

# Psychological Benefits of Regular Physical Activity: Evidence from Emerging Adults

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**Abstract** Emerging adulthood is a transitional stage between late adolescence and young adulthood in life-span development that requires significant changes in people's lives. Therefore, identifying protective factors for this population is crucial. This study investigated the effects of regular physical activity on self-esteem, optimism, and happiness in emerging adults. Participants included 175 girls (47%) and 198 (53%) boys ( $M = 20.75$  years;  $SD=1.69$ ). Participants completed measures of self-esteem, optimism, and happiness. Results suggested that individuals who engage in regular physical activity are more likely to have higher self-esteem, optimism, and happiness than physically inactive emerging adults. Regular physical activity should be regarded as a viable tool for improving subjective well-being in emerging adults.

**Keywords** Self-esteem, Optimism, Happiness, Emerging Adults, Turkey

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## 1. Introduction

Over the last few decades, the changing economic and social environment in low, middle, and high income countries has led to a shift towards a more sedentary lifestyle for most people in these countries. Consequently, morbidity and mortality rates have altered considerably during the 20th century as the effects of infectious diseases have gradually diminished and lifestyle related diseases gradually increased. This trend, known as physical activity transition, is possibly the main cause of physical inactivity [1]. The World Health Organization [2] specified physical inactivity as the fourth highest global risk factor for mortality after high blood pressure, tobacco use, and high blood glucose and as a major predictor for some heart and chronic diseases and cancers.

However, accumulated research evidence across cultures suggests that adults implementing regular physical activity have a reduced risk for a variety of illnesses, including cardiovascular disease, Type 2 diabetes mellitus, hypertension, certain types of cancers, such as breast cancer

and colon cancer, certain types of musculo-skeletal disorders, such as osteoporosis, and obesity, as well as some psychological disorders, including depression [3]. Although the role of physical activity as a protective factor for adults' physical health is well established, less is known about the psychological effects of regular physical activity in emerging adults and, more specifically, how regular physical activity affects self-esteem, happiness, and optimism in this population. Comparing these traits in those who regularly engage in physical activity with those who are physically inactive, may reveal other psychological benefits of physical activity. Thus, this study enhances the understanding of regular physical activity in emerging adults.

Emerging adulthood is a transitional stage between late adolescence and young adulthood in life-span development that requires significant changes in a person's life [4,5]. In this period, some developmental tasks, such as exploring one's own identity, forming interpersonal and intimate relationships, reforming family relationships from dependence to independence, preparing for adult roles, and some life-events, such as leaving the family and living alone, graduating from high school, and beginning university or pursuing a career, possibly new friends and new environments, and increasing responsibilities may increase stress levels for most and, consequently, affect the subjective wellbeing of emerging adults. Therefore, it is important to identify individual protective factors that influence the components of subjective wellbeing.

### 1.1. Physical Activity Correlates in Emerging Adulthood

Many studies have looked at the relationship between physical activity and biological, demographic, social, cultural, psychological, and environmental factors as well as its prevalence in emerging adults. Keating, Guan, Piñero, and Bridges [6] conducted a meta-analysis and found that estimates of physical inactivity in emerging adults are about 40% to 50%. A large-scale recent study by American College Health Association [7] also found that 57.2 % of college students did not adhere to the recommended physical activity guidelines for healthy levels of physical activity over

the preceding week. It is well-known that demographics play an important role in physical activity patterns.

Previous research demonstrated that males are more engaged in physical activity than females [8]. However, some studies also found that sex of the individual should not affect physical activity participation [9]. Age, race, perceived general health, and body mass index (BMI) have also been examined. For example, Dinger, Brittain and Hutchinson [10] reported that emerging adults who fulfilled the recommended guidelines for regular physical activity were more likely to be male, aged 18 to 20 years old, White, perceive their health as good, very good, or excellent and to have a healthy BMI (normal). A twin study by Eriksson, Rasmussen, and Tynelius [11] using a structural equation model, examined the role of genetics in physical activity and noted that, depending on physical activity dimensions including occupational physical activity, leisure time physical activity excluding sport, sport during leisure time, and total physical activity, there were moderate to high genetic contributions to heritability in the range of 0.40–0.65.

Social support from friends and family members as well as significant others, such as a respected role model, may also affect participation in physical activity for emerging adults. Emerging adults generally receive informational, esteem, and companionship support from their peers or family members. Maglione and Hayman [12] stated that perceived social support from family and friends was a significant predictor of physical activity in low income emerging adults.

Psychological factors have also been examined in emerging adults. Researchers investigated why some emerging adults are more physically active than others. Evidence suggested that emerging adults' motivations for physical activity are spending time with friends, looking more attractive, creating goals to work for, enjoyment, gaining agility, strength and endurance, preventing health problems as well as maintaining good health, health pressures such as doctor's advice, controlling their weight, and effectively coping with life challenges, such as stress management [13].

There is also strong evidence that regular physical activity can help reduce and prevent and treat some common mental health disorders, including anxiety, depression, and stress among emerging adults [14]. However, except for happiness, the effects of physical activity on self-esteem and optimism are inconsistent or weak, which is the focus of this study. For example, Thome and L. Espelage [15] indicated that self-reported exercise is not associated with self-esteem. Contrary to these findings, Lowery et al. [16] reported that physical fitness/health-related behaviors were positively related to self-esteem and body image. Fontaine and Shaw [17] examined dispositional optimism with regard to adherers and dropouts in an aerobic class and reported no difference between dispositional optimism levels. However, Kavussanu and McAuley [18] found that physically active individuals were more optimistic and less pessimistic than were inactive/less active individuals. Lastly, a twin study by

Stubbe, de Moor, Boomsma, and de Geus [19] showed that for individuals between 18 and 65 years old, participation in exercise is correlated with higher levels of happiness and life satisfaction in all age groups and both variables were mediated by genetic factors. Another study by Kye and Park [20] also revealed that greater levels of happiness are associated with implementing exercise. However, from a developmental perspective, it is difficult to generalize the effects of physical activity on emerging adults' well-being because these studies conducted on adults and emerging adults are characterized using different variables [4]. Thus, the effect of physical activity may be different for this population, at least in magnitude.

In the context of Turkish scientific literature, the association between self-esteem and demographics, as well as the correlation with other variables, have been extensively investigated. Some studies also analyzed the effect of physical activity participation in terms of anxiety, depression, and perceived problem solving ability [21]. However, examining the effects of regular physical activity on positive psychology traits, including self-esteem, optimism, and happiness, is scarce in emerging adults. Thus, the goal of this study was to investigate the effects of regular physical activity on self-esteem, happiness, and optimism in this population. It was hypothesized that physically active emerging adults will have higher self-esteem, optimism, and happiness than physically inactive emerging adults.

## 2. Method

### 2.1. Participants and Procedure

Study participants included 375 undergraduate students at a university in the central Black Sea region of Turkey who were registered in the departments of Physical Education and Sports Teaching, Computer Education and Educational Technology, and Social Sciences Teaching. Participants completed measures of self-esteem, optimism, and happiness voluntarily during regular class hours and were not compensated for their participation. The Amasya University Ethics Committee approved the study. Ethical considerations including anonymity, confidentiality, and voluntary participation were clearly explained and informed consent was obtained from all participants. All the measures used in this study were administered with paper and pencil format. Because emerging adults fall into the age range of 18 to 25 [4], the participants had to be between 18 and 25 years old. Therefore, two participants who were 17 years old were excluded from the dataset. Participants were from suburban and urban areas across Turkey and reported average socioeconomic status. More specifically, the final sample included 175 girls (47%) and 198 (53%) boys and the mean age of the final participants was 20.75 years old ( $SD=1.69$ ). Among the students in the final sample, 20.1% were freshmen, 28.2% were sophomores, 27.3% were juniors, and 24.4% were seniors. The majority of the participants

perceived their health and school achievement to be good. Additionally, the demographic makeup of those who engaged in regular physical activity and those who did not was nearly identical. However, the self-reported mean height and weight were higher for physically active participants ( $t(370) = 6.47, p < .001, t(370) = 4.03, p < .001$ , respectively).

## 2.2. Measures

**Self-esteem.**--Self-esteem was assessed with the Rosenberg Self-Esteem Scale [22] which is designed to measure how respondents generally feel about themselves. The RSES consists of ten items. Each item on the RSES describes specific statements related to self-worth, self-efficacy, and self-respect (e.g., "I wish I could have more respect for myself" and "I take a positive attitude toward myself.") and respondents indicate their responses on a four-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (4). Five items formulated positively and five items negatively. Before summing the item responses, reverse coded items are straight forwarded. Possible scores range between 10 and 40. Higher scores indicate a higher level of self-esteem. Çuhadaroğlu [23] adapted this scale to Turkish culture and examined its validity and reliability in a sample of 205 high school students and reported one month test-retest reliability as .75 and criterion-related validity based on psychiatric interviews as .71. Previous research also revealed that RSES was negatively correlated with the measures of anxiety, depression, and loneliness evidencing the discriminant validity of the scale and positively associated with the measures of social support and life satisfaction indicating convergent validity in Turkey [24–27]. For this study, Cronbach's Alpha internal consistency coefficient was .83.

**Optimism.**--Optimism was assessed with the Optimism Scale [28] developed in the context of Turkish culture. The Optimism Scale [29] was designed to measure the respondents' general beliefs and feelings about their lives and contains 24 items. Respondents indicate their answers on a four-point Likert scale ranging from Not like Me (1) to Just like Me (4). Five items are reverse-coded. Scores range from 24 to 96 and higher scores indicate a higher level of optimism. Factor analysis with varimax rotation revealed a one-dimensional structure. Concurrent validity was examined with correlations between the Optimism Scale and Life Orientation Test and suggested positive correlation between these scales ( $r = .55$ ). Reported test-retest reliability was .61 and Cronbach's Alpha internal consistency coefficient was .96 [28], indicating good temporal stability and excellent internal consistency. The internal consistency of the Optimism Scale for this study was  $\alpha = .85$ . Examples of items from the Optimism Scale are "I believe that happiness is the end of all suffering" and "Despite everything, I believe that life is worth living."

**Single Item Happiness Scale.**--A slightly modified version of Abdel-Khalek's [29] single item happiness scale was used

to assess the respondents' happiness level. Participants were asked to answer the question "Do you feel happy in general?" on a ten-item Likert-type scale. The minimum score was 1 and the maximum score was 10. Higher scores indicate higher levels of subjective happiness. The author and an expert faculty member from the guidance and counseling department, both bilingual in English and Turkish, translated and back translated the single-item happiness scale. The author and expert discussed the translations and ensured consensus about it.

**Demographics.**--Participants provided information about their sex, age, grade level, mother's and father's educational level, monthly income, and self-reported height and weight. Body Mass Index (BMI) is calculated as weight (kg)/ height squared ( $m^2$ ). WHO's recommended guidelines used for the classification of BMI are underweight, normal, overweight, and obese. According to WHO [30], individuals who have a BMI equal or lower than 18.49 are considered underweight, individuals who have a BMI between 18.50 and 24.99 are considered normal, individuals who have a BMI between 25 and 29.99 are considered overweight, and individuals who have a BMI equal to or higher than 30 are considered obese.

## Data Analysis

Descriptive statistics, including percentage and frequencies, were used to give information about categorical variables. Some respondents failed to complete all items of the self-esteem and optimism scales. Specifically, item level missing values ranged between 0.3% and 1.8% for the self-esteem and optimism scales. Because missing values were below 5% of the total responses for item level, missing data for dependent variables were replaced with series means as suggested by measurement experts [31]. However, statistical analyses also implemented with complete cases and results were identical to the findings of the study. Therefore, the analysis implemented with missing data was reported.

In order to test the research hypothesis, a series of multivariate analyses of variances (MANOVA) were conducted to mean scores of self-esteem, optimism, and happiness as dependent variables and physical activity as an independent variable. All statistical assumptions including normality, homogeneity of variance, and covariance matrix were tenable. Statistical results were reported with effect size estimates. According to Cohen [32], .01 or below is a small effect size, around .06 is a moderate effect size, and .14 or above is a large effect size for eta-square ( $\eta^2$ ). A significance level of .05 is accepted for all analyses.

## 3. Results

Table 1 reports the number of participants, percentages in terms of physically active and physically inactive respondents as well as the total sample.

**Table 1.** Descriptive Statistics

Variable	Physically Active		Physically Inactive		Total	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Gender						
Female	42	30.9	133	56.1	175	46.9
Male	94	69.1	104	43.9	198	53.1
Grade Level						
Freshmen	34	25	41	17.3	75	20.1
Sophomore	36	26.5	69	29.1	105	28.2
Junior	35	25.7	67	28.3	102	27.3
Senior	31	22.7	60	25.3	91	24.4
Mother's Education Level						
Primary School or below	95	69.9	197	83.1	292	78.3
Secondary School	21	15.4	18	7.6	39	10.5
High School or above	20	14.7	22	9.3	42	11.3
Father's Education Level						
Primary School or below	57	41.9	130	54.9	187	50.1
Secondary School	25	18.4	39	16.5	64	17.2
High School or Above	54	39.7	68	28.7	122	32.7
BMI						
Underweight	6	4.4	22	9.3	28	7.5
Normal	112	82.4	172	72.6	284	72.1
Overweight	17	12.5	40	16.9	57	15.3
Obese	1	.7	3	1.3	4	1.1
Monthly Income						
\$300or less	21	15.4	50	21.1	71	19
\$301-\$600	64	47.1	111	46.8	175	46.9
\$601 or more	51	37.5	76	32.1	127	34

As seen in Table 1, 30.9% of physically active respondents were female and 69.1% were male;26.5% were sophomores and 25.7% were juniors. Among the mothers of physically active respondents, 69.9% were primary school graduates or below, and14.7% graduated from high school or above. Among the fathers of physically active respondents, 18.4% were secondary school graduates and 39.7% were high school graduates or above.47.1% of respondents have a monthly income between \$301 and \$600. With respect to BMI, 82.4% were normal and 12.5% were overweight.

56.1% of physically inactive respondents were female, and 43.9% were male.17.3% were freshmen and 25.3% were senior. Among the mothers of physically inactive respondents, 83.1% were primary school graduates or below and 7.6% were secondary school graduate. Among the fathers of physically inactive respondents,28.7% graduated high school or above.72.6%of respondents had a normal weightand46.8% have a monthly income between \$301 and \$600.Table 2 shows means and standard deviations for self-esteem, optimism, and happiness scores with respect to demographics and physical activity.

A series of MANOVAs were conducted to examine

possible mean differences between self-esteem, optimism, and happiness with respect to demographics except for BMI and physical activity. The MANOVA results suggest that the main effects of sex of participant ( $F(3, 369) = 2.23, p > .05$ ; Wilk's  $\Lambda = 0.982$ , partial  $\eta^2 = .018$ ), grade level ( $F(9, 893.33) = 1.21, p > .05$ ; Wilk's  $\Lambda = 0.971$ , partial  $\eta^2 = .01$ ), father's education level ( $F(6, 736) = 1.21, p > .05$ ; Wilk's  $\Lambda = 0.981$ , partial  $\eta^2 = .01$ ),and monthly income ( $F(6, 736) = 1.23, p > .05$ ; Wilk's  $\Lambda = 0.980$ , partial  $\eta^2 = .01$ ) were insignificant. However, there was a statistically significant difference in self-esteem, optimism, and happiness scores based on a student's mother's education level( $F(6, 736) = 4.23, p < .001$ ; Wilk's  $\Lambda = .934$ , partial  $\eta^2 = .033$ ) and regular physical activity participation( $F(3, 369) = 3.22, p < .05$ ; Wilk's  $\Lambda = 0.975$ , partial  $\eta^2 = .025$ ). A series of one-way ANOVAs on self-esteem, optimism, and happiness variables was conducted as a follow-up test to the MANOVA for mother's education level and physical activity participation. All the ANOVAs were statistically significant, with effect sizes (partial  $\eta^2$ ) ranging from a low of .011 to a high of .055. All effect sizes were small except for happiness scores for mother's educational level which were close to a medium effect size [32].

**Table 2.** Means and Standard Deviations of Self-Esteem, Optimism, and Happiness

Variable	Self-Esteem		Optimism		Happiness	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Gender						
Female	31.81	4.57	78.70	8.84	7.05	1.81
Male	32.30	4.57	77.45	9.56	7.18	1.91
Grade Level						
Freshmen	31.49	5.26	77.61	11.13	7.08	1.94
Sophomore	31.76	4.36	77.92	8.97	6.95	1.77
Junior	32.10	4.11	77.05	7.94	6.93	1.84
Senior	32.87	4.65	79.64	9.12	7.56	1.89
Mother's Education Level						
Primary School or below	31.74	4.57	77.25	9.14	6.92	1.88
Secondary School	32.26	4.71	79.56	9.54	7.38	1.65
High School or above	34.17	3.95	82.11	8.57	8.29	1.47
Father's Education Level						
Primary School or below	31.64	4.90	77.43	9.52	6.92	1.99
Secondary School	32.09	3.95	78.85	8.36	7.34	1.53
High School or Above BMI	32.72	4.31	78.54	9.24	7.32	1.80
Underweight	29.86	5.28	76.11	8.64	6.39	1.91
Normal	32.24	4.52	78.41	9.20	7.17	1.84
Overweight / Obese	32.28	4.26	77.16	9.64	7.21	1.92
Monthly Income						
\$300 or less	31.97	5.27	77.73	8.31	6.89	1.97
\$301-\$600	31.86	4.57	78.21	9.39	7.00	1.98
\$601 or more	32.42	4.15	77.96	9.58	7.42	1.60
Physical Activity						
Physically Active	32.94	4.47	79.31	9.68	7.41	1.73
Physically Inactive	31.57	4.56	77.30	8.91	6.95	1.92

Finally, a series of post-hoc Scheffe analyses were performed to mean scores of self-esteem, optimism, and happiness across three educational levels. Post-hoc Scheffe comparisons showed that for emerging adults with mothers who were primary school graduates or below had significantly lower self-esteem ( $M = 31.74$ ,  $SD = 4.57$ ), optimism ( $M = 77.25$ ,  $SD = 9.14$ ), and happiness ( $M = 6.92$ ,  $SD = 1.88$ ) scores than emerging adults whose mothers were high school graduates or above ( $M = 34.17$ ,  $SD = 3.95$ ,  $M = 82.11$ ,  $SD = 8.57$ ,  $M = 8.29$ ,  $SD = 1.47$ , respectively). Results also revealed that physically active emerging adults had significantly higher self-esteem ( $M = 32.94$ ,  $SD = 4.47$ ), optimism ( $M = 79.31$ ,  $SD = 9.68$ ), and happiness ( $M = 7.41$ ,  $SD = 1.73$ ) scores than physically inactive emerging adults ( $M = 31.57$ ,  $SD = 4.56$ ,  $M = 77.30$ ,  $SD = 8.91$ ,  $M = 6.95$ ,  $SD = 1.92$ , respectively).

#### 4. Discussion

Emerging adulthood is a transitional stage in development and identifying possible protective factors is crucial for effective intervention studies for this population. This study investigated the psychological benefits of regular physical activity in emerging adults. The results suggested that individuals who implement regular physical activity are more likely to have higher self-esteem, optimism, and happiness than physically inactive emerging adults. However, the effects of physical activity were small but significant. These results are in line with previous evidence showing that physically active emerging adults have higher self-esteem than physically inactive emerging adults [16]. Individuals with high self-esteem more likely to be emotionally stable and extroverted, have effective coping styles, higher levels of perceived social support from family and friends, be more optimistic, experience less stress, loneliness, and depression as well as be more resilient to some diseases, including eating disorders [33–37]. Thus, having high self-esteem is desirable for most people since it is positively correlated with positive adjustments and mental

health outcomes, whereas low self-esteem is associated with poor adjustments [38]. Regular physical activity may contribute to the self-esteem of emerging adults for at least three reasons. First, self-esteem is associated with interpersonal relationships [39]. According to sociometer theory, when people feel included by others, their self-esteem tends to rise; whereas, when they are excluded by others, their self-esteem tends to decrease [39]. Physically active emerging adults possibly meet new friends during exercise and may experience feelings of acceptance. Therefore, their self-esteem may increase. Second, emerging adulthood is a period in which most people experience stressful events, such as living alone, graduating from high school, and beginning university or pursuing a career. Regular physical activity may contribute to self-esteem's buffering effect against stress and other negative emotions by enhancing personal adjustment. Thus, emerging adults may cope more effectively with stressful events and be less hampered by feelings of low self-worth. Lastly, regular physical activity may increase the body image of emerging adults. Although physically active emerging adults have higher height and weight than physically inactive emerging adults in this study, with regular physical activity their health, appearance, endurance, strength, sports competence, and coordination may improve and consequently, their self-esteem may increase with most having a body desired by others.

Regarding optimism, this study is consistent with previous study suggesting that physically active emerging adults have higher optimism than physically inactive emerging adults [18]. However, a recent study found no significant differences between first-year athletes and non-athletes and between first-year and final-year non-athletes in terms of their optimism levels [40]. For our findings, Kavussanu and McAuley [18] offered two explanations for the relationship between optimism and physical activity. First, when individuals engage in exercise, it leads to decreased anxiety and thus an increase in optimism. Second, exercise similarly inversely affects depression levels of individuals and in turn results in a positive change in optimism levels.

Lastly, this study revealed that physically active emerging adults are happier than physically inactive emerging adults. This finding is also consistent with previous studies reporting that exercise participation is associated with higher levels of happiness [20,41]. According to Argyle [42], sport and exercise are effective tools in creating happiness not only by causing the release of endorphins but also by enabling social interactions with others as well as the experience of success and feelings of self-efficacy. This may also be true for emerging adults. Engaging in regular physical activity may allow emerging adults to fulfill their social needs such as cooperation, intimacy, public performance, and so on. Possible achievements in this area may lead to an increase in feelings of self-efficacy and happiness.

This study has a number of strengths, including using valid and reliable measures of self-esteem, optimism, and

happiness and the novelty of including a less thoroughly researched life-span period, namely emerging adulthood, as well as shedding light on some consistent findings in the literature. But researchers must also consider some limitations. First, emerging adults' self-reported physical activity was used in this study and those who engaged in physical activity for at least 30 minutes or more in a week were assumed to be physically active. However, frequency and duration are not the only indicators of physical activity; intensity of training also affects the benefits of physical activity. Second, the author used a single-item scale to measure subjective happiness using the translation and back translation method. The author cannot specify that the scale is equally valid for Turkish emerging adults. Third, this study was conducted with undergraduate students from a public university in Turkey; inclusion of a more representative sample of emerging adults may influence the results. Fourth, there are many instruments (questionnaires and checklists) for assessing physical activity, but in this research respondents were classified only by a question about regular physical activity participation. Thus, researchers may use more comprehensive physical activity measures in future studies. Lastly, the cross-sectional design of the study prevents the author from establishing a cause-effect relationship.

Consequently, this research investigated the effects of regular physical activity in emerging adults. The current study confirms that regular physical activity enhances self-esteem, optimism, and happiness in this demographic. Thus, regular physical activity should be regarded as a viable tool for improving subjective well-being in emerging adults. Future studies may examine the effects of personality traits and social appearance anxiety [33-37, 43] on engaging in physical activity in emerging adults.

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