

Knowledge, Attitude, and Pattern of Physical Activity in Middle School Students in Isfahan, 2015

Abstract

Background: The incidence of overweight and obesity in children has increased in recent decades. Physical activity (PA), which is a multidimensional behavior, has an important role in preventing and decreasing obesity. The aim of the study is to evaluate the knowledge, attitude, and exercise habits of middle school students and also explore the differences regarding demographic variables in Isfahan, Iran. **Materials and Methods:** One thousand seven hundred and forty-one middle school students were studied in this cross-sectional study, in 2015, Isfahan. Knowledge, attitude, and pattern of PA were evaluated by a questionnaire. Data were described using central tendency and dispersion values, as well as *t*-test, Chi-square, ANOVA, and linear regression tests for further analysis. **Results:** Students living in Khor and Biabanak and Tiran got the highest and lowest scores in knowledge (mean \pm standard deviation: 9 ± 1.32 and 6.7 ± 2.19 , respectively). Education of the father is the only variable which was associated with the knowledge about PA after adjusting for other factors. About 62.5% of the students mentioned a good attitude toward PA. About 50% of the students said that they always and often do exercise. The most favorable exercise for all the students was walking. **Conclusion:** We provide the pattern of PA among middle school students of Isfahan province, which can be used to design evidence-informed policies and interventions that aim to increase PA in students.

Keywords: Adolescent health, Iran, Isfahan, physical activity

Introduction

Obesity in adolescents is a major public health problem worldwide which has a considerably high cost for health systems.^[1] The incidence of overweight and obesity in children has increased in recent decades.^[2] The prevalence of overweight and obesity in children and adolescents in developing countries was increased from 8% to 13% from 2008 to 2013.^[3] Obesity can lead to different adverse complications in childhood and also in adulthood such as metabolic syndrome, hypertension, dyslipidemia, type 2 diabetes, psychological problems, and many more chronic diseases.^[4-6]

Studies show the important role of physical activity (PA) in preventing and decreasing obesity.^[7-9] The prevalence of physical inactivity is reported from 30% to 70% in different studies in Iran.^[10] Based on the third national surveillance of risk factors of noncommunicable diseases (SuRFNCD-2007), the prevalence of low PA was 40% among Iranian adults

and about 15% of them had no PA at all.^[11] CASPIAN-IV study shows that the prevalence of physical inactivity among Iranian secondary school students was 24% in 2011.^[12]

PA is a multifactorial behavior which consists of demographical, physiological, psychological, social, and environmental factors.^[13-15] Study the opinion of adolescents about PA and collaboration between stakeholders are key components in designing cost-effective interventions.^[16,17] The aim of this study is to evaluate the knowledge, attitude, and exercise habits of middle school students and also explore the differences regarding demographic variables in Isfahan, Iran.

Materials and Methods

This cross-sectional study is a part of a grant project (code: 188169) conducted in Isfahan province during 2015. The study population was middle school students

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living in Isfahan province, of whom 1741 were selected. The samples were selected using multistage cluster random sampling.

At the first step, every town of the province under the coverage of Isfahan University of Medical Sciences was assumed as clusters. Next, middle school student population of these towns, urban-to-rural ratio, and male-to-female ratio of student population were calculated, and the final sample size in each town was determined as a proportion to size. In each area of towns, a list of schools was designed and a number of them were selected randomly. A total number of samples in each town were divided by the number of selected schools to find the number of samples in each school. Finally, by the list of students and table of random numbers, students were determined and asked to fill out the questionnaire. Students unwilling to participate were not included in the study.

The questionnaire was designed after the literature review and interviews with experts. Content validity was confirmed by an expert panel with professionals in community medicine, public health, epidemiology, and school health. After the content and face validity confirmation, the questionnaire was answered by 30 students and reevaluated by the expert panel. For the reliability assessment, Cronbach's alpha coefficient was applied, which was calculated 80% for the whole questionnaire.

The questionnaire consisted of three sections on knowledge, attitude, and practice toward PA and a demographic part. In the demographic session, data about the age, sex, education level of mother and father, and occupation of mother and father were gathered, and there was a single question about training about PA and the source of training. In the knowledge session, there were 14 questions, which were scored as true (score: 1) and false (score: 0), so the final score would be 0–14. In the attitude session, there were 12 questions. The final score would be 0–12. The score of 0–3 is defined as a low attitude, score of 4–8 as moderate, and score of 9–12 as high attitude. In the practice sessions, students were asked about the type of exercise they do in their spare time and type of transportation in the city.

For questioning, fifty experienced interviewers were selected in each town and were trained in an 8-h workshop to keep the uniformity of data and control the confounding variables. Afterward, they were attended selected schools and explained the issues about the questionnaire to the selected sample. The questionnaires were completed by students (self-administered). After collecting the questionnaires, they were controlled by questioners and delivered to observers in town for quality control. After that, questionnaires were delivered to program executors who were coded them for data entry.

Epi6 (Centers for Disease Control, Atlanta, GA, USA) software was used and the operator noted any mismatch

during data entry which were resolved by the executors' assistance. Data were analyzed by SPSS version 22 (SPSS Inc., Chicago, IL, USA) using central tendency and dispersion, as well as *t*-test, Chi-square, ANOVA, and linear regression tests. To demonstrate the data on the map, ArcGIS (ESRI 2013, Redlands, CA, USA) was used.

This study was approved ethically by the Ethics Committee of Isfahan University of Medical Sciences (code: IR.MUI.REC.1396.3.289).

Results

In the current study, 1741 middle school students including 859 girls (49.3%) and 882 boys (50.7%) were included, from which 263 (15.1%) and 1478 (84.9) were living in rural and urban areas, respectively. The mean age of participants was 13.8 ± 1.01 years.

One thousand and nineteen students (88%) said that they were trained about the advantages of PA. Most of the students (81%) have got their information from multiple sources. Seventy-five percent of them got their information from media, e.g. TV, radio, or newspapers, 47% of students got their information from health centers (26.7%) and physicians (37.3%), and other sources of information were school and parents (49.7% and 58.4%, respectively).

The mean score of knowledge was 7.9 ± 2.06 (range: 2–13). Figure 1 demonstrates the mean score of knowledge in each town of Isfahan. Students living in Khour and Biabanak and Tiran got the highest and lowest score in knowledge (mean \pm standard deviation: 9 ± 1.32 and 6.7 ± 2.19 , respectively).

The mean score of knowledge in students who got their information from the health system (physician or health centers) was higher than those who use other sources (8.2 ± 2.05 vs. 7.8 ± 1.97 , $P < 0.001$). Table 1 demonstrates a score of knowledge in association with demographic variables.

We entered significant variables in linear regression analysis which shows the significant association between paternal education level and knowledge of students after adjusting for sex, maternal and paternal education, and mothers' occupation, which means that those whose fathers had higher education level got higher knowledge score about PA [Table 2].

In the attitude session, 1079 students (62.5%) mentioned a good attitude toward PA and declared that PA is the best way for their health status and others do not have such an attitude. In total, 44% of the students had got high attitude score, 51% had moderate attitude score, and 5% had low attitude score. Figure 2 demonstrates the mean score of attitude in Isfahan province.

In the practice session, 27.2% and 22.1% of students said that they always and often do exercise, respectively.

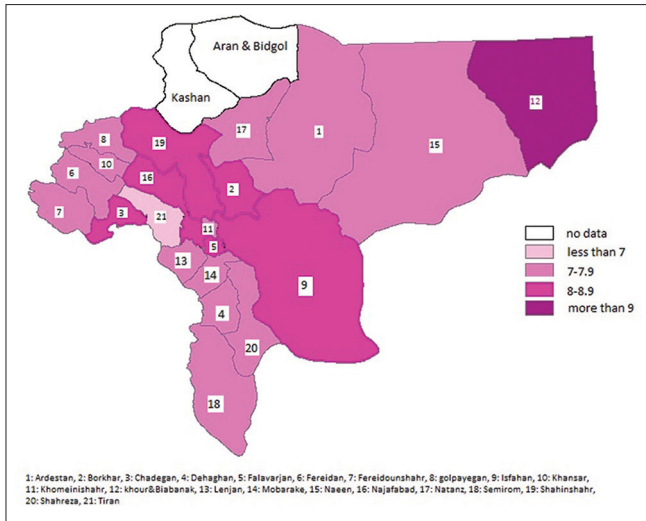


Figure 1: Knowledge score toward physical activity in middle school students, Isfahan, Iran, 2015

Among those who answered that they never (10%) or seldom (13.4%) do exercise, 228 students (60.2%) used to do exercise, previously.

Among different types of exercise, girls prefer walking, stretching, and volleyball (75, 70, and 60%, respectively) and boys prefer walking, football, and cycling (74, 71 and 67%, respectively). Students living in rural areas as well as those living in urbans prefer walking and stretching for their leisure time (75 and 69% in rural and 74% and 64% in urbans, respectively).

Further findings were about students’ PA during transportations within the city. In this regard, 1249 students (79.3%) walk and/or transport by bicycle and the rest of them (20.7%) do not use active transportation.

Discussion

The result of this study showed the positive role of paternal education on knowledge of middle school students about PA independent of other factors. It shows that although most of the students got their information from media, those who got their information from the health system had got higher knowledge score. The attitude toward PA was almost moderate in towns of Isfahan province. The most favorable exercise for girls/boys living in urban/rural areas was walking and about 79% of students walk and/or use a bicycle for transportation in the town.

Studies showed the education-related and socioeconomic disparity in PA.^[18,19] Our study found that residency in urban/rural, sex, maternal and paternal occupation, and maternal education did not associate with middle school students’ knowledge about PA, and the only variable that has a positive role was paternal education level. This is in line with the result of El-Ammari *et al.* which shows that physical inactivity is associated with illiteracy of the father in Morocco school-aged students.^[20] Another

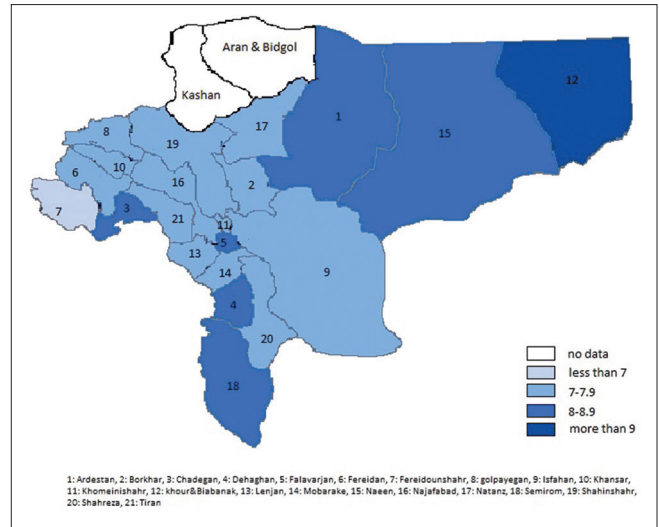


Figure 2: Attitude score toward physical activity in middle school students, Isfahan, Iran, 2015

Table 1: Knowledge score with demographic parameters of the study population

Variables	n (%)	Knowledge score (mean±SD)	P
Gender			
Girls	824 (49.6)	8.0±2.04	0.02
Boys	835 (50.3)	7.8±2.08	
Residence area			
Urban	1407 (84.9)	8.0±2.05	0.01
Rural	252 (15.1)	7.6±2.09	
Maternal educational level			
Illiterate	71 (4.1)	6.9±1.87	<0.001
Elementary school	443 (25.9)	7.8±2.02	
Middle school	450 (26.3)	7.8±2.17	
High school	446 (26.0)	8.1±1.93	
Academic degree	303 (17.7)	8.3±2.05	
Paternal educational level			
Illiterate	80 (4.7)	7.3±2.05	<0.001
Elementary school	308 (18.1)	7.5±2.00	
Middle school	482 (28.4)	7.9±2.14	
High school	456 (26.8)	8.1±1.99	
Academic degree	374 (22)	8.2±1.99	
Maternal occupation			
Employee	140 (8.2)	8.5±2.03	0.009
Self-employed	93 (5.4)	7.7±1.84	
Retired	12 (0.7)	8.1±2.31	
Housewife	1468 (85.7)	7.9±2.06	
Paternal occupation			
Employee	407 (25.5)	8.1±1.93	0.08
Self-employed	1004 (62.8)	7.9±2.07	
Retired	131 (8.2)	7.9±2.16	
Jobless	55 (3.4)	7.4±2.24	

SD: Standard deviation

study showed that being male is associated with increased PA.^[21] The result of our study did not find any association

Table 2: Linear regression between demographic variables and knowledge score

Variables	Unstandardized coefficients		t	Significant
	B	SE		
Paternal education	0.131	0.057	2.316	0.021
Maternal education	0.114	0.060	1.911	0.056
Area of residency	-0.199	0.145	-1.377	0.169
Sex	-0.174	0.102	-1.707	0.088
Maternal occupation	-0.036	0.060	-0.594	0.552
Constant	7.768	0.412	18.874	0.000

SE: Standard error

between sex and knowledge score but showed the role of sex in choosing favorable exercise as girls prefer stretching exercises in their leisure time and boys prefer football, both after walking.

Our study showed that 88% of the students have been trained about PA and media has an obvious role in educating; health system (physician and health centers) stands in the second place but was more effective as the knowledge score of those who got their information from health system was higher than those using mass media. In a systematic review on 15 mass media campaigns, it is indicated that a large number of the target group can be reached and about half of campaigns were successful in increasing knowledge or attitude about PA.^[22]

Our study indicated that more than half of the students have a good attitude about PA. Studies showed that physically active people are happier.^[23,24] In our study, about 80% of the students believed that exercise makes them more energetic and happy. The results of other studies have shown that PA has positive effect on mental health;^[25] most of the students in our study believed in that.

The result of our study reveals that the most favorable exercise for middle school students regardless of sex is walking. In the second place, girls prefer stretching exercises and boys prefer football. Michael *et al.* reported that participation in teams may help youth to find their favorable sport.^[26] Moreover, our results showed that about 80% of the students use active transport in towns, which can be of great potential for promoting PA, as interventions on promotion of walking are no-cost strategies and have shown effectiveness.^[27]

Another finding valuable for discuss is the distribution of knowledge and attitude score in every town of Isfahan province which reveals a model map about students' idea toward PA. In this regard, most of the towns got an average score in knowledge and attitude. The highest score in both the dimensions belongs to Khor and Biabanak, which is located in the East of Isfahan province; the lowest score in knowledge belongs to Tiran and in attitude belongs to Fereidounshahr, which are the two cities in the West of Isfahan province. The results of Caspian-IV study indicated

that the mean of PA in 6–18-year-old students living in Isfahan was 1.56 h/day.^[28] In our study, we did not calculate the mean time of PA but the level of knowledge and attitude about PA in students in different cities of Isfahan province.

Conclusion

The results of our study provided the pattern of PA among middle school students of Isfahan province and can be used to design evidence-informed policies and interventions that aim to increase PA in students.

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Conflicts of interest

There are no conflicts of interest.

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