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Research Article

TYPOLOGIES OF OCCUPATION OF LEISURE-TIME OF SPANISH ADOLESCENTS. THE CASE OF THE PARTICIPANTS IN PHYSICAL ACTIVITIES ORGANIZED

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ABSTRACT

The elaboration of typologies is a previous step to improve the analysis of occupation of leisure-time and the establishment of collective measures that they affect in the development of healthy lifestyle among the young people. The sample of this study been has constituted by 1829 adolescents of three provinces. We use the Health Behaviour in School-aged Children (HBSC) questionnaire and the cluster analysis. These instruments have shown the existence of two different groups in regard to the leisure-time. These groups are related with sociodemographic variables like educational level and place of residence. Group of adolescents which accomplish physical activities organized did not show differences with the other groups of young people in relation to the consumption of television, time of study and use of computer. On the contrary, accomplish more physical activity in a workday than the other adolescents.

Key words: adolescent, leisure-time, cluster analysis, physical activity.

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INTRODUCTION

There is a preoccupation for the health in the population Owed to the influence that the developed societies have on the same one, as a result of a lifestyle that imposes changes in the nutrition, at work, in the circadian rhythms, and so on. Hence, according to Palomo, Márquez Calderón, Ortún and Benavides (2006), it is interesting to schedule answers of development and proposing activities of prevention and promotion in order to produce an important effect in the health.

Socioeconomic development has contributed enormous improvements in the health, but also new sanitary risks related with the environment, with the conducts and the lifestyles. Precisely the relation among sedentary lifestyle and one of its consequences, the obesity, is one of the bigger preoccupations. In this way, the mortality in EE.UU for obesity has been calculated in 300,000 persons per year, number that can be underestimated (Flegal, Willianson, Pamuk and Rosenberg, 2004). In Spain, the illnesses and chronic affections related to the obesity represent second cause of premature and evitable mortality, and the prevalence of obesity in the adult Spanish population carries 14 years of increment continued (Gutiérrez-Fisac, Regidor, Banegas and Rodríguez-Artalejo, 2005).

The origin and the solution for this epidemic are unknown until now. Primary etiology is not due to genetic causes, neither physiological, since those significant changes or mutations in the human anatomy have occurred to long of both last decades (Cohen, Finch, Bower, and Sastry, 2006). Although the genetic component can be an initial indicator of obesity (Sorensen, 2001), this does not explain the recent increment of this pathology like social problem. Therefore, the environmental factors and the lifestyle can provide an excess in the consumption of calories and a low energetic expenditure for the scarce physical activity accomplished (Giles-Corti and Donovan, 2003; Hill, Wyatt, Reed and Peters, 2003).

Various studies conclude that the young people are less active and with larger rate of obesity that some years ago (Kann, Kinchen, Williams, et al., 2000; Levin, Ainsworth, Kwok, Addy, and Popkin, 1999; Nuviala, Ruiz and García, 2003; Trost, Pate, Sallis, et al., 2002). The girls, and specially the adolescents, execute lesser quantity of physical activity compared with the children in all of the age groups (Caspersen, Periera, and Curran, 2000; Kimm, Glynn, Kriska, et al., 2002).

The social preoccupation in relation to the effects of sedentary lifestyle in the health of adolescents and young people has increased (Biddle, Sallis, and Cavill, 1998), this has originated the need to understand the behaviours in this age group. In Spain, Moreno, Muñoz-Tinoco, Pérez and Sánchez-Queija (2004) have published a descriptive study about the activities of passive leisure accomplished for the adolescents. Among the results we emphasize than more of a 40% of the sample watch television for more than 3 hours daily, a 35% dedicate an hour or less to the schoolworks and more of 75% use the computer one hour or less daily. Average weekly dedication to these passive activities is 40 hours.

Surprisingly, the level of physical activity accomplished has not been related with the passive activities of occupation of leisure time, like for example, the television (Samdal,

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Tynjala, Roberts, Sallis, Villberg and Wold, 2007). However, this aspect has been found in the international literature. In these works we observed two perspectives, the first manifests than the time dedicated to the passive leisure and the required activities to improve the levels of physical fitness and health are incompatible (Sallis, 1994). This aspect would suppose an increment of overweight due to the relation among the childhood obesity and the time dedicated to the passive leisure (Durant, Baranowski, Jonson and Thompson, 1993; Robinson, Hammer, Killen, et al., 1993). A second most recent viewpoint defends the idea of a low association between the time dedicated to the passive leisure and the scarce level of physical activity accomplished in the leisure time (Gorley, 2003; Samdal and cols. 2007). This perspective supports than the overweight, principal problem of passive lifestyle, is due to the nutrition during the time watching television (Vereecken, Todd, Roberts, Mulvihill and Maes, 2006).

Exist a widespread consensus about the physical activity during childhood is beneficial to the physical, social, and emotional development (Boreham and Riddoch, 2001). In this way, Winters, Petosa and Charlton (2003) have observed the importance and need to promote the physical activity during the adolescence. But the execution of physical-sports activity presents a handicap among the passive activities of occupation of leisure time: the dedication to the schoolworks. Several studies (Bodson, 1997; Martin, 1997; Nuviala, García and Ruiz, 2004; Ruiz, 2001) refer to the scarcity time for the study like one of major motives of abandon of sports practice.

Consequently, we consider necessary to study the occupation of leisure time, with passive as well as in active activities, as well as examining the relations between both and establishing groups of occupation of leisure time. We analyze the relations among the different groups of occupation of leisure time with the execution of organized physical activities and the socio-demographic variables in order to confirm if the promotion of physical activity affects in the lifestyle and if exist the possibility to design political strategies.

The purposes of this study are 1) to establish typologies of utilization of leisure time among adolescents, and 2) to examine the relations among the different groups of occupation of leisure time with the accomplishment of organized physical activities and their socio-demographic variables.

MATERIAL AND METHODS

Participants

The participants in this study have been 1829 students with ages between 10 and 16 years (51,7% girls and 48,3% boys), of third cycle of Primary (29,7%), first cycle (38,7%) and second cycle of Secondary obligatory (31,7%), who live in three different surroundings: Huelva (25,3%), Seville (39,3%) and Saragossa (35,4%).

In order to obtain a great variability of participants, the members of the sample was recruited randomized among various educational centers and classrooms of every one of the three places, being a part of study all those adolescent attendants to classroom the destined day to administer the questionnaire: 19 centers (6 in Huelva, 6 in Seville and 7 in Saragossa) and 79 groups/classroom were selected.

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Procedure

The questionnaire designed in the study Health Behavior in School Aged Children (HBSC) (Moreno, Muñoz-Tinoco, Pérez and Sánchez-Queija, 2004) was administrated anonymously to all of the participants during 15 minutes and with the presence of the surveyor to give pertinent instructions. This instrument was elaborated to examine the habits of life related with the health of the adolescents at different occidental countries. It forms part of investigation accomplished each four years with the support of the World Health Organization (W.H.O.). Two questions were added to the present questionnaire: participation in organized physical activities, and time dedicated to perform physical activity in your leisure time.

Data analysis

Once made the fieldwork and the processing of data, we proceeded to the income analysis. The interpretation of data has been developed through the application of diverse techniques of quantitative analysis by means of the software SPSS 15.0.

A descriptive analysis was developed, the statistical used were the average and standard deviation. Subsequently, a cluster analysis in two phases was developed. This technique is a tool of exploration designed to detect the natural groups of data set than, in another way, it would not be possible to detect. As a result of the analysis, different groups appeared in order to relate the times dedicated to the different activities.

The test of chi-squared (x^2) of Pearson was performed in order to establish differences between the conglomerates in the socio-demographic variables: gender, place of residence, educational cycle and registration to organized physical activities.

The test T also was used because it permits verifying hypothesis referred to the difference between two independent averages. Previously, we have developed the statistic Levene about the homogeneity or equality of variances in order to assume or to reject equal variances. Once known the statistical significance of this test, we assumed or reject equality.

RESULTS

Referring to the passive activities of leisure time, the adolescents spend an average of 76 minutes in front of the computer. A fourth part of the adolescents dedicate up to one hour daily to play with the computer and 20,8 % assure dedicating over two hours.

In relation to the time dedicated to watch television, 75 % of the adolescents spent over 90 minutes daily. The 23.4 % dedicates one hour or less daily to this activity of passive leisure. The time average dedicated to this activity is approximately two hours daily.

Referring to the time dedicated to the schoolwork, the more frequent answer among the adolescents is the realization of academic activities during 90 minutes to the day (average 97 minutes).

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One of main result of our work is that 79.1 % of the sample perform one hour or less of physical activity in their daily leisure time, being 46 minutes average of physical activity performed during a workday (table 1).

Table 1. *Daily time dedicated to different leisure time activities. Mean and standard deviation.*

	Mean	Standard deviation
Time television	110,71	65,40
Time computer	76,65	71,87
Time schoolwork	97,04	61,02
Time physical activity	46,36	39,40

In relation to the construction of leisure time typologies, as a consequence of the cluster analysis, the sample becomes congregate in two groups (table 2).

Table 2. *Distribution of the sample in conglomerates. Frequency and percentage.*

		N	% combined	% total
Conglomerate	1	511	28,2%	27,9%
	2	1301	71,8%	71,1%
	Combined	1812	100,0%	99,1%
Excluded cases		17		,9%
Total		1829		100,0%

In relation to the grouping of variables we observed that the conglomerate 1 has been prepared according to the passive use of leisure time. However, the conglomerate 2 is characterized by the active use of that time.

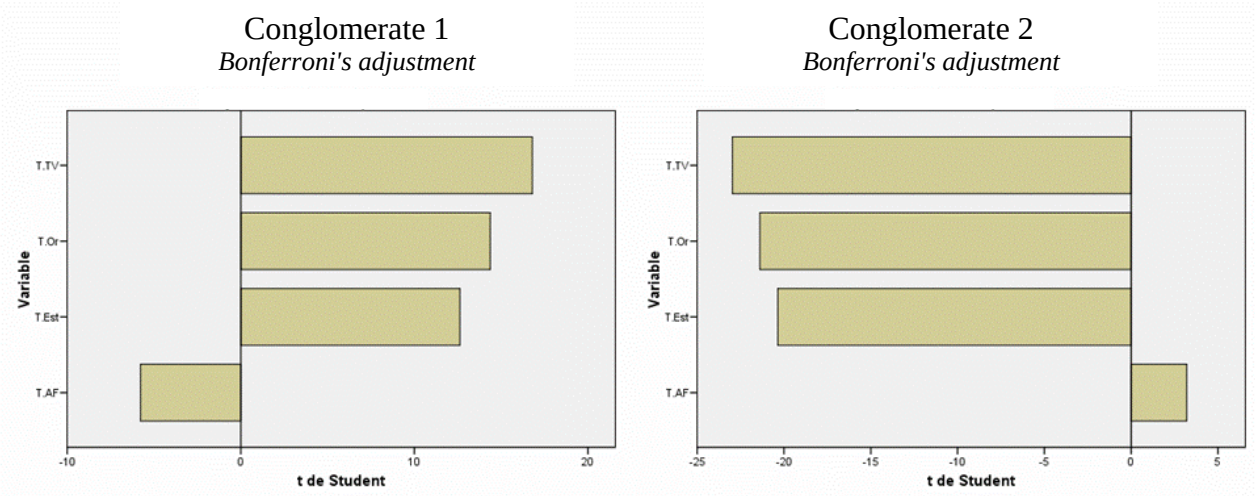

Figure 1. *Importance of variables in each one of groups. Bonferroni's adjustment.*

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After the group of adolescents (table 3) have performed the test of chi-square (x^2) Pearson, in order to establish differences between the conglomerates in the socio-demographic variables (table 4).

***Table 3**. Differences in the dedication to the diverse activities of occupation of daily time between the different groups.*

Conglomerates	*Time television*		*Time computer*		*Time schoolwork*		*Time physical activity*	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
1	171,40	81,24	137,46	95,41	144,74	85,42	37,40	35,67
2	87,34	37,23	52,95	40,18	78,29	33,20	50,10	40,38
Combined	111,05	65,46	76,78	71,90	97,03	61,16	46,52	39,51

Group 1 is mainly composed of students of secondary education and non-practicing organized of physical activities residents in Seville. Group 2 is composed of students from primary education and practitioners of organized physical activities residents in Huelva and Saragossa (table 4).

***Table 4**. Differences in categorical variables between groups.*

		Number of conglomerates in two phases		x^2	p
		1	2		
Gender	Girl	28,2%	71,8%	0,59	.808
	Boy	28,7%	71,3%		
Place of residence	Seville	54,7%	45,3%	410,04	.000
	Saragossa	10,0%	90,0%		
	Huelva	12,3%	87,7%		
Highest education	Primary	11,3%	88,7%	117,065	.000
	Secondary 1st cycle	31,9%	68,1%		
	Secondary 2nd cycle	39,6%	60,4%		
Physical activity organized	Yes	25,8%	74,2%	4,656	.031
	No	30,3%	69,7%		

The last of our aims is to analyze possible differences in the use of leisure time in practicing and not practicing of organized physical sports activities. Only there are differences between the group of practitioners and non practitioners in time devoted to perform physical activity, being superior to those adolescents who claim to attend organized sports activities (table 5).

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***Table 5**. Differences in the use of daily leisure time between adolescent practitioners and non-practitioners of organized physical activity. Levene and T tests.*

	School	Mean	Standard deviation	Levene test		T test	
				F	Sig.	t	Sig.
Time television	Yes	108,23	60,97	4,077	,044	-1,485	,138
	No	112,74	68,85				
Time computer	Yes	78,43	67,66	7,923	,005	,992	,321
	No	75,10	75,48				
Time schoolwork	Yes	95,44	60,26	2,588	,108	-1,044	,296
	No	98,43	61,70				
Time physical activity	Yes	51,68	41,30	18,482	,000	5,451	,000
	No	41,63	37,02				

DISCUSSION

On the best of our knowledge this is the first study that group adolescents according to the occupation of their leisure time on a workday. In addition, these groups were related to various socio-demographic variables, and with participants of organized physical activities. The main results of the study determined the association between active and passive occupation of leisure time.

The results obtained by means of the cluster analysis on the variables of occupation of leisure, shown the existence of two groups. Group 1 consists of adolescents who spent more time on leisure activities liabilities, while group 2 for most active adolescents (table 6).

***Table 6**. Main characteristics of adolescent of different conglomerates.*

Conglomerates	**1**	**2**
Occupation daily leisure time		
Time television	More than two hours	An hour and a half
Time computer	More than two hours	Less than one hour
Time schoolwork	More than two hours	More than one hour
Time physical activity	Half an hour	About an hour
Sociodemographic		
Gender	--	--
Place of residence	Seville	Huelva and Saragossa
Highest education	Secondary	Primary
Physical activity organized	--	Practitioners

About half of the adolescents spent more than two hours daily watching television, describing them as high consumers, following the guidelines of the American Academy of Pediatrics (2001). Only a quarter of all people watching television one hour daily or less, describing them as low consumers. The results of our study are similar in gender differences to those published by Moreno et al. (2004) for the Spanish population, and opposite to those provided by Marshall, Gorelyb and Biddleb (2006), in relation to the increased consumption of television for boys to respect girls.

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Currently, because of the existence of several forms of remaining inactive, the consumption of television as the sole indicator of the sedentary lifestyle is open to criticism (Marshall, Biddle, Sallis, McKenzie, and Conway, 2002). We observed that group 1 is characterized by an inactive use of leisure-time. The time spent watching television and working or playing with your computer, plus the time spent on homework is elevated. These data are similar to those provided by Pate, Long and Heath (1994) and Pate, Trost, Felton, Ward, Dowd and Saunders (1997), who found relation between low level of physical activity and passive use of leisure time.

Sallis (1994) states that physical activity and computer games are incompatible. However, the group 2 is composed of the most active subjects and presents a variety of activities during the day. Adolescents in group 2 did not show predominance in the occupation of leisure time with any of the categories of activity established: use of the computer, time watching television, schoolwork and practice of physical activity. Our results support those of Gorley (2003) and Samdal et al. (2007), showing a low association between passive occupation of leisure time and amount of physical activity.

In relation to physical activity, more of 75% of the sample execute one hour or less of daily physical activity in their leisure time. This data does not meet with the recommendations to maintain and / or improve the health of young people (Cavill, Biddle and Sallis, 2001; Sallis and Patrick, 1994).

The practice of physical activity in leisure time is associated with age. The youngest, in this case components of Group 2, are the most active, result similar to studies of Caspersen, Periera and Curran (2000), Gavarry, Comoni, Bernard, Seymat and Falgairette (2003) and Moreno et al. (2004). As well as Lasheras, Aznar, Merino and Gil (2001), we emphasized the decrease in the amount of physical activity in the transition from primary to secondary education (12-13 years).

The results obtained by means of cluster analysis can not support the results of several studies (Caspers, Periera and Curran, 2000; Cavill, Biddle and Sallis, 2001; Chillón, Delgado, Tercedor, and Gonzalez-Gross, 2002; McKenzie, Sallis, Broyles, Zive et al., 2002) or those provided by the Ministry of Health and Consumption (2003), according to which girls are more sedentary than children. In addition, if we use T test as statistical analysis, we observed differences between genders.

Analyzing differences in the amount of physical activity on a workday we observe differences between places of residence. These differences may be due to climatic differences, because we observed greater amount of physical activity in leisure time where the climate is more favourable (Levin, Jacobs, Ainsworth, Richardson and Leon, 1999). In this sense, as well as Pivarnik, Reeves and Rafferty (2003) we think that those places with adverse weather should promote intervention strategies that facilitate physical activity in adapted and conditioned spaces (Díaz, 2007).

Analyzing group 2, children and adolescents more active participate in physical activities more organized. According to Aarnio (2003) this aspect is related to physical activity most persistent, and this translates into a lifestyle more active and healthy.

Regarding to the limitations of the study, it has not been related physical activity with school qualifications. This relation can know the quantity and quality of time spent on

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different activities, as well as the result obtained. In this way we could ratify or reject the habitual behaviour of parents to deprive physical activity in children leisure-time when school results are not satisfactory. However, we affirm that there is no difference in the time devoted to the completion of schoolwork between participants and non-practitioners in physical-sports activities.

In summary, the results of our work conclude that the age and place of residence are crucial to the occupation of leisure time and the amount of physical activity. Adolescents participating in organized physical activities only differ in the amount of time to these activities; there are no significant differences in the time spent watching television, playing with the computer and doing schoolwork.

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