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Body Appreciation and Attitudes Towards Healthy Nutrition as a Predictor of Adolescent Athletes' Motivation to Participate in Physical Activities

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Abstract

Background: The opportunities and conveniences brought by the developing technology greatly reduce the workload of individuals. The restrictions occurring from the Covid pandemic also allow us to easily do all our work from home over the internet. However, this situation has caused a serious decrease in the physical activity rate of individuals. The decrease in physical activity increases the tendency for eating easily accessible and unhealthy foods, leading to a move away from healthy nutrition habits. Unhealthy nutrition, on the other hand, causes negative situations in our body, both physically and physiologically. The aim of this study is to examine whether the motivation of adolescent athletes to participate in physical activity is related to and predicted by the variables of body appreciation and attitude towards healthy nutrition.

Methods: This research is a relational study aiming to determine whether body appreciation and attitude levels towards healthy nutrition predict the adolescents' motivations for participating in physical activities. A total of 335 athletes, 104 (31%) girls and 231 (69%) boys, playing basketball in Istanbul and Mersin in 2021-2022, voluntarily participated in the study. They were between the ages of 12-17. Attitude Scale for Healthy nutrition, Body appreciation Scale and the Motivation Scale for Participation in Physical Activity were used for data collection. Stepwise multiple linear regression was used in data analysis.

Results: It was revealed that the variables of body appreciation and attitude towards healthy nutrition have significant roles in predicting the motivation of adolescent athletes for participating in physical activities. The variable of Attitude for Healthy nutrition, included in the model in the first stage, explained 16% of the total variance. In the second stage, when the body appreciation variable was added to the model, the explained variance increased to 18%. The regression coefficients manifested that these two variables are positively correlated with motivation to participate in physical activities. Thus, the two-stage model predicted 18% of the total variance.

Conclusion: Both physical characteristics and attitudes towards healthy nutrition are effective in the motivation of adolescent athletes to participate in physical activities.

Key Words: Body appreciation, Healthy nutrition, Participation in physical activity.

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1- INTRODUCTION

Today, with the advancement of technology, machines are gradually replacing individuals; and spend less time doing physical work. In addition to technology, people are led a sedentary life at home due to the Covid pandemic. This sedentary lifestyle causes problems such as depression and anxiety in adolescents as well as in all individuals. The inactive lifestyle can be compensated by doing physical activities. Studies show that physical and sportive activities have positive effects on physical and mental health. Participation in exercise and sportive activities, in addition to being physically healthy, helps to cope with stress, get rid of depression and anxiety, and lead a healthier and higher quality life (1). For this reason, the individual needs to do physical activity in order to adapt to the competitive environments and the advancing technological life, to increase the quality of life, and to cope with stress and depression. Physical activity is defined as the expenditure of energy that occurs when the body takes some action through the muscles in the skeleton (2). The World Health Organization defines physical activity as "any bodily movement produced by skeletal muscles that requires energy expenditure" (3).

Motivation to participate in physical activities has a leading role. Motivation is the power that activates the individual in line with his goals or objectives, and directs him/her to achieve the purpose or goal in the process of taking action (4). While sports have an important place in the lives of some people, the others are inactive or mere spectators (5). Motivation is an important factor in this regard. It affects people's participation in sports, their continued participation and termination of participation in sports.

One of the factors motivating individuals to participate in physical activities can be the importance they give to their appearance. Rapid physical and physiological changes in adolescence cause great differences in body structure (6). One of the important problems they have to deal with is the adaptation to this rapid change of the body. For this reason, appearance and body appreciation are important for individuals in adolescence.

Body image is a multidimensional construct that includes self-perceptions and attitudes (i.e., thoughts, feelings and behaviors), regarding one's own body, especially physical appearance (7). Body appreciation is defined as having positive opinions about one's body regardless of its actual physical appearance, accepting it despite body weight, body shape and flaws, respecting the body by considering the needs of the body and engaging in healthy behaviors, and protecting it by rejecting unrealistic body images in the media (8). In other words, appreciating the body includes a cognitive process that aims to develop and maintain a positive view of the body beyond appreciating the body (8).

In recent years, it has been observed that the attitude of the person towards his/her physical self is associated with the extent to which the society complies with the ideal beauty and attractiveness criteria, and being overweight and obese causes body dissatisfaction (8). Body dissatisfaction has many causes such as media, cultural, and ethnic reasons along with the person's socioeconomic level (9, 10). Since the media emphasize that being attractive for women is possible with weakness, they can cause body dissatisfaction in individuals (11). This situation creates pressure especially on women and forces them to be thinner. It is noteworthy that especially in adolescents, body appreciation is associated with being thin rather than having a fit body. Adolescence is the critical period in the improvement of health behaviors for both psychological and physiological reasons. Physical activity has a positive effect on the development and growth of adolescents. Studies show that motivated and engaged

adolescents can improve their health behaviors (12).

It is important to give adolescents healthy nutrition and lifestyle habits and to raise their awareness in these respects. For this, the steps to be taken in terms of the prevention of adult diseases are important. In order to ensure rapid growth and development in this age group where physical growth and development accelerate, the energy and nutrient needs of children must be met in an adequate and balanced manner. Nutrition of the adolescent athlete affects his/her health, body weight, and recovery time and exercise performance. Athletes who want to maximize their exercise performance should pay attention to a healthy nutrition plan. For an athlete to perform at a high level, his/her body systems must be working at their best. This requires a healthy diet depending on age, gender, type of sport and environmental conditions. Adequate consumption of various nutrients such as carbohydrates, proteins, fats, vitamins and minerals is necessary for a healthy diet. For athletes, success results from a complete balance between the right nutrition and the right training level (13).

The scientific evidence available for adolescents supports the overall conclusion that physical activity provides essential health benefits. Documented health benefits include increased physical fitness, reduced body fat, favorable cardiovascular and metabolic disease risk profiles, improved bone health, and reduced symptoms of depression (3). It is very important for individuals to acquire physical activity habits during childhood and adolescence for a healthy and prosperous life. In addition, it has been observed that physical activity is good for mental health, increases cognitive activity and reduces depression.

Considering this situation, the aim of this study is to examine whether the motivation to participate in physical activity in adolescents is related to body appreciation and attitudes towards healthy nutrition, and whether it is predicted by these variables. Individuals with a positive attitude towards healthy nutrition are expected to have a high motivation to participate in physical activity. For this reason, this study is important in terms of revealing physical activity participation rates related to body appreciation and healthy nutrition, which are important today. In this sense, it is expected that the study will make an important contribution to the literature.

2- METHOD

This research is a relational study aiming to determine whether body appreciation and attitude levels towards healthy nutrition predict the adolescents' motivations for participating in physical activities. In relational research studies, cause and effect relationships cannot be established due to their nature, and modification or control cannot be made or partially conducted due to practical reasons (14).

2-1. Sample/Study Group

A total of 335 athletes, 104 (31%) girls and 231 (69%) boys, playing basketball in Istanbul and Mersin in 2021-2022, participated voluntarily. Athletes were between the ages of 12-17. Their sport experience varied between 2 and 4 years. They were training for 90 minutes, 5 days a week.

2-2. Data Collection Tools

Three different measurement tools and a Personal Information Form prepared by the researchers were used to collect the research data. Permission was obtained from the people who developed the measurement tools for the use of the scales. Descriptive information about measurement tools is presented below.

2-3. Motivation Scale for Participation in Physical Activity (MSPPA)

The scale developed by Demir and Cicioglu (4) consists of 16 items and three

dimensions. Items 1, 2, 3, 4, 5, 6 are related to the Individual Causes, items 7, 8, 9, 10, 11, 12 to the Environmental Causes, and items 13, 14, 15, 16 deal with the dimension of causelessness. Items 3, 9, 13, 14, 15, 16 are inversely scored. A total score of 1-16 indicates very low motivation, 17-32 low, 33-48 medium, 49-64 high, and 65-80 very high motivation to participate in physical activities. The Cronbach Alpha value measured for the whole scale was found to be .89. In our study, the internal consistency coefficient was calculated as .84.

2-4. Body Appreciation Scale

It was developed by Avolos et al. (8) in 2005 to determine the body appreciation level of individuals. The adaptation of the scale to Turkish culture was done in 2016 by Bakalım and Tasdelen Karckay (15). The scale consists of nine 5-point Likert type items. According to the results of the confirmatory factor analysis, the scale has two factors of General Body Appreciation (Items 1,2,3,4,5,8 and 9) and Body Image Investment (Items 6 and 7). High scores reflect high body appreciation. There is no reverse scored item in the scale. The internal consistency coefficient of the scale was calculated as .92. In our study, the internal consistency coefficient was calculated as .84. The scale used in our study was developed for university students. For this reason, Confirmatory Factor Analysis (CFA) was applied to check whether the scale provides model-data fit in adolescents. When the fit indices were checked, it was determined that the model was matched with the data. Therefore, the scale was confirmed to be appropriate for being used for adolescent individuals (NFI=0.93, RMSEA=0.10, CFI=0.94, GFI=0.90, AGFI=0.86 ve SRMR=0.05).

2-5. Attitude Scale for Healthy Nutrition

The Attitude Scale Healthy Nutrition was developed in 2019 by Tekkursun Demir and Cicioglu (4). The scale consists of 21 Likert items and 4 sub-dimensions. Higher total scores of the scale indicate more positive attitudes of the participants towards healthy nutrition. The 6th, 7th, 8th, 9th, 10th, 11th, 17th, 18th, 19th, 20th and 21st items of the scale are reversely scored. The subscales include Information on Nutrition (items 1,2,3,4,5), Emotion for Nutrition (items 6,7,8,9,10,11), Positive Nutrition (number 12,13,14,15,16) items), and Malnutrition (items 17,18,19,20,21). Its internal consistency was found to be .90 for Information on Nutrition factor, .84 for Emotion for Nutrition factor, .75 for Positive Nutrition factor and .83 for Malnutrition factor. In our study, the internal consistency coefficient was calculated as .85. The scale used in our study was developed for university students. For this reason, Confirmatory Factor Analysis (CFA) was applied to check whether the scale provides model-data fit in adolescents. When the fit indices were checked, it was determined that the model was matched with the data. Therefore, the scale can be used in adolescent individuals (NFI=0.89, RMSEA=0.08, CFI=0.90, GFI=0.89, AGFI=0.85 ve SRMR=0.09)

2-6. Analysis of data

Before the analysis, missing and extreme data were examined to determine whether there were incorrect data entries in the data set. It was found that there was no missing or empty data in the data set. With the help of Mahalanobis distance values, it was evaluated whether the extreme values and normality assumption in the data set were met and 4 extreme values were removed from the data set. When the kurtosis and skewness coefficients were examined, it was seen that the coefficients of the variables were between +1 and -1. Thus, it was concluded that the variables met the assumption required for normal distribution (16).

After the preliminary analyses, Confirmatory factor analysis was applied to check whether the Attitude Scale Healthy Nutrition scale and Body appreciation scale

developed for university students also provided model-data fit among adolescents. When the fit indices were examined, it was determined that the model fitted the data at a good level.

Stepwise multiple linear regression analysis was used to determine whether the variables of Body appreciation and Attitude towards Healthy nutrition predicted Motivation to Participate in Physical Activity. To check the assumptions of the regression analysis, the multicollinearity among the variables and the equal distribution of the normality, linearity and error variances of the autocorrelation problem were examined (17, 18). Whether the dependent variable is linear or not was examined by means of scatter plots and the linearity assumption was met. The relationship between the variables was considered for the Pearson correlation and the multicollinearity assumption, and the values obtained were lower than the level of 0.80, which is an indicator of multicollinearity (17). Within the scope of regression analysis, multicollinearity was also examined by looking at variance inflation factor (VIF) and Tolerance (TOL) values. After testing the assumptions, it was decided that the data set was suitable for regression analysis.

3- RESULTS

Pearson Product-Moment Correlation values were calculated to examine the relationship between the motivation of adolescent athletes to participate in physical activity and their attitudes towards body appreciation and healthy nutrition, and the analysis results are presented in **Table 1**.

Table-1: Correlations between adolescent athletes' motivation to participate in physical activity and body appreciation and attitude towards healthy nutrition

Variables	1	2	3
1. Motivation to Participate in Physical Activity	-		-
2. Body appreciation	0.278	-	-
3. Attitude Towards Healthy nutrition	0.406	0.268	-

As **Table 1** presents, there is a positive low relationship between the motivation to participate in physical activity and body appreciation, and a moderate positive relationship between the motivation to participate in physical activity and their attitudes towards healthy nutrition. Moreover, there is a significant positive and low relationship between the athletes' body appreciation and their attitudes towards healthy nutrition.

To determine whether Adolescent Athletes' Motivation to Participate in Physical Activity is predicted by Body appreciation and Attitude towards Healthy Nutrition, a stepwise multiple linear regression analysis was performed, the results of which are presented in **Table 2**.

Table-2: The results of stepwise linear regression analysis on the prediction of adolescent athletes' motivation to participate in physical activity by body appreciation and attitudes towards healthy nutrition

Predicted Variable	Model	Predictor Variables	B	Sh	β	t	p	R	R2
Motivation Scale For Participation In Physical Activity	-	Constant	2.46	0.22		11.21	-	-	-
	1	Attitude Scale Healthy Nutrition	0.40	0.05	0.40	8.00	0.00	0.40	0.16
	2	Body Appreciation	0.13	0.04	0.15	2.92	0.00	0.43	0.18

Total: R2 = .18, F = 37.00 P< .05

The regression was completed in 2 stages. According to their contribution to the variance, Attitude Scale Healthy Nutrition and body appreciation, respectively, are significant predictors of adolescent athletes' motivation to participate in physical activity. When only the attitude variable towards healthy nutrition was included in the model in the first stage, it was seen that this variable explains 16% of the total variance (R=.40, R2=.16, P<.00). In the second stage, when the body appreciation variable was added to the model, the explained variance increased

to 18% (R=.43, R2=.18; P<.00). Based on the regression coefficients, the motivation to participate in physical activity is positively correlated with the two other variables. As a result, the two-stage model predicted 18% of the total variance.

4- DISCUSSION

As a result of the analyzes made within the scope of this study, it was observed that the variables of body appreciation and attitude towards healthy nutrition had a significant role in predicting the motivation of adolescent athletes to participate in physical activity. These variables together predict 18% of the motivation to participate in physical activity. The variable that contributes the most to the model is the variable of attitude towards healthy nutrition. Although less than the attitude towards healthy nutrition, body appreciation also predicts the motivation of adolescent athletes to participate in physical activity. In other words, it is seen that the physical characteristics and attitudes towards healthy nutrition are both effective in the motivation of adolescent athletes to participate in physical activity.

It is an important finding in our study that the motivation to participate in physical activity is related to the body appreciation variable and is predicted by this variable. Considering the psychological characteristics of the adolescence period, the appearance and body appreciation are important for these individuals. For this reason, it can be said that adolescents who are satisfied with their bodies have higher motivations for participating in physical activities in order to protect their bodies. In addition, it is thought that regular exercising provides mental and psychological relief as well as better physical appearance. It can be concluded that people who participate in exercise programs will increase their body appreciation after gaining more physical beauty, and in this direction, they will be able to cope with psychological problems such as anxiety and depression, and they can experience an increase in their self-esteem. Similar results have been also reported in other studies. For instance, Kanatsız and Gokce (19), in their study on 421 high school students aged 14-17, stated that the adolescents who participate in physical activity have higher body satisfaction than those who don’t. Polat (20) stated that those who do exercise have higher body appreciation than those who do not. Johnson et al. (21) determined that body appreciation is associated with maintaining short (> 6 months) and long-term (> 5 years) physical activities. Mulazimoglu et al. (22) investigated the physical anxiety and body image satisfaction levels among female athletes and non-athletes. They revealed that athletes have more positive perceptions about their physical appearance than non-athletes and that participation in sports positively affects one's attitudes, emotions and behaviors towards her body. Robbinson and Ferraro (23) applied a body dissatisfaction scale to determine whether the women who exercise and do not exercise are satisfied with their bodies, and they determined that the women who do not exercise are more dissatisfied than those who do. In a study conducted on a

sample of 761 students from 25 education centers in the northern region of Spain, it was reported that adolescents who were dissatisfied with their body image were less likely to participate in physical activities (24). In another study, the relationship between body appreciation and physical activities in adolescents was examined and it was found that men with higher body appreciation participate in more physical activities than men with lower body appreciation (25). In addition, studies conducted with adolescent girls have shown that body image concerns prevent participation in physical activity (26, 27). Unlike the findings of our study, Ozkara (28) showed in his study that there is no significant difference in body appreciation between pre-service teachers who participate in sports under license and those who do not participate in sports under license for any period. However, it is reported that sedentary people have significantly more body dissatisfaction and desire to change their body shape compared to athletes (29). Annesi (30) examined the mediating effect of body appreciation in the relationship between physical activity and emotional eating.

Individuals who are satisfied with their bodies are less likely to follow restrictive diets or use other weight-control behaviors, and are more likely to be physically active and eat more fruits and vegetables (31). In contrast, low body appreciation has been found to be a predictor of disordered eating or inappropriate weight control behaviors (32).

Another finding of our study was that the motivation to participate in physical activity was related to the variable of attitude towards healthy nutrition and was predicted by this variable. It can be said that the reason for this situation is that individuals with positive attitudes towards healthy nutrition participate in physical activity and have a healthier and more fit structure, allowing them to feel better and be more satisfied with their physical appearance. Similar findings have been reported in other studies, as well. Aydın (33) conducted a study to determine the attitudes towards healthy nutrition and physical activity levels of 208 trainers. He found a significant positive correlation between the Positive Nutrition sub-dimension of the International Physical Activity Questionnaire and the Attitudes towards Healthy nutrition Scale sub-dimensions. Keskin et al. (34) found a significant relationship between the nutritional behavior and physical activity level of children within the age range of 12-14. They determined that as children's physical activity levels increase, their eating habits tend towards healthier foods. In the study conducted by Karta et al. (35), it is stated that increasing physical activity and a healthy diet are very important for staying healthy and increasing body immunity. In another study conducted with the aim of examining the relationship between nutritional habits and physical activity of adolescents by gender and revealing the differences, it was found that there were significant differences in favor of males according to genders (36). In another study, the prevalence of eating disorders in young female Turkish athletes was found to be 16.7% (37).

Unlike the findings of our study, in the study conducted by Tural Buyuk and Topcu (38), no statistically significant relationship was found in terms of nutrition and physical activity. Similarly, Keyf stated in his study that there was no statistically significant relationship between physical activity and general eating attitude scores of individuals.

In another study that analyzed the factors associated with emotional eating among individuals with different physical activity levels during the COVID-19 pandemic, a significant relationship was found between emotional eating behavior and body

dissatisfaction in individuals who were actively engaged in physical activity (39). In another study, it was stated that doing yoga supports healthy nutrition (40).

There are also studies supporting our results. In a study conducted on students aged 13-20 in 16 state secondary and high schools in Poland, it was concluded that adolescents who were less satisfied with their bodies consumed more unhealthy energy-dense foods than healthy foods (41). Another study emphasizes the relationship between body dissatisfaction and adolescents' food choices (42).

Opportunities and conveniences brought by the developing technology in today's world have positively reduced the workload of adolescents. However, this situation causes a serious decrease in the physical activity rate of individuals. The decrease in physical activity increases the tendency for eating easily accessible and unhealthy foods, leading to a move away from healthy eating habits; which might by itself negatively affect people's physical activity levels, body appreciation and attitudes towards healthy nutrition.

5- CONCLUSİON

In this study, the motivation of adolescent athletes to participate in physical activity and their attitudes towards body appreciation and healthy eating were examined. Motivation to participate in physical activity is a factor that affects not only adolescents, but also all segments of society. For this reason, it is thought that it will be useful to conduct research to determine the motivation for participation in physical activities in children and adult national athletes in future studies. New studies can be conducted on the eating attitudes and behaviors of individuals who do performance sports, especially in weight sports (Boxing, wrestling, judo weightlifting, fitness, etc.). Eating disorders can have devastating effects on athletes' health and performance. For this reason, studies on the healthy nutrition of athletes in different sports branches can be carried out.

As a result, giving importance to physical activity as well as adequate and balanced nutrition will significantly improve the athletes' physical fitness and desired performance.

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