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Effect of Heart Health Attitudes of Children on Their Physical Activity Level and Participation to Sport

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Abstract

The purpose of the present study was to investigate the effect of the attitudes of children towards heart health on their physical activity level. The study was conducted on 499 people from the age group of 12-13, 169 (33.9 %) of which were registered/club athletes and 330 (66.1 %) didn't perform any sports in a sports club. As the data collection tools, the Personal Information Form, the Physical Activity Questionnaire (PAQ) and the Scale for the Attitudes towards the Improvement of Heart Health in Children (SAIHHC) were used in the study. Although the attitudes of the children taking part in the study towards the hearth health were found out to be at a high level, their level of physical activity was medium. The physical activity level of the children who were registered/club athletes and their attitude towards the sub-dimensions of heart health and exercise were found to be higher compared to that of the children who didn't perform any sports in a club. It can be said in general that the heart health attitude of children were at a high level, but they didn't spare adequate time for physical activities.

Keywords: Children, Physical Activity, Heart Health

Introduction

The habits gained in the childhood period tend not to change in adulthood, and thus it is necessary to get people adopt the positive health behaviors at early ages (Hozawa, 2011; Santos-Beneit et al., 2019). In order to make changes in behaviors, it is necessary to know about the attitudes concerning the behaviors in question and to change these attitudes in a positive direction (Williams et al., 2003). For instance, the smoking behavior, which is a preventable reason of the development of cardiovascular diseases, can be decreased by means of health development programs (Miller, Gillepie, Billian and Davel, 2001). Eagle *et al*. (2013) stated that they increased the level of healthy nutrition and physical activity (PA) and decreased the television watching time in middle school students by means of the program they implemented on middle school students. It has been shown in another study involving the implementation of a health training program that there were statistically significant changes in students' knowledge and attitudes concerning nutrition, exercise and smoking at the end of the program (Rouzbahani et al., 2009).

PA is of importance in terms of the metabolic health of children. Performing certain levels of PA is necessary for the elimination of risk factors for cardiovascular diseases as well (Andersen et al., 2006). A behavioral change study carried out on children suggested that the healthy nutrition and PA behaviors continued until the adolescence (Nader et al., 1999). Cardiovascular risk problems can start developing during the childhood period (Kannel and Dawber, 1972). Thus, it is necessary to provide people with the healthy living training during the childhood period (Williams et al., 2003). Based on the prediction that various diseases will become widespread in societies, the World Health Organization emphasized the necessity for teaching in schools the correct health behaviors concerning various diseases and developed a project to that end (Evans, Hall, Jones and Neiman 2007). Training is provided at various levels in order to improve the health-related knowledge of students and teach them the healthy living style in Turkey, too (Özcan, Kılınç and Gülmez, 2013). However, there is no precise information concerning what these training activities impart to the society. Thus, it is necessary to determine the PA levels and cardiovascular health attitudes of children and to learn about the reasons affecting this situation.

The most dominant time of behavioral learning is childhood. This period is an excellent opportunity to improve health. (Fernandez-Jimenez, Al-Kazaz, Jaslow, Carvajal, and Fuste, 2018). However, in order to understand this period, children's behavior and attitudes need to be known. Therefore, purpose of our study is to determine children's physical activity levels and improving heart health attitudes, whether there is relationship between physical activity levels and heart health promoting attitudes and doing sport actively in a club affect these attitudes.

Material and Method

Participants

The study was carried out on a total of 499 people participants the age group of 12-13 who were attending public schools, 248 (54,41 %) of whom were female and 251 were male (54.10 %). 33.9 % of the participating children were engaged in sports as licensed athletes of sports clubs, and, 68.6 % of them were taking part in competitions and contests. Of the participants who were engaged in sports, 52.1 % were performing school team activities out of a club, while 36.7 % were performing extracurricular exercises in connection with their

school. The participants of the study were informed about the study and their verbal consent was obtained before the study was started. The data was collected by the four interviewers taking charge in the study by means of face-to-face interview technique in a classroom setting. In the study, the Subject Information Form, the Physical Activity Questionnaire (PAQ) and the Children's Cardiovascular Health Promotion Attitude Scale (CCHPAS) were employed as the data collection tools. The permissions required for the study to be conductedin the mentioned schools were obtained from the Provincial Directorate of National Education of the Office of the Provincial Governor of Uşak.

Physical Activity Questionnaire (PAQ)

The PAQ was developed by Kowalski *et al*. (1997), and it was adapted to the Turkish society by Sert and Temel (2014). The PA Questionnaire comprises 9 items and investigates the PA performed by the child within the last seven days and the frequency of these physical activities. The questions are in the form of five-point Likert-type questions stating the frequency of the behavior but prepared in different structures. The minimum point that can be scored in each item of the PAQ is 1, while the maximum point is 5. The total minimum score that can be obtained from the PAQ is 9, while the total maximum score that can be obtained is 45. The PA level is considered to be lower when it getscloser to 9 points, and to be higher when it gets closerto 45 points. The 10^{th} item of the PAQ is not included in the scoring. This item was formed in order not to evaluate the questionnaire of a student if he/she experienced a circumstance that prevented him/her from performing PA that specific week. The participants experiencing such an event were excluded from the present study. Duration of the questionnaire was determined about 40 minutes (Crocker et al. 1997). In the study conducted concerning the validity and reliability of the Turkish version, the Cronbach Alpha coefficient was .82 (Sert and Temel 2014).

Children's Cardiovascular Health Promotion Attitude Scale (CCHPAS)

The Children's Cardiovascular Health Promotion Attitude Scale (CCHPAS) is a 16-item Likert-type Scale developed by Arvidson (1990) and adapted to the Turkish society by Haney and Bahar (2014). The original scale study was carried out on children in the 4^{th}, 5^{th} and 6^{th} grade-levels, and internal consistency coefficient was found as 0.80. It was found out by means of the factor analysis that the scale had a four-factor structure and there were four items under each factor. Accordingly, the sub-dimensions of the Children's Cardiovascular Health Promotion Attitude Scale are as follows: exercise, nutrition, smoking and stress control. The minimum score that can be obtained from the scale is 16, and the maximum score is 64. At each sub-dimension, the minimum point that can be scored is 4, and the maximum point is 16. Higher scores obtained in the scale indicate more positive attitudes concerning the cardiovascular health. Only the 12^{th} item of the scale is reversely directed.
The scales were developed for the children of 12-14age group. In the present study, the Cronbach α internal consistency coefficients were examined and the Cronbach α internal consistency coefficient of the 9-item PA Questionnaire Scale was found as 0.783, and the Cronbach α internal consistency coefficient of the Children's Cardiovascular Health Promotion Attitude Scale was 0.734.

Statistical Method

In order to analyse the data SPSS 14.0 program was used. Normal distribution of the data was identified by Kolmogorov Smirnov Test. In order to determine personal values of the participants percentage, standard deviation and frequence were used. A relationship between the children's physical activity levels and their heart health attitudes was assessed with the Pearson Correlation coefficient. Active sport levels of participants were compared with the Independent sample t-test. Significance level is accepted as $p<0.05$.

Results

Table 1. The scores obtained in the PAQ and the CHPAS

Scale and sub-dimensions	N	Min	Max	Mean±SD
Physical Activity Questionnaire	431	9.5	45	27.2±7.1
Cardiovascular Health Promotion Attitude	499	20	64	54.3±5.7
Exercise sub-dimensions	499	4	16	13.7±2.1
Nutrition sub-dimensions	499	4	16	12.5±2.4
Smoking sub-dimensions	499	5	16	14.2±2.2
Stress Control sub-dimensions	499	4	16	13.8±2.2

The average score of the children participating in the study obtained in 9 questions in the Physical Activity Questionnaire was found as 27.2±7.1. Accordingly, the physical activity level of the children of the age group of 12-13 is medium. The overall score of the cardiovascular health attitudes of the children was 54.3±5.7 close to the maximum score of this scale. An average score of 13.7±2.1 was found for the exercise dimension of the cardiovascular health attitude scale, while the average score for the nutrition dimension was found as 12.5±2.4, the average score for the smoking dimension was 14.2±2.2, and the average score for the stress control dimension was 13.8±2.2. The highest score in the cardiovascular health attitude scale was found for the smoking dimension, with a value of 14.2±2.2 (Table 1).

Table 2. The Correlation between the PAQ and the CHPAS

		Cardiovascular	Exercise	Nutrition	Smoking	Stress Control
Physical Activity	r	0.18	0.30	0.06	-0.03	0.16
	p	0.000 *	0.000 *	0.194	0.463	0.001 *

When the results of the study were examined, a slight positive correlation was found between the PA levels of the children and their cardiovascular health attitudes (r=0.18; p=0.000).When the correlation the cardiovascular health attitude scale and its sub-dimensions have with the PA was examined, it was found out that there was a slight positive correlation between the PA and the sub-dimensions of exercise and stress control (r=0.30; p=0.000; r=0.16 p=0.001), and no significant correlation was found between the PA and the sub-dimensions of nutrition and smoking (Table 2).

Table 3. Examination of the PAQ and CHPAS depending on the variable of being a licensed athlete/club athlete

Scale and sub-dimensions	Club Athlete ?	N	Mean±SD	p
Physical Activity	Yes	133	30.94±6.96	0.000 **

	No	298	25.58±6.45	
Cardiovascular Health	Yes	169	55.18±5.37	0.009 **
	No	330	53.79±5.78	
Exercise sub-dimensions	Yes	169	14.64±1.73	0.000 **
	No	330	13.19±2.05	
Nutrition sub-dimensions	Yes	169	12.50±2.42	0.947
	No	330	12.48±2.43	
Smoking sub-dimensions	Yes	169	14.28±2.05	0.774
	No	330	14.22±2.28	
Stress Control sub-dimensions	Yes	169	13.76±2.24	0.537
	No	330	13.89±2.15	

When the physical activity levels and the cardiovascular attitudes of the participants of the study were examined depending ontheirbeing a licensed athlete/club athlete, statistically significant differences were found between the groups in terms of their physical activity levels and cardiovascular health attitudes, and in the sub-dimension of exercise ($p<0.05$). Whereas, no statistically significant differences were found in the subdimensions of nutrition, smoking and stress ($p>0.05$; Table 3).

Discussion

The cardiovascular health attitude of the children in the age group of 12-13 was at a high level in the present study (Table 1). Schools provide an efficient system for the provision of health education. Both class-based and risk-based interventions have positive effects on the PA and cardiovascular health attitudes (Harrell, McMurray, Gansky, Bangdiwala and Bradley 1999; Peñalvo et al., 2013).As a matter of fact, the implemented educational activities have been shown to make children adopt healthy habits and to increase their knowledge on cardiovascular risk factors (Cecchetto, Pena and Pellanda, 2017). This result supports our findings and indicates that a good level of informing is performed and positive attitudes are achieved concerning the cardiovascular health at school.

When the correlation between the PAand the cardiovascular health is examined, the PA was found to have a positive correlation with exercise and stress control (Table 2). This result indicates that exercise has a positive effect on stress. Previous studies on exercise and stress have suggested that exercise training is effective in decreasing anxiety and stress (Biddle and,Asare, 2011). Salmon (2000) suggested that sensitivity to stress decreased after the exercise training. It was also suggested in previous studies that exercise might have positive effects on stress disorder (Manger and Motta, 2005). This result is important in terms of indicating that PA decreases stress in children, which is an important factor concerning the cardiovascular health.

It is found out in the present study that the children didn't spare adequate time for the PA and were moderately active (Table 1). The previous studies suggested that there was a decrease in the PA of children in the last 20 years (Bös, Heel and Romahn, 2000). When the factors affecting the children's participation in the PA were examined, the previous studies were found to have suggested the factors of preparation for the exams (Benjamin and Glow, 2003), lack of a secure environment (Thompson et al., 2001) and the insufficiency of sports fields, facilities and equipment (Simons-Morton, Taylor and Huang, 1994) as the factors. Hallal *et al*., (2012) stated that children performed PA less than 60 minutes/day as a result of the lifestyle changes experienced around the world. Whereas, previous studies suggested that PA needs to be performed for more than 60 minutes a day in order to have a positive effect on

health (Kriemler et al. 2011). Gender, lifestyle and attitude of the family, the physical conditions of the school, the educational policies and the level of knowledge and attitudes of the teachers are among the primary factors affecting the PA level during the childhood period (Bower et al., 2008; Sandercock , Angus and Barton, 2010). Schools are considered to be one of the best investments in terms of PA (Blanchard, Shilton and Bull, 2013). In the present study, although the children's cardiovascular health attitudes were found to be at a high level, their physical activity level was medium. This indicates that the PA areas at schools need to be increased. The PA, which has countless physiological and psychological benefits decreases and the health problems increase. Depending on the decrease in the PA, cardiovascular problems have begun to be experienced at earlier ages (McKenzie et al. 1996). The fact that schools focus on academic success constitutes an obstacle for the development of the PA. Thus, the school administrators, institutions and the physical education teachers should develop a comprehensive PA program and contribute to their roles in the field of public health (Hills, Dengel and Lubans 2015).

It is also among the findings of the present study that the participants doing sports at a club as a licensed athlete allocate more time to PA. This increases the level of their cardiovascular attitude (Table 4). In order to promote health, it is necessary to popularize the extracurricular PA in addition to the physical education lessons, for the PA habits cannot be given only with the physical education lessons (Sallis, 1997). Although the results of the present study indicate the cardiovascular attitudes of the children to be at a good level, they show that the PA, which is what is really important in terms of the public health, is performed at a moderate level. This indicates that although the level of their knowledge and attitudes are good, the level of their practice is low. Economic growth increases urbanization, which, in turn, decreases the PA (Kohl et al. 2012, Bosdriesz et al. 2012). The PA levelsdecrease especially in developed countries (Orsini, Bellocco, Bottai, Pagan and, Wolk, 2006; Katzmarzyk and Mason, 2009) and developing countries (Monda, Gordon-Larsen, Stevens, and Popkin, 2007). The situation seems to be the same for Turkey as well. Thus, informing society-based strategies that will include behavioral, social, political and environmental approaches need to be developed and relevant measures need to be taken to increase the PA (Lachat et al. 2013; Pate et al., 2019).

Conclusion

As a result, there is a relationship between heart health attitude and PA. As heart health attitudes increases, children's active sporting life increases.In addition, stress decreases with the increase of PA. Thus, the reasons why children cannot put their information into practise despite the fact that their level of heart health attitudegenerally is high should be researched and identified. Families should be warned about heart health attitudes, PA and sport, and participation in school-based or club-based physical activity should be increased.

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