

Self-Esteem, Goal Orientation, Physical Self-Efficacy, and Health-Related Physical Fitness among Athletic and Non-Athletic Middle-School Students: a Comparative Study

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Abstract

Background: Psychophysiological-related benefits of participation in physical activities in school-aged adolescents are not well investigated. The purpose of the present research was to compare the status of self-esteem, goal orientation, physical self-efficacy, and health-related physical fitness in athletic and non-athletic middle school students. The association among physical fitness and psychological variables were also examined.

Methods: The present study used a correlational-comparative method. Statistical sample included 200 middle school male students in the age range of 12 to 15 years in 2019, Iran. Data were collected using standard questionnaires and instruments. Health-related physical fitness components included pulls-ups, sit-ups, running 540 meters, and flexibility. Independent t-test and Pearson correlation test were utilized for data analysis.

Results: Age of athletic and non-athletic groups were almost identical (14.96 versus 14.84, respectively). Athletic students had higher height (170.31 versus 163.01), lower weight (54.94 versus 60.46), and lower BMI (18.92 versus 22.69) compared with non-athletic students. The results showed that athletic students had significantly higher levels of self-esteem ($P < 0.001$), physical self-efficacy ($P < 0.001$), and health-related physical fitness in comparison to non-athletic students ($P < 0.001$). Moreover, athletic students relied heavily on task-orientation than non-athletic students ($P < 0.001$). Finally, health-related physical fitness was directly related to self-esteem, task orientation, and physical self-efficacy ($P < 0.001$).

Conclusion: These findings may show that participating in regular physical activity and sport teams contribute to positive impacts on both physiological and psychological components.

Keywords: Self-esteem, Goal orientation, Self-efficacy, Physical fitness, Students

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1. Introduction

Physical activity refers to any motion of the body generated by skeletal muscles, resulting in energy consumption (1, 2). Several studies have shown that regular physical activity has positive outcomes on the physical and mental health (3-7). In this regard, it has been demonstrated that physical activity and physical fitness in childhood can affect health status in adulthood (8, 9). Hence, due to the importance of physical activity for health, sedentary life in children and adolescents can bring negative consequences for healthcare system. However, a small number of students have regular physical activity and participate in organized sports and most of them have a sedentary lifestyle without involvements in regular physical activity or organized sports.

Some studies have examined psychological and

physiological components among athletic (active) and non-athletic (inactive) school students. For example, it has been demonstrated that students engaging in regular physical activity have higher perceived motor competence (10, 11), perceived quality of life (12), and aerobic fitness (13, 14), along with less negative emotions (15) in comparison to those who do not engage in regular physical activities. However, some potential psychological- and physiological-related benefits of participation in physical activities are not well investigated. For example, self-esteem, goal orientation, and physical self-efficacy are among the most important determinants of participation in physical activity and sport. Moreover, a previous study investigated skill-related fitness rather than health-related fitness (16). In this study, we aimed to compare the health-related components of physical fitness, such as flexibility, muscular fitness, and endurance in athletic and non-athletic students. In addition,

psychological variables such as self-esteem, goal orientation, and physical self-efficacy were measured as the psychological consequences of participating in physical activity and organized sports. Athletic (active) students are those who regularly engage in various games and sports while non-athlete (inactive) students are those who do not have regular habits of engaging in physical activity or organized sports (14).

Self-esteem is a mental assessment that one has of one's worth. In other words, self-esteem includes relatively stable beliefs about an individual and his/her emotional states (victory, failure, despair, shame) that he/she experiences in life (17). Numerous studies have revealed that physical activity is an important component of positive self-esteem (17-19). However, this issue has been rarely investigated in the context of athletic and non-athletic school students.

Goal orientation is one of the most important and influential factors on the engagement of individuals in physical activity and sport. The type of goal we choose determines our motivation to achieve that goal (20). Ames (21) defines goal orientation as a pertaining pattern of an individual's opinions, imputations, and sensations that determines one's behavioral goals. Tomczak and colleagues (22) demonstrated that motivation for engagement is the consequence of personal orientation. Individuals who are known to be task-oriented are inclined to engage in physical activities because of skill development. On the contrary, individuals categorized as ego-oriented tend to participate with the motivation of social status, competition, and recognition (20). Goal-orientation has received very little attention in the context of school students.

Self-efficacy is the belief that an individual could execute a determined activity in a specific condition (23). Bandura (23) stated that self-efficacy beliefs categorize an individual's ability to perform activities and to believe in positive outcomes. It has been demonstrated that self-efficacy is linked to a various range of activities such as academic, working, or sport activities (24). In this respect, physical self-efficacy is considered as a more task-specific self-efficacy and refers to ability of an individual to perform physical or sport activities (25). Several studies have found that higher levels of physical self-efficacy are linked to better performance in sport activities (18, 26, 27). Meanwhile, this issue is rarely examined in the context of school sports.

Altogether, based on the above-mentioned studies,

it is necessary to examine differences of self-esteem, goal orientation, physical self-efficacy, and health-related physical fitness among athletic and non-athletic school-students. Therefore, the aim of this study was to compare the self-esteem, goal orientation, physical self-efficacy, and health-related physical fitness among athletic and non-athletic students. Moreover, we aimed to examine the relationships between physical fitness and psychological variables. Based on previous research findings, the following were expected: 1) athletic students would show higher levels of self-esteem, task orientation, physical self-efficacy, and health-related physical fitness; 2) higher levels of health-related physical fitness are significantly associated with higher levels of self-esteem, task orientation, and physical self-efficacy.

2. Methods

The present work employed a correlational-comparative approach. The participants consisted of 200 male middle school students in 2019, Iran, selected via convenience sampling method. The students were aged from 13 to 16 years (mean age of 14.90 years). Inclusion criteria were being a member of sport teams in school (for athletic group) or being non-athletic and inactive (for non-athletic group) based on the Godin-Shephard Leisure-Time Physical Activity Questionnaire (25), in which means less than 14 during the week represent a very low physical activity. This questionnaire has been employed in previous studies to measure leisure-time physical activity and has excellent validity and reliability (25-27). Exclusion criteria were having any physical or mental disorders, or not completing questionnaires or physical fitness items. The participants were selected based on G*Power with an effect size of 80%, a test power of 0.8, and a significant level of 0.05 (20). Based on G*Power, 52 participants were required for each group of athletic or non-athletic students. However, in the present study, we applied a larger sample for each group (including 100 students in each group) to obtain more accurate mean values.

2.1 Measures

Herein, the dependent variables were self-esteem, goal orientation, physical self-efficacy, and health-related physical fitness.

2.1.1 Self-Esteem: The Rosenberg Self-Esteem Scale (28) was utilized to measure the students' self-esteem. This instrument includes 10 four-point Likert items from strongly disagree (0) to strongly agree (3).

Its reliability coefficient was 0.82 (29). In this research, we asked eight experts to assess the validity of this questionnaire including item-level face validity index (I-FVI), Content Validity Index (CVI), and Content Validity Ratio (CVR). These raters confirmed the validity of this scale (I-FVI=1.00, CVI=1.00, CVR=1.00). In addition, the reliability of this questionnaire was assessed and its Cronbach's alpha coefficient was 0.92.

2.1.2 Goal-Orientation: Task- and Ego Orientation Questionnaire in Sports (30) was used to assess goal orientation. The questions are in two aspects of task orientation and ego orientation. There are seven questions assessing the task-oriented aspect, and the remaining six questions measure the ego-oriented aspect. This scale uses a Likert scale from strongly disagree (1) to strongly agree (5). Its reliability coefficient was 0.82 (30). In the present research, the validity of this scale was confirmed by eight experts (I-FVI=0.92, CVI=1.00, CVR=0.92). Additionally, the reliability of this questionnaire was assessed and its Cronbach's alpha coefficient was 0.90.

2.1.3 Physical Self-Efficacy: Physical Self-Efficacy Scale (31) was employed to measure physical self-efficacy. This scale consists of 22 items which related to two structures of the physical self-efficacy: Perceived Physical Ability (10 items) and Physical Self-Presentation Confidence (12 items). The student was asked to rate his degree of agreement or disagreement with each sentence on a six-point Likert scale from strongly disagree (1) to strongly agree (6). Ryckman and co-workers (31) reported a Cronbach's alpha coefficient of 0.82 for the test. In this research, the validity of this scale was confirmed by eight experts (I-FVI=0.92, CVI=1.00, CVR=0.96). Furthermore, the reliability of this questionnaire was assessed and its Cronbach's alpha coefficient was 0.88.

2.1.4 Health-Related Physical Fitness: We used American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD) Physical Fitness Test to measure the level of health-related physical fitness of the students. AAHPERD fitness test is a fitness test for school level boys and girls to assess their upper body strength, endurance, flexibility, coordination, and others. We measured pull-ups, sit-ups, 560-meter run, and flexibility.

2.2 Data Analysis

In this study, descriptive statistics including means and standard deviations were utilized to describe the

research variables. Kolmogorov-Smirnov test was employed to assess the normality of data. Independent t-test after BMI adjustment was utilized to compare the means of the groups. Regression analysis was used to measure the associations between self-esteem, goal orientation, and physical self-efficacy with health-related physical fitness after BMI adjustment. The significance level was set at $P < 0.05$.

3. Results

The participants consisted of 200 male middle school students. The students were aged from 13 to 16 years with an average of 14.90 years. Mean and standard deviation of age, height, weight, and BMI are presented in Table 1. Descriptive results revealed that both athletic and non-athletic students had almost identical age with no significant differences ($t=0.692$, $P=0.425$). Athletic students had significantly higher height ($t=4.151$, $P < 0.001$), lower weight ($t=2.256$, $P < 0.001$), and lower BMI ($t=4.169$, $P < 0.001$) compared with non-athletic students. The results of Kolmogorov-Smirnov test showed that the distribution of the variables in both groups is normal (all $P > 0.05$).

Results of comparing research variables across athletic and non-athletic students after BMI adjustments are demonstrated in Table 1. Accordingly, the results of independent t-test indicated that the athletic students had significantly higher self-esteem compared with the non-athletic students ($F=4.379$, $P < 0.001$). Moreover, the results of independent t-test showed that the athletic students had significantly higher task-orientation compared with the non-athletic students ($F=5.158$, $P < 0.001$). On the other hand, there were no significant differences between athletic and non-athletic students regarding ego-orientation ($F=1.017$, $P=0.210$). Concerning physical self-efficacy, the results demonstrated that athletic students had significantly higher perceived physical ability ($F=4.085$, $P < 0.001$) and physical self-presentation confidence ($F=5.901$, $P < 0.001$) compared with non-athletic students. Finally, the results of independent t-test revealed that the athletic students had significantly higher scores in pull-ups ($F=11.260$, $P < 0.001$), sit-ups ($F=15.957$, $P < 0.001$), 560-meter run ($F=16.920$, $P < 0.001$), and flexibility ($F=12.963$, $P < 0.001$) compared with the non-athletic students.

Results of regression analysis after BMI adjustments are summarized in Table 2. As seen, all the components of health-related physical fitness including pull-ups, sit-ups, 560-meter run, and flexibility were significantly

Table 1: Comparing the mean scores of groups across the research variables

Variables	Athletic Group Mean±SD	Non-Athletic Group Mean±SD	Statistics
Age	14.96±0.75	14.84±0.51	t=0.692 P=0.425
Height	170.31±11.03	163.01±13.46	t=4.151 P<0.001***
Weight	54.94±10.48	60.46±12.87	t=2.256 P=0.012*
BMI (kg/m ²)	18.92±2.12	22.69±3.32	t=4.169 P<0.001***
Self-Esteem	18.98±4.48	12.58±2.82	F=4.379 P<0.001***
Task-Orientation	3.51±1.45	2.16±1.20	F=5.158 P<0.001***
Ego-Orientation	3.05±1.01	2.91±0.99	F=1.017 P=0.320
Perceived Physical Ability	30.10±8.33	23.46±7.31	F=4.085 P<0.001***
Physical Self-Presentation Confidence	28.92±5.50	21.55±3.68	F=5.901 P<0.001***
Pull-Ups	25.12±8.33	13.22±7.90	F=11.260 P<0.001***
Sit-Ups	48.07±7.99	27.03±11.99	F=15.957 P<0.001***
560-Meter Run	119.85±13.76	155.02±18.24	F=16.920 P<0.001***
Flexibility	38.58±7.30	25.18±8.62	F=12.963 P<0.001***

*Significant at P<0.05; ***Significant at P<0.001

Table 2: Results of associations between fitness and psychological variables

	Self-Esteem	Task-Orientation	Ego-Orientation	Perceived Physical Ability	Physical Self-Presentation Confidence
Pull-Ups	r=0.765*** P<0.001	r=0.517*** P<0.001	r=0.093 P=0.768	r=0.704*** P<0.001	r=0.210** P=0.009
Sit-Ups	r=0.635*** P<0.001	r=0.496*** P<0.001	r=0.058 P=0.804	r=0.765*** P<0.001	r=0.501** P=0.008
560-Meter Run	r=0.702*** P<0.001	r=0.609*** P<0.001	r=0.010 P=0.980	r=0.658*** P<0.001	r=0.749*** P<0.001
Flexibility	r=0.228* P=0.011	r=0.543*** P<0.001	r=0.021 P=0.863	r=0.846*** P<0.001	r=0.326* P=0.011

*Significant at P<0.05; **Significant at P<0.01; ***Significant at P<0.001

and directly associated with self-esteem, task orientation, perceived physical ability, and physical self-presentation confidence (all P<0.05).

4. Discussion

The findings of this study demonstrated that athletic students were psychologically and physiologically in better status compared with non-athletic students. Specifically, the results indicated that athletic students have higher self-esteem scores than their non-athletic group. This finding confirms our hypothesis and is consistent with those of previous studies (17-19)

and implies that participating in sports activities and organized sports increase the self-esteem of the students. Thus, it can be claimed that athletic students encompass higher mental health and particularly self-esteem compared to non-athletic students. In addition, participating in regular physical activities and organized sports, regardless of the type of the sport, allows people to assess their traits and characteristics more capably and create a positive attitude towards themselves (18).

Moreover, the findings showed that athletic students have higher task-orientation than their non-athletic

peers. However, ego-orientation did not significantly differ significantly between athletic and non-athletic students. This finding confirms our hypothesis and is in line with those of previous studies (20, 21) and states that athletic students rely heavily on task rather than themselves. Indeed, in young athletes, ego-orientation can frighten them into failing in competitive environments and can cause psychological problems. For this reason, it is a positive indication that athletic students are more inclined to task orientation rather than ego orientation. This might be because in organized sports, goals are achieved through the performance of a member of a team, and the performance of an individual affects not only himself but also his team.

Moreover, the results indicated that athletic students encompass higher physical self-efficacy (perceived physical ability and physical self-presentation confidence) than their non-athletic group. This finding confirms our hypothesis and is in accordance with those of previous studies (25-27) and reveals that participating in sports activities and organized sports increase the physical self-efficacy of the students. This finding confirms the positive effect of exercise on increasing physical self-efficacy. To explain this finding, it can be stated that the power of self-efficacy refers to the extent to which a person believes in performing a successful action or behavior at different levels of difficulty. It means believing that one is strong or weak or in other words, one has confidence in oneself and can perform one's duties accurately (23, 24). In addition, self-efficacy due to one's intrinsic motivations causes the person to strive spontaneously in the environment and to try as much as possible to continue and complete tasks, actions or behaviors and to show more resistance against obstacles (25). Some research has demonstrated that physical activity and exercise are not only valuable tools for maintaining physical and mental health in individuals, but also help to socialize, acquire skills and improve self-efficacy (25-27). Exercise causes people to see challenging problems and issues as a skill exercise, to become more interested in the activities in which they participate, to feel committed and conscientious towards them, and finally, not to be discouraged by failures.

In addition, the results revealed that the athletic students reported higher health-related physical fitness scores than the non-athletic group. This finding confirms our hypothesis and is in line with those of previous studies (14, 20), illustrating that performing sports contributes to higher physical fitness. Higher fitness is perhaps due to regular engagement in

physical activities, which may increase joint mobility, in order that their joints act with higher freedom, their muscles expand more, and their ligaments and tendons flex more. Moreover, regular physical activity results in enhancing the body's respiratory function. The enhancement of respiratory function is specified by the strength of respiratory muscle, thoracic compliance, upper respiratory system persistence, and respiratory elasticity. In contrast, non-athletic students' joints became more rigid and less respiratory system resistance due to absence of engagement in sports and games.

Lastly, the results demonstrated that all the components of health-related physical fitness were significantly and directly associated with self-esteem, task orientation, perceived physical ability, and physical self-presentation confidence. This finding confirms our hypothesis and is in accordance with those of past research (14, 20). A change in physical fitness is a mechanism by which exercise affects individual performance and then aspects of well-being such as self-esteem and self-efficacy. Therefore, participating in exercise training results in changes in physical fitness and the individual thus experiences more changes in self-esteem and self-efficacy. Consequently, compared to people with more physical fitness, those who are less physically fit are prone to experience less self-esteem and self-efficacy.

A limitation to this study is that we did not consider variables, which also may be of significance for the participation of students in organized sport teams such as the socio-economic status of the family, the local environment, and individual factors. Further research is needed to examine these issues. Moreover, we used only male participants, which makes it difficult to generalize the results to girls. Future research by including girls could provide comprehensive findings regarding associations between participating in organized sport teams and psycho-physiological variables in school students.

5. Conclusions

To conclude, the present study showed that the athletic students encompassed higher self-esteem, physical self-efficacy, and health-related physical fitness in comparison to non-athletic students. Moreover, the athletic students relied heavily on task orientation in comparison with non-athletic students. Finally, health-related physical fitness was related to self-esteem, task orientation, and physical self-efficacy. These findings

might reveal that participating in regular physical activities and sport teams has positive impacts on both physiological and psychological components. There are some practical implications for parents and physical educators at school. According to the findings of the current study, we suggest that parents and physical educators encourage students to participate in regular physical activities and particularly in organized sport teams.

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Ethical Approval

The Ethics Review Board of the University approved protocol of the current research with the code of IR.IAU.AK.REC.1398.001. The participants voluntarily participated in this study. Students' parents gave informed written consent.

Conflicts of interest: None declared.

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