Ramaj Lorik, Hasani Sadete. Physical activity, lifestyle and nutrition as important indicators in the body mass index of children aged 3-6 years in the municipality of Mitrovica. Journal of Education, Health and Sport. 2021;11(9):148-161. eISSN 2391-8306. DOI http://dx.doi.org/10.12775/JEHS.2021.11.09.020
https://apcz.umk.pl/czasopisma/index.php/JEHS/article/view/JEHS.2021.11.09.020
https://zenodo.org/record/5493686

The journal has had 5 points in Ministry of Science and Higher Education parametric evaluation. § 8. 2) and § 12. 1. 2) 22.02.2019.

Received: 25.08.2021. Revised: 26.08.2021. Accepted: 08.09.2021.

Physical activity, lifestyle and nutrition as important indicators in the body mass index of children aged 3-6 years in the municipality of Mitrovica

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Abstract

The purpose of this paper was to determine the level of physical activity and healthy nutrition in children aged 3-6 years from Mitrovica. The research was attended by 94 children aged 3 - 6 years from two kindergartens in Mitrovica. As a parameter that measured the weight and height of the children, it was calculated with the standardized procedure of Body Mass Index (BMI) then was calculated according to the standard formula used by (Betterhealth, 2016). Also, after extracting other information through the questionnaire, a quantitative research was conducted through the parents of 94 children who were part of the measurements. A questionnaire was used to collect the data, which was previously translated and adapted into Albanian with permission to use it. The questionnaire was combined by three different questionnaires such as: the lifestyle questionnaire (Wilson et al., 2008), the physical activity questionnaire Pre-PAQ test (Dwyer et al., 2011) and the nutrition questionnaire (Rysha et al., 2017). The data collected during the research were placed in the statistical program SPSS version 21.0, and the presentation of this data was done through a descriptive analysis. The results that came from this research showed that the effect of physical activity, lifestyle and nutrition have quite a high impact on body mass index in children. From the results we saw that the children of the two kindergartens from the

municipality of Mitrovica did quite well in terms of physical activity, where in the questionnaires that were answered 89.4% of children were active more than an hour a day by walking and doing other activities. Also, the results regarding the questions in which they were asked about the time that children use the phone were at a satisfactory level, where a large percentage of parents, 77.7%, declared that their children did not use the phone more than an hour a day. While in terms of nutrition, there have been many results which need more detailed analysis and to take preventive measures such as consumption of energy drinks, carbonated beverages, fast food, etc. From the measurement of children aged 3-4 years only one child turned out to be overweight with BMI = 18.7, while the rest came out with BMI with normal limits. As for children aged 4-5 years, one child turned out to be underweight with BMI = 12.4 and one obese with BMI = 21.9 and the others with BMI with normal limits. And out of children aged 5-6 years one child came out overweight with BMI = 17.7 and two others obese, one with BMI = 19.7 and the other BMI = 19.8 and the other children had normal weight (Betterhealth, 2016).

Key words: Children, lifestyle, physical activity, nutrition, body mass index.

1. INTRODUCTION

In this research, the style of physical activity and Body Mass Index in children aged 3-6 years is presented. According to numerous studies, the most rapid part of physical development in children takes place in preschool age. During this time, the children experience major changes in their body proportions but also in their way of thinking and in behavior . Preschool age, in physical context, the boys have more athletic appearance who have more muscle while the girls have more fat cells. The influence of the family environment, including the care of the parents and educators plays a very big role in the normal physical development and in the health of the children. Weight, height, and general physical development vary from child to child. So, it is important for parents to take care of their children's nutrition by not allowing their children to overfeed, but to eat healthy and train them at the same time in order to grow and develop to have proper physical development (Karaj, 2005). Family lifestyle is an essential factor for a healthy and active childhood, as well as good educational habits. Being active with games and physical activities is a special investment by parents (Je Fulton et al, 2009). In the last decade there has been a decrease in physical activity and active life in children, due to large urbanization. A study conducted in Germany by Motorische (2003) showed that the physical fitness in preschool and primary school children was reduced by 10%. The same results were found in Canada, where measurements of physical activity from 1981 and 2007-2008 were compared and showed that the physical fitness of children was better in the previous years (Tremblay et al., 2010). Preschool age is a critical stage from which may begin with a poor lifestyle and then be followed by overweight and obesity (Rolland et al, 2006). Poor lifestyle, physical inactivity, overweight and obesity are closely linked to various diseases at different stages of life such as: problems with the cardiovascular system, respiratory system, diabetes and chronic diseases (Fulton et al, 2009;

Charlen et al, 2011). Games and physical activities in early childhood and adolescence have the potential to reduce chronic diseases which manifest in adulthood (Hinkley et al, 2010). Being active is very important. This is also shown by the author Leitzmann (2007) where in a longitudinal study showed that an average activity that is performed 30 minutes a day, 3 times a week reduces the risk of early mortality. Regarding the fact that children without physical activities are associated with metabolic risks which appear even more in children with a low aerobic fitness (Brage et al, 2004). Physical engagement, healthy nutrition and various games in early childhood show good bone health in children of both sexes, respectively before puberty (Meyer et al., 2011), this fact is reinforced by other research where it has shown a positive impact on mental health and academic achievement of children in their future (Larun et al, 2006).

2. METHODOLOGY

1.1 Participants

The population of this research includes parents of children aged 3-6 years, which included the public preschool institution " Gëzimi ynë " and the largest private institution "Nina" in the city of Mitrovica. The number of participants in this paper was about 150 parents but 56 of them did not answer the questionnaire. The selection of kindergartens was done through a deliberate sample, in order to select the kindergartens with the largest number of children aged 3-6 years. While the random sample was used for the selection of parents who participated in this research. Demographic data are presented in Table 1.

Table 1. Number and Percentage of Demographic Data: Gender, Age, Kindergarten

N = 94	Age		Gender		Kindergarten	
	N	%	N	%	N	%
3 years old	13	13.8				
4 years old	35	37.2				
5 years old	22	23.4				
6 years old	23	24.5				
Boy			54	57.4		
Girl			40	42.6		
Gëzimiynë					57	60.6
Nina					37	39.4

In a total of 94 children included in the research, 57.4% were female and 42.6% were male. The largest numbers of children were from the kindergarten " Gëzimi ynë " with 60.6% while from the kindergarten "Nina" 39.4%. In terms of the age of children, the most included were children aged 4 years with 37.2%, followed by children aged 6 years with 24.5%, children aged 5 years with 23.4% and finally children aged 3 years with 13.8 %.

Table 2. Number and Percentage of Demographic Data: Relation to the child, age of the parents

N=94	Relation to your children		Your Age	
	N	%	N	%
Mother	67	71.3		
Father	27	28.7		
20-29 years			19	20.2
30-39 years			58	61.7
40-49 years			17	18.1

Table 2 presents the demographic data regarding the relationship of the child and the age of the parents.

In a total of 94 parents participating in the research, 71.3% were mothers and a smaller number 28.7% were fathers. Regarding the age of the parents who participated in the research, the average age with the highest number was 30-39 years with 61%, then it was 20-29 years, with 20.2% and 40-49 years, with 18.1%. Children from both kindergartens " Gëzimi ynë " and "Nina" were measured their weight and height in order to see how they stand in terms of Body Mass Index compared with international standards of children in this age for weight and height.

2.3 Instruments

A questionnaire was used for data collection in the research. This questionnaire is combined into three parts of questionnaires, one is The Preschool-age Children's Physical Activity Questionnaire (**Pre-PAQ**) and two others which have been used in many international researches and are published in the most prestigious journals for preschool children. The questionnaire has been translated, modified, reformulated, for this research, but without changing the basic content that these questionnaires . A set of questions PREPAQ will provide us with information about participating in various test activities and games (Dwyer et al, 2011). The other set of questions concerns the assessment of the living habits of children, specifically parents who are responsible for children (Wilson et al, 2008). Another variable was used to measure the weight and height of

children, where it was calculated with the standardized procedure, and the Body Mass Index (BMI) was derived and calculated according to the standard formula used (Betterhealth, 2016).

2.4 Data collection process

For the realization and distribution of this questionnaire, the directors of each of the kindergartens were first asked. Secondly, it was the meeting with the educators of the institutions, who explained the whole procedure and the time that will be needed for measuring the height and weight of kids. Finally, during the parents' visit to the kindergartens, we explained the purpose of the research and the importance of the data.

2.5Analysis

The data collected during the research were all placed in the statistical program SPSS version 21.0 and the presentation of this data was done through a descriptive analysis.

2.6 Ethical aspects

This research was not intended to use the data for obtaining any personal interest or benefits. The data from this research will be used for study purposes only. The research generally does not violate any legal rights regarding human rights. The principals and the educators of the preschool institutions were informed in detail about the questions, and then the parents of the children also. It was not necessary to indicate the name of the parent or child in the questionnaire, only the age and other data, which in no way violated the privacy of parents or children. All the rules and standards of the Helsinki Declaration have also been respected.

3. RESULTS

The results were analyzed through descriptive results, to get information on how active the children of Mitrovica are in physical activities, to see the lifestyle of these children in their families and also to understand the way of feeding the children in this city. Depending on the collected data and their analysis we have reached the results as follows.

Table 3. The important of physical activity.

		N	%
Do you think physical activity is essential for your child?	I partially agree	18	19.1 %
	I completely agree	76	80.9 %
How much do you value the physical activity in your child?	Rarely	1	1.1 %
	Sometimes	14	14.9 %
	Frequently	49	52.1 %
	Always	30	31.9 %
How much your child walks (e.g. walking in the park, around the garden, etc.)	Never	10	10.6 %
	1-2 hours a day	55	58.5 %
	3-4 hours a day	25	26.6 %
	5-6 hours a day	4	4.3 %
How much time has your child spent the last three days playing outside in the yard or park?	30 min - 1 hour	8	8.5 %
	1 - 2 hour	20	21.3 %
	2 - 3 hour	23	24.5 %
	3 - 4 hour	20	21.3 %
	4 - 5 hour	14	14.9 %
	5 - 6 hour	5	5.3 %
	6 - 7 hour	4	4.3 %

Table 3 provides detailed information on how many parents think that physical activity is essential for their child and how active they are during their free time. When asked whether parents see physical activity as essential for their child, 80.9% fully agreed, while 19.1% of them partially agreed with this opinion. With the second question that were asked on how they value the physical activity in their children, most of them answered positively where the largest number of 52.9% answered that they often pay attention and suggest their children to be active, the rest 31.9% answered that they always pay attention to physical activity and only 1.1% answered that they rarely pay attention to the physical activity. The other question on how much their children walk during the day shows that 58.5% of children walk 1-2 hours a day, 26.6% walk 3-4 hours a day, 4.3% walk 5-6 hours a day and 10.6% of parents stated that their children never go out for a walk.

Table No. 4. Possession and use of electronic devices.

		N	%
Do you have internet in your home?	Yes	91	96.8
	No	3	3.2
How many TVs do you have at home?	0 TV	1	1.1
	1 TV	56	59.4
	2 TV	33	35.2
	3 TV	4	4.3
How many DVDs or video games do you have at home?	0 DVDs	29	3.9
	1 DVDs	61	64.9
	2 DVDs	4	4.3
How many hours does your child usually use the phone?	0 - 1 hours	7	7.4
	2- 3 hours in a day	18	19.1
	1 hour in day	48	51.1
	1-2 hours in a week	21	22.3
How many computers or iPad do you have at home?	0	12	12.8
	1	62	66.0
	2	18	19.1
	3	2	2.1

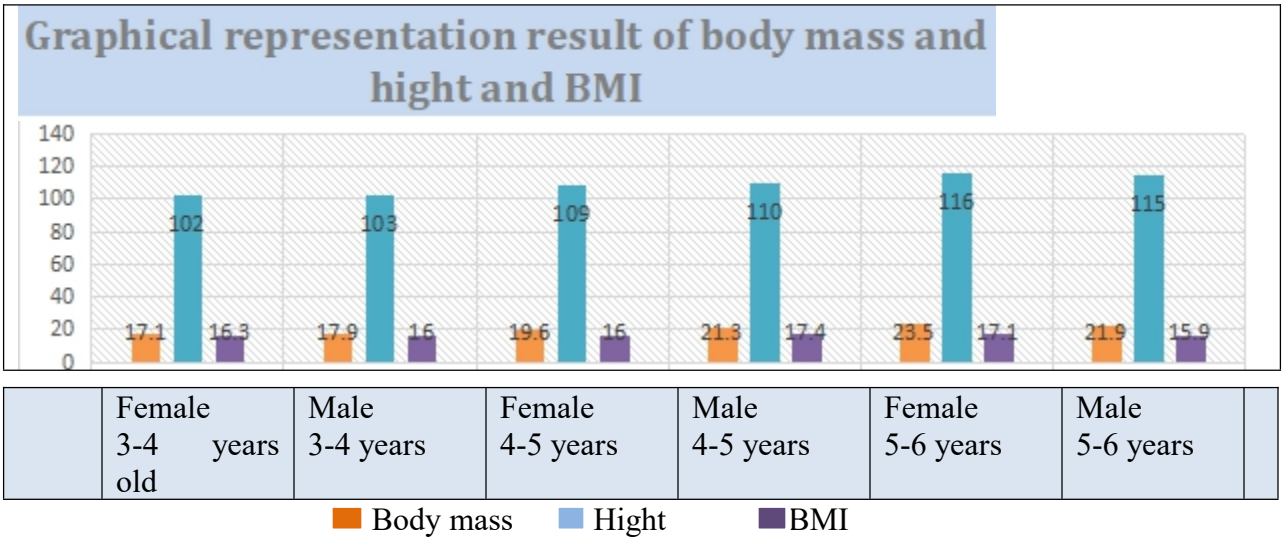
The data in Tables 4 and 5 show how much children use electronic devices as well as their feeding style.The possession of electronic devices in the families of children that are a sample of the research was also the issue of interest, where it turned out that the majority with 59.6% own only one TV, then 64.9% of households own only one DVD. Regarding the possession of laptops, the majority with 66.0% stated that they have only one laptop or computer at home. Also, 96.8% of parents stated that they have the internet in their homes. As for the part of the questions on nutrition, in the question asked about the number of rations that children consume during the day we received the following answers: the vast majority of parents 54.7% stated that their children consume three rations per day, 34% fed four times per day, 7.4% were fed twice daily and 1.1% five times daily. The other question that was posed and analyzed was the amount of consumption of beverages that are considered harmful to children such as: carbonated beverages and energy drinks. From this analysis we obtained the following results: in terms of carbonated beverages 50% of children did not consume at all, 38.3% consumed occasionally, 7.4% used it two or three times a week, 3.2% drank daily and 1.1% two or three times a day.

Table 5. Food and beverage consumption

		N	%
How many meals a day does your child consume?	2 times per day	7	7.4
	3 times	54	57.4
	4 times	32	34.0
	5 times	1	1.1
How often does your child eat meat, fish and eggs?	0 (never)	5	5.3
	Sometimes	27	28.7
	2-3 tims in a week	59	62.8
	Every day	3	3.2
How often does your child drink milk and dairy products?	0 (never)	4	4.3
	Sometimes	14	14.9
	2-3 times in a week	25	26.6
	Every day	44	46.8
	2-3 times in day	7	7.4
How often does your children eat fruits and vegetables?	Sometimes	18	19.1
	2-3 times in a week	25	26.6
	Every day	49	52.1
	2-3 times in a day	2	2.1
How often does your child consume carbonated beverages?	0 (never)	47	50.0
	Sometimes	36	38.3
	2-3 times in a week	7	7.4
	Every day	3	3.2
	2-3 times in a day	1	1.1

Table 6. The average of weight and height in children as well as BMI

Figure 1. Graphical representation results of body mass, height and BMI



4. DISCUSSIONS

The main purpose of this paper was to see how active the children of Mitrovica are, their lifestyle, the way of eating and the physical level. Also to see and analyse the body mass index BMI (weight and height) in children aged 3-6 in the municipality of Mitrovica. To measure the level we used a questionnaire, also measured the kids in kindergarten by weight and height. From those results we confirmed those questions through descriptive analysis. One of the questions we confirmed was in terms of children's physical activity, how active they are in games and physical activities. This question was verified by 4 questions of the questionnaire. When asked whether parents see physical activity as essential for their child, 80.9% fully agreed, while 19.1% of them partially agreed with this opinion. To the other question, "How much do you value physical activity in your child?, most of them answered positively, where the largest number of 52.9% answered that they often pay attention , the rest of 31.9% answered that they always pay attention to physical activity. and only 1.1% answered that they rarely pay attention to physical activity. The other question of how much children walk during the day also gives us the answer that 58.5% of children walk 1-2 hours a day, 26.6% walk 3-4 hours a day, 4.3% walk 5-6 hours a day and 10.6% of parents stated that their children never go out for a walk. The analysis of the next question How much time has your child spent the last three days playing outside in the yard or park, has shown that the largest percentage of 24.5% spend 2-3 hours in days playing outside, 21.3% spend 3-4 hours, 21.3% spend 1-2 hours, 14.9% spend 4-5 hours, 8.5% spend very little time, only 30min - 1 hour, 5.4% spend 5-6 hours and 4.3% spend 6-7 hours playing outdoors. It turns out that the children in the research sample are active enough compared to a study by the Ontario Public Health Association (2007) which recommends that children aged 3-6 should engage in physical activity for at least 60 minutes a day. Some other issues that were of interest in this research was the possession of electronic devices in the families of children that are a sample of research. The data shows that the majority with 59.6% own only one TV, then 64.9% of households own only one DVD. Regarding the possession of laptops, the majority with 66.0% stated that they have only one laptop or computer at home. Also, 96.8% of parents stated that they have the internet in their homes. The second research question that was verified has been regarding the use of telephones by children, where the results show that the majority of children 51.1% use the telephone only one hour a day. Then 22.3% use the phone two to three hours a day, a smaller percentage of 19.1% use the phone two to three times a week and 7.4% do not use the phone at all. According to the results obtained, in comparison with the various theories which have proposed that the exposure of children to technological devices such as television, computer or telephone be no more than 2 hours a day in children over 2 years, while for children aged under 2 years old it is recommended to avoid television completely, the children of the research sample do not stand bad in terms of the use of telephones. (American Academy of Pediatrics, 2001). Regarding the part of the questions about nutrition of the children that were the research sample and that give us the answer to the third research question we got these results. Questions posed about the number of rations that children consume during the day we received the following answers: the majority of parents 54.7% stated that their children

consume three rations per day, 34% were fed four times a day, 7.4% were fed twice a day and 1.1% five times a day. According to an article published by the Dannon Institute (1999) every day children of this age should be offered 3 meals and 2 or 3 snacks. Regarding the question of how much children are fed with meat, fish and egg products. Part of the parents have stated that 5.3% never consume these products. Sometimes 28.7% of the respondents answered, most of the parents 62.8% responded that their children are fed meat and protein products two to three times a week while only 3.2% of children are fed these products every day. In terms of these results we see that protein intake in children who are in the research sample is limited, knowing the fact that children should take protein daily (Stephanie Chandler, 2018). Regarding the consumption of milk and dairy products, parents gave the following answers: 46.8% of children drank or consumed dairy products every day. 14.9% drank occasionally, 26.6% two to three times a week, and 4.3% never consumed. These results show that children in the municipality of Mitrovica do not consume enough milk as the recommendations from the US Department of Agriculture which shows that preschool children should consume about two glasses of milk per day (Erin Coleman et al. 2018). When asked how much fruit children eat, we got the following answers: most children 52.1% consumed fruits and vegetables every day, while sometimes 19.1%, two to three times a week 26.6 and only 2.1% consume fruits and vegetables two or three times a day . The other question that was analyzed was the amount of beverages consumed which are considered harmful to children such as: carbonated beverages and energy drinks. From this analysis we obtained the following results: in terms of carbonated beverages 50% of children did not consume at all, 38.3% consumed occasionally, 7.4% used it two or three times a week, 3.2% drank daily and 1.1% two or three times a day. This result is not so satisfying when we know that energy drinks contain high levels of caffeine and taurine, which have stimulating cardiac attack (heart) and hematological (blood circulation) so those drinks are not preferred to be used at all by children. (Babu KM et al, 2008). Another variable we had was body mass index BMI in children aged 3-6 years. From the measurement of weight and height of 112 children, the body mass index was calculated for each of them and we obtained these results. From the measurement of children aged 3-4 years only one child turned out to be overweight with BMI = 18.7, while the rest came out with BMI with normal limits. As for children aged 4-5 years, one child turned out to be underweight with BMI = 12.4 and one obese with BMI = 21.9 and the others with BMI with normal limits. And out of children aged 5-6 years one child came out overweight with BMI = 17.7 and two others obese, one with BMI = 19.7 and the other BMI = 19.8 and the other children had normal weight (Betterhealth, 2016).

5. CONCLUSIONS AND RECOMMENDATIONS

From this research was realized that physical activity, lifestyle and nutrition play a major role in the body mass index in children, so it comes to the following conclusions:

In terms of parental responses, the results we obtained turned out to be quite satisfactory in terms of the kid's lifestyle and physical activity in which children were active for at least one hour a day as recommended by numerous studies.

Nutrition aspect needs to be improved in the intake of proteins and vitamins obtained through fruits and vegetables. At the same time, both the parents of the children and the preschool institutions should work hard so that the condition of BMI does not increase, this can be monitored by adding care in increasing physical activity, improving the lifestyle and taking care of food intake by children.

Considering the results of this paper, my recommendations for parents are:

-We recommend that each parent to find enough time to be engage in physical activity with their children,

-To work as much as possible on reducing the time that children spend in front of TVs, telephones, etc.,

-Parents should be educated about the importance of healthy eating habits for themselves and their children as well.

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