

Physical activity and health behaviors of children from 4-6 classes of primary school living in the villages of the Lublin and Lodz voivodeships

Paula Jankowska¹, Ewa Rudnicka-Drożak¹,

1. Chair and Department of Family Medicine, Medical University of Lublin

ABSTRACT

Introduction

Health behaviors shape throughout life. The family is the first educational environment of the child, in which health habits are created. Nutrition and nutritional status in childhood and early adolescence determine the health of an adult person to a large extent. Lack of physical activity can bring with it many negative effects, including overweight and obesity in children, metabolic syndrome, lack of motor coordination.

Objective

The aim of the study was to assess health awareness and attitudes of children from classes IV-VI of rural primary schools in the Lublin and Lodz voivodeships.

Material and methods

The study group consisted of 65 children from classes 4 to 6 attending primary schools in the Lublin and Łódź voivodships. There were 34 girls and 31 boys among the respondents. The diagnostic survey method used a questionnaire constructed by the authors. The obtained results were statistically analyzed using the STATISTICA 12.5 program.

Results

Only 43.08% of respondents ate 5 recommended meals. As many as 55.38% of children ate sweets several times a week, and 7.69% - every day. 66.15% of respondents stated that they consumed fresh vegetables and fruits every day, and 24.62% - several times a week. The vast majority of children ate breakfast before going to school (73.85%). A very worrying fact is that over a quarter of children's physical activity was limited to physical education only. Children assessed their knowledge of the principles of a healthy lifestyle: 23.08% - great, 53.85% - good, 20% - average and 3.08% poor.

Conclusions

Sweats and sweet drinks were disturbingly common in children's diets. The frequency of children's consumption of fresh vegetables and fruits could be described as satisfactory. An important problem was the low physical activity.

Keywords: Diet, Healthy Lifestyle, Child

INTRODUCTION

Health promotion emerged as a social movement in the second half of the twentieth century. It owes its scientific development to epidemiological findings that have determined individual human behavior as the main factor determining the health of individuals [1,2]. in 1974.

Canada health minister Marc Lalonde introduced the concept of health fields, which are the four overarching categories of determinants of health, among which the most important for health formation is the lifestyle, with the impact of 55% [3].

Health behaviors shape throughout life. The family is the first educational environment of the child, in which the basics of ethics, interpersonal behaviors are given and habits of a child are shaped, including health habits. Its tasks include systematic work on their shaping, supporting child's activities in this area, as well as organization of life that is consistent with the principles of somatic and mental hygiene. Very often parents have bad habits, which they do not understand or do not see. They are based on own experience, taken out of the family home or intuition [4].

Diet has a big influence on health. Nutrition and nutritional status in childhood and early adolescence determine the health of an adult person to a large extent [5]. The food intake during this period should be adapted to the individual needs of the young organism, depending on the rate of growth and physical activity [6,7]. Too many products with a high energy value may disturb the consumption of valuable products. Inappropriate quality and number of meals and irregularity in their consumption may lead to inhibition of physical and mental development, deficiency states, difficulties at school (poor concentration, memory, attention), and in girls, in addition to menstrual disorders [8].

Pupil's free time is defined as remaining after completing all activities related to the duties at school and at home [9]. The mass media and the progress of civilization mean that free time often takes the form of passive. The widespread use of passive rest patterns means that parents are used to immobility, which is why children are not inspired for high physical activity [10]. This aversion to active life brings with it many negative effects, including overweight and obesity in children, metabolic syndrome, lack of motor coordination. What is more, the place of residence is an important determinant of less physical activity among young people. Rural youths have a higher risk of obesity and physical inactivity than young people in cities [11].

One of the main tasks of health promotion is shaping the lifestyle of the young generation. It aims to help children make the right decisions regarding development and health. Time of early classes of a primary school attendance is an excellent period to implement educational programs on various aspects of children's health [12]. Analysis of children perceptions on healthy lifestyle and their health behaviors allows the creation of effective intervention programs.

OBJECTIVE

The aim of the study was to assess health awareness and attitudes of children from classes IV-VI of rural primary schools in the Lublin and Lodz voivodeships.

MATERIAL AND METHODS

The study group consisted of 65 children from classes 4 to 6 who attending primary schools in the Lublin and Łódź voivodships. 13 questionnaires were rejected due to conflicting answers. The study was conducted in April 2015. The study involved 2 randomly selected schools - the Primary School in Srebrzyszcze, which was represented by a group of 21 children and Primary School in Stok, where 44 children took part. Participation in the study was voluntary and anonymous. Among the respondents were 34 girls (52.31%) and 31 boys (47.69%). The group of 9-year-olds was represented by 1.54% of people, 10-year-olds - 1.54%, 11-year-olds - 29.23%, 12-year-olds - 29.23%, 13-year-olds - 38.46%.

The study used the method of a diagnostic survey with a questionnaire constructed by the authors. The questionnaire contained 15 questions and consisted of two parts. The first part allowed for obtaining socio-demographic data (age and sex of the child, place of residence). The second part concerned the children's lifestyle and their assessment of their own health attitudes regarding diet, physical activity, sleep and learning hygiene. The questionnaire contained closed - alternative, disjunctive and conjunctive questions, as well as semi-open questions. The obtained results were statistically analyzed using the STATISTICA 12.5 program. The results of the survey were described depending on the age, gender and place of residence of children.

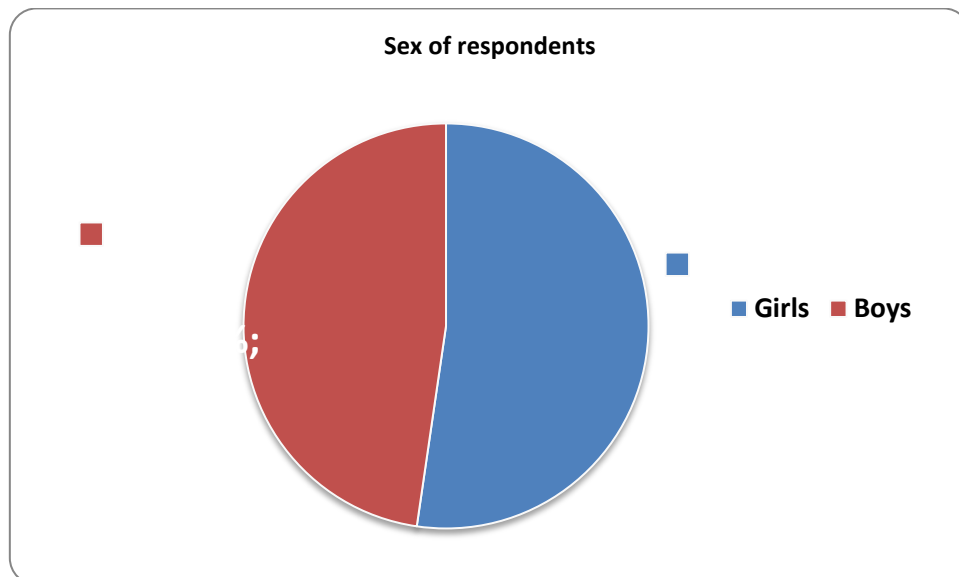


Fig.1. Sex of respondents

RESULTS

In the questions about the diet of surveyed children, we got a lot of disturbing information. Only 43.08% consumed the recommended 5 meals. 24.65% said that they ate 4 meals a day, and 18.46% - 3. It was worrying that there were children who consumed only two meals a day (4.62%) and six or more meals (9, 23%). In primary school in the Lubelskie Voivodship, 2 and 6 or more meals daily were answered more often. As many as 55.38% of respondents ate sweets several times a week, and 7.69% consumed them every day. What is more, there were children who had sweets even a few times a day (3.08%). 41.54% of children drank sweet drinks (Coca-Cola, Sprite, Fanta) once a week, 33.85% several times a week, and 4.62% consumed them every day. Children from the Lubelskie Voivodeship answered more often that they were drinking sweet drinks everyday compared to those from the Lodz region. Positive information was the fact that 66.15% of respondents stated that they consumed fresh vegetables and fruits every day, and 24.62% several times a week. The vast majority of children ate breakfast before going to school (73.85%). Among the reasons why children gave

up eating breakfast were most often lack of appetite (10.77%) and lack of time (9.69%). Children from the Lublin province ate breakfast less frequently than their peers from the Lodz region.

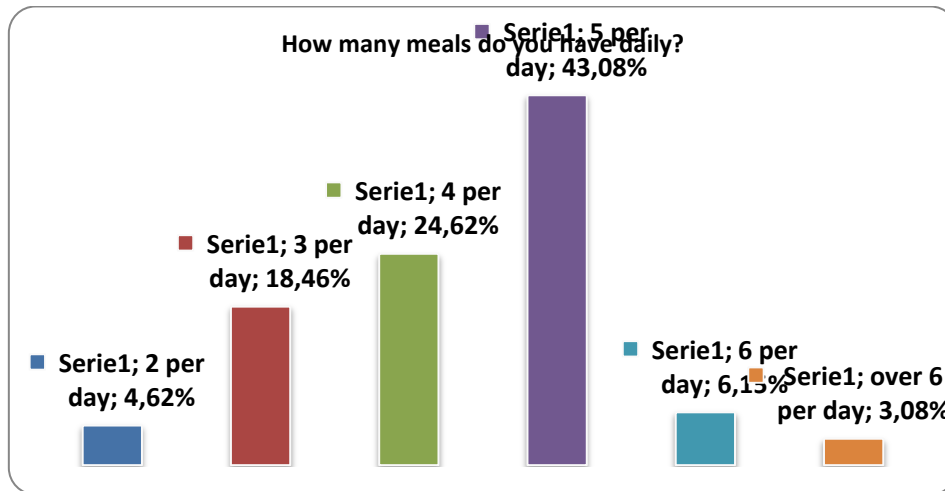


Fig.2. The distribution of answers to the question: How many meals do you have daily? When asked about sleep time, 64.62% answered that its duration was average 8-10 hours and 7.69% slept less than 6 hours. Children from the Lublin province had a significantly shorter sleep. 26.15% learnt 1 hour a day, 50.77%- 1-2 hours a day, 20% - 2-4 hours a day, and 3.08% more than 4 hours a day. In the question about time spent on using electronic devices such as computer or mobile phone, laptop, only 38.46% said that it was less than 1 hour a day, 33.85% used them 1-2 hours a day, 20% 2-4 hours per day. However, there were people who spent even 6-8 hours on computer games (3.08%) and even over 8 hours (1.54%). The longer time spent on using electronic devices was observed in children from the Lublin province.

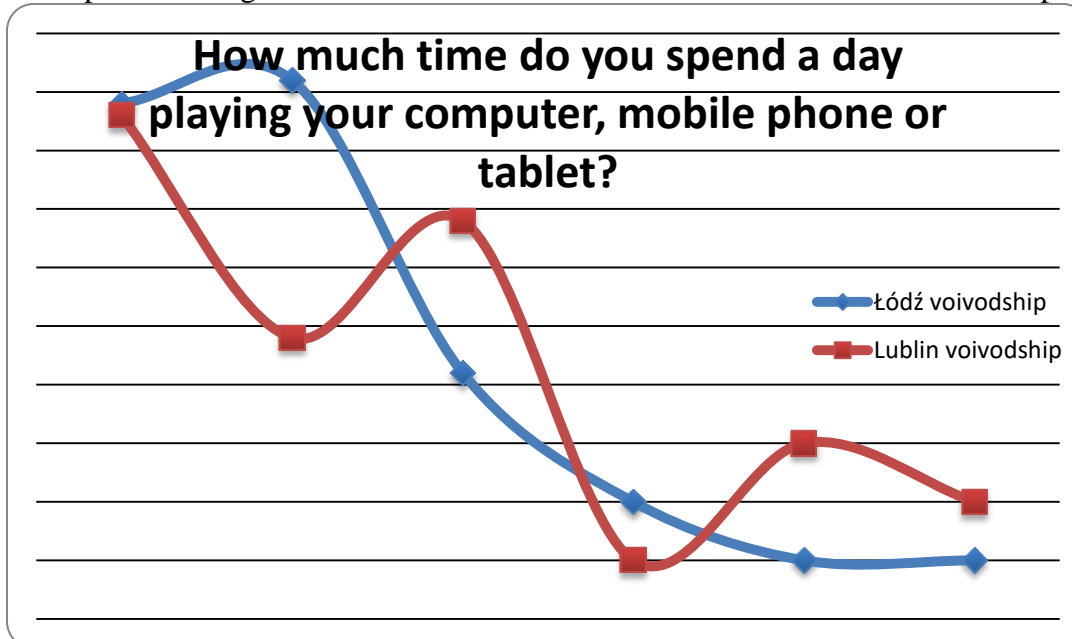


Fig.3. The length of time spent using electronic devices with the division into voivodships. A very worrying fact was that for over a quarter of children's physical activity was limited to physical education only. More often, this answer was given by children from the Lodz region. In addition, only 7.69% of children spent 10 minutes a day on physical activity, 10.77% of children spent half an hour a day, and 35.38% exercised about 1 hour a day. Only 3.08% undertook physical activity over 4 hours a day. 92.31% of respondents regularly participated in physical education classes, 3.08% left 1-2 classes a month, and the remaining 4.62% of

respondents left 3 or more physical education classes a month. In the question of multiple choice about the sport discipline that were taken by respondents were most often mentioned: cycling (78.46%), football (55.38%), volleyball (41.54%), table tennis (38.46%) , swimming (24.62%), roller-skating (23.08%), ice skating (20%), basketball (18.46%) and running (16.92%). Volleyball and basketball were more popular among children from the Lodz region, and swimming and running were more often chosen by children from the Lublin province. Then, children assessed their knowledge of the principles of a healthy lifestyle. 23.08% as great, 53.85% as good, 20% as average and 3.08% as poor. Respondents also evaluated their own health behaviors as very good - 26.15%, good, demanding some more attention - 43.08%, average - 26.15% and 4.62% as unfavorable, but tried to change it. None of the respondents answered that he did not try to live healthy.

| Do you live healthy? | % |
|---------------------------------|--------|
| Yes, of course | 26,15% |
| Yes, but there are shortcomings | 43,08% |
| Average | 26,15% |
| No, but I'm trying. | 4,62% |
| I am not trying to live healthy | 0% |

Tab.1. Assessment of lifestyle according to children`s opinion.

DISCUSSION

In our own study less than one half children consumed the recommended 5 meals. Study by Niewiadomski et al. revealed that the majority, about 76% of the surveyed boys and 69% of girls thought that they should eat more than 5 meals a day [13]. Results of Bednarek et al. who evaluated health behaviors of boys and girls at younger school age from Lublin showed that more than 2/5 girls (44.2%) and 1/3 boys (32.5%) declared eating five meals a day [14]. More than 55% of our respondents ate sweets several times a week, and almost every twelfth child consumed them every day and some even a few times a day. One third of children drunk sweet beverages several times a week. The frequency of consumption of such products was absolutely too high. The same conclusions were formed in Wojtyła-Buciora et al. study among primary school pupils [15]. They assessed that children used sweets definitely too often. Every day or several times a week, pupils reach for sweets (74%) and sweet drinks (74%), while several times a week 36% of respondents eat salty snacks. Among children from Biała Podlaska sweets and salty snacks were also popular, being a part of a daily menu for 33.4% of the girls and 35.2% of the boys [16]. Prevention of overweight and obesity in children involves limitation of sugar and sweets intake [17].

Positive information from our study was the fact that 66.15% of respondents stated that they consumed fresh vegetables and fruits every day. Among interviewed children from Lublin, over half of the surveyed girls (54.7%) daily ate fruit and vegetables (unprocessed). What is more exactly half of the boys surveyed consumed fruits and vegetables every day [14]. In study of children whose place of residence was Biała Podlaska, the most commonly consumed products between the main meals were fruits and vegetables; they were eaten by 51% of girls and 42.4% of boys [16]. In Kalisz district pupils results concerning fruits and vegetables consumption was not as satisfactory as in our study group. Fruits and vegetables were mostly eaten several times during the week - 55%, only 35% of respondents ate it every day [15].

Vast majority of children ate breakfast before going to school. The same results were obtained in study of Galczak-Kondraciuk et al., as 77% of girls and 77.1% of boys had breakfast before going to school [16] and in Wojtyła-Buciora study breakfast was eaten every day by 69% of pupils [15]. According to the studies, the most common abnormal nutritional behaviors

among children, leading to obesity or overweight include skipping breakfasts, snacking between main meals with sweets and incorrect number of meals during the day [18]. These problems were found in most of analyzed studies as well as in our own results.

Assessed children from Stok and Srebrzyszcze mostly estimated their sleep duration as average 8-10 hours (64.62%) and only 7.69% slept less than 6 hours. According recommendations, children between 6 and 13 years of age should sleep between 9 and 11 hours [19]. Adherence to the rules regarding the correct length of sleep seems to be common, as children in Bednarek [14] et al. and Woynarowska [20] the majority of primary school pupils go to bed early every day, at 20.00-22.00.

In our study we also evaluated time children spent using electronic devices. For 38.46% it was less than 1 hour a day, 33.85% 1-2 hours a day. However, alarming fact is there were pupils who spent even 6-8 hours on computer games and even over 8 hours. Bednarek et al. obtained even more disquieting results [14]. The vast majority of the girls surveyed (79.1%) as well as boys (80.0%) admitted spending 1-2 hours a day in front of a computer, and every eighth pupil spent 3-4 hours a day using electronic devices. Similar outcomes were depicted in Olszewski et al. study [21].

Our own study revealed a quarter of children's physical activity was limited to physical education only. Moreover, only one third exercised about 1 hour a day. Fortunately, over ninety percent of pupils regularly participated in physical education classes. The most popular sports undertaken were cycling and football. According to Bednarek, near half of girls spent approximately one hour a day on physical activity, for the physical activity and the largest group of boys spent 2 hours daily having different forms of exercises [14]. According to Jodkowska et al. 20% of students with excessive weight were inactive or poorly active. 40% of overweight pupils participated irregularly or even did not participate in physical education classes [22]. Awareness of physical activity influence on health is rather high in other authors, (93.3%) of pupils of primary school in Góra Puławska were aware of the fact that movement and sport significantly affect their health [23]. About 59% of children aged 6-13, attending primary schools in Silesia and Opole Provinces undertook physical exercises, mainly outdoor activity, while almost 22% regularly practiced some sport [24]. According to the latest recommendations, children at school age should practice moderate and high intensity exercise for 60 minutes a day, in a form suited to the stage of their development. It should be pleasant for them and very diversified. The absolute minimum is half an hour [25]. This criteria were met by the majority of examined pupils.

CONCLUSIONS

1. A surprisingly low percentage of children ate 5 recommended meals a day. Worryingly often, the diet was supplemented with sweets and sweet drinks.
2. The frequency of children's consumption of fresh vegetables and fruits could be described as satisfactory. Perhaps this might be the effect of promotional campaigns and programs for schools that provided them with fresh fruit and vegetables.
3. A significant problem was the low physical activity of children. It seems necessary to intensify the promotion of physical health among children and adolescents.
4. There were significant differences in the health behaviors of children from the Lubelskie Voivodeship and those from the Łódź Province.

References

1. Skommer M. Uwarunkowania zachowań zdrowotnych człowieka. W: Bartkowiak G, red. Czynniki kształtujące zachowania zdrowotne człowieka na przestrzeni życia. Teoria i praktyka. Uniwersytet Medyczny im. Karola Marcinkowskiego w Poznaniu: Poznań; 2008: 76–81.
2. Karski J B. Praktyka i teoria promocji zdrowia – wybrane zagadnienia. Wyd. 1. Warszawa: CeDeWu; 2003.
3. Lalonde, M. A new perspective on the health of Canadians. Ottawa, ON: Minister of Supply and Services Canada; 1974.
4. Woynarowska B. Edukacja zdrowotna. Podręcznik akademicki. Warszawa: Wydawnictwo Naukowe PWN; 2008.
5. WHO: Diet, nutrition and the prevention of chronic diseases. Report of a Joint WHO/FAO expert consultation WHO, Geneva, Swizerland 2003.
6. Jarosz M. (red.): Zasady prawidłowego żywienia dzieci i młodzieży oraz wskazówki dotyczące zdrowego stylu życia. Wydawnictwo Instytut Żywności i Żywienia, Warszawa 2008.
7. Jarosz M. (red.): Normy żywienia dla populacji polskiej – nowelizacja. Wydawnictwo Instytut Żywności i Żywienia, Warszawa 2012.
8. Rausch R. Nutrition and Academic Performance in School-Age Children The Relation to Obesity and Food Insufficiency. *Journal of Nutrition & Food Sciences*, 2013;3(2):1-3.
9. Wujek T.; Z badań nad budżetem czasu wolnego młodzieży szkolnej w środowisku wielkomiejskim: *Kwartalnik Pedagogiczny*; 1960.
10. Pańczyk W, Warchoń K. Wychowanie fizyczne wobec wyzwań cywilizacji konsumpcyjnej. W: Rakiel-Czarnecka W, Cendrowski Z, (red.). *Zdrowie naszych dzieci*. Warszawa: Fundacja Dobre Życie; 2007.
11. Yousefian A, Ziller E, Swartz J, Hartley D. Active living for rural youth: addressing physical inactivity in rural communities. *Journal of Public Health Management and Practice*, 2009;15(3):223-231.
12. Kozieł D, Naszydłowska E, Trawczyńska M, Czerwiak G. Zachowania zdrowotne młodzieży – kierunek działania dla edukacji zdrowotnej. *Zdr Publ* 2003; 3/4: 280–284.
13. Niewiadomski T, Napierała M, Pezala M, Zukow W. Aktywność fizyczna i odżywianie w zdrowym stylu życia uczniów w wieku 10–13 lat ze szkoły podstawowej nr 9 w Inowrocławiu. *Journal of Education, Health and Sport* 2015; 5(6): 355–374.
14. Bednarek A, Bednarz M. Zachowania zdrowotne chłopców i dziewcząt w młodszym wieku szkolnym. *Medycyna Ogólna i Nauki o Zdrowiu*, 2013, Tom 19, Nr 3, 305-312.

15. Wojtyła-Buciora P et al. Sposób żywienia uczniów szkół podstawowych w powiecie kaliskim – w opinii dzieci i ich rodziców. *Probl Hig Epidemiol.* 2015; 96(1): 245–253.
16. Galczak-Kondraciuk A, Stempel P, Czeczulewski J. Assessment of nutritional behaviours of children aged 7-12 attending to primary schools in Biała Podlaska, Poland. *Rocz Panstw Zakl Hig.* 2018;69(1):71-77.
17. Obuchowicz A. Otyłość dzieci i młodzieży – przyczyny, sposoby oceny i metody zapobiegania. *Forum Profilaktyki Chorób Układu Krążenia* 2007, 3(8): 4.
18. Toschke AM, Küchenhoff H, Koletzko B, von Kries R. Meal frequency and childhood obesity. *Obes Res* 2005, 13: 1932-8.
19. Hirshkowitz M, Whiton K, Albert SM, et al. National Sleep Foundation’s sleep time duration recommendations: methodology and results summary. *Sleep Health* 2015, 1(1): 40-43.
20. Woynarowska B. *Zdrowie i szkoła.* Warszawa: PZWL; 2000.
21. Olszewski J, Kuśmierczyk R, Olszewska M. Ocena porównawcza aktywności ruchowej w życiu codziennym u siedmiolatków i czternastolatków. *Kwart Ortop.* 2007; 3: 323–330.
22. Jodkowska M, Tebak I, Oblacińska A. Aktywność fizyczna i zachowania sedenteryjne gimnazjalistów z nadwagą i otyłością w Polsce w 2005 r. *Probl Hig i Epidemiol* 2007, 88:149-156.
23. Pitucha A, Metera A: Charakterystyka nawyków żywieniowych i aktywności fizycznej dziecka w wieku wczesnoszkolnym w Górze Puławskiej. *Zeszyty Naukowe WSSP* 2013; 17: 67–85.
24. Joneczyk P, Potempa M, Kajdaniuk D. Analiza stopnia odżywienia i zaburzeń odżywiania oraz charakterystyka przyzwyczajzeń żywieniowych i aktywności fizycznej wśród dzieci szkolnych w wieku 6-13 lat w mieście Piekary Śląskie. *Pediatr Med Rodz* 2015, 11(3): 302-314.
25. Strong WB, Malina RM, Blimkie CJ, Daniels SR, Dishman RK, Gutin B, Hergenroeder AC, Must A, Nixon PA, Pivarnik JM, Rowland T, Trost S, Trudeau F. Evidence based physical activity for schoolage youth. *The Journal of Pediatrics*, 2005;146(6):732–737.