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Research Article

Physical Activity and Sedentary Behavior among Moroccan Children

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Abstract

Background: It is widely commented that regular physical activity is beneficial for global health and it is an important factor in a healthy lifestyle. This study examined levels of physical activity and sedentary behavior in Moroccan school-aged (5 - 17) children.

Methods: 3006 children were recruited at random from primary government schools. Physical activity and screen time were determined using a validated questionnaire.

Results: In the entire sample, 71.30% of children had adequate physical activity. Children from rural areas tend to be more active estimated with children living in urban areas. There was a significant association between level of physical activity and place of residence contrarily to gender. Regarding sedentary behavior, only 35,56% of school-age children spent more than 3 hours per day on the screen. We found a significant correlation between the number of hours spent in front of the screens and the place of residence. Similarly, to physical activity rural children spent less time in physical inactivity.

Conclusion: Education programs are needed to assist in the promotion of a healthy lifestyle.

Keywords: *Physical Activity; Sedentary; Place of Residence; Gender; Children; Morocco*

Abbreviation

PA: physical Activity

Introduction

Physical inactivity is the fourth risk factor of mortality worldwide (6% of deaths) [1]. Indeed, it is increasing in many countries, giving as consequences a major risk on the general health of populations and the prevalence of non-communicable diseases (obesity, cardiovascular diseases, diabetes, cancer, etc.) [2,3]. Physical inactivity was estimated to be the main cause of about 21 to 25% of breast and colon cancer, 27% of diabetes and about 30% of heart disease [4].

The effect of physical activity (PA) on the health of children and adolescents is well documented and widely recognized and occupied an important value in recent researches [5-7]. It promotes growth and development and has several benefits for mental, physical, and psychosocial health. It is associated with a decrease in cardiovascular mortality, overweight and obesity, metabolic syndrome, type 2 diabetes, high blood pressure, osteoporosis and other health risks [8-11]. According to WHO and others research, in children aged 5 to 17, physical activity includes play, sports, travel, recreational activities, planned exercise, in the family, school or community context. Children

and adolescents must practice at least 60 minutes moderate to vigorous physical activity per day [1-12,13]. Indeed, childhood is a period characterized by an important physical and cognitive development and a time where children's habits are formed, consequently PA and sedentary behavior developed in this early age continued in adult age [12].

In morocco little research were investigated to describe level of physical activity among scholar children, to fill this gap, we undertook this study in order to evaluate the percentage of children meeting daily physical activity time recommendations and to establish a relationship between the level of physical activity, gender and place of residence.

Subjects and Methods

Setting and participants

Data were collected by a cross-sectional study. The survey was conducted from 5 May 2015 to 11 November 2017 among 3006 scholar children in elementary school, southeastern of Morocco. The random sample was produced to represent 1% of the target population, which belongs to this age category. 39 primary public schools were randomly selected from urban and rural areas. The survey involves basic information of age and gender and place of residence of children surveyed.

Ethical considerations

Before the beginning of our study, authorizations were obtained from the Provincial Delegation of Education for each studied locality. After written agreement we visited the institutions chosen and given this agreement to directors of schools in rural and urban areas to prepare the appropriate environment. Face-to-face interviews were conducted using an assisted questionnaire.

Inclusion and exclusion criteria

Only children with parents who had agreed to participate were included. school-age children's parents/tutors who did not accept to answer the questionnaire were excluded. All children included in the sampling were healthy with no physical diseases or disabilities.

Assessment of physical activity and sedentary behavior

Physical activity was evaluated by asking children about their practice as well as the type of physical activity. It was partitioned into two categories according WHO recommendation (Children and youth aged 5 - 17 should accumulate at least 60 minutes of moderate - to vigorous-intensity physical activity daily) [1]. We also evaluated the transportation used to get to the school, the distance the school was far from their houses.

Sedentary behavior was evaluated regarding daily time spent on screens (watching television or, use of the computer, games etc.). The daily time spent on overall sedentary lifestyle among children was used to classify the totality of sample into two categories: ≤ 3h and > 3 hour/day, according to the age groups and the American Academy of Pediatrics (AAP) [14].

Statistical methods

Data were coding, checked, entered and all analyses were performed using a suitable statistical software. Descriptive analyses were carried out. Level of significance was fixed in 0.05, associations with p value less than 0.05 were considered statistically significant.

Results

Description of the population

The age of the children surveyed ranged between 5 and 18 years old. The mean age of the sample was 9.74 ± 2.12 with a mode of 11 and a variance of 4.50. 48.28% were boys and 51.72% were girls with a sex ratio (M/F) of 0.93. Rural children represent 37.06% of the sample and urban children represent are more 62.94%. The distribution of the sample by sex and place of residence was not statistically significant ($p = 0.06$).

Physical activity

Among the totality sample, the proportion of school-aged children meeting the WHO physical activity guidelines was 71.30%. This proportion was significantly higher in rural areas compared to urban areas (75.70 versus 68.69). Both sexes studied showed important percentage of practicing adequate of the physical activity, 71.22% for girls and 71.37 for boys (Figure 1).

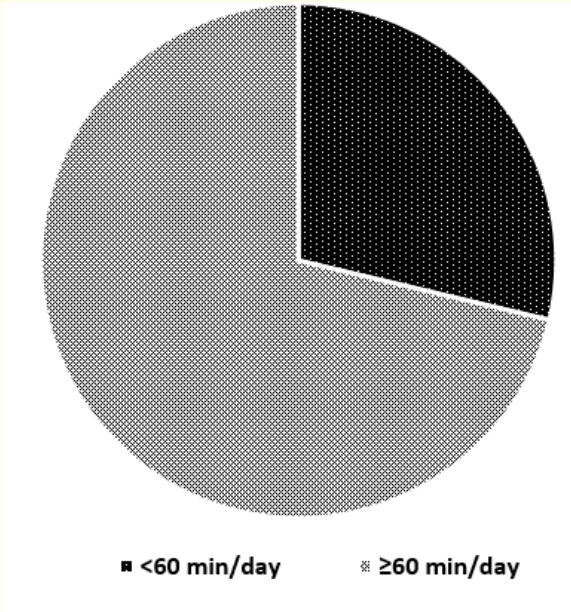

Figure 1: *Percentage of Moroccan children meeting physical activity guidelines.*

The distribution of our sample by place of residence and practice of physical activity revealed a highly significant association (χ^2 = 16.799 to 1 df; p = 0.000) unlike the sex which did not report it (p < 0.05) (Table 1).

	< 60 min /day	**≥ 60 min/day**
Gender	p ≥ 0.05	
Male	410 (47,50)	1121 (52,30)
Female	453 (52,49)	1022 (47,69)
Household location	p < 0.001	
Urban	592 (68,60)	1299 (60,61)
Rural	271 (31,40)	844 (39,38)

Table 1: *Distribution of physical activity by gender and place of residence.*

Time spent in sedentary activities

Analysis of the study results shows that 74.90% of the study population spent less than 3 hours per day in sedentarily activities (Figure 2).

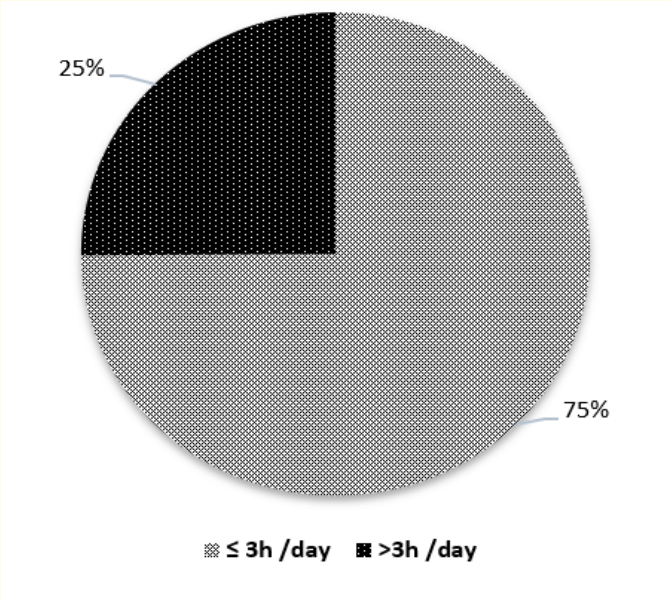

Figure 2: *Distribution of children by time spent on screens.*

The same observation of PA was found concerning place of residences and sedentary behavior, rural children spent less time on screen in favor of activity. However, no differences were observed by gender (Figure 3).

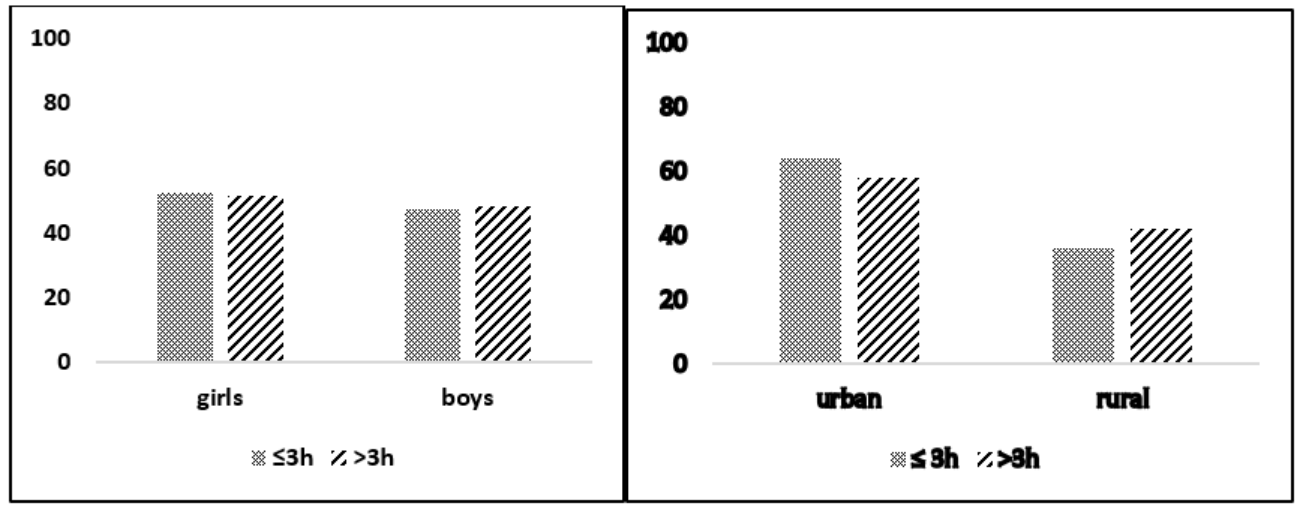

Figure 3: *Distribution of sedentary behavior by gender and place of residence.*

Discussion

It is known that frequency, duration and intensity of PA in children and adolescent decrease gradually with age and they are more physically inactive now than they were in past decades [15,16]. In the present study, 71.30% of children have an adequate PA which is an important percentage comparing with several study conducted among the same target of population where children and adolescent do not reach the recommended 60-minute daily [12,17,18]. The results indicated higher PA levels among children living in rural areas comparing with urban. There were in discordance with others research where PA was not conditioned by the place of residence or higher level of activity was observed among urban children [19,20]. Indeed, in our study environmental differences are present because children in rural areas were more active according to their life style. We didn't report significant gender differences contrary to other studies were higher values observed in boys or girls [19,21,22].

According to Center for Disease Control and Prevention (CDC) and the Child and Adolescent Health Measurement Initiative (CAHMI) less than one-quarter (24%) of children 6 to 17 years of age participate in 60 minutes of physical activity every day [23,24], consequently 76% of children are inactive. In the present study only 35,56% reported as having sedentary behavior (spent more than 3 hours per day on different screens). These finding reflect probably the influence of some characteristics of site of study on profile of sedentary behavior. We found a significant correlation between the number of hours spent in front of the screens and the place of residence unlike the sex, which did not show any significance association. These finding are complementary to those of physical activity.

Conclusion

The results indicated higher PA levels and lower levels of sedentary behavior were strongly associated to the place of residence of children. We conclude that the environment factor might be affect PA in children. Consequently, these finding must be taken into account in interventions to improve children's physical activity and reduce children's sedentary time.

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