



The Roles of Hedonistic Life Perception and Self-Control on Eating Behaviors and Obesity

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Author's contribution

The sole author designed, analysed, interpreted and prepared the manuscript.

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ABSTRACT

Aims: Two important variables are thought to play important roles in people's eating habits: self-control and hedonism. The purpose of the study is to understand how and how much individuals' eating behaviors are affected by their hedonistic lifestyle and their degree of self-control.

Study Design: Quantitative Online Survey.

Place and Duration of Study: 2021-2022, Turkey.

Methodology: There were 138 participants who took the survey, which contained three different scales and a demographic form. The Hedonistic Eating Scale [6], The Mindful Eating Questionnaire [7], and the Brief Self-Control Scale [8] were the scales used.

Results: BMI and self-control were found to be significantly correlated ($r = .410$, $p = .05$). The relationship between BMI and hedonistic eating was significant ($r = .493$, $p = .05$). There was a significant correlation between hedonistic eating and self-control ($r = .531$, $p = .05$). When a multiple regression analysis was conducted, hedonistic eating and self-control scores predicted the BMI score significantly, $F(2, 133) = 30.98$, $p = .000$. The $R^2 = .318$ and the adjusted $R^2 = .309$, a medium-size effect reported by the model. Self-control and hedonistic eating were found to predict BMI significantly ($F(2, 133) = 30.983$, $p = .000$) and to account for 31.8 percent of the variation. Including

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gender in the model explained an additional 15.2 percent of the variation in BMI, which was found to be significant ($F(1,132) = 37.847, p = .000$).

Conclusion: All three variables (low self-control, high hedonistic eating, and high body mass index) are significantly and positively correlated. Additionally, it was seen that the strength of these variables differed with gender, even though not drastically.

Keywords: Body Mass Index (BMI); hedonism; self-control; obesity; hedonistic life perception.

DEFINITIONS

Self-control: Self-control is defined as “control over your emotions and actions; self-restraint”. The APA Dictionary of Psychology [1] defines the term as:

“The ability to be in command of one’s behavior (overt, covert, emotional, or physical) and to restrain or inhibit one’s impulses. In circumstances in which short-term gain is pitted against long-term greater gain, self-control is the ability to opt for the long-term outcome.”

Additionally, terms such as self-regulation, self-management, and self-monitoring are closely related to the term self-control [2]. On the other hand, “self-control” in this study represents the degree of the individual’s control over these instincts and desires. An individual with higher self-control is thought to have greater ego strength and, thus, has a greater ability to delay sudden pleasure for a future goal, such as having a healthier body.

Hedonism: The word hedonism comes from the Ancient Greek for “pleasure” [3]. Even though there are numerous schools of hedonism, the term “pleasure” is the center of the discipline [4]. According to hedonistic philosophy, living creatures head towards pleasure and try to avoid pain. Through this effort, the organism gets good feelings and is involved in enjoyment, thus acquiring happiness [5].

In this study, “hedonistic life perception” can be narrowed down to the predisposition towards fulfilling inner desires and instincts in terms of consuming joyful foods; thus, it will be called “hedonistic eating” throughout the thesis interchangeably. It is assumed that a person who enjoys food more than others is more impulsive and engages in hedonistic eating behavior.

Body Mass Index: Body Mass Index (BMI) is a scale used to determine whether an individual has a healthy body weight in relation to his or her height. To calculate the BMI of an individual, two pieces of data are needed. These two pieces of

information are weight and height. The bodyweight of the person gets divided by the square of their height, and the result is the BMI of the person. The unit of BMI is kg/m^2 . There are four major categorizations: underweight (below $18.5 \text{ kg}/\text{m}^2$), normal weight (18.5 to $24.9 \text{ kg}/\text{m}^2$), overweight (25 to $29.9 \text{ kg}/\text{m}^2$), and obese (above $30 \text{ kg}/\text{m}^2$).

1. INTRODUCTION

There are countless health conditions, both physical and psychological, related to eating habits and patterns. These health conditions that stem from unhealthy eating behaviors are increasing with time. To acquire a better understanding of the reason for this increment, we need to understand the mechanisms behind these adverse eating behaviors.

1.1 Purpose of the Study

In this thesis, the aim is to understand how and how much eating behaviors are affected by a person’s hedonistic lifestyle and their degree of self-control. Our purpose is to analyze and understand the relationship between self-control, the hedonistic lifestyle, and the eating habits of the participants.

1.2 Hypothesis

If an individual has a lifestyle/perception that can be considered “hedonistic”, it is logical to expect this individual to engage in unhealthy eating behavior more often than others, which is called “hedonistic eating”. It is also thought that those with higher hedonism would have lower self-control in terms of engaging in eating-related actions and behaviors, besides other pleasurable activities. Therefore, it is hypothesized that the lower the self-control and the higher the predisposition to hedonism, the more food is consumed. It is expected that the findings of this study would indicate that hedonistic eating and self-control would be correlated; additionally, these variables would significantly predict the body mass indexes of the participants. Even

though we do not expect that gender would play a significant role in self-control or hedonism, it is expected to see differences in body mass indexes since the anatomy of the female and male bodies differs in terms of muscle mass, height, hormonal balance, fat ratio, and bone density.

1.3 Significance of the Study

In this study, we aim to investigate the very nature of eating habits by measuring two crucial concepts that may predict a human's relationship with food and body image. These two crucial concepts are self-control and hedonism. Even though there are numerous studies on eating disorders, food and nutrition, eating habits, and health concerns related to nutrition, apparently there is a lack of research that focuses on the relationship between these two concepts and eating habits. If a significant relationship between self-control, hedonism, and eating habits were found, it would be a stepstone for further studies in terms of understanding the nature of obesity and eating disorders.

2. METHODOLOGY

2.1 Research Design

This study was designed to have multiple correlations with three variables: BMI, hedonistic eating, and self-control. At the same time, it was expected that the BMI scores would get higher when the scores of the hedonistic life approach were higher. Also, the correlation between self-control, hedonistic eating, and BMI is expected to be negatively correlated.

2.2 Participants

For this study, data were collected from 186 Turkish participants via an online survey in which participants attended randomly. Among these participants, 33 were excluded due to the incompleteness of the survey. Of the remaining 153 participants, 14 were excluded due to chronic disease or drug usage, which may affect the participants' eating habits or body weight. One participant was excluded due to having a muscular body type (It is determined by the self-report of the participant since it is asked in the survey what kind of body type the participant has.) which may result in a misleading BMI score. The remaining 138 participants were made up of 76 women (55%) and 62 men (45%). The age of the participants was between 18 and 35, with a mean of 25.79 ($SD= 3.98$). The mean height of the participants was 171.27 cm ($SD = 8.89$), while only the male height mean was

179.26 cm ($SD = 5.48$), and the mean height of the females was 164.75 cm ($SD = 4.91$). The mean weight of the participants was 69.82 kg ($SD = 15.83$), for only males, the mean was 82.39 kg ($SD = 13.35$), and for females, it was 59.77 kg ($SD = 8.71$). In the meantime, the participants' reported ideal weight from their perspective (asked in the survey) had a mean of 64.22 kg ($SD = 12.58$), for only males it was 76.44 kg ($SD = 7.63$), and for only females, it was 54.26 ($SD = 4.26$). The body mass indexes of the participants were calculated in accordance with the data reported by them. According to the calculation, the participants' mean BMI was 23.61 ($SD = 4$) ($19 =$ underweight, $> 25 =$ overweight, $> 30 =$ obese). The mean BMI of the male participants was 25.6 ($SD = 3.8$), and the mean of the female participants was 21.98 ($SD = 3.4$). From their perspective, if the BMI calculation was made according to their ideal body weight, the BMI scores would be 21.69 ($SD = 2.56$) for all the participants, 23.8 ($SD = 2$) for the males, and 20 ($SD= 1.5$) for the females. Only two of the 138 participants reported having an eating disorder, and one said she had been bulimic in the past but had been treated. 16 participants reported having some type of diagnosed psychiatric disorder. Additionally, 12 participants reported having a type of chronic disease that would not have any effect on their body weight or eating habits.

2.3 Data Collection

The data were collected using three different measures and a demographic form. All the measures were Turkish to eliminate any possible cultural differences that could result in an error. The first given measure was the demographic form. After the participants completed the demographic form, they proceeded to the "Hedonistik Yeme Ölçeği" (Eng: The Hedonistic Eating Scale) [6]. Afterward, the third measure, the "Yeme Farkındalığı Ölçeği" (Eng: The Mindful Eating Questionnaire) was given [7]. In the end, the participants were asked to take the "Kısa Öz-Kontrol Ölçeği" (Eng: The Brief Self-Control Scale) [8].

2.4 Data Analysis Procedures

After the collection of the data via an online survey from the website Qualtrics, the data was transferred to SPSS. The participants who did not meet the criteria were identified and excluded. After that, the scores of the Hedonistic Eating Scale and the Mindful Eating Questionnaire were

combined into a single score called "Hedonistic Eating". To prevent any confusion, the scores of the Brief Self-Control Scale were reversed as mentioned before, and higher scores indicated higher impulsiveness after this reversing process. Also, the BMI scores of the participants were calculated according to their body weights and heights in Excel with the accepted formula for calculating the BMI. In the end, correlational analyses and hierarchical regression were conducted for further interpretation of the data.

2.5 Reliability and Validity

According to the results of the analyses, all three measures were found to be internally consistent. (The Hedonistic Eating Scale =.90, the Mindful Eating Questionnaire =.87, and the Brief Self-Control Scale =.84). The items on the scales were also analyzed for construct validity. For the Brief Self-Control Scale, it was found that the minimum score of an item was Pearson's $r = .332$, and $p = .000$ with the overall scale. For the Hedonistic Eating Scale, the minimum score of an item was found to be $r = .468$ and $p = .000$ for the overall scale. For the Mindful Eating Questionnaire, the overall scores were compared with the Hedonistic Eating Scale's overall scores since there were 7 sub-scales in the Mindful Eating Questionnaire. It was found that Pearson's $r = .604$ and $p = .000$.

2.6 Limitations

One of the limitations of the study was that the sample was collected from the Turkish population. Thus, the study may lack the representativeness of an international population and may be affected by culture. Another limitation that stems from the sample is the age of the participants. We collected the data from participants who were 18 to 35 years old.

In terms of our measures, BMI could be considered superficial, and even though we excluded muscular body types to diminish measurement error in terms of representing body fat correctly, we advocate more valid body fat measurement methods such as the DEXA scan, which is unfortunately, an expensive and hard-to-implement one. Furthermore, we believe that self-control and hedonism are very complex and difficult concepts to define, so measuring and reporting them as numeric data cannot be considered completely accurate, even if the measures used were highly valid.

3. RESULTS AND DISCUSSION

3.1 Descriptive Statistics

The scales are BMI, self-control, and hedonistic eating score (mean of the two scores from the scales "hedonistic eating" and "mindful eating") and are calculated separately for the male and female groups. The higher scores indicate a higher "body weight proportion" in terms of BMI. The higher scores indicate less self-control and more hedonistic eating on the scales of "self-control" and "hedonistic eating". As a result, higher scores on each scale indicate greater impulsiveness and impulsive eating.

3.2 Group Differences

As explained in the previous section, the gender difference between subjects was suspected to have had a significant effect on the results. An independent sample t-test was conducted in order to understand the differences between these two groups. As it is shown in Table 3, the difference between the female group and the male group is significant in terms of BMI ($t(134) = -5.615$, $p = .000$). While there is no significant difference found in terms of self-control and hedonistic eating.

Table 1. Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
BMI (Female)	76	16.50	30.50	21.98	3.36
Self-Control (Female)	76	1.31	4.00	2.64	.61
Hedonism (Female)	76	1.68	3.96	2.88	.56
BMI (Male)	60	19.90	33.60	25.30	3.49
Self-Control (Male)	60	1.77	3.85	2.81	.57
Hedonism (Male)	60	1.81	4.02	2.91	.46
BMI	136	16.50	33.60	23.44	3.78
Hedonism	136	1.68	4.02	2.89	.52
Self-Control	136	1.31	4.00	2.72	.59

Table 2. Paired Sample T-test

	Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
BMI & Desired BMI (Female)	1.98	2.24	.25	7.68	75	.000
BMI & Desired BMI (Male)	1.66	2.16	.27	5.95	59	.000

Table 3. Independent Samples Test Gender & BMI

	F	Sig.	t	df	Sig. (2-tailed)	Lower	Upper
Equal variances assumed	.65	.41	-5.61	134	.000	-4.48	-2.14
Equal variances not assumed			-5.58	124.44	.000	-4.49	-2.14

Table 4. Correlations of BMI& Self-Control& Hedonistic Eating in Female Participants

		BMI (Female)	Hedonism (Female)	Self-Control (Female)
BMI (Female)	Pearson Correlation	1	.427**	.499**
	Sig. (2-tailed)		.000	.000
Hedonism (Female)	Pearson Correlation	.427**	1	.497**
	Sig. (2-tailed)	.000		.000
Self-Control (Female)	Pearson Correlation	.499**	.497**	1
	Sig. (2-tailed)	.000	.000	

Table 5. Correlations of BMI& Self-Control& hedonistic eating in Male Participants

		BMI (Male)	Self-Control (Male)	Hedonism (Male)
BMI (Male)	Pearson Correlation	1	.391**	.753**
	Sig. (2-tailed)		.002	.000
Self-Control (Male)	Pearson Correlation	.391**	1	.555**
	Sig. (2-tailed)	.002		.000
Hedonism (Male)	Pearson Correlation	.753**	.555**	1
	Sig. (2-tailed)	.000	.000	

** Correlation is significant at the 0.01 level (2-tailed).

Table 6. Correlations of BMI&Self-Control&Hedonistic Eating

		BMI	Self-Control	Hedonism
BMI	Pearson Correlation	1	.465**	.513**
	Sig. (2-tailed)		.000	.000
Self-Control	Pearson Correlation	.465**	1	.517**
	Sig. (2-tailed)	.000		.000
Hedonism	Pearson Correlation	.513**	.517**	1
	Sig. (2-tailed)	.000	.000	

** Correlation is significant at the 0.01 level (2-tailed).

Table 7. Regression Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	Change Statistics		
							df1	df2	Sig. F Change
1	.564 ^a	.318	.308	3.15	.318	30.98	2	133	.000

a. Predictors: (Constant), Self-Control, Hedonism

Table 8. Hierarchical Regression

Model R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	Change Statistics		
						df1	df2	Sig. F Change
1	.564 ^a	.318	3.15	.318	30.98	2	133	.000
2	.685 ^b	.470	2.78	.152	37.84	1	132	.000

a. Predictors: (Constant), Self-Control, Hedonism

b. Predictors: (Constant), Self-Control, Hedonism, Gender

3.3 Correlation Analysis

The results showed that there are significant correlations between BMI, self-control, and hedonistic eating for both genders. According to the SPSS results, BMI and self-control are significantly correlated ($r = .499, p .05$ for the female group, whilst $r = .391, p .05$ for the male group). The correlation between BMI and hedonistic eating was significant as well for both groups ($r = .427, p.05$ and $r = .753, p.05$). Finally, self-control and hedonism scores were found to be significantly correlated ($r = .497, p.05$ and $r = .555, p.05$, respectively) (See Table 4 & Table 5.).

If we want to analyze the correlational relationship between the variables without gender differences, the results indicate a significant correlation between the scores as well as the scores where gender differences were not ignored. BMI and self-control were found to be significantly correlated ($r = .410, p = .05$). The relationship between BMI and hedonistic eating was also significant ($r = .493, p = .05$). Finally, there was a significant correlation between hedonistic eating and self-control ($r = .531, p = .05$) (See Table 6).

3.4 Regression Analysis

When a multiple regression analysis was conducted, hedonistic eating and self-control scores predicted BMI scores significantly, $F(2,133) = 30.98, p = .000$. The $R^2 = .318$ and $Adjusted R^2 = .309$ a medium-size effect reported by the model. (See Table 7).

A 2-stage hierarchical multiple regression was conducted to analyze the effect of gender. Hedonistic eating and self-control were entered as stage one variables, and gender was entered as a stage two variable. Self-control and hedonistic eating were found to significantly predict BMI ($F(2,133) = 30.983, p = .000$) and account for 31.8 percent of the variation. Adding gender to the model explained an additional 15.2

percent of the variation in BMI, and this difference was found to be significant ($F(1,132) = 37.847, p = .000$). (See Table 8).

3.5 Discussion of Findings for Research Question

3.5.1 Findings on correlational relationships between BMI, hedonistic eating and Self-control BMI and hedonistic eating

For the entire sample, the results show that BMI and hedonistic eating are moderately correlated ($r = .493, p = .001$). If we want to focus only on one gender, the male participants' results showed us there is a strong correlation between BMI and hedonistic eating ($r = .753, p = .000$); on the other hand, the female participants' scores indicate a weaker correlation in comparison ($r = .427, p = .000$). These findings suggest that males who engage in hedonistic eating tend to have a higher BMI within their gender group when compared to females. At the same time, it was found that this was a two-way relationship, and having a higher BMI would increase engagement in hedonistic eating.

At first glance, this two-way relationship may appear to be deceptive, because one may wonder, "Is it expected for people who engage in hedonistic eating to have higher body mass; however, is this a two-way relationship?" How do higher BMI scores increase engagement in hedonistic eating? "The very first reason for the existence of a two-way relationship between BMI and hedonistic eating can be easily explained by the reward-punishment mechanism in the brain (dopaminergic pathway). An individual who perceives food as a reward or relaxant, consciously or unconsciously, gets dopamine released every single time he/she engages in this eating activity [9]. As a result, the more he/she eats for pleasure, the more predisposed the person gets to repeat this action due to the dopamine release in the reward circuit in the brain, which results in gaining weight due to the

increased amount of energy intake. If an individual tries to diminish this pleasurable activity, it is highly expected to feel depressed, stressed, and aggressive, no different than any other withdrawal symptom. This is because any substance affecting the dopaminergic pathway has the capability of creating addiction, whether it be an illicit drug such as cocaine or heroin, or a biological act such as sex, or food [10].

As it seems, the mechanism is highly similar to drug addiction, which causes similar chemical reactions in the dopaminergic pathways. It was found that obesity and drug use are two of the most worrisome issues among adolescents. Both illnesses are common in this population, and they are frequently comorbid [11].

“Recent work on food use disorders has demonstrated that the same neurobiological pathways that are implicated in drug abuse also modulate food consumption and that the body’s regulation of food intake involves a complex set of peripheral and central signaling networks. Moreover, new research indicates that rats can become addicted to certain foods and that men and women may respond differently to external food cues.”

In light of these suggestions, we can understand the correlational relationship between weight and hedonistic eating, which causes a hard-to-break cycle for many individuals, even though we cannot be sure where this cycle begins exactly. Another possible factor that may be playing a crucial role in the occurrence of this vicious cycle could be insulin. Insulin is a peptide hormone, and it plays a role in the metabolism of macronutrients such as carbohydrates and fats by decreasing the levels of glucose in the blood [12]. Consumption of nutrients with a high-glycemic index causes more insulin spikes in the blood when compared to a low-glycemic index, which may result in the occurrence of insulin resistance in the body in time [13]. So, an individual who consumes high-glycemic index foods such as refined sugars is more predisposed to having high insulin resistance when compared to an individual who prefers low-glycemic foods such as fiber. When the neuropsychological approach and the biochemical approach are taken into consideration together, the correlation between BMI and hedonistic eating appears clear-cut.

BMI and self-control:

The results indicate that BMI and self-control are low-to-moderately correlated ($r=.410, p=.001$) for

the whole sample. If we only focus on one gender, the male participants’ results showed us there is a lower correlation when compared to the whole sample in terms of the strength of this relationship between BMI and self-control ($r=.391, p=.000$); on the other hand, the female participants’ scores indicate a stronger correlation in comparison ($r=.498, p=.000$). This two-way relationship between BMI and self-control could be attributed to the same mechanisms of insulin and dopamine. It is also known that less self-control means more impulsivity in many domains of life which results in higher engagement in pleasurable activities such as drug abuse, risky actions, and unhealthy eating patterns [14,15]. Individuals with less self-control tend to eat on impulse and gain weight. As explained in the introduction chapter of this thesis, this impulsivity is suspected to be one of the major traits of binge-eating disorder. Individuals who engage in binge eating tend to feel guilt, shame, and weakness; thus, they get depressed, and in time they may be susceptible to developing bulimia nervosa by thinking they would prevent any excessive weight gain through vomiting, diuretics, and excess exercise.

Hedonistic eating and self-control:

It is found in the correlational analysis that self-control and hedonistic eating are moderately correlated ($r=.531, p=.001$) for the whole sample, and the R-values of the gender groups are very close to each other, which suggests that there is no specific gender difference in terms of the correlational relationship between hedonistic eating and self-control. (Females: $r=.497, p=.000$; Males: $r=.531, p=.000$.)

The correlational relationship between hedonistic eating and self-control was highly expected and was hypothesized in this thesis. As explained in the introduction chapter, an individual with low self-control is expected to be more impulsive, which raises the stakes of hedonistic activities. At the same time, a more hedonistic individual would have more difficulty controlling himself/herself in pleasurable situations than a person with lower hedonistic tendencies.

There are important questions that arise from the findings. Some should be asking: “What is the role of impulsiveness in self-control and hedonism?” Is there any kind of directional relationship among these variables rather than a

correlational one? Is impulsiveness the root cause of both low self-control and hedonism, or, alternatively, do low self-control and hedonism lead to impulsiveness?" In a comprehensive study in China, it was shown that self-control mediated the relationship between personality traits (the big five personality traits) and impulsivity [16]. The researchers report (2018: 70).

"Correlation results demonstrated that openness, conscientiousness, extraversion, and agreeableness were all negatively correlated with impulsivity and positively correlated with self-control; neuroticism was positively correlated with impulsivity and negatively correlated with self-control. Furthermore, mediational analyses showed that three factors of the big five personality traits (openness, conscientiousness, and neuroticism) exerted their indirect effects on impulsivity through self-control, and the mediating effect accounted for 29.54%, 40.00%, and 55.77% of the total effect, respectively. These findings suggest that self-control might be one mechanism explaining how individuals' personality traits (openness, conscientiousness, and neuroticism) influence their impulsivity."

Self-control and hedonistic eating as predictors of BMI:

This study hypothesized that individuals who were predisposed to or embraced a hedonistic lifestyle would engage in hedonistic eating; at the same time, these individuals were thought to have lower self-control. Thus, these individuals were expected to have a higher body mass index.

According to the results of the study, self-control, and hedonistic eating significantly predict body mass index. As it is mentioned, self-control and hedonistic eating were correlated, and lower self-control with higher hedonistic eating can be considered very important among other personal features of individuals with high body mass indexes.

Additionally, we mentioned that gender difference is the most important variable due to our dependent variable, "Body Mass Index." As was explained before in the thesis, BMI scores differ drastically between males and females due to genetics and hormonal differences. As a result, rather than investigating the results, we separated males and females. As a result, we conducted a hierarchical regression to see how

gender affects the prediction. According to our findings, gender has a significant effect on predicting the outcome of the BMI score. A 15.2 percent change in BMI was attributed to gender differences. Through these findings, we reject the null hypothesis, which suggests that self-control and hedonistic eating do not predict body mass index.

4. CONCLUSION

The purpose of this study was to understand how and how much individuals' eating behaviors are affected by their life perception and their degree of self-control. The hypothesis was that people with a more hedonistic lifestyle and lower self-control are expected to have higher body mass. To test this hypothesis, we collected data from a Turkish sample via an online survey, which was composed of three individual measures and a demographic form. According to the results, all three variables (low self-control, high hedonistic eating, and high body mass index) are significantly and positively correlated. Additionally, it was seen that the strength of these variables differed with gender, even though not drastically. Also, it was found that monthly income may be another variable that may play an important role in body mass index.

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COMPETING INTERESTS

Author has declared that no competing interests exist.

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