

Original Article



Assessment of the Amount of Physical Activity in Surgical Technology Students in Shahid Sadoughi University of Yazd, and Its Relationship With Self-Esteem, Happiness, and Life Satisfaction

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Abstract

Introduction: Quality of life (QoL) depends on physical, psychological, and social well-being, with nearly 65% related to lifestyle. Self-esteem and happiness are key factors for improvement, and exercise, through its effects on neurotransmitters, enhances mental health. Considering the prevalence of mental disorders among medical students and the decline in Iran's happiness ranking, this study investigated the relationship between physical activity, self-esteem, happiness, and life satisfaction among 193 surgical technology students in Yazd Province, Iran.

Methods: This descriptive cross-sectional study was conducted in 2024. Data were collected using standardized questionnaires, and physical activity levels were classified into three groups based on metabolic equivalent scores. Analyses were performed using SPSS-26 with non-parametric tests and logistic regression.

Results: Most participants were female, single, and dormitory residents. On average, physical activity was moderate, self-esteem and happiness were high, and life satisfaction was moderate to low. Physical activity showed positive and significant correlations with all three psychological variables, with the strongest association observed with happiness. Based on multivariate analysis, physical activity increased the likelihood of high self-esteem, high happiness, and high life satisfaction by 43%, 90%, and 32%, respectively. Gender, academic year, and family income had no significant effects. Overall, findings highlight the importance of physical activity in promoting mental health and QoL among students.

Conclusion: Surgical technology students in Yazd demonstrated moderate physical activity, high self-esteem and happiness, and moderate-to-low life satisfaction. Physical activity was most strongly associated with happiness, underscoring its role in enhancing mental health and student well-being.

Keywords: Happiness, Life satisfaction, Physical activity, Self-esteem, Students, Surgical technology



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Introduction

Quality of life (QoL) refers to the level of physical, psychological, and social well-being as perceived by the individual, indicating the degree of satisfaction a person feels from the blessings of life (1). Nowadays, the main goal of human beings is not merely survival, but rather living a life of quality has become more important. According

to research, about 65% of health and QoL depend on lifestyle and individual behaviors; therefore, modifying and improving lifestyle are essential for promoting health (2).

Self-esteem and happiness are fundamental human needs that play a significant role in identity formation, personal growth, QoL enhancement, and social



progress (3). Self-esteem implies belief in one's abilities and intellectual independence. This trait strengthens confidence in success, happiness, and self-worth and includes the ability to express needs in interactions with others. Individuals with high self-esteem are typically more prepared to face life challenges (4). Moreover, self-esteem is strongly dependent on a person's self-image. A positive attitude toward personal characteristics enhances the sense of self-worth, whereas negative changes in this image can reduce self-esteem. Accordingly, fostering a positive self-view is essential for the formation and maintenance of self-esteem (5). However, low self-esteem is often associated with psychological problems (e.g., depression, anxiety, and eating disorders) and may lead to social consequences, such as aggression and substance abuse (6). Happiness is a positive state of human emotions accompanied by joy, satisfaction, health, and inner peace. Happy individuals enjoy daily life, feel good about themselves, and by accepting their weaknesses, act resiliently in the face of challenges (7). Additionally, happiness is one of the most important elements of QoL, especially for students. In fact, happy students have greater concentration, solve problems with less energy, and experience less confusion (8). Sports activities are among the crucial factors influencing individuals' psychological status. More precisely, student participation in sports improves mental health, increases physical and psychological satisfaction, enhances QoL, and creates a positive attitude (9). Dysregulation of neurotransmitters (e.g., dopamine and serotonin) can lead to psychological problems. Exercise plays a significant role in controlling and reducing psychological disorders by regulating these chemicals (10). In addition to general problems, medical students face psychological pressures arising from hospital environments and emergency conditions. These factors threaten their mental health and increase the likelihood of psychological disorders; therefore, psychological support and care programs are essential for this group (11).

Extensive research has focused on the prevalence of psychological disorders, such as anxiety, low self-esteem, lack of satisfaction, and reduced happiness, among students. For example, the results of one study revealed that 40.2% of medical students at Kurdistan University of Medical Sciences in Iran had symptoms of psychological disorders (12). In another similar study, 69.7% of medical students at Arak University of Medical Sciences in Iran demonstrated signs of psychological disorders (13). Happiness plays an important role in promoting mental and physical health. In other words, happy individuals are usually healthier, more successful, and more sociable; they feel more secure, act more calmly in decision-making, and experience greater satisfaction in their relationships (14). According to the World Happiness Report in 2020, Iran ranked 118th globally, a position that indicates a decline in the level of happiness compared to previous years. Our country ranked 111th in 2015 and 114th in 2010. This downward trend in the happiness index ranking reflects various challenges people face in daily life and its

significant impact on satisfaction and happiness (15).

As scientific assets and future builders of the country, students require mental and physical health, and physical activities alongside learning can improve their academic performance and personal growth. Considering the importance of self-esteem and happiness among students and the diverse results of previous studies, the question arises whether sports and physical activities can affect the level of self-esteem, happiness, and life satisfaction of surgical technology students at Yazd University of Medical Sciences in Iran.

Methods

This descriptive, cross-sectional study was performed to examine the relationship between physical activity and levels of self-esteem, happiness, and life satisfaction among surgical technology students at medical science universities in Yazd Province in 2024, using a census method. The study population included all students enrolled in the academic year 2024–2025 at Shahid Sadoughi University of Medical Sciences in Yazd, Abarkooh School of Paramedical Sciences, and Islamic Azad University, Yazd Branch (N=193).

After explaining the research procedures to the participants and obtaining the necessary approvals, the researchers collected data using a demographic information form (age, gender, height, weight, and income level) and standardized questionnaires on physical activity, self-esteem, happiness, and life satisfaction. The questionnaires were electronically provided to the participants. Based on the total metabolic equivalent task score obtained from the International Physical Activity Questionnaire (IPAQ), participants were classified into low, moderate, and high activity groups (16).

The Rosenberg Self-Esteem Scale was used to assess self-esteem (17). In addition, happiness was measured using the Oxford Happiness Questionnaire (17), and life satisfaction was assessed using the Diener Satisfaction with Life Scale (18). The validity and reliability of all these instruments had been previously established, and in the present study, the Cronbach's alpha values for the indices were 0.826, 0.912, and 0.796, respectively.

Moreover, scores of self-esteem, happiness, and life satisfaction were numerically measured in this study. For self-esteem, a score greater than zero indicated high self-esteem, while a score less than zero indicated low self-esteem. Happiness and life satisfaction scores ranged from 0 to 87 and from 5 to 35, with higher scores reflecting higher levels of happiness and satisfaction, respectively.

The obtained data were analyzed using the SPSS software, version 26. Non-parametric tests were applied due to the non-normal distribution of data. Furthermore, the Kruskal-Wallis test was utilized to compare variables based on academic year and income level, and Spearman's correlation coefficient was employed to examine the relationship between physical activity and self-esteem, happiness, and life satisfaction. It should be noted that analyses were separately conducted for male and female

students. Finally, multivariate analysis was performed using logistic regression, and the significance level in all tests was considered at 0.05.

Results

In this study, 193 students participated, of whom 135 were female. A total of 119 students (61.7%) lived in dormitories, 166 (86%) reported no tobacco use, and 185 (95.9%) were single (Table 1). Moreover, 176 students (91.2%) stated that they used no sports supplements. By academic year, 68 students (35.2%) were in the first year, 39 (20.2%) in the second, 48 (24.9%) in the third, and 38 (19.7%) in the fourth. In addition, household income was reported as 0–10 million tomans, 11–20 million, 21–30 million, and above 31 million by 25 (13%), 54 (28%), 59 (30.6%), and 55 (28.4%) students, respectively.

The mean age of participants was 22 ± 6 (22 ± 4 for females and 23 ± 10 for males). Further, mean height was 169 ± 9 cm (164 ± 8 and 179 ± 10 for females and males, respectively), and mean weight was 65 ± 13 kg (60 ± 10 for females and 76 ± 14 for males). Additionally, mean body mass index was 23 ± 4 (22 ± 4 and 24 ± 4 for females and males, respectively). Moreover, mean physical activity was

1974 ± 1821 minutes per week (1775 ± 1707 for females and 2439 ± 2003 for males), indicating a moderate level of activity. The mean happiness score was also 70 ± 13 (69 ± 12 and 72 ± 15 for females and males, respectively), reflecting a high level of happiness. Likewise, the mean life satisfaction score was 21 ± 6 (21 ± 6 for females and 21 ± 7 for males), representing modest satisfaction, while the mean self-esteem score was 5 ± 5 overall (5 ± 5 and 6 ± 5 for females and males, respectively), demonstrating high self-esteem among the students.

According to the findings (Table 2), all variables of physical activity, happiness, self-esteem, and life satisfaction were directly and significantly correlated in such a way that with an increase in each variable, the others also increased, and with a decrease in each variable, the others decrease as well.

Based on the results (Table 3), there was a positive and significant relationship between the amount of physical activity and self-esteem in female ($r=0.399, P<0.001$) and male ($r=0.534, P<0.001$) groups, implying that self-esteem among students increased with an increase in the level of physical activity.

Likewise, a positive and significant relationship

Table 1. Descriptive Statistics of Measured Variables

Type of Variable and Indicator	Subgroups of the Variable									
Qualitative variables N=193	Housing Status		Tobacco Use		Marital Status		Use of Nutritional Supplements			
	Dormitory	With family	Non-use	Use	Single	Married	Non-use	Use		
	119	74	166	27	185	8	176	17		
	61.7	38.3	86	14	95.9	4.1	91.2	8.8		
	Academic Year				Monthly Income					
	First	Second	Third	Fourth and above	0–10 million	11–20 million	21–30 million	31 million and above		
68	39	48	38	25	54	59	55			
35.2	20.2	24.9	19.7	13	28	30.6	28.4			
Quantitative variables Mean ± standard deviation	Entire population		Age (years)	Height (cm)	Weight (kg)	BMI (kg/m²)	IPAQ MET (Minute/Week)	Happiness	Life Satisfaction	Self-Esteem
			22 ± 6	169 ± 9	65 ± 13	23 ± 4	1974 ± 1821	70 ± 13	21 ± 6	5 ± 5
	Women: 135 individuals		22 ± 4	164 ± 8	60 ± 10	22 ± 4	1775 ± 1707	69 ± 12	21 ± 6	5 ± 5
	Men: 58 individuals		23 ± 10	179 ± 10	76 ± 14	24 ± 4	2439 ± 2003	72 ± 15	21 ± 7	6 ± 5

Note. BMI: Body mass index; IPAQ MET: Metabolic equivalent task score based on International Physical Activity Questionnaire.

Table 2. Spearman Correlation Coefficients Among Variables in the Total Population

Variables	Coefficient	IPAQ, MET, (Minute/Week)	Happiness	Life Satisfaction	Self-Esteem
IPAQ	R	1	0.815	0.539	0.454
	*P	-	0	0	0
Happiness	R	0.815	1	0.653	0.612
	*P	0	-	0	0
Life satisfaction	R	0.539	0.653	1	0.421
	*P	0	0	-	0
Self-esteem	R	0.454	0.612	0.421	1
	*P	0	0	0	-

Note. IPAQ MET: Metabolic equivalent task score based on International Physical Activity Questionnaire.

*P: Based on Spearman correlation test.

Table 3. Spearman Correlation Coefficients Among Variables by Gender

Variable (Female Gender)	Coefficient	IPAQ, MET (Minute/Week)	Happiness	Life Satisfaction	Self-Esteem
IPAQ	R	1	0.771	0.511	0.399
	*P	-	0	0	0
Happiness	R	0.771	1	0.632	0.591
	*P	0	-	0	0
Life satisfaction	R	0.511	0.632	1	0.423
	*P	0	0	-	0
Self-esteem	R	0.399	0.591	0.423	1
	P	0	0	0	-
Variable (Male Gender)	Coefficient	IPAQ, MET (Minute/Week)	Happiness	Life Satisfaction	Self-Esteem
IPAQ	R	1	0.886	0.599	0.534
	*P	-	0	0	0
Happiness	R	0.886	1	0.697	0.606
	*P	0	-	0	0
Life satisfaction	R	0.599	0.697	1	0.413
	*P	0	0	-	0
Self-esteem	R	0.534	0.606	0.413	1
	*P	0	0	0	-

Note. IPAQ MET: Metabolic equivalent task score, based on International Physical Activity Questionnaire.

*P: Based on Spearman correlation test.

($P < 0.001$) was found between physical activity and life satisfaction in both genders. The strength of this relationship was evaluated as moderate to strong in females ($r = 0.511$) and males ($r = 0.599$).

According to Table 4, the level of physical activity among students across different academic years showed no significant differences, either in females ($P = 0.362$) or in males ($P = 0.547$). In contrast, self-esteem remarkably varied across academic years ($P = 0.009$ and $P = 0.038$ for females and males, respectively), indicating that self-esteem changed with academic year (Figure 1). The pattern of self-esteem differed from the second year onward; with increasing academic year, self-esteem decreased among male students, while it increased among female students (Figure 1).

Life satisfaction showed no significant differences in females ($P = 0.861$) or males ($P = 0.077$). Similarly, happiness did not significantly differ across academic years in females ($P = 0.374$) or males ($P = 0.531$). Therefore, only self-esteem was influenced by academic year, whereas happiness and life satisfaction remained unaffected (Table 4).

The findings (Table 5) indicated that household income level had no significant effect on students' physical activity, self-esteem, life satisfaction, or happiness. No statistically significant differences were observed among females ($P = 0.484$, $P = 0.773$, $P = 0.841$, and $P = 0.642$) or males ($P = 0.566$, $P = 0.384$, $P = 0.699$, and $P = 0.680$). Therefore, students' psychological and behavioral variables were evaluated as independent of household income level.

Multivariate Analysis

At the end of the study, multivariate analysis and logistic regression were used to examine the net effect of physical

activity on self-esteem, life satisfaction, and happiness. The distributions of the main variables did not meet the assumption of normality. Therefore, each variable was dichotomized into 'low' and 'high' groups using the sample median as the cut-off point. The median was chosen because it is a robust measure of central tendency that is less affected by skewness and outliers compared to the mean. Further, it allowed us to create two balanced groups for logistic regression analysis. The exact median values used as cut-off points were 65, 21, and 5 for happiness, life satisfaction, and self-esteem, respectively. For the logistic regression models, each of the main variables (self-esteem, happiness, and life satisfaction) was separately entered as a binary dependent variable ('low' vs. 'high' based on the median). Independent variables were entered as physical activity (continuous raw score), self-esteem, happiness, and life satisfaction (continuous raw scores when used as predictors), gender (0 = male or 1 = female), marital status (0 = single or 1 = married), income categories (reference group: 0–10 million), residence (0 = dormitory or 1 = with family), tobacco use (0 = non-user or 1 = user), use of sports supplements (0 = no or 1 = yes), and age, height, and weight (continuous). Odds ratios with 95% confidence intervals were reported for all models.

The results showed that none of the background variables had a significant effect on self-esteem, but increases in happiness raised the odds of high self-esteem, life satisfaction, and physical activity by 60%, 33%, and 43%, respectively. The coefficient of determination for self-esteem was between 27% and 47%, and the overall model fit was significant ($\chi^2 = 33.7$).

For happiness, the coefficient of determination ranged between 37% and 51%. Physical activity had a significant role, with more active students being 90% more likely to fall

Table 4. Comparison of Physical Activity, Self-Esteem, Life Satisfaction, and Happiness Between Women and Men by Academic Year

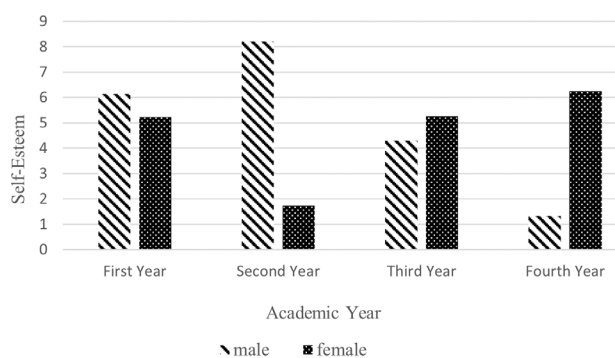
		Kruskal-Wallis H	df	*P			Kruskal-Wallis H	df	*P
Women	Physical activity	3.2	3	0.362	Men	Physical activity	2.125	3	0.547
	Self-esteem	11.611	3	0.009		Self-esteem	8.451	3	0.038
	Life satisfaction	0.753	3	0.861		Life satisfaction	8.451	3	0.077
	Happiness	3.117	3	0.374		Happiness	2.205	3	0.531

Note. *P: Based on Kruskal-Wallis H test. df: Degree of freedom.

Table 5. Comparison of Physical Activity, Self-Esteem, Life Satisfaction, and Happiness Between Women and Men by Income Level

		Kruskal-Wallis H	df	*P			Kruskal-Wallis H	df	*P
Women	Physical activity	2.452	3	0.484	Men	Physical activity	2.031	3	0.566
	Self-esteem	1.119	3	0.773		Self-esteem	3.049	3	0.384
	Life satisfaction	0.837	3	0.841		Life satisfaction	1.427	3	0.699
	Happiness	1.675	3	0.642		Happiness	1.511	3	0.68

*P: Based on Kruskal-Wallis H test. df: Degree of freedom.

**Figure 1.** Self-Esteem Levels of Male and Female Students by Academic Year

into the high happiness group ($EXP = 1.901$). Moreover, higher self-esteem and life satisfaction predicted greater happiness, while older age was associated with lower happiness and higher income with greater happiness.

For life satisfaction, the coefficient of determination was between 21% and 37%. In addition, physical activity significantly increased the odds of high life satisfaction by 32% ($EXP = 1.321$). Men, students living with their families, and those with higher income reported greater satisfaction. Overall, the findings demonstrated that physical activity had a positive and significant relationship with self-esteem, happiness, and life satisfaction, and this effect remained strong even after controlling for other factors. An active lifestyle could, therefore, substantially enhance students' psychological indicators (Table 6).

Discussion

In this study, the average level of physical activity among participants was found to be moderate, which aligns with the findings of some previous studies while contrasting with those of others. For example, Osivand et al (19) and Azimi et al (20) reported low physical activity levels among medical and teacher training students, respectively. Similarly, Liu et al (21) concluded that most students at Hangzhou, Nanjing, and Wenzhou universities had low physical activity levels. In contrast, Afsari et al (22) observed high physical activity levels among military

students. These differences may stem from variations in study populations, measurement tools, and cultural or environmental contexts. The results of this study revealed high self-esteem among participants, which is consistent with the findings of studies by Maleki Jamasebi et al (23) and Butun et al (24), confirming high self-esteem among nursing and midwifery students. However, our results contradict those of studies by Amiri Bonyad et al (25) and Shrestha et al (26), demonstrating low self-esteem among nursing and medical students. These discrepancies may be attributed to individual characteristics, academic disciplines, timing of the research, assessment tools, and the cultural and social environment of universities. Regarding happiness, operating room students in this study reported high levels of happiness, which is in line with the findings of Soltani et al (27) and Chaleshgar Kordasiabi et al (28), indicating high happiness levels among medical students. On the other hand, Mohseni et al (29) and Badiyeh Peyma Jahromi et al (30) found moderate happiness levels among nursing and paramedical students. The elevated happiness in operating room students may be due to the meaningful nature of their role in patient care, clearer career prospects, and faster employment opportunities. Moreover, demographic differences, measurement tools, and the cultural and social conditions of the university may influence happiness levels. Our findings confirmed that students had only modest life satisfaction, which conforms to the results of studies by Mizbani et al (31) and Molasadeghi et al (32), representing moderate life satisfaction among medical and nursing students. Similarly, Mathad et al (33) found moderate life satisfaction among nursing students. Contrarily, Shamsaei (34) reported high life satisfaction among nursing students at Hamadan University of Medical Sciences, while Eisanazar et al (35) found slight dissatisfaction among medical students. These differences may be due to academic discipline, university environment, economic status, mental health, and social support. Operating room students may experience lower life satisfaction because of job-related stress and concerns.

Table 6. Multivariate Analysis of Factors Affecting Self-Esteem, Happiness, and Life Satisfaction Among Students

Independent Variables	Change From Low to High Self-Esteem		Change From Low to High Happiness		Change From Low to High Life Satisfaction	
	Sig.	Exp. (B)	Sig.	Exp. (B)	Sig.	Exp. (B)
Constant term	<0.001		<0.001		<0.001	
Age	0.191	1.425	0.052	0.925	0.122	0.925
Height	0.091	1.058	0.091	1.058	0.181	0.718
Weight	0.191	0.928	0.191	0.928	0.065	0.92
Gender (1 = Female)	0.181	0.718	0.181	0.718	0.012	0.745
Residence (1 = Living with family)	0.112	0.92	0.112	0.92	0.041	1.058
Smoking (1 = Smoker)	0.242	1.08	0.242	1.08	0.242	1.08
Use of sports supplements (1 = Uses)	0.501	1.06	0.501	1.06	0.501	1.06
Marital status (1 = Married)	0.431	1.118	0.431	1.118	0.431	1.118
Academic year	0.521	1.014	0.521	1.014	0.521	1.014
Income	0.092	1.22	0.022	1.22	0.011	1.22
Physical activity index	<0.001	1.436	<0.001	1.901	0.001 >	1.323
Life satisfaction	<0.001	1.335	<0.001	1.425		
Happiness	<0.001	1.616			<0.001	1.256
Self-esteem			<0.001	1.411	<0.001	1.212
	Cox and Snell: 0.270		Cox and Snell: 0.370		Cox and Snell: 0.21	
	Nagelkerke: 0.477		Nagelkerke: 0.512		Nagelkerke: 0.37	
	McFadden: 0.376		McFadden: 0.451		McFadden: 0.39	
	Chi-square = 33.7 $P < 0.001$		Chi-square = 22.5, $P < 0.001$		Chi-square = 12, $P < 0.001$	

Note. Sig.: Level of significance.

Additionally, differences in measurement tools, timing of studies, and cultural, social, and economic changes play a role. Although students reported high self-esteem and happiness, their overall life satisfaction remained modest. This can be explained by the distinct nature of these constructs; self-esteem reflects personal worth, happiness relates to momentary joy, and life satisfaction is a broader evaluation of life quality, often influenced by external factors, such as economic conditions, career prospects, and family relationships. Thus, students may feel confident and happy while still experiencing lower overall life satisfaction due to external concerns.

Statistical analysis revealed a significant positive relationship between physical activity and self-esteem in both genders, implying that increased physical activity is associated with higher self-esteem, which is supported by the findings of studies by Nedaei et al (36), Noruzi Zamenjani et al (17), and Branet et al (37). However, Saadatmehr et al (38) found no significant effect of exercise on self-esteem. There was also a strong and significant positive relationship between physical activity and life satisfaction in both genders, with moderate to strong intensity, which corroborates the results of studies by Eshghbaz et al (39) and Niazi et al (40), demonstrating that exercise positively affects life satisfaction in women and older adults. The strongest positive and significant relationship in this study was between physical activity and happiness. The high correlation coefficient in both genders indicated that physical activity is a powerful predictor of student happiness. This is consistent with the findings of Nedaei et al (36), Noruzi Zamenjani et al

(17), and Hamid et al (10); they concluded that exercise significantly improves happiness, even in depressed women. Multivariate analysis showed that physical activity increased the likelihood of high self-esteem by 43%, high happiness by nearly twofold, and high life satisfaction by 32%. Additionally, self-esteem and life satisfaction were strong predictors of happiness. Gender, residence, and income influenced life satisfaction; male students, those living with their families, and individuals with higher incomes reported more satisfaction. Overall, physical activity not only has a direct effect on life satisfaction but also interacts with psychological and social factors, serving as a reinforcing element. Accordingly, it can be a foundation for lifestyle-based psychosocial interventions aimed at improving youth well-being.

Through affecting neurotransmitters, exercise induces potent improvements in self-efficacy, creates extended social opportunities, and helps reduce stress in busy working environments.

The main limitations of this study included cross-sectional nature (which prevented making causal inference), reliance on self-report (with its inherent risk of bias), and the fact that our sample was limited to one academic discipline and geographic region only. However, future works can obviate these shortcomings and analyze larger populations.

Conclusion

Our findings confirmed that surgical technology students at Shahid Sadoughi University of Medical Sciences had moderate levels of physical activity, while their self-

esteem and happiness were high, and life satisfaction was moderate to low. Analyses revealed positive and significant relationships between physical activity and the three psychological variables, with the strongest correlation observed between physical activity and happiness, highlighting the importance of exercise in enhancing positive mood and psychological well-being. The positive associations of physical activity with self-esteem and life satisfaction further emphasized that an active lifestyle can improve students' QoL. Demographic analyses showed that only academic year affected self-esteem, while household income had no relationship with psychological variables. Overall, the results underscore the prominent role of behavioral and psychological factors compared to economic ones in shaping satisfaction, self-esteem, and happiness, and highlight physical activity as a key component in promoting students' mental health and well-being. Hence, policy makers in universities may consider practical steps toward student exercise programs (e.g., creating or developing mandatory/optional regular exercise programs within the curriculum, conducting awareness workshops, and improving sports facilities in dormitories and universities).

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Authors' Contribution

Conceptualization: Zahra Torkashvand and Seyedhossein Hekmatimoghaddam
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Competing Interests

The authors declare they have no competing interests.

Ethical Approval

Written informed consent was obtained from all participants to take part in the study. Moreover, they were assured of anonymity and data confidentiality. In addition, ethical approval was provided by the Research Ethics Committee of Shahid Sadoughi University of Medical Sciences, Yazd, Iran (ethical code: IR.SSU.SPH.REC.1404.013).

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