivity to Starvation sub-dimension scores (61.4%) ($p=0.001$).

On the other hand, no statistically significant correlation existed between the participants' Cognitive Restraint and Sensitivity to Starvation sub-dimension scores ($p>0.05$).

Table 2: Comparison of Scale Results by Gender Groups

	Gender				t	*p.
	Female		Male			
	Mean	Std. Dev.	Mean	Std. Dev.		
Uncontrolled Eating	2,59	,64	2,65	,64	-,559	,577
Emotional Eating	2,81	,86	3,21	,65	-3,576	,001
Cognitive Restraint	2,88	,50	2,93	,52	-,554	,580
Sensitivity to Starvation	2,70	,70	2,90	,74	-1,843	,067

*Significance levels according to Independent T-test results

Table 2 shows the comparison of scale scores by the Gender variable. In the Emotional Eating sub-dimension of the participants, there was a statistically significant difference according to Gender ($p=0.001$). Put another way, the Emotional Eating sub-dimension score changed according to Gender and was higher in Men. On the other hand, no statistically significant difference existed in the participants' Uncontrolled Eating, Cognitive Restraint, and Sensitivity to Starvation dimensions according to Gender ($p>0.05$).

Table 3: Comparison of Scale Results by Age Groups

	18-20		Age 21-23		24+		F	*p.
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.		
Uncontrolled Eating	2,62	,57	2,70	,70	2,48	,67	1,411	,246
Emotional Eating	2,98	,84	3,20	,69	2,92	,67	2,203	,113
Cognitive Restraint	2,81 b	,51	3,00 a	,49	2,97 a	,55	3,107	,047
Sensitivity to Starvation	2,74 b	,71	3,02 a	,75	2,57 b	,62	5,237	,006

*Significance levels according to one-way ANOVA test results; a, b, and c show the difference between groups (Tukey posthoc test)

Table 3 shows the comparisons of the scale scores by different age groups. There was a statistically significant difference in the Cognitive Restraint sub-dimension of the participants according to the Age Groups ($p=0.047$). In this context, the Age Groups that display differences were marked by lowercase letters. The 18-20-year-old participants had lower Cognitive Restraint subscale scores and differed from the other two age groups.

Similarly, there was a statistically significant difference according to age groups in the Sensitivity to Starvation sub-dimension ($p=0.006$). In this context, 21-23-year-old participants' Sensitivity to Starvation scores was higher and differed from the other two age groups.

On the other hand, there was no statistically significant difference in participants' Uncontrolled Eating and Emotional Eating sub-dimensions according to the Age Groups ($p<0.05$).

Table 4: Comparisons of the Scales by Obesity History in the Family

	Obese Person in the Family				t	*p.
	Yes		No			
	Mean	Std. Dev.	Mean	Std. Dev.		
Uncontrolled Eating	2,47	,70	2,67	,62	-1,860	,065
Emotional Eating	3,06	,73	3,05	,78	,064	,949
Cognitive Restraint	2,85	,45	2,93	,53	-,923	,357
Sensitivity to Starvation	2,76	,69	2,83	,74	-,612	,541

*Significance levels according to Independent T-test results

Table 4 shows the scale comparisons according to the Obesity History in the Family. No statistically significant difference existed in all sub-dimensions of the scale according to the Obesity History in the Family ($p>0.05$).

Table 5: Comparisons of the scales according to Income Levels

	Income Level						F	*p.
	Low		Medium		High			
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.		
Uncontrolled Eating	2,63	,53	2,62	,68	2,68	,74	,081	,922
Emotional Eating	3,12	,72	3,03	,76	2,96	,93	,404	,668
Cognitive Restraint	2,87	,52	2,92	,51	2,96	,53	,311	,733
Sensitivity to Starvation	2,92	,69	2,79	,74	2,66	,77	,991	,373

*Significance levels according to one-way ANOVA test results; a, b, and c show the difference between groups (Tukey posthoc test).

Table 5 shows the scale score comparisons by Income Level. There was no statistically significant difference in all sub-dimensions of the scale according to the participants' Income Levels ($p>0.05$).

4. Discussion

Generally, all societies recognize balanced nutrition and mobility as critical components of healthiness. The current study examined the phenomenon of obesogenic nutrition in sedentary individuals.

The research found differences in the sub-dimensions of the scale according to the gender variable in sedentary individuals. Vançelik et al. (2007) determined that the males' mean nutritional habit score was significantly higher. Their study determined that 73% of the females had poor eating habits, while this rate was 27% in males, and a significant difference existed between the level of eating habits by gender. Ayhan et al. (2012) found in their study on university students that 8.6% were underweight, 20% were overweight or obese according to their BMI values, and females were thinner than males according to the gender variable. In various studies, Aktaş et al. (2015) discovered that, among males, overweight (11-37,5%) and obesity (5-12,5%) prevalence were higher than females (9-13.6% and 4-9%, respectively) due to the effect of social and environmental factors such as alcohol use, sedentary lifestyle, and irregular eating habits (5,13,20,29).

In the current study, the comparison of the scale sub-dimensions (Uncontrolled eating, Emotional eating, Cognitive Restraint, and Sensitivity to Starvation revealed differences in sedentary individuals. Similarly, Güleç et al. (2008) found that skipping meals was a prevalent habit among university students and that students staying in dormitories generally skipped meals. Onurlubaş et al. (2015) also determined that most of their students skipped meals. Aksoydan et al. (2011) reported that adolescents mostly skipped breakfast, and the habits of skipping meals were higher in secondary school students and females. In their study, Vançelik et al. (2007) stated that while breakfast was the most ignored, dinner was the most favorite meal. Ayhan et al. (2012) stated that 25.6% of the students said, "I never skip meals," and that this rate was only 0.6% in the irregularly fed group.

In separate studies, Karasalihoğlu (2005) and Altın (2015) documented that today's excessive fat and carbohydrate consumption and children's tendency toward television and computer games instead of physical activities were prominent grounds for the rapidly increasing obesity rate in children and adolescents globally. They stated that 1/3 of obese children and 80% of obese adolescents remained obese when they reached adulthood. The current study had similar results to these studies.

Aksoydan and Çakır (2011) stated that sitting in front of a television and computer for a long time develop a sedentary lifestyle and the risk of obesity and chronic diseases. In addition, Zileli et al. (2016) concluded that, besides poor eating habits, students use alcohol and cigarettes and do no regular sport during or outside school hours. Again, Kazma (2013), in their research, emphasized that university students, generally far from their families and led their lives by their own means, were an ideal group to examine eating habits and obesity prevalence in young people.

5. Conclusions

Scientific evidence reveals that individuals spend most of their days with sedentary behaviors, and this situation gets more severe as people get older. The current study examined the obesogenic eating habits of sedentary individuals in terms of various variables and found differences between them according to Gender and Age. However, there was no difference according to the variables of income level and obese family members. Within the framework of these results, the research authors recommend people pay maximum attention to adequate and balanced nutrition, regular physical activity, and a healthy body mass index to lead an active and long life.

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