

Examination of Physical Activity Levels of Children Aged 8-14 Years

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Abstract

Physical activity contributes to the healthy development of children by paying special attention to the development of children. The aim of this study is to examine the physical activity levels of children aged 8-14 years and to determine whether they differ according to their sociodemographic (age, gender, educational status and class status). The data required for the research were collected online between 21 May 2022 and 03 July 2022. The study group of the research consists of children between the ages of 8-14. In data collection, online questionnaire method, sociodemographic data collection form and child physical activity questionnaire (CPAQ) were used from 250 children aged 8-14 years who had family consent, participated voluntarily and were selected by convenience sampling method. Improbable sampling methods. SPSS 26.0 data analysis program was used in the statistical analysis of the data obtained in the study, Mann-Whitney U tests, Kruskal-Wallis H tests and correlation analysis were used to examine the physical activity levels of children according to their sociodemographic characteristics. As a result of the research, it was concluded that the physical activity levels of the children in the 8-14 age group were moderate. However, while the extracurricular physical activity levels of the children were low, the physical activity levels at school were found to be moderate. Based on the research data, it was concluded that children's extracurricular physical activity levels were considerably lower than their school activity levels. It was determined that the children participating in the study performed moderate physical activity. It was stated that physical activity levels differ according to sociodemographic characteristics. It is recommended to organize education programs for children aged 8-14 on the importance of proper nutrition habits and physical activity.

Keywords: Child, level, activity, physical activity.

Introduction

Physical activity is defined as any movement that causes the body to spend energy. It can be categorized as occupational, transportation, sports, home, and leisure activities (Casperson et al., 1985). It can be presented in different ways according to the category characteristics (Aerobic, anaerobic, or diversified such as static and dynamic) (Zorba and Saygın, 2009).

A vigorous and cheerful daily life, protecting the body against diseases, preventing obesity by consuming excess energy naturally, aging and slowing down the organic regression brought by aging, reaching and maintaining the superior capacity of the respiratory and circulatory systems, reducing nervous tensions and death caused by coronary vascular diseases. It is effective in increasing the preventive and protective effect of the disease, protecting the health and functionality of the joint tissues connected to the muscle, getting rid of loneliness by providing social cohesion, and preventing posture disorders (Arabacı and Çankaya, 2007). Physical activity is necessary for general health and quality of life, as well as the maintenance and improvement of metabolic and psychological functions of physical development (Bozkus et al., 2013; Özkan et al., 2018; Thivel et al., 2018). Along with the development of self-confidence, moral strength is also high in individuals engaged in physical activity. Thus, it explains and supports the saying healthy mind is found in a healthy body. Health and physical activity have become inseparable parts of a whole (Ketelhut, 2011). If individuals do physical activity, their communication skills improve, and their self-confidence rises (Kalyon, 1997).

Physical Activity and Its Importance in Children

Children should also acquire the habit of regular movement and physical activity in the pre-school period because it is much easier for children in the pre-school period to get moving than children in the adolescence period. Because movement is an indispensable element of learning and communicating in children in the primary movement period (2-6 years old), they are ready to learn new motor skills in the rapid development process (Gallahue & Donnely, 2003). Skills such as running and jumping, which are basic movement patterns, are part of children's education and learning experiences. The skills learned during this period will be permanent for life and will form the basis for new skills. On the other hand, not giving or restricting movement and trial opportunities negatively affects motor skill performance in children (Gallahue & Ozmun, 2002). Children with adequate levels of physical activity have better cardiometabolic, musculoskeletal, mental and cognitive health, bone mineral density, and motor performance. It is also known that they have better self-esteem and self-image (Guerrero et al., 2020; Chen et al., 2020 ; Barros et al., 2012).

Physical activity levels of school-age children may vary according to age and gender. In the studies conducted, age, gender, lifestyle and attitude of the family, environmental conditions and educational policies of pre-school institutions, teachers' knowledge levels and attitudes, and growth environment (rural-urban) draw attention as the main factors affecting the level of activity in the pre-school period (Bozkus, 2013; Bellows et al. 2011; Ketelhut 2011; Oliver et al. 2010; Sandercock, 2010; Vale et al. 2010; Bower et al. 2008; Schneider, 2008). In addition to age-related differences, significant decreases are observed in physical activity, especially in girls, with increasing age, especially in children between the ages of 8-14 (Trost et al., 2002). Creating a foundation for lifelong physical activity at school age also contributes to future health benefits. In addition, considering the fact that low physical activity levels in childhood

cause many serious health problems, the movement habits gained in this life period may affect the maintenance of adequate physical activity levels in adulthood (Telama, 2009).

The aim of this study was to determine whether the physical activity levels of children between the ages of 8-14 differ according to their sociodemographic characteristics.

Material and Method

Study Design: It was conducted as a descriptive study in order to reveal whether the physical activity levels of children aged 8-14 differ according to their sociodemographic characteristics.

Research Questions

- Is there a significant relationship between physical activity levels of children aged 8-14 according to their sociodemographic characteristics?
- Does it differ in the physical activity levels of children aged 8-14 according to their sociodemographic characteristics?

Place and Time of the Study: The research data were collected between the dates of 21 May 2022 and 03 July 2022 by using the online questionnaire (Google Form) from children aged 8-14 with parental consent who participated voluntarily.

Sample: Children between the ages of 8-14 formed the research population. The sample, on the other hand, was selected by convenience sampling method, one of the non-probability sampling methods, with parental consent, voluntarily participating, and no obstacle to answering the questions. The research was carried out with 250 children who met the conditions of participation.

Variables of the Study

Research Inclusion criteria

- Children who will participate in the research should be between the ages of 8-14
- Children with parental consent
- Those who fill out the child consent form
- Children who voluntarily agreed to participate in the study

Research exclusion criteria

- The children who will participate in the research should not be between the ages of 8-14.
- No parental consent
- Those who do not fill out the child consent form
- Children who do not agree to participate in the study voluntarily

Data Collection Tools: Research data were collected with the following data collection forms:

- Sociodemographic Data Collection Form
- Child Physical Activity Questionnaire (CPAQ)

Sociodemographic Data Collection Form: This form consists of a total of 4 questions about the age, gender, education, and class status of the children.

Child Physical Activity Questionnaire (CPAQ): CPAQ was conducted by Kowalski et al. (2004) to determine the physical activity levels of children for seven days, and its Turkish adaptation, validity, and reliability study was conducted by Erdim et al. (2019). The CFAA consists of 10 items in total. The first nine items evaluate physical activity efficiency, and the 10th item evaluates whether the child is sick or has a condition that may prevent him from doing physical activity. However, this item is not included in the calculation of the physical activity score. CFAA can be applied to students between the ages of 8-14, and question items are scored on a 5-point scale. The physical activity score for children is calculated by taking the average of the first nine items.

The lowest score that can be obtained from the CFAA is one, and the highest score is 5. 1 indicates low physical activity level, and 5 indicates high physical activity level (Kowalski et al., 2004; Erdim et al., 2019).

Variables of the Research

Independent Variable: Age, gender, education level, class status.

Dependent Variable: Physical activity levels.

Evaluation of Data

SPSS (Statistical Package for Social Sciences) 26.0 package program was used in the analysis of the data. In the analysis of the percentage distribution, mean and total for descriptive statistics in the study, and physical activity levels of children according to age, gender, educational status, class status variables. Mann-Whitney U, Kruskal-Wallis H tests and correlation analyzes were used.

Findings

The 9 items in the scale used to determine the physical activity levels of children in the study consist of two sub-dimensions. The physical activity score for children was calculated by taking the average of the 9 items in the first scale. As the scale average increases, the physical activity scores of the children also increase. Erdim et al. (2019) found in their study that the Child Physical Activity Scale consists of two dimensions. These dimensions are respectively "Physical activities performed at school" and "Extracurricular physical activities". "Physical Education", "Recess" and "After Lunch" physical activities in the scale are included in the "Physical activities performed at school" dimension, and Questions 2, 3 and 4 are related to this dimension. Physical activities related to "After School", "Evenings", "Weekends", "Explains you best", "Activity frequency for each day of the past week" and "Leisure activity checklist" in the research "Extracurricular physical activities" 1st, 5th, 6th, 7th, 8th and 9th questions are related to this dimension.

Table 1. Information on physical activity scale mean, item score and results

Average range	Item score	Result
1-1,80	1	very low physical activity
1,81-2,60	2	low physical activity
2,61-3,40	3	moderate physical activity
3,41-4,20	4	high physical activity
4,21-5	5	very high physical activity

The Child Physical Activity Scale is scored between 1 and 5, with an average range of 1-1.80 “very low physical activity”, 1.81-2.60 “low physical activity”, 2.61-3.40 “moderate physical activity”, 3.41-4.20 indicates “high physical activity” and 4.21-5 indicates “very high level” physical activity range.

Table 2. Demographic characteristics of the participants

		n	%
Gender	Boy	169	67,6
	Girl	81	32,4
Age	8-10 age	106	42,4
	11-13 age	87	34,8
	14 age	57	22,8
Primary education	1. class	3	1,2
	2. class	2	68,8
	3. class	14	5,6
	4. class	49	19,6
Secondary education	5. class	38	15,2
	6. class	33	136
	7. class	45	18,0
	8. class	20	8,0
	High school	9. class	46
Total		250	100,0

Of the children participating in the study, 67.6% were boys and 32.4% were girls. Of the children participating in the study, 42.4% are in the 8-10 age group, 34.8% are in the 11-13 age group, and 22.8% are in the 14 age group. In the study, 27.2% of the participants study in primary school, 54.4% in secondary school and 18.4% in high school.

Table 3. Findings on the physical activity scale and its sub-dimensions for children

Sub dimensions	Substances	\bar{x}	σ	Result
Extracurricular physical activities	2.Physical Education	3,10	1,24	Moderate physical activity
	3.Respiration	2,70	1,35	Moderate physical activity
	4.Lunch	2,73	1,33	Moderate physical activity
Physical activities performed at school	5. After School	2,26	1,42	Low physical activity
	6. in the evening	2,63	1,21	Moderate physical activity
	7.Weekends	2,82	1,28	Moderate physical activity
	8. Describes you best	2,44	1,28	Düşük fiziksel aktivite
	9. Activity frequency for each day of the past week	2,62	0,73	Moderate physical activity
	1. Free time activity checklist	2,73	0,65	Moderate physical activity
Children's Physical Activity Levels		2,72	0,51	Moderate physical activity

In the study, it was revealed that the physical activity levels of children aged 8-14 in physical education class, during breaks and after lunch were "moderate". It has been revealed that the physical activities of the children after school are "low level", and their physical activity in the evenings and on the weekends is "moderate". However, it was determined that the activity frequency and leisure activity levels for each day of the last week were "moderate".

Table 4. Findings on the physical activity scale and its sub-dimensions for children by age groups

	Age group	N	\bar{x}	σ	Rank averages	H	p
Extracurricular physical activities	8-10 age	106	2,60	0,67	128,81	0,539	0,764
	11-13 age	87	2,57	0,65	121,16		
	14 age	57	2,58	0,60	125,97		
	Total	250	2,59	0,65			
Physical activities performed at school	8-10 age	106	2,88	0,90	128,39	1,125	0,570
	11-13 age	87	2,87	0,68	127,76		
	14 age	57	2,73	0,73	116,67		
	Total	250	2,84	0,79			
Children's Physical Activity Levels	8-10 age	106	2,74	0,71	128,70	0,543	0,762
	11-13 age	87	2,72	0,59	125,23		
	14 age	57	2,65	0,58	119,96		
	Total	250	2,71	0,64			

* Kruskal- Wallis H test

In the study, it was determined that as the age level increased, the children's extracurricular physical activity and physical activity levels at school increased. According to this, it is seen that the levels of extracurricular physical activity and physical activity at school in the 8-10 age group are higher than those in the 11-13 age group and 14 age group. It is seen that the levels of extracurricular physical activity and physical activity at school in the 11-13 age group are higher than those in the 14 age group. It was found that there was no difference between the extracurricular physical activity and the physical activity averages performed at school ($H=0.539$; $p>0.05$; $H=1.125$; $p>0.05$).

Table 5. Findings on the physical activity scale and its sub-dimensions for children by gender

		N	\bar{x}	σ	Rank averages	z	p
Extracurricular physical activities	Boy	169	2,69	0,65	136,13	-3,358	0,001
	Girl	81	2,37	0,58	103,31		
Physical activities performed at school	Boy	169	2,98	0,75	137,74	-3,899	0,000
	Girl	81	2,56	0,80	99,96		
Children's Physical Activity Levels	Boy	169	2,83	0,61	138,53	-4,114	0,000
	Girl	81	2,47	0,62	98,32		

* Mann-Whitney U test

In the study, it was revealed that there was a difference between the averages of boys' extracurricular physical activities than girls ($z=-3.358$; $p<0.05$). Accordingly, it can be stated that boys do more extracurricular physical activities than girls. The resulting difference was in favor of boys. When the physical activity levels of the children were examined in general according to the gender groups in the study, it was found that the physical activity levels of the boys were higher than the girls and that there was a difference between the averages ($z=-4.114$; $p<0.05$).

Table 6. Findings on the physical activity scale and its sub-dimensions for children by education level

	Education level	N	\bar{x}	σ	Rank averages	H	p
Extracurricular physical activities	Primary education	68	2,67	0,66	137,86	4,733	0,094
	Secondary education	136	2,60	0,66	125,29		
	High school	46	2,43	0,57	107,84		
	Total	250	2,59	0,65			
Physical activities performed at school	Primary education	68	3,03	0,95	142,51	6,122	0,047
	Secondary education	136	2,80	0,70	122,01		
	High school	46	2,67	0,73	110,66		

	Total	250	2,84	0,79			
Children's Physical Activity Levels	Primary education	68	2,85	0,72	142,36	6,837	0,033
	Secondary education	136	2,70	0,61	123,33		
	<u>High school</u>	46	2,55	0,57	106,98		
	Total	250	2,71	0,64			

*Kruskal-Wallis H test

In the study, it was determined that as the education level increased, the children's extracurricular physical activity and physical activity levels at school increased. Accordingly, it is seen that primary school students' extracurricular physical activity and physical activity levels at school are higher than those of secondary and high school students. It was found that there was a difference between the physical activity averages of the children and the physical activity sub-dimension averages performed at school according to the level of education ($H=6.837$; $p<0.05$; $H=6.122$; $p<0.05$).

Table 7. Findings related to the dimension of extracurricular physical activities according to the class of education

Class	N	\bar{x}	σ	r	p
1.class	3	3,72	0,47	-,127*	,044
2. class	2	3,30	0,35		
3. class	14	2,87	0,53		
4. class	49	2,52	0,63		
5. class	38	2,48	0,65		
6. class	33	2,67	0,61		
7. class	45	2,67	0,76		
8. class	20	2,53	0,51		
9. class	46	2,43	0,57		
Total	250	2,59	0,65		

* Correlation analysis

In the study, it is seen that as the grade level of the children increases, their extracurricular physical activities decrease as well. As a result of the analysis, it was revealed that the students studying in the 1st, 2nd and 3rd grades, respectively, had the highest extracurricular physical activity levels, while the 8th and 9th grade students had the lowest. As a result of the correlation analysis, it was revealed that there was a negative significant relationship between the grade level of the children and their extracurricular physical activities ($r=-.127$; $p<0.05$). This result shows that as the level of children's education increases, their extracurricular physical activity levels increase.

Table 8. Findings related to the physical activities of children at school according to the class of education.

		N	\bar{x}	σ	r	p
Physical activities performed at school	1. class	3	3,78	0,19	-,136*	,032
	2. class	2	4,00	0,47		
	3. class	14	3,33	0,81		
	4. class	49	2,86	0,98		
	5. class	38	2,61	0,68		
	6. class	33	2,92	0,69		
	7. class	45	2,91	0,76		
	8. class	20	2,75	0,55		
	9. class	46	2,67	0,73		
	Total		250	2,84	0,79	

* Correlation analysis

The physical activity levels of the students at school were found to be “very high” in the 1st and 2nd grades. In the research, it is seen that the physical activities of the students decreased from the 3rd to the 5th grade, and increased in the 6th and 7th grades. As a result of the correlation analysis, it was revealed that there was a negative significant relationship between the grade level of the children and the physical activity levels performed at school ($r=-.136$; $p<0.05$).

Table 9. Findings related to physical activity levels of children according to the class of education

		N	\bar{x}	σ	r	p
Children's Physical Activity Levels	1. class	3	3,75	0,27	-,147*	,020
	2. class	2	3,65	0,06		
	3. class	14	3,10	0,43		
	4. class	49	2,69	0,74		
	5. class	38	2,54	0,60		
	6. class	33	2,79	0,56		
	7. class	45	2,79	0,69		
	8. class	20	2,64	0,46		
	9. class	46	2,55	0,57		
	Total		250	2,71	0,64	

* Correlation analysis

The physical activity levels of the children were found to be “very high” in the 1st and 2nd grades. In the research, it is seen that the physical activity levels of the students decreased from the 3rd to the 5th grades, and increased in the 6th and 7th grades, and that the physical activity levels of the students studying in the 8th and 9th grades were low. As a result of the correlation analysis, it was revealed that there was a negative significant relationship between the grade level of the children and the physical activity level of the children ($r=-.147$; $p<0.05$).

Discussion

Considering the physical activity levels of children by age, it is seen that the physical activity levels of children are lower during the COVID 19 pandemic. In a study conducted in the USA, middle school-aged children are less likely to be compared to primary school-age children. Reported physical activity and more sedentary behavior (Dunton et al., 2020). This children aged 7-8 years, where age has an effect on physical activity and sedentary life. It has been stated that they are more active than children in the 9-10 age group (McMurray et al., 2016). Yılmaz and Kocataş (2019) conducted a study on secondary school students, as the age increases, the level of physical activity increases found to decrease. Increasing age and the COVID 19 pandemic have increased sedentary behavior in children causes. Research findings also support this situation. Live your physical activity level the use of technological tools (tablets, computers, mobile phones, etc.) (Tanir 2021; Kheradmand et al., 2020). It was determined that the results of the research were compatible with the results of the physical activity levels of the children according to the age level. According to gender, 69.7% of men and 30.3% of women who walk weekly, 36.0% of men and 64.0% of women doing moderate physical activity. and vigorous physical activity. It was determined that 61.5% of males and 38.5% of females were doing it. vigorous activity, moderate activity, total physical activity values were found to be higher in men than in women. Vigorous activity, moderate activity, and total physical activity values are higher in males than females. found high (Kizar et.al., 2016). Dunton et al. (2020) study of boys more physical activity and exercise, girls are more active in lesson and classroom activities. stated that they are. 10-year-old Czech children before and during the COVID 19 pandemic it was stated that they have higher levels of physical activity than girls (Štveráková et al., 2021). Similarly, boys have a higher level of physical activity than girls. There are studies showing that (Gilić et al., 2020; Xu et al., 2018). In children, it was determined that as the age increased, the level of physical activity decreased, and boys had a higher level of physical activity than girls. These studies reflect the research findings is supportive. However, it was stated that gender did not affect the level of physical activity in children available in studies (Velde et al., 2021; Moore et al., 1991). Korkmaz et al. (2020) found that exercise for secondary school students did not differ according to gender. they have stated. Similarly, Eylar et al. (2021) doing physical activity in children aged 5-12 found that there was no difference by gender. Children's physical activity levels by gender. In general, men are more active than women and their sedentary behavior is more appears to be less. When the physical activity levels of children by gender are examined, it is seen that men are generally more active than women and their sedentary behaviors are less. It can be said that this is due to the fact that boys are more prone to physical activity. A study conducted in the USA reported that secondary school children exhibit less physical activity and more sedentary behavior than primary school children (Dunton et al., 2020). In the study conducted by Savaşhan et al. (2014), it was stated that 69.6% of primary school children consume junk food such as hamburger and toast between meals, and that the physical activity levels of children in primary school are high. In the study of Bayrakdar and Saygın (2010), children In order to determine their physical activities, daily step numbers were calculated and physical activity levels were determined to be low. It is said that the level of physical activity differs at every age, educational status, and the factors affecting the level of physical activity are sedentary behaviors, school, family, society, active transportation, organized sports programs, active play participation, physical structure, environment and

government policies (Tarakcı et al. , 2015). It was determined that the results of the research were compatible with the results of the physical activity levels of the children according to the education level. It has been reported that during childhood and adolescence, especially as age progresses, the behavior of skipping meals at class level increases, and the level of physical activity decreases with age (Aksoydan and Çakır, 2011). Yabancı and Pekcan's (2010) study is consistent with our research findings. In the study conducted by Sabbağ (2009), it was concluded that the physical activity levels of the 5th and 6th grade students were low. In different studies, it has been reported that the level of physical activity increases as the grade level decreases (Tunç and İşler, 2007; Aksoydan and Çakır, 2011).

Conclusion

As a result of the evaluations made on children between the ages of 8-14; It has been determined that the physical activity levels of children studying in primary education are higher than boys. In order to sustain the physical, mental and social development of children, physical activity programs should be given importance in schools.

Limitations: Children aged 8-14 years were included in the study. Research results can only be generalized to the sample group in the study.

Acknowledgement: There is no thank you status.

Conflict of Interest Statement: There is no conflict of interest statement available.

Ethical Aspect of Research/Ethical Approval Statement: Erdim et al. (2019) Permission was obtained via e-mail. Permission was obtained from Hakkari University Scientific Research and Publication Ethics Committee (IRB:2022/53-1) for the research. Identity information of the children was not obtained or shared in any way. In order not to cause ethical violations within the scope of the research, consent was obtained from children in the 8-14 age group and informed consent form from their parents.

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Author Contributions: Generating an idea or hypothesis for research and/or article; ÇMH, DDK, MZA planning methods to achieve results: ÇMH, DDK, MZA, organization and supervision of the course of the article: ÇMH. take responsibility for the logical explanation and presentation of the findings: ÇMH. Taking responsibility for the creation of the entire article or the main part: ÇMH, DDK, Reworking before submitting the article not only in terms of spelling and grammar, but also in terms of intellectual content: ;ÇMH.

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