Original article (short paper)

The influence of attitudes toward physical activity and sports

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Abstract—Attitude is one of the most important predictor variables in relation to behavioral intentions regarding physical activity. Thus, this study aims to determine the influence of attitudes towards physical activity. The study comprised a sample of 1129 individuals (507 men and 622 women) age between 12 and 58 years ($\bar{x}$ = 18 sd = 4.03). To collect the data, the Scale of Attitudes Towards Physical Activity and Sports (Dosil, 2002) was based on the Portuguese version (Cid, Alves, & Dosil, 2008). The results show that attitudes towards physical activity and sports are more positive in younger male individuals, who do not attend higher education, who regularly engage in physical activity and whose parents engage in physical/sports activity themselves.

Keywords: attitudes, physical activity, sports, practice

Resumo—"A influência de atitudes com relação à atividade física e esportes." A atitude é uma das variáveis preditivas mais importantes em relação as intenções comportamentais face à prática de atividade física. Desta forma, este estudo pretende determinar a influência da atitude para a prática de atividade física. Participou do estudo uma amostra de 1129 sujeitos (507 homens e 622 mulheres) com idades entre os 12 e os 58 anos ($\bar{x}$ = 18 sd = 4,03). Para a recolha dos dados, ministrou-se a Escala de actitudes hacia la actividad física y el deporte (Dosil, 2002) na sua versão portuguesa (EAFDp) (Cid, Alves & Dosil, 2008). Os resultados mostram que a atitude perante a prática de atividade física e desporto é mais positiva nos sujeitos mais jovens, que não frequentam o ensino superior, do gênero masculino, praticantes de atividade física e com pais e mães também praticantes de atividade física/desporto.

Palavras-chave: atitude, atividade física, desporto, prática

Resumen—"La influencia de las actitudes hacia la actividad física y deportes." La actitud es una de las variables predictoras más importantes con respecto a las intenciones de comportamiento hacia la actividad física. Por lo tanto, este estudio tiene como objetivo determinar la influencia de la actitud hacia la actividad física. Participó en el estudio una muestra de 1129 sujetos (507 hombres y 622 mujeres) con edades comprendidas entre los 12 y 58 años ($\bar{x}$ = 18 sd = 4,03). Para la recolección de datos, se ministró la Escala actitudes hacia la actividad física y el deporte (Dosil, 2002), en su versión en portugués (EAFDp) (Cid, Alves y Dosil, 2008). Los resultados muestran que la actitud hacia la actividad física y el deporte es más positiva en sujetos más jóvenes, que no asisten a la educación superior, varón, praticantes de actividad física y con padres y madres también practicantes de actividad física / deportiva.

Palabras claves: actitud, actividad física, deporte, práctica

Introduction

Attitudes reflect a set of beliefs, feelings and behaviors related to one another which are organized around an object or situation that may be favorable or unfavorable. Attitude determines how individuals act towards others and events, therefore, feelings, behaviors and choices become a powerful predictor of behavior that, in turn, can be dynamic, constructed, taught, modified, or even replaced (Cid *et al.*, 2008; Feldman, 2001; Morales 2000; Zabalza, 2000).

For Alcântara (1995) and Munné (1980), motivation, interest, desire and stimulus influence the development of attitudes. On the other hand, these are acquired through information gathered through imitation of family or social models, and are expressed in actions of individuals. However, as attitudes develop, they also change due to various factors such as the existence of variables circumstances, personality changes and coercion effects, i.e., they are modified when the factors that originated them change. This allows us to predict that not only are the attitudes that guide voluntary behavior, but also the volunteer behaviors lead to changes in attitudes.

Hagger, Chatzisanrantis, and Biddle (2001), based on the theory of planned behavior, assume that attitude is the most important prognostic variable regarding behavioral intentions in the field of physical activity. According to Biddle and Mutrie (2001), several studies investigating different populations (youth, adults and seniors) have shown consistently that attitudes have predictive validity in the field of physical activity.

As for physical activity, this has been the subject of numerous scientific investigations due to its influence in the proper

functioning of body and mind. Some of the most physical highlighted benefits are: prevention and fighting obesity, reducing the risk of chronic diseases (diabetes, cardiovascular disease and certain types of cancer), increased mineral bone density, prevention and treatment of urinary incontinence, overall increase functioning capacity of the various organs and systems of the body, increased release of endorphins, improving the structure and function of ligaments and joints, etc. (Alfaro, 2000; Barros & Ritti-Dias, 2010; Biddle & Mutrie, 2001; Bo, 2004; Caetano, Tavares, Lopes, & Polonil, 2009; Coelho & Burini, 2009; Fermino, Pezzini, & Reis, 2010; Florindo, Romero, Peres, Silva, & Slater, 2006; Hausenblas & Fallon, 2006; Nunes, Figueroa, & Alves, 2007; Oliveira *et al*, 2012;). Regarding psychosocial benefits, physical activity provides improved psychological well-being, decreased depressive symptoms, stress reduction, increased body satisfaction and self-confidence, developing the spirit of cooperation, acceptance of social norms, discipline, self-control, respect of others, prevention of alcohol, tobacco, and drugs consumption and the onset of mental disorders. It also provides faster and other cognitive processing (Antunes *et al*, 2006; Berger & Motl, 2001; Costa, Pereira, & Silverio, 2008; Melim & Pereira, 2013; Queirós, Gomes, & Silva, 2008).

Currently, despite the widespread knowledge about the positive health effects that regular exercise can bring, a high percentage of the population continues to be sedentary. Thus, the World Health Organization (WHO), in the 2002 annual report, said that about 60% to 85% of the population of developed countries and the transition countries exhibit sedentary lifestyles. Worldwide, the overall estimate of the prevalence of physical inactivity among individuals older than 15 years is 17%, ranging between 11% and 24% depending on the region.

According to Haskell *et al* (2007), the CDC Behavioral Risk Factor Surveillance System, 1990-2004, indicates a trend towards decrease of physical leisure activity of Americans over the years and, in 2005, 23.7% of American adults were inactive in their leisure time. Ogden *et al* (2006) mentions the increasing prevalence of overweight and obesity, and decreased physical activity among all segments of the American population in the early years of the twenty-first century.

In Brazil, the prevalence of physical inactivity among the population is 45%, taking into account the mobility to work, activities performed during labor and domestic activities (Hallal, Victora, Wells, & Lima, 2003; Matsudo *et al*, 2002).

IBGE data for 2010 show an increase in the rate of overweight and obesity for half the population. According to Monteiro, Moura, Conde, and Popkin (2004), currently, obesity has become a serious problem in developing countries and among groups with lower socioeconomic status, including Brazil, being provided, in most cases, by a diet rich in calories and reduced physical activity.

In European Union countries, Sjostrom, Oja, Hagstromer, Smith, and Bauman (2006) states that 31% of individuals older than 15 years were considered sedentary. In 2010, the Eurobarometer 334 updated data regarding physical activity for the population of the European Union, and the average of people who practice physical activity on a weekly basis (at least once a week), rose from 38% to 40% and the percentage of sedentary persons decreased from 53% to 39% (European average). For Portugal, specifically, 33% of the population practice regular physical activity and 55% of people are sedentary.

Many studies in different areas and with various groups, have revealed a greater propensity for physical activity in male individuals (Cid & Alves, 2008; Cid, Chicau, & Moutão, 2009; Pavón & Brown, 2008), young people (Melim & Pereira, 2013; Rosendo-da-Silva & Malina, 2000) at high school level or in their first year of university (Mielkel *et al*, 2010; Reed & Phillips, 2005), revealing a very specific profile of the population physically active.

So when we consider attitude one of the most important predictor variables regarding behavioral intentions in the face of physical activity, it is important to check its influence in different populations (Cid, 2010; Dosil, 2005). According to Florindo, Hallal, Moura, and Malta (2009), in order to promote of physical activity, one must consider gender differences, differences in age groups and education levels. Only by taking into account the specific characteristics of the target audience an appropriate program may be develop, thus reversing the growing trend of diseases associated with sedentary lifestyle such as obesity, diabetes, cardiovascular disease and others (Fechio & Malerbi, 2004; Puga Barbosa *et al*, 2011).

Thus, this study aims at (1) to determine the differences of genders and ages for the development of attitudes towards physical activity and sports; (2) to know the relationship between the educational level of the individuals and their attitudes towards physical activity and sports; (3) to evaluate the influence of parents who are physically active and those who do not engaged in physical activity to improve the sports attitude of the children and, finally, (4) to compare the level of attitude of physically active and non- physical individuals.

Method

Instrument

The most relevant work in the area of attitudes towards physical activity and sports correspond to Kenyon (1968), being responsible for the construction of ATPA scale (Attitudes Towards Physical Activity) to assess such attitudes. However, one problem of this instrument is related to the orientation of the items because it is more directed to those engaged in physical activity or sports.

Despite the extensive studies on attitudes towards physical activity, we still lack research tools to assess the attitudes of individuals towards physical activity and sports regardless of their degree of involvement with the practice. In order to bridge this gap, *Scale of Attitudes Towards Physical Activity and Sports* by Dosil (2002) was created. This scale was intended as a measuring instrument that assesses the behavior of any person in regard of physical activity and sports, regardless of whether or not it is a physically active person.

Originally the Scale was validated for the Spanish population from a study with a sample of 2800 individuals between 12 and 90 years of age. The instrument consists of 12 items with

7 alternatives of possible answers for each ranging between "strongly disagree" and "strongly agree." The items are grouped into two dimensions: Importance Awarded (focuses on the importance that the participant's physical attributes and/or sports activity) and Possibility of Practice (more indirectly corresponds to the standing of the individuals in the possibility of practice). According to Cid *et al*. (2008), these two dimensions represent a good indicator of the general attitude of the individual in regard of physical activity and sports.

Subsequently, the Scale was translated and adapted to Portuguese reality by Cid *et al*. (2008), through the use of exploratory and confirmatory factor analysis model. In general, both analyses showed favorable results, while maintaining compliance with the original version.

According Cid (2010), the Portuguese version of *Scale of Attitudes Towards Physical Activity and Sports* showed that the levels of adjustment allow a good measure of construct validity ($SB\ c^2 = 141.65$, $df = 53$, $p = .000$; $c^2 / df = 2.67$, $SRMR = 0{:}04$; $NNFI = .095$, $CFI = .96$, $RMSEA = .05$, 90% $CI = 0{:}04$ to $0{:}06$), as well as Cronback alpha showing a quite reasonable internal reliability ($\alpha 1 = .84$ and $\alpha 2 = .77$). Thus, we can say that this measuring instrument has good psychometric qualities, which allow its use with a high degree of confidence in the assessment of the overall attitudes of the individuals regarding physical activity and sports.

Thus, to conduct this study, we used the Portuguese version of *Scale of Attitudes Towards Physical Activity and Sports*, as described previously, consisting of 12 items, but with five alternatives, rather than 7 as in the original version (from "strongly disagree" to "strongly agree"), implying a change in the number of points of the questionnaire, ranging from 12 to 60 points, where 12 corresponds to an unfavorable attitude and 60 to a very favorable attitude.

Participants

The sample consisted of 1129 students, with ages ranging between 12 and 58 years ($sd = 4.03$ 18), of which 507 are men (18.07, $sd = 4.55$) and 622 women (17.98, $sd = 3.55$). Of the participants, 308 belong to middle and junior high-school (7th, 8th and 9th grades), 203 to junior and high-school (10th, 11th and 12th) and 618 are college students. The study was conducted in two public schools and a university in Guimarães County, Portugal.

Procedure

For middle, junior high-school and high-school students the data collection was carried out collectively by teachers in the classroom with prior guidance of researchers. College students were approached by the applicator individually or in small groups outside the classroom, always in similar locations and conditions (quiet places allowing the concentration of the individuals). The application time was approximately 10 minutes. The ethical procedures that were adopted in this study were previously approved by the University of Vigo ethical committee. The questionnaires were anonymous and administered with written consent by the teachers and parents of the students.

Later, was used IBM SPSS Statistics 19.0 program for insertion and processing the data.

Results

To compare the variables age and attitude towards physical activity and sports, the individuals were grouped into five age groups (see Table 1). We grouped students with 3 years difference between them, starting at the age of 12 because we consider that 12 year olds have enough maturity to understand the items of the questionnaire. The students between the ages of 12-14 are in middle-school and junior high-school, 15-17 Junior high and high-school, 18-20 college freshmen and sophomore, 21-23 college junior and seniors and over 23 graduates students. It is observed that for all groups there is a tendency to show a positive attitude (41.3, $sd = 10.4$), even though the value of 36 marks the average level (neither positive nor negative attitude). By analyzing the differences between the average age groups, the group of 12 to 14 years has the highest score (43.4), with significant differences from the group 18-20 years ($F = 2.93$, $p < .05$) and the group 21-23 years ($F = 3.96$, $p < .01$). Regarding the type B error in the age groups were: total attitude (.96), attitude 1 (.98), and attitude 2 (.63).

Table 1. Age groups and attitude score.

Pooled age		Total attitude	Attitude 1	Attitude 2
12 to 14 years	Average	43.4491	34.1472	9.3019
	N	265	265	265
	Standard deviation	10.40971	7.65676	3.76177
15 to 17 years	Average	41.7550	32.3333	9.4163
	N	200	200	200
	Standard deviation	10.80875	8.12670	3.50191
18 to 20 years	Average	40.5140	31.6822	8.7838
	N	365	365	365
	Standard deviation	10.54767	8.22271	3.34417
21 to 23 years	Average	39.4840	30.8505	8.6181
	N	194	194	194
	Standard deviation	9.14791	7.05811	3.25280
24≥	Average	40.7759	31.9492	8.5323
	N	95	95	95
	Standard deviation	10.17917	8.00091	3.62468
Total	Average	41.3083	32.2712	8.9837
	N	1129	1129	1129
	Standard deviation	10.38777	7.92871	3.48778

Note. The average difference is significant at $p \leq .01$ level.

Regarding gender, the results in Table 2 show that men (44.92) have a more positive attitude towards physical activity than

women (38.31) (t = 10.9, p <.01). Those gender differences are also present in the two scale factors: attitude 1 (t = 8.26, p <.01) and attitude 2 (t = 14.3, p <.01). The type B error in gender groups were: total attitude (1.0), attitude 1 (.93), and attitude 2 (1.0).

Table 2. Attitude score based on gender.

	Gender	*N*	Average	Standard deviation	Standard error of measure
Attitude 1	Male	507	34.3845	7.43823	.33637
	Female	622	30.5268	7.89900	.32356
Attitude 2	Male	507	10.5080	3.27160	.14631
	Female	622	7.7360	3.15436	.12814
Total attitude	Male	507	44.9256	9.66941	.43952
	Female	622	38.3099	9.99871	.41375

Regarding the level of education, in Table 3, significant differences between the mark-up group of middle-school and junior-high (12 to 14 years) and the group of college students (18≥years) (F = 3.23, p <.01), and between the group of junior-high and high-school (15 to 17 years) and the group of college students (F = 2.63, p <.01). In general, we observe that, for different groups of students, there was a level above the attitude average scale (41.3 *sd* = 10.3). The two scale factors show similar results on a global scale, with the first factor (attitude 1), show significant differences between group 1 and 3 (F = 2.64, p <.01), and between group 2 and 3 (F = 1.74, p <.01), with an overall mean of 32.3. The second factor (attitude 2) also show the same significant difference between groups 1 and 3 (F = 0.64, p <.01), groups 2 and 3 (F = .91, p <.01) in this case to the total average of 8.9.

Table 3. Attitude score based on school grade of the groups.

Pooled grades		Attitude total	Attitude 1	Attitude 2
Middle-school and junior-high (12 to 14 years)	Average	43.1424	33.8610	9.2814
	N	295	295	295
	Standard deviation	10.60837	7.88724	3.71412
Junior-high and high-school (15 to 17 years)	Average	42.5490	32.9610	9.5561
	N	234	234	234
	Standard deviation	10.68319	8.02499	3.48358
College students	Average	39.9121	31.2171	8.6415
	N	600	600	600
	Standard deviation	9.96098	7.76379	3.34265
Total	Average	41.3081	32.2654	8.9892
	N	1129	1129	1129
	Standard deviation	10.38291	7.92734	3.49089

In Table 4, when comparing the attitude of physically active and not physically-active, it can be observed that physically active individuals (46.9) have a more positive attitude towards physical activity than not physically-active (36.1) (t = 19.8, p <.01). The two scale factors confirmed this trend, because there are significant differences between both groups: Attitude 1 (t = 28.43, p <.01) and Attitude 2 (t = .02, p <.01). Regarding the type B error to physically active and not physically-active people were: total attitude (1.0), attitude 1 (1.0), and attitude 2 (1.0).

Table 4. Attitude score of physically active and not physically-active people.

	Practice	N	Average	Standard deviation	Standard error of measure
Attitude 1	No	583	28.0603	7.24599	.30511
	Yes	546	36.8177	5.84934	.25626
Attitude 2	No	583	8.0329	3.29812	.13718
	Yes	546	10.0360	3.39726	.14785
Total attitude	No	583	36.1049	9.50990	.40440
	Yes	546	46.8951	8.14011	.35870

The data in Table 5 showed that scores on the attitude of parents who practice physical activity is higher (44.4) than those who do not practice any kind of activity (40.2) (t = 1.78, p <.01). As for the scale factors also show significant differences between practicing and non-practicing parents: Attitude 1 (t = 3.08, p <.01) and attitude 2 (t = .10, p <.05).

Table 5. Attitude based on physically active father.

	Physically active father	*N*	Average	Standard deviation	Standard error of measure
Attitude 1	No	771	31.3086	7.87502	.29167
	Yes	358	34.9487	7.32287	.41458
Attitude 2	No	771	8.8187	3.47186	.12771
	Yes	358	9.4138	3.47922	.19480
Total attitude	No	771	40.1751	10.32020	.38622
	Yes	358	44.4419	9.72876	.55256

The data in Table 6 is similar to that in Table 5, since the attitude of mothers who physically active is higher (43.8) than for mothers who aren´t physically active (40.8) (t = 4.54, p <.01). These differences are also evident in factor 1 (t = 5.50, p <.01) and factor 2 (t = .96, p <.01).

Table 6. Attitudes based on physically active mother.

	Physically active mother	*N*	Average	Standard deviation	Standard error of measure
Attitude 1	No	895	31.7666	7.93697	.27049
	Yes	234	34.6066	7.22309	.49726
Attitude 2	No	895	8.9841	3.47424	.11718
	Yes	234	9.0841	3.55803	.24322
Total attitude	No	895	40.7896	10.41384	.35804
	Yes	234	43.7943	9.64668	.6727

Discussion

Currently, the habits of modern life encourage a sedentary lifestyle and, among children, can cause serious problems, even leading to the decrease of large movements (Rodrigues, Avigo, Leite, Bussolin, & Barela, 2013). However, according to Araújo and Araújo (2000), children and adolescents, mostly, are more physically active than adults; however, this activity decreases when starting adult life and, over time, may have diminishing levels of physical fitness, health and quality of life.

Thus, the development of positive attitudes towards physical activity and / or sports is essential for young people to later have a healthy lifestyle. According to Corte-Real, Balaguer, Dias, Corredeira, and Fonseca (2008) and Balaguer and Castillo (2002), modification of attitudes or behaviors in sports by younger individuals lead into more positive results. This is consistent with the results of our study, since the data show that attitude influences physical activity habits predominantly of individuals attending middle-school, junior-high and high-school.

According to Guedes, Legnani, and Legnani (2013) and Fontes and Vianna (2009) among college students (aged 18-35 years) we should consider that a much greater risk exist of developing sedentary habits, because the requirements of spending several hours a day studying, resulting in a reduction of time spent on physical and leisure activities. This information confirms the results of our study (see Table 3) showing that there is a more positive attitude among younger students (middle-school) than the college students.

Alves, Montenegro, Oliveira, and Alves (2005), Hirvensalo, Lintunen, and Rantanen (2000), Tammelin, Laitinen, and Nayha (2004), Telama *et al* (2005), e Telama, Yang Hirvensalo, and Raitakari (2006) claim that physical activity during adolescence may contribute to the maintenance of an active lifestyle throughout adulthood. Therefore, the younger an individual is, the easier it is to develop a healthy lifestyle and keep it throughout adulthood.

Thus, we can conclude that the development of positive attitudes towards physical activity in teenagers and young children is a major factor to be reinforced by physical education teachers and also by parents so that future generations may be more physically more active. We observed that fathers and mothers who have a better attitude toward physical activity also positively influence the attitude of their children, which demonstrates the importance of physical activity and how adults encourage future generations to be physically active.

As far as the difference in gender, Cid and Alves (2008), Cid *et al*. (2009), Florindo *et al*. (2009) and Pavón and Moreno (2008) showed that male individuals have, overall, more positive attitude than females towards the practice of physical activity. Melim and Pereira (2013) and Piéron, Ruiz, Garcia, and Díaz (2008), studying adolescents, also highlighted the discrepancy between males and females in regard to sports. They concluded that male individuals are more prone to physical and sports activities than the opposite sex. The results of these studies show results that agree with our work, since there were significant differences in gender, with men showing better attitude towards physical activity and sports.

Regarding the attitude of individuals who regularly practice physical activity, according to Cid and Moutão (2008) and Dosil (2005), these have a more positive attitude, compared with non-active individuals, as shown in Table 4.

In conclusion, this study has demonstrated the importance of attitude in a large sample of Portuguese youth using a scale that has been validated in Spain and Portugal, therefore, providing reliable information about the relationship between attitude and practice of sports and physical activity. Also, younger individuals, males, youngsters with active parents and mothers show better scores in the attitude scale. These results allow us to target population programs, focusing on specific characteristics and factors that are determinants for physical activity and sports in order to encourage future generations to become more active and enjoy a healthy lifestyle. Positive attitude towards sports is, then, a decisive factor for practice.

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Manuscript received on September 23, 2014
Manuscript accepted on October 11, 2015