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Socio-demographic Correlates of Physical Activity of Adolescents With Spina Bifida: Pilot Study

Correlatos Sociodemográficos da Prática de Atividade Física em Adolescentes com Spina Bifida: um Estudo Piloto

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Abstract

Objective: This pilot study aimed to identify socio-demographic correlates of physical activity among children and adolescents with spina bifida. Methods: It is a cross sectional study. A survey was conducted with 31 students (15 boys), aged 10-17 years with spina bifida. The questionnaire was used to collect data of physical activity and socio-demographic factors. Binary logistic regressions were performed to examine the relationship of socio-demographic factors and physical activity participation. Results: 38.7% of participants reported to participate in both organized and non-organized physical activity. No relationship between socio-demographic factors and participation in organized and non-organized physical activity were observed. Conclusion: Most of the participants did not participated in physical activity regularly, and socio-demographic factors were not related with physical activity. More studies are needed, with bigger samples, focused on the same and in others factors to identify the predictors of physical activity of young people with spina bifida. The results of such studies could help to understand the participation variables and moreover to develop programmes that could avoid the reasons that lead to poor participation.

Keywords: Disability; Correlates; Portugal; School; Sport

Resumo

Objetivo: Este estudo piloto procurou identificar os correlatos sociodemográficos da atividade física em crianças e adolescentes com spina bífida. Métodos: O presente estudo é transversal. Foi aplicado um questionário a 31 estudantes (15 rapazes), entre os 10 e 17 anos, com spina bífida. O questionário foi utilizado para recolher dados acerca da atividade física e fatores sociodemográficos. Para analisar a relação entre os fatores sociodemográficos e a prática de atividades física foram realizadas regressões logísticas binárias. Resultados: 38,7% dos participantes referiram participar em atividade física formal e informal. Não se verificaram relações entre os fatores sociodemográficos e a prática de atividade física formal e informal. Conclusão: A maioria dos participantes não praticava atividade física regularmente, e os fatores sociodemográficos não apresentaram relação com a prática de atividade física. São necessários mais estudos, com mais participantes, focados neste tema e noutros fatores para que seja possível identificar preditores da prática de atividade física em jovens com spina bífida. Os resultados desses estudos poderiam contribuir para a compreensão das variáveis da participação em atividade física e para o desenvolvimento de programas que tenham em consideração as razões que levam à fraca participação em atividade física.

Palavras-Chave: Deficiência; Correlatos; Portugal; Escola; Desporto

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Introduction

The benefits of physical activity in children are well documented. It improves bone mineral density, muscular strength and endurance, mental health (Janssen & Leblanc, 2010; USDHHS, 2008), is also associated with lower cluster of cardiovascular disease risk factors (Anderssen et al., 2007), and it is recognized as a relevant marker of cardiovascular health (Ortega, Ruiz, Castillo, & Sjostrom, 2008). Nevertheless, many young people are not active enough to benefit their health (Baptista et al., 2012; Currie et al., 2012; Hallal et al., 2012). The situation is even more concerned among people with physical and intellectual disability. This group of people is at risk of being less active or sedentary (Rimmer, Riley, Wang, Rauworth, & Jurkowski, 2004; Rimmer, Schiller, & Chen, 2012), because of their pathology and because facilities do not provide conditions for persons with disabilities.

Among people with disabilities there are young people with spina bifida. Spina bifina is a congenital abnormality characterized by the incomplete closure of the spinal column. In many cases this pathology result in nerve damage and physical disabilities, including lower limb paralysis and disrupted bladder or bowel function. These conditions limited the possibilities to practice physical activity (Short & Frimberger, 2012), and consequently people with spina bifida have low aerobic capacity and muscle strength (Schoenmakers et al., 2009), which impedes the performance of everyday tasks. However, it is recommended that people with spina bifida should engage in habitual physical activity, since the literature supports that it improves physical functions (USDHHS, 2008). Therefore, it is important to investigate the correlates of physical activity to support the development of effective interventions to promote active lifestyles.

Although the old calls for research of physical activity determinants among individuals with disabilities (Heath & Fentem, 1997), so far little is known about the factors related to physical activity participation in different contexts among children and adolescents with spina bifida. Thus, the present pilot study aimed to identify socio-demographic correlates of physical activity in leisure-time among children and adolescents with spina bifida.

Method

Participants

The present study was conducted through the Portuguese Association of Spina Bifida and Hydrocephalus (ASBHIP). It is part of an on-going study to characterize the lifestyle of children and adolescents with intellectual and physical disabilities, in order to implement an appropriate school-based intervention to promote an active and healthy lifestyle among youth special populations. Participants included 31 children and adolescents with Spina bifida (15 boys, 16 girls), ranging in age from 10 to 17 (Mage=13.9±2.4). The study protocol received approval from Portuguese Minister of Education, and the Portuguese Commission of Data Protection. The study was conducted according to ethical standards in sport and exercise science research (Harriss & Atkinson, 2011). The ASBHIP's ethics committee gave its consent, and written informed consent was obtained from participants' legal guardians.

Physhical activity

A list of 21 leisure time activities, developed by Telama et al. (2002), was used to determine students' participation in organized and non-organized physical activity. The test-retest reliability of the leisure time activities was carried out within a one-week interval. Using intraclass correlation coefficient (ICC), the reliability was high (ICC=0.90 to 0.95).

Body mass index (BMI)

Weight and height were reported by children's and adolescents' parents. The information was provided based on clinical reports. BMI was calculated by dividing weight by height square (BMI=m/h2).

Socioeconomic status (SES)

The SES was calculated according to parental occupation and educational level. Parents were classified as lower, middle and upper class. For that classification parents' occupation titles were

regrouped. The lower class included skilled and unskilled manual workers, farmers, and fishermen; the middle class included service occupations such as nonprofessional health service workers, office clerks, and salespeople; the upper class consisted of business-owners, executives, university-educated specialists and professionals (Raudsepp & Viira, 2000).

Statistics

Descriptive statistics were calculated for all variables. Bivariate relationship between participation in organized and non-organized physical activity with gender, BMI, and socioeconomic status was tested by Fisher's exact test of independence. Effects of each independent variable on participation in organized and non-organized physical activity were assessed by a logistic regression. Unadjusted and adjusted odds ratio (OR) with 95% confidence intervals (CI) were calculated. Adjustments were performed for all studied variables. Data analysis was performed using IBM SPSS Statistics version 20. For all tests statistical significance was set at $p<0.05$.

Results

The general sample's characteristics are presented in table 1. Most of the participants were healthy weight (74.2%) and were from lower socioeconomic status (74.2%). Only 38.7% mentioned to participate in both organized and non-organized physical activity.

Table 1. *General Characteristics of the Study Population.*

	Total	
	n	%
Gender		
Boys	15	48.4
Girls	16	51.6
BMI		
<25	23	74.2
≥25	8	25.8
SES		
Low	23	74.2
Medium/high	8	25.8
Organized PA		
Yes	12	38.7
No	19	61.3
Non-organized PA		
Yes	12	38.7
No	19	61.3

BMI, body mass index; SES, socioeconomic status; PA, physical activity

Table 2 shows the comparison of gender, BMI and SES with participation in organized and non-organized physical activity. There were no statistical differences between those who reported participating in physical activity and those who reported not be involved.

Table 3 shows the results of the logistic regression analysis. In both unadjusted and adjusted analyses (when all variable enter into the model), the results showed no relationship between participation in organized and non-organized physical activity and socio-demographic correlates.

Table 2. *The Characteristic of the Study Population by Participation in Organized and Non-organized Physical Activity*

	Non-organized PA			Organized PA		
	No n (%)	Yes n (%)	*p*	No n (%)	Yes n (%)	*p*
Gender			0.106			0.716
Boys	7 (36.8)	8 (66.7)		10 (52.6)	5 (41.7)	
Girls	12 (63.2)	4 (33.3)		9 (47.4)	7 (58.3)	
BMI			1.000			0.676
<25	14 (73.7)	9 (75.0)		15 (78.9)	8 (66.7)	
≥25 kng/m²	5 (26.3)	3 (25.0)		4 (21.1)	4 (33.3)	
SES			1.000			1.000
Low	14 (73.7)	9 (75.0)		14 (73.7)	9 (75.0)	
Medium/high	5 (26.3)	3 (25.0)		5 (26.3)	3 (25.0)	

BMI, body mass index; SES, socioeconomic status; PA, physical activity
*$p<0.05$

the participation of children with disabilities in sports and physical activity (Murphy & Carbone, 2008). Moreover, the less diversity of organized

Table 3. *Unadjusted and Adjusted Odds Ratio for Participation in Organized and Non-Organized Physical Activity among Children and Adolescents with Spina Bifida*

	Unadjusted OR (95% CI)		*Adjusted OR (95% CI)*	
	Non-organized PA	Organized PA	Non-organized PA	Organized PA
Gender				
Boys	1.00 (ref)	1.00 (ref)	1.00 (ref)	1.00 (ref)
Girls	0.27 (0.06-1.19)	1.27 (0.33-4.93)	0.01 (0.00-9.29)	4.63 (0.27-7.40)
BMI				
<25	1.00 (ref)	1.00 (ref)	1.00 (ref)	1.0 (ref)
≥25 kng/m²	1.04 (0.20-5.34)	0.73 (0.15-3.59)	7.18 (0.10-51.81)	0.26 (0.03-2.51)
SES				
Low	1.00 (ref)	1.00 (ref)	1.00 (ref)	1.00 (ref)
Medium/high	1.11 (0.24-5.04)	1.40 (0.32-6.16)	0.02 (0.00-2.24)	0.27 (0.02-4.62)

OR, odds ratio; BMI, body mass index; SES, socioeconomic status; PA, physical activity
*$p<0.05$

Discussion

The purpose of the present pilot study was to identify socio-demographic correlates of physical activity in leisure-time among children and adolescents with spina bifida.

Most of the children and adolescents with spina bifida reported not participating in organized and non-organized physical activity. Although expected (Rimmer et al., 2004; Rimmer et al., 2012), this finding is one to be worried about since participation in regular physical activity is recommended for young people with physical disabilities (USDHHS, 2008), and it is related with health benefits (Andrade, Kramer, Garber, & Longmuir, 1991; Short & Frimberger, 2012) and full participation in community (White, Gonda, Peterson, & Drum, 2011). Studies have shown that adolescents with spina bifina can participate successfully in physical activity, and should be encouraged to do so for physical and psychosocial reasons (An & Goodwin, 2007; Buffart, van den Berg-Emons, van Meeteren, Stam, & Roebroeck, 2009). Thus, intervention strategies aiming to improve physical activity levels of adolescents with spina bifida are required, in order to improve the quality of life (Buffart et al., 2009; White et al., 2011).

For the organized physical activity none of the socio-demographic variables predicted physical activity participation. Considering that some organized physical activity is subject to a payment, this may explain the absence of relationship between physical activity and SES, because most of the participants were from lower SES. The cost of physical activity is pointed out as a barrier for activities for children with disability could be also one of the reasons to the nonparticipation in organized physical activity.

For the non-organized physical activity similar results were observed. None socio-demographic variable were associated with physical activity, which means that for this children and adolescents the reasons why they are involved with physical activity may not be related with gender, BMI status and SES.

Our results demonstrated that most of the participants did not participate in physical activity regularly. In order to improve the levels of participation, it is important to identify the factors (barriers and facilitators) that are related with physical activity participation. Nonetheless, it was not identified the relationship between physical activity (organized and non-organized) and socio-demographic factors. Therefore, more studies are needed, with bigger samples, focused on the same and in others factors to identify the predictors of physical activity participation of children and adolescents with spina bifida. The results of such studies could help to understand the participation variables and moreover to develop programmes that could avoid the reasons that lead to poor participation. This is of importance, as people with spina bifida have lower levels of musculoskeletal function and aerobic fitness (Schoenmakers et al., 2009) and literature supports that physical activity improves physical function and perceived quality of life (White et al., 2011).

Some limitations from the present study should be acknowledged. The cross-sectional

design and the small sample limit the inference of cause and effect relationships. Data from participation in physical activity were collected via self-report rather than being objectively measured. Although the questions have previously been demonstrated to be both reliable and valid, they could be subject to bias.

Conclusion

Results from this pilot study showed that there is no relationship between socio-demographic and physical activity. Although international recommendations, the research on the field of special populations' physical activity is scarce, and more work needs to be drawn in this area, for a better understanding the physical activity correlates in students with disabilities, in order to outline better and more appropriate intervention strategies to this population, to promote a more active and healthy life. This is important and urgent because children and adolescents with physical disabilities tend to be particularly inactive and suffer from several secondary conditions, leading to a lower quality of life, being at increased risk of limited participation in community activities.

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