

The Relationship between Caffeine Consumption Status and Happiness Levels of Students in the Faculty of Sports Sciences

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Received: March 20, 2022 Accepted: April 24, 2022 Published: May 9, 2022

doi:10.5296/jei.v8i1.19657 URL: <https://doi.org/10.5296/jei.v8i1.19657>

Abstract

This study aimed to examine the relationship between the caffeine consumption status of students in sports sciences and their happiness levels. The study was quantitative and was conducted with the participation of 228 volunteer students studying in sports sciences from various universities (Artvin Coruh, Trabzon, Bayburt, Iğdır, Ağrı İbrahim Çeçen, Gazi, Atatürk). The Oxford Happiness Scale (OHS) developed by (Hills & Argyle, 2002) and this questionnaire were used to collect the data. Statistical analysis of the data was performed with independent groups T-test, one-way analysis of variance (ANOVA) and Pearson correlation analysis. As a result of the analysis, while a positive and low-level significant relationship was found between the students' happiness scores and the age variable ($p < .05$); no significant difference was found in the variables of gender, body mass index (BMI), department of education ($p > .05$). When looking at the variable of doing sports, statistically significant differences were found, and it was concluded that the mean score of those who did sports as licensed-national was significantly higher than the mean score of those who did sports as hobbyists and amateurs ($p < .05$). Again, a statistically significant difference was found in happiness scores according to chronic disease states; ($p < .05$) no difference was found according to smoking status ($p > .05$). At the same time, a statistically positive and low-level significant relationship was found between happiness scores and the amount of

coffee consumed daily ($p < .05$); No statistically significant relationship was found between happiness and the amount of black tea and chocolate consumed daily ($p > .05$).

Keywords: Nutrition, Caffeine, Happiness level, Student

1. Introduction

1) Every living being needs a healthy diet to perform its vital functions. Nutrition includes concepts such as growth, development, health protection, disease prevention and physical activity in a descriptive way (Güneş, 2009). A balanced, adequate, and regular intake of nutrients is a healthy diet met by a correct eating habit.

A correct eating habit is important for physical health and mental health (Azizi & Asadollahi, 2015). Especially in university youth, there are problems with financial possibilities, housing problems, harmful habits, etc. situations are an obstacle to healthy eating, and this leads to problems such as loss of motivation, failure, health problems and most important unhappiness in young people. At the same time, unconscious unhealthy eating, intense fast-food consumption, frozen ready-made foods lead them to unhealthy eating and further increase their health problems. This period is a process that will guide their lives and affect them psychologically, physically and socially. Even the slightest change in the nutrition routine affects the individual (Owen, 2017).

Especially because some nutrients secrete more happiness hormones than others, their consumption increases every day. Among these foods, the relationship with the increase in the use of foods containing caffeine has been wondered. Among the foods containing caffeine, coffee, tea, chocolate, etc., are used among the most daily foods. The contribution of products to happiness is wondered. Caffeine, a substance found in the seeds and leaves of many plants in nature, is also used as a nutritional supplement, especially for athletes. Because many studies have shown that caffeine increases both endurance and high-intensity exercise performance (Graham, 2001). The caffeine content in foods varies according to the type, amount and even the way of preparation of the food or beverage consumed, and the consumption also varies depending on the age, gender, weight, eating habits and climatic factors of the person consuming it.

The concepts of nutrition and happiness of students in sports sciences are very important for both physical and mental performance. In addition to being mentally well, happiness is also very important for athletes to achieve the success of the product they take in nutrition (Kırkbir, 2020). Happiness is a concept that reflects the positive emotional states of individuals and includes concepts such as satisfaction, life satisfaction, positive emotions and having meaning in life. Although the concept of happiness, which is considered as “subjective well-being” in the psychology literature, is a concept that people constantly strive to achieve and is defined as the subjective enjoyment of life; it has become a necessity for societies, especially with modernization (Myers & Deiner, 1995).

While happiness protects people from diseases, unhappiness is a serious disease. In other words, unhappiness has powerful effects on public. In terms of both public health and life satisfaction, individuals seek happiness in different activities. Although sports and artistic

activities come first among these activities, nutritional activities are also considered in this context. When evaluated in this context, this study aimed to examine the relationship between caffeine consumption and the happiness levels of students in sports sciences.

2. Method

2.1 Research Group

The study was quantitative research and conducted with the participation of 228 volunteer students studying in sports sciences from several universities (Artvin Çoruh University, Trabzon University, Bayburt University, Iğdır University, Ağrı İbrahim Çeçen University, Gazi University, Atatürk University). The study was decided unanimously by the members of the ethics committee of Artvin Çoruh University Scientific Research and Publication Ethics Committee that there were no ethical and scientific drawbacks to the study and it was found appropriate (Decision no: E-18457941-050.99-38088).

2.2 Data Collection Tools

In the study, a questionnaire was applied to the students. After the questionnaire form was arranged on google-form, the research was announced via social media and it was performed with remote voluntary participation. The questionnaire consisted of 43 questions in total, 11 questions about demographic characteristics, 3 questions about caffeine consumption, and 29 questions about 'Oxford Happiness Scale (OHS)'. OHS was developed by Hills and Argyle (2002) and was a 6-point Likert type scale (1-I totally disagree, 6-I totally agree). Hills and Argyle reported the scale's internal consistency coefficient (Cronbach's alpha) as 0.91. Besides, in a study conducted by Doğan and Sapmaz (2012) with university students, it was concluded that the Turkish version of OHS has a single-factor structure and that this form can be used as a valid and reliable measurement tool in evaluating happiness in university students, and the Cronbach alpha coefficient of the scale was determined as 0.91. In this study, the Cronbach alpha coefficient was determined as 0.91.

2.3 Data Analysis

The data obtained from the students were transferred to the SPSS program by making statistical coding. First of all, it was checked whether there were missing or incorrect values of the data. After the control, no missing or incorrect data was found. Descriptive statistics were applied to the data and the normality test was performed to decide on the analyzes to be made. In the normality test, the skewness and kurtosis values of the data were taken into account. It has been determined that the values obtained here were in the range of -2 ... +2. These values, on the other hand, were accepted as suitable for normal distribution (George & Mallery, 2001). Therefore, independent groups t-test, one-way analysis of variance (ANOVA) and Pearson correlation analyzes were used.

3. Results

Table 1. Descriptive statistics results for students

Gender	n	%	\bar{X}_{age}
Female	92	40.4	
Male	136	59.6	
Department of Education	n	%	22.44±5. 29
Physical Education and Sports Teaching	101	44.3	
Coaching Education	65	28.5	
Department of Sports Management	48	21.1	
Recreation	14	6.1	
Body Mass Index (BMI)	n	%	
Under-weight	21	9.2	
Normal	166	72.8	
Over-weight	41	18.0	
Chronic Disease	n	%	
Yes	16	7.0	
No	212	93.0	
Smoking	n	%	
Yes	51	22.4	
No	177	77.6	
Dealing with Sports Branch	n	%	
Yes (as hobby-amateur)	138	60.5	
Yes (Licensed-national athlete)	52	22.8	
No	38	16.7	
Total	228	100.0	

According to Table 1, 40.4% (n = 92) of the students were female; 59.6% (n = 136) of them were male; 44.3% (n = 101) of them studied in physical education and sports teaching, 28.5% (n = 65) coaching education, 21.1% (n = 65) of them were in the department of sports management, 6.1% (n = 14) of them studied in the recreation department; 9.2% (n = 21) of

the students were underweight, 72.8% (n = 166) were normal, and 18.0% (n = 41) were overweight. 7.0% (n = 16) of the students had a chronic disease, whereas 93.0% (n=212) had no chronic disease. It was determined that 22.4% (n = 51) smoked and 77.6% (n = 177) did not smoke. In terms of dealing with sports branches, it was determined that 60.5% (n = 138) were hobby-amateur, 22.8% (n = 52) were licensed-national, and 16.7% (n = 38) were not involved in sports. Finally, it was determined that the mean age of the students was 22.44 ± 5.29 .

Table 2. Coffee, black tea and chocolate consumption status of students

Daily Consumed Coffee	n	%
Non-consumers	89	39.0
1 glass	80	35.1
2 glasses	36	15.8
3 glasses	9	3.9
4 glasses and more	14	6.1
Daily Consumption of Black Tea	n	%
Non-consumers	26	11.4
1 glass	50	21.9
2 glasses	49	21.5
3 glasses	45	19.7
4 glasses and more	58	25.4
Daily Consumed Chocolate	n	%
Non-consumers	53	23.2
1-30 gr	88	38.6
31-50 gr	55	24.1
51-70 gr	19	8.3
71 gr and more	13	5.7
Total	228	100.0

According to Table 2, when the amount of coffee consumed by the students was examined, it was found that 39.0% (n = 89) never consume coffee, 35.1% (n = 80) had 1 glass, 15.8% (n = 36) had 2 glasses, 3.9% (n = 9) of them consumed 3 glasses of coffee, 6.1% (n = 14) of them consumed 4 glasses or more. When the amount of black tea consumed daily was examined,

11.4% (n = 26) never consumed black tea, 21.9% (n = 50) had 1 glass, 21.5% (n = 49) had 2 glasses, 19.7% (n = 45) consumed 3 glasses of black tea, 25.4% (n = 58) consumed 4 glasses or more. Moreover, when the amount of chocolate consumed daily was examined, 23.2% (n = 53) never consumed chocolate, 38.6% (n = 88) consumed 1-30 gr, 24.1% (n = 55) consumed 31-50 gr, 8.3% (n = 19) consumed 51-70 gr, 5.7% (n = 13) consumed 71 g or more chocolate.

Table 3. The results of the relationship between the students' happiness scores and their ages

		Happiness
Age	r	.19
	p	.01

Note. * $p < 0.05$.

In Table 3, a statistically positive and low-level significant relationship was found between the students' happiness scores and their ages ($p < .05$).

Table 4. Comparison results of students' happiness scores by gender

	Gender	n	\bar{X}	sd	t	p
Happiness	Female	92	96.13	17.21	.60	.55
	Male	136	94.69	17.96		

Note. * $p < 0.05$.

In Table 4, no statistically significant difference was found in the happiness scores of students according to gender ($p > .05$).

Table 5. Comparison results of students' happiness scores according to their departments

	Department	n	\bar{X}	ss	F	p
Happiness	Physical Education and Sports Teaching	101	96.07	16.89	.71	.55
	Coaching Education	65	92.78	16.87		
	Department of Sports Management	48	95.94	21.28		
	Recreation	14	98.79	12.15		

Note. * $p < 0.05$.

In Table 5, no statistically significant differences were found in the happiness scores of the students according to their departments ($p > .05$).

Table 6. Comparison results of students' happiness scores according to their BMI status

	BMI	n	\bar{X}	sd	F	p	Difference
Happiness	Under-weight	21	97.81	20.92	.29	.75	-
	Normal	166	95.21	17.71			
	Over-weight	41	94.22	15.77			

Note. * $p < 0.05$.

In Table 6, no statistically significant differences were found in the happiness scores of the students according to their BMI ($p > .05$).

Table 7. Comparison results of students' happiness scores according to their sport status

	Sport status	n	\bar{X}	sd	F	p	Difference
Happiness	Yes (as hobby-amateur) ^a	138	93.94	17.54	6.16	.01	b > a.c
	Yes (Licensed-national athlete) ^b	52	102.29	15.34			
	No ^c	38	90.50	18.61			

Note. * $p < 0.05$.

In Table 7, statistically significant differences were found in the happiness scores of the students according to their sports status ($p < .05$). According to the Post Hoc (SCHEFFE) results performed to determine the source of the difference, it was determined that the mean score of those who did sports as a licensed-national was significantly higher than the mean score of those who did sports as a hobby-amateur and those who did not.

Table 8. Comparison results of students' happiness scores according to the amount of Daily consumed chocolate

	Daily consumed chocolate	n	\bar{X}	sd	F	p	Difference
Happiness	Non-consumer	53	95.87	19.54	.19	.94	-
	1-30 gr	88	94.60	16.38			
	31-50 gr	55	95.87	15.75			
	51-70 gr	19	96.95	20.31			
	71 gr and more	13	92.38	23.03			

Note. * $p < 0.05$.

In Table 8, no statistically significant differences were found in the happiness scores of students according to the amount of daily consumed chocolate ($p > .05$).

Table 9. The results of the relationship between students' happiness scores and daily consumed coffee and black tea

		Daily consumed coffee	Daily consumed black tea
Happiness	r	.21	-.02
	p	.01**	.74

Note. * $p < 0.05$.

In Table 9, statistically positive and low-level significant relationships were found between students' happiness scores and the amount of daily consumed coffee ($p < .05$). Moreover, no statistically significant relationship was found between happiness and the amount of black tea consumed daily ($p > .05$).

Table 10. Comparison results of students' happiness scores according to chronic disease status and smoking status

	Chronic disease	n	\bar{X}	sd	t	p
Happiness	Yes	16	86.81	22.27	-2.00	.04
	No	212	95.91	17.13		
	Smoking status	n	\bar{X}	sd	t	p
Happiness	Yes	51	96.35	20.48	.44	.66
	No	177	94.96	16.78		

Note. * $p < 0.05$.

In Table 10, a statistically significant difference was found in the happiness scores of the students according to their chronic disease status; ($p < .05$) no statistically significant difference was found according to smoking status ($p > .05$).

4. Discussion

Correct, regular and healthy nutrition generally makes people happy. Considering this relationship, the concepts of nutrition and happiness are very important, especially for students studying in sports sciences. Since these two concepts play a key role in increasing both physical and mental performance and are on the way to success (Kırkbir, 2020). When the literature was examined, there were studies on the effects of happiness and eating habits (Hastaoğlu, 2021; Kuyumcu et al., 2020) on happiness and different variables (Kırık et al., 2017), caffeine and obesity (Macit et al., 2020), caffeine intake and its effects in athletes (Kara et al., 2019). However, there was no previous study on the relationship between caffeine consumption and happiness. At the same time, it was important that the evaluation of the study group according to those who did and did not do sports in sports sciences was a first in the literature. When evaluated in this context, this study aimed to examine the relationship between the caffeine consumption status of students in sports sciences and their happiness levels.

When we look at the relationship between happiness scores and some demographic variables in our study; While a positive low-level significant relationship was found between students' happiness and age ($p < .05$); no significant difference was found in the variables of gender, body mass index (BMI), education department ($p > .05$). Similarly, Akyüz et al. (2017) did not find a statistically significant relationship in the age variable in their study, in which they examined the relationship between university students' quality of life and happiness levels. Göktepe (2020) found statistical differences in age groups in the study titled "Evaluation of caffeine consumption time and amount in adults doing fitness". This difference was thought to be due to the sample group. Tot Acar et al. (2011) conducted with healthy individuals, it was determined that daily caffeine consumption increased as age increased, and the total

amount of caffeine consumed was 288,8 mg/day among males and 214,7 mg/day in females.

When the happiness scores were evaluated according to the gender variable; Parallel to the study, in the study conducted by Can and Cantez (2018), it was stated that gender did not have a significant effect on happiness. When Akyüz et al. (2017) also examined the quality of life sub-factors and mean happiness score in terms of gender, no statistically significant difference was found. Göktepe (2020) also found no difference in the gender variable in her study. In the study of Kahveci et al. (2020) in which they determined the relationship between aggression and happiness of taekwondo players, the happiness scale scores according to the gender variable were not found significant. Again in parallel with the study, in a study examining the relationship between body mass index and mood of individuals, it was found that body mass index did not affect mood (van Wijk, 2011). Göktepe (2020) also found no difference in the BMI variable in her study. However, in the study of Kuyumcu and Yıldız (2020), it was reported that as the body mass index increased, happiness also increased in young people.

When the happiness scores of the students according to the variable of doing sports were examined; Statistically significant differences were detected, and it was concluded that the mean score of those who did sports as a licensed-national was significantly higher than the mean score of those who did sports as hobbyists and amateurs ($p < .05$). In parallel with the study, when the results of the happiness scale were examined in terms of the purpose of doing sports in the study of Kahveci et al. (2020); a significant difference was found. Similarly, in the literature, it was stated that doing sports triggers the secretion of the hormone serotonin and ultimately had an increasing effect on the level of happiness (Kiyani et al., 2011; Mohammadi et al., 2015). However, contrary to these results, it was reported in the literature that happiness did not change according to the purpose of doing sports (Doğan et al., 2018). Again, a statistically significant difference was found in happiness scores according to chronic disease states; ($p < .05$) no difference was found according to smoking status ($p > .05$). Göktepe (2020) found in her study that according to the smoking and alcohol use habits of the participants, the smoking group consumed statistically more caffeine than the group who had never smoked or quit before.

In the study, statistically positive and low-level significant relationships were found between happiness scores and the amount of daily consumed coffee ($p < .05$); No statistically significant relationship was found between happiness and the amount of daily consumed black tea and the amount of daily consumed chocolate ($p > .05$). When coffee consumption habits were examined according to occupational groups, it was seen that the segment that consumes brand coffee the most was students (66.2%), while those who consume the least were the shopkeepers (40%) (Akşit Aşık, 2017). In a study conducted with individuals who applied for health check-ups in Australia ($n = 5147$), the mean caffeine consumption was found to be 240 mg/day (Shirlow et al., 2008). It was also stated that 54% of the world's caffeine consumption comes from coffee, 43% from tea and 3% from other sources (Shirlow & Mathers, 1985). Contrary to what was commonly known, Kuyumcu and Yıldız (2020) did not find a statistically positive relationship between dark chocolate and the happiness of young people in their study. Similarly, another study found that dark chocolate did not affect

mood levels differently (Macht, 2006). In a study conducted by Çağındı (2009), it was stated that all types of chocolate were liked, and among the chocolate varieties, dark chocolate with oat/rice flakes and dark chocolate with plums were the most popular. In a survey study conducted by Sayılı and Gözener (2013) with 220 families residing in the district of Trabzon, it was determined that tea was consumed on-demand with 43.18%, frequently during the day with 42.73%, once in a day with 10.00% and once a day with 4.09%.

As a result, there is a significant relationship between planning scores and the amount of coffee consumed; no correlation was observed between black tea and chocolate consumption and happiness. When evaluated in this context, a different study can be conducted in which tea and chocolate varieties are considered. At the same time, the study should be applied in different departments and informative seminars on healthy nutrition should be organized.

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