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THREATS OF NEW GENERATION ON PHYSICAL ACTIVITY LEVEL IN ALBANIAN CHILDREN

Introduction

Obesity is caused by an imbalance between energy input and energy expenditure. This epidemic is rapidly and constantly growing and affects all socioeconomic levels and ethnicities (Ogden et al., 2006). Recent reports from different studies have highlighted the severity of obesity in children by suggesting: "today's generation of children will be the first for over a century for whom life expectancy falls" (Hills et al., 2007). Data from several sources (Boreham et al., 2004; Venn et al., 2007) have identified overweight and obesity in children as a major contributing factor of low levels of physical activity and as a cause for becoming obese adults as they will grow up compared with those children of normal weight in the future. Venn et al. (2007) identified obesity in childhood as a stronger predictive of obesity in early adulthood and most of obese young adults were a healthy weight as children. As obesity is already a health risk in childhood because of its association with a clustering of cardiovascular disease (CVD) risk factors and atherosclerosis, is believed to progress throughout life, (Andersen et al., 2008). Increase in obesity has been suggested to be the result of reduced physical activity (Kuboonchoo, 2001; Ekelund et al., 2004; Patrick et al., 2004). In children, physical inactivity and lack of fitness are associated with increasing prevalence of cardiovascular risk factors (McKenzie et al., 1997). Studies have reported the increased prevalence of overweight and obesity in children, more noticeably in industrialized western countries (Wang and Lobstein, 2006; Wang and Lim, 2012; Lobstein et al., 2004) than in some developing countries. Physical activity is a key component of the expenditure aspect of energy balance and provides an outlet for daily caloric usage (Luke et al., 2004) and is labelled (Morris, 1994) as "today's best buy in public health". For children and young people, physical activity includes play, games, sports, transportation, chores, recreation, physical education, or planned exercise, in the context of family, school, and community activities (WHO, 2010). The decline in physical activity levels of young children appears to be increased and combined with a high prevalence of obesity in Europe (Wang and Lim, 2012; Lobstein et al., 2004). Albania, is a country in Southeast Europe, emerged in 1990 from the most isolated and xenophobic communist regime (Nuri and Tragakes, 2002; Rechel and McKee, 2003). Over the past 15 years changes in life-style (diet, tobacco, alcohol consumption, and physical exercise) have taken place, particularly in urban settings (Rechel and McKee, 2003). In Tirana have been conducted different cross sectional

studies focusing on sport participation, obesity, physical fitness from elementary and secondary school children but only a few of them has been published. To date, there are no internationally published data on the prevalence of physical activity among Albanian children and little is known about the gender difference and the current level of inactivity among age groups. With the ever-increasing interest in exploring the actual level of children's physical activity in Albania, a study was carried out aiming to obtain the actual level on physical activity on children aged 7-year-old to 15-year-old and to compare the percentage of inactivity among gender and age groups.

Methods

This study is a cross sectional and is part of a project approved by the Faculty of Physical Activity and Recreation in Tirana where children will be monitored in health related variables, fitness components, gross motor coordination and the level of physical activity at baseline (year 2012) followed at annually intervals over five consecutive years (till 2015). During February and March of 2012 a total of 9003 questionnaires were carried out with a nationwide sample of children from Albanian population aged 7-year-old to 15-year-old (4513 boys and 4490 girls). The total group is maintained to be representative of the Albanian population for children ages 7 and older till 15 years old.

Physical activity evaluation

Physical activity was assessed by PAQ-C questionnaire. The Physical Activity Questionnaire for Children (PAQ-C) was used as a means for children to self-report their own levels of physical activity over the past seven days. Children reported how many times in the previous week they participated in a wide range of physical activity behaviors such as recreational activities, sports, and other types of exercise (Crocker et al., 1997; Kowalski et al., 1997). Other physical activity behaviors related to children physical education class, free time, recess, extracurricular sports, weekend activities, and evening activities are also addressed within this instrument. Summed scores are calculated and then averaged across the different categories within the instrument. A final overall score is obtained as an indicator of activity level for the student. Reference scores in PA questionnaire were (1- inactive; 2.5- normal; 5- very active). The PAQ-C questionnaire was validated in Albanian language (Jarani, 2013) in 452 children (7-10 years) with a reliability coefficient from first ($r=0.71$)- fourth grade ($r=0.78$) and used to assess the current level of PA. Convergent validity for this instrument was established through correlations with other measures of physical activity, specifically an aerobic step test and a questionnaire related to perceptions of athletic competence Janz et al. (2008); Kowalski et al. (1997). All questionnaires of physical activity (PAC-C) for first grade children were distributed by school classes in coded envelopes. The PA questionnaires were filled out by the children themselves. The teachers collected the questionnaires some days later.

Statistical analysis

Main descriptive statistics (frequency) were calculated for mean age, percentage of children on PA level and gender distribution participated in the study. A weighting technique was used to balance the data to reflect the total Albanian population ages six to fifteen above. The following variables were used: gender, age, region, place, and birthplace and population density. The total population figure used was 428435 children ages six to fifteen (Indicators by prefectures, INSTAT 2009). The results of the PA questionnaire were filled in a database excel file. All the statistics were carried out using the SPSS 18.0 statistical package.

Results

The results showed that 42.7% of children fell below the normal level of PA (results not shown in table). Data split by gender showed a higher percentage of inactivity among girls (49.6%) compared to boys (36%). There was a general pattern of rate increases among children at normal level of PA from 6.6 until 12.5 years of age and then this rates declines (Table 1, 2).

The prevalence of the normal level of physical activity was 36% among 6.5 yrs old children (41% for boys and 31% for girls, respectively). Among boys, only 41% aged 6.6-7 participated in normal PA while more than 62% aged 12.1-12.5 engaged in normal level of PA (Table 1, 2). Likewise, fewer girls engaged in normal level of PA than boys (31% aged 6.6-7 and 60% aged 11.1-11.5).

Results for physical activity revealed boys being more active than girls. Percentage of inactive children who fall below the normal level of PA at 6.5 to 7 yrs was 61% and continued to decline at 12.1 to 12.5 yrs with 33% and started to grow till 15.1 to 15.5 yrs with 53% (Table 3). In the table 3, the second line represents the percentage of boys that are totally inactive while the third line represents the percentage of inactive girls ages six and older.

Results show that in every age group the percentage of inactive boys is lower compared to percentage of inactive girls. Inactivity percentage among children ages ten to 12 yrs fell slightly from 39 percent to 33 percent. Conversely, among children age 12 to 16 yrs, the percentage of inactivity increase from 33 percent to 53 percent. The inactivity rate for elementary school children is 50 percent (boys 44% and girls 57%) while for secondary school children is 42 percent (boys 35% and girls 49%). Age group 6.6 to 7 yrs has the highest rate of inactivity at almost 61 percent (boys 56% and girls 67%).

Discussion

This article provides an overview of the physical inactivity rates of Albanian children aged 6 to 15 years, based on the first objectively measured physical activity data collected for a representative sample. This study illustrates that 42.7% of children fell below the normal level of PA (inactivity). This finding corroborates with the World Health Organization (2004) which show that poor diet and physical inactivity will soon become the leading contributor to disability, disease, and premature mortality.

The most important finding is that inactivity percentage among children ages ten to 12 yrs felt slightly from 39 percent to 33 percent. This may be an early indication that efforts to get children off the couch and outside started to have an effect on their level of activity. While these advances are modest, they are moving in the right direction.

The percentage of children in elementary school (50%) aged 6.6-11 years old failed below the normal level of physical activity levels compare to fewer rates that were for secondary school children (42%). A possible explanation is that physical education hours during elementary school are taught by general teacher compare to secondary school taught by professional PE teacher. Gordon- Larsen et al (2000) also found important association between participation in school physical education with activity patterns of children and adolescents in their study.

In children age 12 to 16 yrs, the percentage of inactivity increase from 33 percent to 53 percent. This evidence goes constant with other findings that indicate a grade related decline in physical activity trajectories of adolescents (Hobin et al., 2014). Another reason is that the decline in physical activity levels of young children appears to be increased and combined with a high prevalence of obesity in Europe (Wang and Lim, 2012; Lobstein et al., 2004).

Results from this study show that in every age group the percentage of inactive boys is lower compared to percentage of inactive girls. The findings of the current study are consistent with those of Lasheras et al., 2001 and Sallis et al 2000 who found that physical activity declines with age particular with girls at all ages substantially less active than boys.

Current understanding of the appropriate amount of physical activity required to obtain this data based on precise and direct measurement. The weakness of self-reported questionnaires in children is understood and is an important area of future research to focus more on subjective measurement of PA (ex. accelerometers).

Health problems in children that come as a result of the epidemic of obesity need to spread rapidly in the social environment where we live. The first step to be taken, especially in developing countries such as Albania is to create annual database for the identification of the problem of obesity in the population as well as further to create sustainable and continuously programs adapted to the culture and social environment. The problem of obesity should be a primary priority in the health care system implemented by the school and family intervention-based programs.

In conclusion, the high percentage of inactive children poses a threat for increased obesity in Albanian children. Another concern emphasized the inactivity due to the changes of their lifestyle and behavior.

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Table 1. Percentage (%) of self-reported physical activity levels in Albanian children, by gender and age (elementary school)

Level PA/ Age	6.6- 7	7.1- 7.5	7.6- 8	8.1- 8.5	8.6- 9	9.1- 9.5	9.6- 10	10.1- 10.5	10.6- 11
Total very low	6.0	6.6	3.2	4.0	3.1	4.0	2.6	2.1	1.2
low	54.8	50.6	51.6	45.0	49.3	47.6	42.4	40.9	37.9
normal	36.2	41.0	41.8	47.3	43.8	44.3	50.2	51.9	52.5
high	2.8	1.8	3.4	3.5	3.8	3.8	4.9	5.1	8.3
very high	.2		.2			.2			.2
Boys very low	4.5	4.7	1.2	3.7	2.3	3.9	2.1	2.4	.8
low	51.2	47.6	48.8	35.9	41.6	37.4	34.1	37.7	33.9
normal	41.1	45.1	47.6	55.3	50.5	53.1	57.6	54.5	55.5
high	3.3	2.5	2.4	4.8	5.6	5.1	6.2	5.4	9.8
very high			.4			.4			
Girls very low	7.7	8.6	5.1	4.5	3.8	4.1	3.1	1.8	1.6
low	58.8	53.6	54.2	55.1	56.4	56.5	50.7	44.4	41.9
normal	30.8	36.7	36.5	38.5	37.7	36.6	42.7	49.1	49.4
high	2.3	1.1	4.3	2.0	2.1	2.7	3.5	4.7	6.7
very high	.5								.4

Table 2. Percentage (%) of self-reported physical activity levels in Albanian children, by gender and age (secondary school)

Level PA/ Age	11.1-11.5	11.6-12	12.1-12.5	12.6-13	13.1-13.5	13.6-14	14.1-14.6	14.6-15	15.1-15.5
Total very low	1.8	.8	.7	.7	2.9	1.0	1.7	2.0	3.0
low	33.3	38.0	32.5	39.2	37.0	38.4	48.6	46.9	49.4
normal	58.6	50.1	57.3	52.9	52.5	54.1	43.8	45.7	41.2
high	6.1	10.9	9.3	7.2	7.6	6.5	5.8	5.5	6.4
very high	.2	.2	.2				.2		
Boys very low	2.6	.4	1.1	.4	2.4	.4	.9	2.1	
low	31.6	36.7	26.0	34.7	32.1	32.9	36.7	34.8	40.4
normal	57.6	49.6	62.8	52.9	54.1	57.5	52.7	53.6	48.2
high	7.8	12.9	9.7	12.0	11.4	9.2	9.3	9.4	11.4
very high	.4	.4	.4				.4		
Girls very low	.9	1.2	.4	1.1	3.3	1.7	2.6	1.9	5.6
low	35.2	39.5	39.4	43.3	42.1	43.9	62.6	57.6	57.1
normal	59.6	50.6	51.4	52.8	50.8	50.6	33.2	38.5	35.2
high	4.2	8.7	8.9	2.8	3.8	3.8	1.6	1.9	2.0
very high									

Table 3. Percentage (%) of physical inactivity (PA very low+ PA low) in Albanian children, by gender and school level (elementary and secondary)

	Elementary school (%)									
	All/ Age	6.6- 7	7.1- 7.5	7.6- 8	8.1- 8.5	8.6- 9	9.1- 9.5	9.6- 10	10.1- 10.5	10.6- 11
Total	50.3	60.8	57.2	54.8	49.0	52.4	51.6	45.0	43.0	39.1
Boys	43.8	55.7	52.4	50.0	39.6	43.9	41.3	36.2	40.1	34.6
Girls	56.9	66.5	62.2	59.2	59.5	60.2	60.6	53.8	46.2	43.5
	Secondary school (%)									
	All/ Age	11.1- 11.5	11.6- 12	12.1- 12.5	12.6- 13	13.1- 13.5	13.6- 14	14.1- 14.6	14.6- 15	15.1- 15.5
Total	42	35.1	38.8	33.2	40.0	39.9	39.4	50.2	48.9	52.5
Boys	35.1	34.2	37.1	27.1	35.1	34.6	33.3	37.6	36.9	40.4
Girls	48.8	36.2	40.7	39.8	44.4	45.4	45.6	65.3	59.5	62.8

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Introduction: The decline in physical activity levels of young children appears to be increased and combined with a high prevalence of obesity in Europe (Wang and Lim, 2012; Lobstein et al., 2004). With the ever-increasing interest in exploring the actual level of children's physical activity in Albania, a study was carried out aiming to obtain the actual level on physical activity. *Methods:* A cross-sectional study was conducted on 9003 children aged 7-year-old to 15-year-old (4513 boys and 4490 girls). The PAQ-C questionnaire was validated in Albanian language and used to assess the current level of PA. *Results:* The results showed that 42.7% of children fell below the normal level of PA (inactivity). Data split by gender showed a higher percentage of inactivity among girls (49.6%) compared to boys (36%). Finally, the results revealed a higher percentage of inactive children living in rural areas (49.2%) compared to children in urban areas (45.4%). *Discussion:* In conclusion, the high percentage of inactive children poses a threat for increased obesity in Albanian children. Another concern emphasized the inactivity in rural areas due to the changes of their lifestyle and behavior. *References:* Lobstein T, Baur L, Uauy R and Isoitot (2004). *Obes Rev*, 5 (Suppl 1), 4–104. Wang Y and Lim H (2012). *Int Rev Psychiatry*, 24(3), 176–88.