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The relationship between the family's socio-economic status and physical activity level of pre-school children

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Abstract

Preschool-aged children respond very positively to the educational impact based on targeted incentives and suitable designs. It is thus relatively easy to cultivate the habit of healthy lifestyle choices and optimal physical exercise regimen at this stage of life. The family plays a fundamental role in forming a healthy lifestyle of children. The aim of the present study was to analyse relationships between family's socio-economic status and the physical activity levels of preschool-aged children. The research sample consisted of 200 children (96 girls, 104 boys) aged 5.71 ± 1.0 years. Family history (parents' age; parents' education; number of siblings; type of housing; economic, spatial and traffic stimuli; participation in physical activity) was assessed with the use of a modified Czech version of the Environmental Stimulus for Physical Activities questionnaire [1]. Informed consent was obtained from the parents before any research procedures. The level of physical activity was evaluated on the basis of the results of monitoring active energy expenditure (kcal × kg × day^{-1}) recorded with ActiGraph GT3X+. The parents' education was found to be related to the children's greater involvement in sports organizations ($p < 0.03$). The statistically significant relationship noted between the level of parents' education and economic and spatial stimuli at home ($p < 0.01$) confirmed the purposeful and intentional influence of parents in the optimization of daily exercise regimen of their children. The parents' inclination towards the development of their children's active lifestyle is closely related to the children's membership and participation in youth/sports organizations ($p < 0.002$).

KEYWORDS: child, parents, active lifestyle, stimulation, physical activity.

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What is already known on this topic?
The family is the first social group that predicts the way human lifestyle, whether positive or negative. The complex socio-economic factors contributes significantly to the level of physically active daily regimen of the child. It is shown that physically active children are, who are more physical activity stimulated by the conditions in which they live. Significance of the impact of these factors is still under scrutiny.

Introduction

Parental training is the most natural way to develop a healthy lifestyle in children. A child adopts a specific model of behaviour and communication from his/her parents. The family provides (or should provide) behaviour patterns, standards, and positive relationships. In a family environment a child learns ideas, ideals, and value systems of 'their' adults – not merely declarative ones but those being part of everyday life. Parents' behaviour provides a gentle stimulation

that encourages imitation of an adult – "playing an adult" – which motivates the child. In a functional family there is also a positive emotional climate. Patterns of behavior within the family based on emotional foundations are the sources of experience, and become model behaviors to the child. The family integrates the child into a certain way of life and provides it with appropriate social requirements and rules. The family (parents, grandparents, siblings, but also close relatives) represents safety and protection for children and gives them stability. The stronger and the more immediate the emotional relationships in the family are, the stronger the influence of the family environment on personality development is. The role of parents as teammates and/or coaches increases the sense of belonging and has a positive impact on the relationship between parents and children [2]. The families where parents engage in physical activities together with their children are characterized by the development of positive attitudes to spending leisure time actively. Such families function well and feature clear communication, sense of connectedness, cooperation and trust in the child's abilities. These relationships are then reflected in the growing confidence of the child, and help the progressive development of the child's social adaptability [3, 4]. Family is of utmost priority in children's development; its effect is additionally enhanced by deep emotional bonds between family members. Physical stimulation of children, joint physical activities of parents and children, and creating conditions for spontaneous and/or organized physical activity constitute the family's framework for a healthy lifestyle of its children.

A number of authors have dealt with the influence of parents as an early determinant of children's experiences with physical activity (PA), or investigated relationships between the amount and type of children's participation in sports and PA of family members [5]. Different studies examining the importance of family in supporting children in their pursuance of an active lifestyle found a significant impact not only in the inclination of parents toward their children's physical activity, but also relationships with the parents' gender or level of education. Research shows that family is the determining factor in the socialization of children through physical activities. Studies aimed specifically at monitoring relationships between parents' and children's physical activity confirm the positive relationship between parents and children engaged in sports [6]. Parents establish a foundation for the physically active lifestyle of their children, and provide encouragement and opportunities for practicing physical activities. Children whose parents participate in PA will often engage in PA themselves. They tend to do the PA practiced by the parent of the same sex [7, 8]. Parental influence is more noticeable at the beginning of middle childhood [9]. The family is especially important for the child's primary socialisation, i.e. a process throughout which the child defines its own identity, and learns the roles and norms of society. In the process of primary socialization, children learn by participating in PA, cooperating, and acquiring social skills necessary to perform PA [10]. In this way, PA has an indirect influence on the development of children's social skills. According to Trost, Sirand, Dowdy, Pfeiffera and Pate [11] children who have enough toys that stimulate physical play are more physically active not only at home but also in kindergarten. These findings are put into the context of the socio-economic status of the family. By promoting an active lifestyle, by engaging in sport activities with their children, or encouraging children to walk or cycle to school, parents can have a profound influence on their children. The European Hearth Health Initiative [12] notes that children and young people urgently need stimulation for PA. Parents of preschool, early-school, and/or prepubescent children may directly or indirectly obstruct the realization of children's PA. They check or determine the choice of settings for children's PA and decide on children's transportation to a sports venue. Moreover, they decide on the frequency and length of their children's sports performance, enrolment in sports classes, and can also encourage and motivate their children to exercise. The significance of parents' impact is mostly visible in the preschool age [5]. Researchers agree that the family's lifestyle is significantly correlated with the socio-economic status of the family, depending on environmental factors. Other significant factors include completeness or incompleteness of families, parents' education, and parents' occupation. A child's physical development is positively correlated with parental education and socioeconomic status [13, 14, 15]. Coakley [16] and Laing [17] showed positive links between parental willingness to invest money, time, and personal involvement in sport activities, and the level of children PA. Some studies reported associations between children's levels of PA in leisure time and socioeconomic status, family type, parental income and education, place of residence, type and location of school, region, climate, and/or season of the year [17, 18]. However, this is not supported by the results of other studies [11].

Aim of Study

The aim of this study was to examine the relationships between family's socio-economic status and levels of physical activity of preschool children.

Methods

Participants

The research sample consisted of 200 children (96 girls [48%], 104 boys [52%]) aged 5.71 ± 0.15 years (4.69 to 6.71 years), of mean body height of 115.33 ± 5.22 cm (114.24 cm – girls, 116.34 cm –boys), and body mass of 20.76 ± 3.50 kg (20.31 kg – girls, 21.17 kg – boys), which corresponded to the normal physical growth of children's population in the Czech Republic [19].

Instruments

Socio-economic characteristics of families were identified with the use of a Czech version of the Environmental Stimuli in Physical Activity of Children questionnaire [1, 20]. The first part of the questionnaire titled 'Anamnesis' assessed the following variables: father's level of education, mother's level of education, father's socio-professional status, mother's socio-professional status, urbanisation level of the place of residence, size of the family (number of siblings), father's participation in sports, and mother's participation in sports. The second part of the questionnaire located places and assessed opportunities for engaging children in informal PA and formal participation in sports, created by parents and institutions, e.g. kindergarten. The following types of stimulation were monitored: space, material, transportation, and social participation. Social participation in PA was categorized into number and type of organizations (children's organisation or sport club) and/or formal membership, participation in children's and training camps. The questionnaire was filled in by children's parents and after that by school teachers. The part related to the transportation and social participation stimuli was only completed by the parents. The indicators of children's physical activity were determined by the level of active energy expenditure (kcal × kg × day^{-1}) recorded with the ActiGraph GT3X+ (USA). The children used the devices for seven consecutive days during waking hours, except when they showered or took part in physical activities, as it could have stopped them from moving. The parents were instructed how to enter data into record sheets in the evening, after the children removed the devices.

Parental informed consent was obtained. Legal guardians/parents were informed about the organization and conduct of the study. The anonymity of personal data was guaranteed as well as the possibility of a child's withdrawal from the research at any time or termination of its participation. The kindergarten management also approved the research protocol.

Data analysis

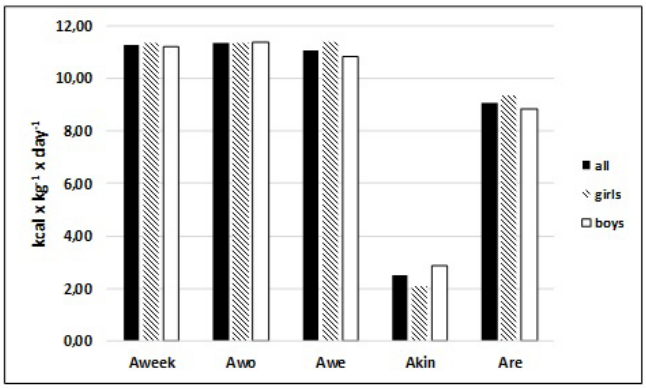
Spearman's rank correlation coefficient (r_s) was used to assess the relationship between monitored PA indices, environmental stimuli and PA. Sex differences were examined with Student's t-test. The level of significance for all tests was set at $p < 0.05$. All statistical analyses were conducted using STATISTICA 12.0.

Results

There is good evidence that the need of PA for preschool-aged children is high. We did not find any significant differences in the level of PA index: active energy expenditure (kcal × kg^{-1} × day^{-1}) on each day during the monitored week. However, the test revealed a significant increase in children's PA after the children left the kindergarten in comparison to the children's PA in the kindergarten on weekdays ($p < 0.001$).

The mean energy expenditure in the whole cohort was 11.27 kcal × kg^{-1} × day^{-1} per week (11.34 kcal × kg^{-1} × day^{-1} in girls, and 11.22 kcal × kg^{-1} × day^{-1} in boys). The mean active energy expenditure in the whole cohort was 11.36 kcal × kg^{-1} × day^{-1} on workdays (11.33 kcal × kg^{-1} × day^{-1} in girls, and 11.37 kcal × kg^{-1} × day^{-1} in boys), and 11.07 kcal × kg^{-1} × day^{-1} on weekends (11.36 kcal × kg^{-1} × day^{-1} in girls, and 10.83 kcal × kg^{-1} × day^{-1} in boys).

The children's mean active energy expenditure was 2.50 kcal × kg^{-1} × day^{-1} (girls 2.09 kcal × kg^{-1} × day^{-1}; boys 2.85 kcal × kg^{-1} × day^{-1}) in the kindergarten, and 9.06 kcal × kg^{-1} × day^{-1} (girls 9.33 kcal × kg^{-1} × day^{-1}; boys 8.85 kcal × kg^{-1} × day^{-1}) for the rest of the day (Figure 1).



Notes: Aweek – active energy expenditure per week; Awo – active energy expenditure on workdays; Awe – active energy expenditure on weekends; Akin – active energy expenditure in kindergarten; Are – active energy expenditure for the rest of the day

Figure 1. Mean active energy expenditure (kcal × kg^{-1} × × day^{-1}), n = 200 (ng = 94; nb = 104)

No significant correlations were found between parent's age and PA level of children (mother: $r_s = 0.07$, $p > 0.82$; father: $r_s = 0.03$, $p > 0.67$). The parents' mean age was 32 years (mothers) and 35 years (fathers). The largest group of mothers were aged 26–35 years (81.82%). The oldest mother was 47 years old (1 person), the youngest mothers were 25 years old or less (5 people). The most common father's age range was up to 35 years (63.33%). The oldest father's age group was over 46 years (4 people), and the youngest ranged from 26–30 years (12 people).

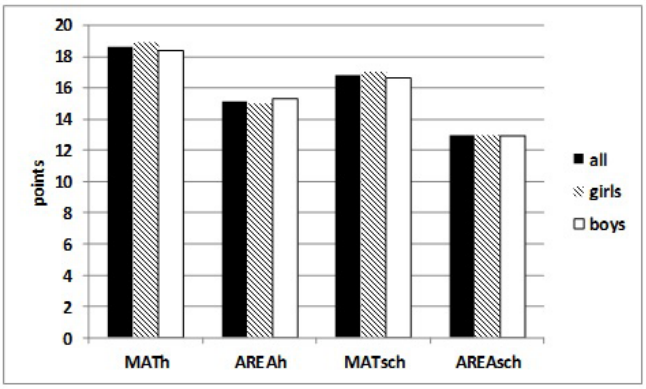
In the monitored preschool children only a very weak but significant correlation between the PA indicators of boys and the mothers' level of education ($r_s = 0.33$, $p < 0.05$) was found in active energy expenditure on weekdays (7 days) and on weekends. It can be assumed that the mothers' education played a certain role in parents' decisions (i.e. mostly mothers) to encourage their preschool children to participate in the research. Mothers' level of education was correlated significantly with the material stimulation of the child to PA in the family ($r_s = 0.39$, $p < 0.003$) and also with the child's involvement in children's or sports organizations ($r_s = 0.27$, $p < 0.02$). A strong relationship was confirmed between the fathers' education and their engagement in sports ($r_s = 0.35$, $p < 0.003$). Another monitored indicator was the housing of the families. A total of 91% of surveyed families reported living on their own. The largest part of the families lived in a family house, in a flat in old urban areas, or in a modern block of flats (90%). Most of the monitored children lived with their parents in a family house or in a block of flats (64%). Less than a half of the families (a total of 86 parents) completed this item (often including full address), unlike, e.g., age or education.

In the investigated preschool children no significant relationship was found between the PA indices and a type of housing. Living in a family house with a garden should provide the child with greater PA opportunities than living, e.g., in a block of flats. There was no statistically significant difference between the level of housing of the families and the PA indices ($r_s = 0.15$, $p < 0.04$).

The most common type of family within the study group (51%) was a family of three (parents with one child), and in 39% cases a family of four (parents with two children). Children with two or more siblings constituted 10.84% of the monitored families. In the research group the correlation between the number of siblings and levels of PA indices in the monitored children was not confirmed. It should be stressed, however, that these were mainly 'young' families; this is certainly reflected in the number of children in the family (the prevalence of families with one child).

What is surprising is the relatively high percentage of parents 'not engaged in sports', both fathers (32.43%) and mothers (35.37%), also considering their possible lack of time due to taking care of a child, working hours, etc. Out of the total number of 82, 62.20% of mothers were engaged in sports, and out of the total number of 72, 64.86% of fathers reported involvement in recreational sports.

In terms of spatial stimulation the monitored group reached (p) the average score of 15.16 points (boys 15.32, girls 15.02) out of the maximum of 24 points (Figure 2). This can be attributed to the young age of the children and possible concerns of the parents about their children's safety.

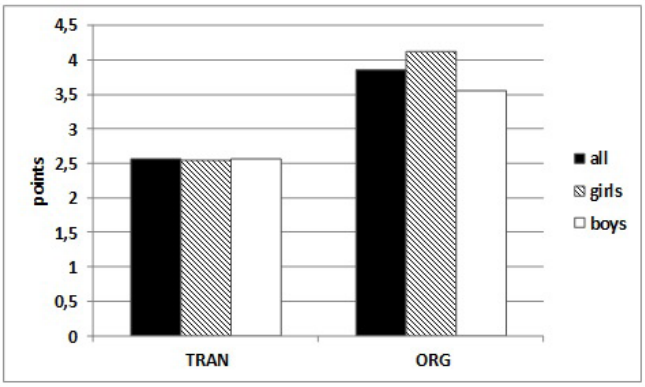


Notes: MATh – material stimulation at home (average number points), AREAh – spatial stimulation at home (average number points), MATsch – material stimulation at kindergarten (average number points), AREAsch – spatial stimulation at school (average number points), points – average score (points)

Figure 2. Spatial and material stimulation in the family, n = 86

In terms of material stimulation to PA was a score of 18.67 points was reached by the children (boys 18.37, girls 18.96) out of 28 points max (Figure 2). The correlation coefficient and the level of significance between material stimulation and spatial stimulation pointed to intentional actions of the family ($r_s = 0.41$, $p < 0.001$; girls $r_s = 0.46$, $p < 0.002$; boys $r_s = 0.38$, $p < 0.02$). This view is supported by a confirmed significant correlation between material incentives in the family and the involvement of the child in children's and sports organizations ($r_s = 0.45$, $p < 0.02$). There was a close relationship between material stimulation of the child at home and mother's education level ($r_s = 0.60$,

$p < 0.001$), most probably determined by the children's early age and, therefore, by the fact that it is mostly the mother who takes care of a child of this age. A closer level of dependence was noted in girls ($r_s = 0.39$, $p < 0.001$), while no such relationship was noted in boys. The monitored sample reached in the item titled inclusion of the child in children's or sports organizations (stimuli of social participation) an average of 2.80 points (boys – 2.49; girls – 3.09) out of the total of 8 points. In the study sample 47.50% of boys and 37.21% of girls did not participate in any children's or sports organization. The boys were, however, more often full members of one sports group (club) (15%), while girls were usually full members of one children's (non-sport) organization (11.63%), and part-time members of a sports club (9.30%) (Figure 3). Only in boys was the correlation with both indicators of PA found ($r_s = 0.35$, $p < 0.04$). In the entire study sample a highly significant relationship was found between the child's involvement in sports or children's organizations, and the participation of mother ($r_s = 0.33$, $p < 0.002$) and father ($r_s = 0.33$, $p < 0.002$) in sports organizations (irrespective of the level). Among the girls a close relationship was noted between the mother's ($r_s = 0.40$, $p < 0.01$) and the father's ($r_s = 0.42$, $p < 0.05$) engagement in sport, and involvement of the child in organizations offering physical activities. Among the boys a significant relationship was confirmed only in the case of the mother's engagement ($r_s = 0.32$, $p < 0.04$). Moreover, a highly significant correlation was confirmed between the child's involvement in children's and sports organizations and the mother's education ($r_s = 0.33$, $p < 0.02$) as well as the father's education ($r_s = 0.33$, $p < 0.05$). The noted correlations between the child's involvement in physical activities in organizations and the material stimulation at home ($r_s = 0.30$, $p < 0.002$) and spatial stimulation at home ($r_s = 0.37$, $p < 0.001$) were positive and confirmed the parents' purposeful influence.



Notes: points – average number of points; TRAN – transport to and from kindergarten (average number of points), ORG – participation in an organized sport and increased PA (average number of points)

Figure 3. Incentives of social participation – participation in organized PA (points), n = 71

Discussion

Although specific interventions into the lifestyle of families in terms of greater involvement in PA have not been widely realized, there is evidence of correlations between socio-economic status, family type, parents' education and employment, place of housing, and children's PA [21, 22]. Following Lioret, Maire, Volatier, & Charles, [23] and Trost [11], we focused on such family background characteristics as parental age, parental education and occupation, type of housing, and number of children in the family. We also evaluated the levels of parental involvement in PA. As an indication of the family's economic situation, we used spatial and physical stimulation for children in the family, which was determined by the size and type of physical activity space, and ownership of sports equipment and/or toys developing children's physical activity. The family's socio-economic status determines parental education, and with a few exceptions such as maternity leave, long-term illness, unemployment etc., it is related to the economic strength of the family and to the possibilities of better stimulation to PA [11, 12, 17, 24, 25]. In the present study all the parents had at least a primary education. There were more mothers than fathers who achieved both a high school and a university education. A weak but significant correlation was found between parent's education and participation of children in different sports-oriented organizations for children (mothers $r_s = 0.28$, $p < 0.02$; fathers $r_s = 0.23$, $p < 0.05$). These results correspond to those by Dishman and Sallis [26] who mentioned the education of parents among six factors affecting the level of children's PA. Lioret, Maire, Volatier and Charles [23], Raudsepp [27] found parents' education a determinant of the living standards of the family and noted its positive impact on the level of weekly PA in children and youth. Salonna et al. (2008) [28] found a relationship between parents' education (related to socio-economic status of the family) and children's positive attitude to PA ($p < 0.05$). They considered the influence of parents on their offspring during childhood and adolescence as the foundation of 'healthy' behaviour. Low socio-economic status as a possible determinant of physical activity was

identified by Gordon-Larsen, McMurray and Popkin [7], Lasheras, Aznar, Merin, and Lopez [29], and McVeigh, Norris and de Wet [30]. A three-year longitudinal Czech study [31] revealed that material stimulation to practice PA in the family (related to socio-economic status) increased, unlike the stimulation to practice PA at school. According to Slepička and Slepičková [32] in a population over 18 years, the economic conditions of families were directly linked to children's active involvement in sports.

A sufficiently large and safe space for PA (locomotion, playing, etc.) greatly affects the level of realised PA [33, 34]. In relation to the type of housing an important question is that of children's safety during PA in terms of the use of playgrounds in modern housing estates or in old housing areas [35, 36]. According to Trudeau and Shephard [37], one of the determinants of an increasing negative attitude towards physical exercises with age is also decreasing PA of the 'idols' of a child in its closest surroundings. Similarly, Dollman, Norton, K. and Norton, L. [38] report that a change of the family structure or habits is reflected in the level of PA of the child, and that it can be one of the factors behind its reduction. If the parents and older siblings participate in PA, then the children and their younger siblings are likely to gradually become physically active and will also seek and socialize with individuals with similar interests. Sibling PA, along with the sense of experience in physical education, appropriate school setting, joint involvement in sports of family members, parental support and plenty of opportunities for physical exercise, are significant motivating factors for PA in children [39, 40].

Another observed variable in relation to children's physical activity was physical activity of their parents. In comparison with the survey results by Miklánková [41] a slightly declining percentage of fathers engaged in recreational sports can be noted. This trend corresponds to the findings of Slepička and Slepičková [32], who stated that almost 25% of women not engaged in sports and 19% of men not engaged in sports do not even show any interest in sport. In the studied preschool children the expected relationship between the measured variables of PA in children and the level of parents 'engaged in sports' was not confirmed (i.e. recreational, competitive – regional, representation) (one or both). However, it is possible that this finding is related to the children's early age. The economic status of the family, so-called spatial and material incentives to PA, offers the use of various spaces and tools for practicing sports. The frequency of going to the playground, swimming pool, hiking in the woods, etc. depends on the time and economic opportunities of parents and on the preferred lifestyle. Safety requirements often reduce the volume of PA of the child at home, in the garden, on the terrace, etc. [42]. Roemmich, Epstein, Raja and Yin [43] found a correlation ($p < 0.01$) between inactive behaviour and environmental conditions at home and near the child's residence. Similarly, Pate, Pfeiffer, Trost, Ziegler and Dowda [36] point to the fact that the exercise regimen is an important correlate of high and medium levels of the child's PA intensity. An inappropriate exercise regimen can contribute to the occurrence of a higher BMI in preschool children. According to a longitudinal study of 56 children [44] the level of spatial stimulation decreases after the start of compulsory education (kindergarten – 12.98 points, 1st grade of primary school – 10.31 points, $p < 0.001$). Many studies confirm that environmental incentives play an important role in children's and youth's development, and that it is generally recommended to ensure a sufficiently large and safe space for playing and creating adequate playgrounds [45, 46]. Also Burdette and Whitaker [47], Cohen, Ashwood and Scoty [48] mention the importance of the environment for developing healthy lifestyle habits. On the other hand, Wendel-Vos, Droomers, Kremers, Brug and van Lenthe [49] during their background research in the field of environmental stimulation did not find sufficient evidence to conclude that PA was related, among others, to the availability of sports facilities. This also raises a question of economic availability of the offered PA for children, as mentioned by Rychecký and Naul [50]. Mandigo et al., [51] and Pate et al. [36] demonstrated a close relationship between the economic situation in the family, financial problems and PA or inactivity of family members. They also pointed out the possibility of a negative impact on the children's lifestyle and the effects of these factors in the future. In recent years the situation of owning sports equipment and tools in families in the Czech Republic has been stable [50], and it depends on the preferences of a particular sport by family members. According to Miklánková [52] the differences in physical stimulation at school and in the family with the child's age increase further in favour of the family. Children who have access to more stimulating toys and tools (e.g. slides, climbing frames, swings, balls, etc.) will not only be more physically active at home but also in other environments, e.g. in kindergarten [53, 54]. Passive children with insufficient movement habits are risk groups in terms of their health perspective. The relationship between participation in

an organized sport and increased PA is also observed by other authors [38, 55, 56]. Parental patterns play an important role in the child's involvement in physical activities in organizations, clubs, and groups.

The results of the present study are consistent with research results by numerous authors [57, 58]. Specifically, Lioret, Touvier, Lafay, Volatier and Maire [59] confirmed a positive relationship between parents' sedentary lifestyle and children's inactivity ($p < 0.002$). In this context, Floriani and Kennedy [60] attained interesting results in the area of influence of families on children's inactivity. In the case of physically active children, their parents (respondents) set fixed rules regarding inactive time during the upbringing, and provided children with more suggestions in the area of PA. The authors conclude that it is necessary to encourage PA in children also by the legal guardians of children, not just by children themselves. Martin, Dollman, and Norton [61], however, point to a gradual reduction in the importance of parental patterns in directing the child toward practicing PA, which is related to the successive changes in the traditional family model. Cohen et al. [48] and Hedstrom and Gould (2004) [62] give some possible reasons for the gradual reduction of the level of children's involvement in organized sports, for example, time constraints, accessibility of sports venues, demanding nature of school education, and others. Koplan, Liverman and Kraak [63] observed the sense of shame in front of peers as a possible cause of inactivity in pubescent girls and in obese children. These less active or inactive children engage in PA more easily in a smaller group of peers whose condition is similar [25]. Some authors, however, argue that organized PA often reduces the level of PA in active children [64, 65]. Yet many parents express a negative attitude to supporting their children with a talent in sports. Therefore, the authors propose changing the system of state support for sports gifted and talented children. In a study carried out by the Research Unit Sport Scotland [24], the parents reported the cost of specific physical activities, high price of clothing, shoes and other necessary equipment, as well as problems with transportation to sports venues, as the main reasons for not involving their children in PA We consider the low number of participants in the research group, unwillingness of parents to dedicate more time to fill in the questionnaire or to respond to all questions, as the limits of this research. Although these data were collected anonymously, we encountered similar problems as some earlier authors [66, 67], i.e. we noticed a gradual decrease in the willingness of the Czech population to participate in various, albeit well-founded, surveys and also the fear of misuse of the provided data. Therefore, we failed to obtain information on the profession of parents to an extent applicable for this research.

Conclusion

The above findings are consistent with results of other studies abroad and unambiguously support the requirements associated with changes in the movement regime of children in nursery schools. Currently applied programs in nursery schools allow only partial satisfaction of preschool children's high need of PA. In addition, we even encountered children who did not meet the recommended values for PA indices, and the school can be a challenging environment in this field for them. Available time and possibilities of conscious actions, variety of forms, methods and means, and the character of created interactions and the teacher's authority during the formative stages of child's development provide educators with irreplaceable opportunities. Purposeful collaboration of teachers within the school team and, at the same time, a close collaboration between the school and parents enabled by changes in the national education strategy are integral to the effort to change the confirmed trend (decreasing PA in children's daily regime). Education towards a positive lifestyle should take the form of a continuous influence of family and school, with a particular emphasis on pre-school and elementary school age. In line with the recommendations of the World Health Organization, it is necessary to create sufficiently large and safe spaces for PA for children, to make school gyms and playgrounds more accessible to parents with children in their free time outside school, and to continue developing support of children's locomotive activity. The current state of effective use of, for example, playgrounds in housing estates and parks is little known. The operation of these facilities is the competence of the municipal authorities or sports oriented organizations. Another solution could be the proper state policy of increasing economic availability of organized PA for children, supporting families which prefer a healthy lifestyle and, solving issues regarding the security of citizens. It is also necessary to focus on systematic education of citizens – current and future parents – in healthy lifestyle promotion and its benefits for the positive development of the child, and also to create conditions for common PA of parents and children. Further research in the area of preschool children's PA (and subsequently also primary school children's PA) is highly desirable in relation to environmental stimulation to PA in the Czech

Republic. A comparative analysis of the results with the trends observed in foreign countries is also needed.

What this study adds?

The increase of overweight and obesity among children and the downward trend in practicing physical activity in children's daily regime can be observed in all countries. Acknowledging the current status will not bring about positive changes. The influence of the environment is the least studied type of impact on physical activity. In addition, existing studies are often limited to a small portion of the population (adults, elderly women, older school age children, college students, clinical patients, high school students, etc.). This prevents the formulation of generally applicable criteria. Standardized tools for tracking children's physical activity should be applied. But the primary lifestyle model of children and parents is part of a family environment. Analysis of environmental socio-economic determinants may help explain some of the well-documented behavioral changes in PA. A successive comparison of research results from various countries must be ensured to create standardized tools that would map the socio-cultural level of the family, at least in countries with a similar socio-cultural environment. The results of these studies can be used to develop effective intervention programs to promote healthy lifestyles and proper locomotor behavior patterns among children.

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