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PINO-JUSTE, MARGARITA; GUTIÉRREZ-SÁNCHEZ, ÁGUEDA; ALVARIÑAS, MIRIAN

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Trainee teachers' habits of healthy physical activity

MARGARITA PINO-JUSTE , ÁGUEDA GUTIÉRREZ-SÁNCHEZ, MIRIAN ALVARIÑAS

Sciences Faculty of Education and Sport, University of Vigo, Spain

ABSTRACT

Pino-Juste M, Gutierrez-Sanchez A, Alvariñas M. Trainee Teachers' Habits of Healthy Physical Activity. *J. Hum. Sport Exerc.* Vol. 8, No. 2, pp. 458-468, 2013. Introduction: This study analyses the habits of physical activity of a group of students at the University of Vigo (Spain). Methods: It uses the SRHI (Self-Report Habits Index) scale, which was used for the first time in Spain. It starts from the premise that future educators should have good physical activity habits if they want to convey this attitude to their students due to its importance for health and quality of life. Results: Physical activity habits are well-established in future Secondary Education Physical Education teachers but not in future Infant and Primary Education teachers. In addition, there are greater physical activity habits in men, in students who previously participated in sport at school and at younger ages. The most common difficulties for creating physical activity habits are lack of time, sport facilities and companionship for carrying out the activity. Discussion: In this section our results, which broadly coincide with the results of other studies regarding the same subject, are contrasted with the results of those other studies. **Key words:** PROMOTION OF HEALTH, COLLEGE STUDENTS, SELF-REPORT HABIT INDEX, PRACTISE.

 **Corresponding author.** Facultad de Ciencias de la educación y del deporte. Universidad de Vigo. Campus A Xunqueira, 36005, Pontevedra, Spain.
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THEORETICAL FRAMEWORK

The importance of acquiring physical activity habits is based on its relevance to various aspects of personal development as a whole.

In recent years, research has clearly indicated the relationship between physical activity and health (Van Der Horst et al., 2007). It has been found that physical inactivity is a risk factor in diseases such as cancer, diabetes and heart disease (Soriguer et al., 2003). Furthermore, the literature has confirmed that regular exercise has a positive impact on people's lifestyles, and not strictly in the biomedical sense, but also emotionally and socially (reduction of stress, increased self-esteem, improvement in social relationships, etc.) (Castillo & Molina-García, 2009).

Therefore, it is well founded that moderate and controlled physical exercise brings numerous positive effects (physical, physiological, psychological and social) that improve quality of life, which is a major social and health concern. This is why one of the fundamental pillars of health in society currently is the practise of physical activity. This idea is supported by major organizations such as the United States Department of Health and Human Services (USDHHS), or the World Health Organization (WHO), which for years have sounded a call to arms against sedentary habits and have proposed action lines in this respect (USDHHS, 2008; WHO, 2006).

There are not sufficient studies that support the idea that implementation of programs for promotion of physical activity in schools improves students' health, but we know that school seems to provide an excellent framework to improve levels of physical activity (Zahner et al., 2006). There is evidence proving that programs promoting physical activity in school have a positive impact on lifestyles and measures of physical health status (Dobbins et al. 2009). In fact, for many years, national or international organizations have conducted and financed research and/or interventions that reinforce the conviction that school is a key institution for carrying out health promotion programs (Di Leo, 2009).

Although physical activity is recommended at any age, it is in childhood and adolescence that students acquire positive habits and attitudes that continue into adulthood; this is the source of their importance and fundamental role in adult health. For some authors (Broyles et al., 2003) an effective health promotion policy must begin in the schools, since this is when behaviour habits first develop and healthy lifestyles begin to be internalized.

If we focus on the university context, in the past decade there are various research projects that show an attempt to answer questions relating to participation in sports activities by university students in general (Carlin et al., 2009; Castillo & Giménez, 2011) and also in particular, if we refer to certain university degrees whose future professional is linked to a greater or lesser extend to physical education (Guedes et al., 2006; Pérez et al., 2005); in this case, evidently, interest is greater if, taking as a reference the cognitive-motivational or mediating process paradigm we take into account that to a greater or lesser extent the thoughts, attitudes, behaviors, etc., of teaching staff could influence the internal processes of students and their future actions (Lee, 1997).

In addition, some research has already demonstrated that Physical Education students prefer athletic teachers who are in good shape (Gutiérrez et al., 2007).

In the 1970s, Rogers already argued that one of the conditions that the student requires to have an atmosphere conducive to learning is the coherence of the teacher; in fact, each person in the process of development is interrelated not only with an established natural environment, but also with a specific cultural and social order mediated for it by the relevant indicators to which it belongs (Berger & Luckmann, 1991).

We also know that there is a direct relationship between what future teachers learn and the way they do it with what they teach later and how they will do it when they are trainers (Freire, 1997). That is, the importance of coherence between what is being taught and the way in which it is taught is an essential condition for instruction to have the greatest possibility for success (Gimeno, 1992). It is impossible to fall into the contradiction in the practise of the same principles that it is said to defend theoretically; because the student does not just learn the content, but also the way in which he learns it, including the teacher's actions.

The work presented here is consistent with this philosophy and also with recent studies that illustrate the beliefs of university Physical Education students who, regardless of the subject of the study, they make clear the importance of paying attention to what they think due to their future implications (Hodges et al., 2010; Xiang et al., 2011).

Considering these data, our study is aimed at discovering the physical activity habits of graduate students in Early Childhood and Primary education as well as graduates in Physical and Sports Education (PSE) and to describe the importance that they assign them and the difficulties they have in acquiring them in order to propose possible intervention strategies. The study starts from the concept of habit as sequences extracted from acts that become automatic responses to specific stimuli, and are functional in obtaining certain goals or final states (Verplanken & Aarts, 1999). As a consequence of this definition we can state that habits are learned acts directed toward an objective. That is, habits are not developed at random, but are formed because they are useful. Habits are developed in a stable situation when a specific sequence of acts seems functional, efficient, or gives pleasure (Bagozzi & Dholakia, 2005).

From the automatic perspective of the decision-making process, some authors (Kim et al., 2005) state that automatic use occurs due to the strength of the habit, without formation of evaluations and intentions. Past behavior is a measure of habit under the supposition that when behavior becomes habitual it begins to be guided by automatic cognitive processes such as those based on attitudes and intentions.

METHOD

The research design used is a non-experimental, transverse and exploratory design; it uses a non-probabilistic sample of voluntary subjects, with guarantees of randomness and independence of the pairs of subjects. The compiling of information was requested from students through an instrument that includes identification data, habits scale (Self-Report Habit Index, SRHI) and two open questions.

Before completing the questionnaire, the participant signed an "informed consent form". All subjects participated voluntarily and, given the type of study and techniques used, this study complied with all ethical procedures for the collection of information as well as Organic Law 15/1999 on the protection of personal information. The study complied with the regulations of the Declaration of Helsinki.

SUBJECTS

The subject population of the study consisted of 222 students newly enrolled in the School of Education and Sports Sciences of Pontevedra, University of Vigo, in the 2010-2011 school year. Of these, 103 are men (46.4%) and 119 are women (53.6%), who were between 17 and 38 years old, with the median age 20.68 years.

INSTRUMENT

The instrument used is composed of Verplanken & Orbell's SRHI (2003), which measures habits, adapted to the subject matter of physical exercise (Verplanken & Melkevik, 2008), taking into account that the most direct method for measurement of the force of habit is to ask subjects to report directly about their habits (Verplanken et al., 2005). It is understood that habit is an automated action that is spontaneously activated even when there are no relevant motivations (Rhodes & Courneya, 2003). The SRHI has already administered in different European countries and recently validated in the Spanish context (Gutiérrez-Sánchez & Pino-Juste, 2011). In addition, two open questions were incorporated to investigate the reasons for which the practise of physical activity is considered important and identify the most habitual difficulties in being able to pursue a habit of physical activity.

All measurements were codified so that the high values indicate strong physical-sports habits and the lowest values the contrary. We have operated with a scale of five degrees of intensity in the acceptance-rejection or agreement-disagreement continuum. We assign the value 5 to always, 4 to almost always, 3 to sometimes, 2 to almost never and 1 to never as done in the original scale.

The Cronbach alpha coefficient (0.96) has a value very close to the unit, which lends high reliability to the prepared scale. Given that the items analyzed correspond to a Likert type scale we shall carry out a non-parametric analysis, since this type of scale is ordinal by its nature (Allen & Seaman, 2007). We have treated the data acquired from the scale and the open questions with the Statistical Package for the Social Sciences, version 19.0 for Windows.

RESULTS

The majority of the women are in the Early Childhood Education degree program, while the percentage of men increases in Primary and is a majority in PSE. The majority of students (63.96 %) have practiced some type of sports during their school career, with a greater percentage of men practicing than women. The median age is similar for all the university degrees and there are no differences between men and women in relation to age (Table 1).

Table 1. Study of descriptive statistical results.

		Specialty			Gender		
		Early Ch. Ed.	Primary Ed.	PSE	Male	Female	Total
Has engaged in school sports	Yes	28	26	88	82	60	142
	No	32	35	13	21	59	80
	Total	60	61	101	103	119	222
	Male	6	18	79			103
Gender	Female	54	43	22			119
	Total	60	61	101			222
SRHI							
(Mean \pm SD)		30.98 \pm	30.98 \pm 1	47.13 \pm 7.	44.56 \pm 9	32.94 \pm 1	38.33 \pm 1
(Median-RI)		11.72	1.75	99	.76	3.01	2.96
Percentile 25		28.5-	30-18	49-11	46-11	30-20	39.5-
Percentile 50		13.75	21	42	40	22	23.25
Percentile 75		23.25	30	49	46	30	26.75
Range		28.50	39	53	51	42	39.50
		37	(12-58)	(22-60)	(15-59)	(12-60)	50.00
		(12-59)					(12-60)
Age		21.55 \pm	21.15 \pm 3.	19.87 \pm 2.	20.13 \pm 2	21.15 \pm 3	20.68 \pm 3.
Mean \pm SD)		3.93	76	34	.70	.71	32

Regarding physical activity habits the mean of the scale is 39.5 and the interquartile range (IQR), which is represented by the 75 percentile minus the 25 percentile ($IQR = 50 - 26.75$) is 23.35.; 50% of the population is in this range. The mean sum of the scale is 38.33 and the typical deviation is 12.96.

These data show that the student subjects of the study have physical activity habits that we could consider relatively moderate; that is, the majority of students have internalized the need for physical activity as a routine in their daily life and carry out this activity automatically.

If we analyze the different groups, however, we find disparate results. Thus, we can prove that physical activity habits are greater in men than in women and in the PSE graduates than in Primary and Early Childhood graduates. In fact, we observe that the mean as well as the median is greater in men and in the graduates in physical activity and the range is much shorter in these two samples.

In the study of inference between variables we find a statistically significant association (test U of Mann-Whitney, $p \leq .001$) between the gender variable and the mean punctuation of the SRHI, and also between engaging in sports in school and mean SRHI punctuation ($p \leq .001$). Therefore, we can state that there are significant differences in the physical activity habits between men and women, with the former being greater. In addition, there are greater physical activity habits in those students who have been engaged in scholastic sports earlier in their academic careers.

The Kruskal-Wallis test was calculated to determine whether there were significant differences in physical activity habits in terms of the degree course they were pursuing. In this case $p \leq .001$ shows us that the PSE student has greater habits than the student studying for a degree in Early Childhood and Primary Education. In fact, there are also significant differences between students who have engaged in scholastic sports in terms of the degree course they are pursuing (Chi squared=.001). Most of the PSE students have participated in scholastic sports during their school careers (87.12%), while the percentages drop to half among students in Early Childhood Education (46.6%) and Primary Education (42.62%). If we calculate the Spearman correlation between age and the SRHI we find that the correlation is significant at .05% bilateral, which indicates that there are also differences in terms of age.

In order to interpret some of these data, the open questions which were formulated to know why they considered physical activity important have been analyzed. The answers could be grouped in four dimensions detailed below (Table 2).

Table 2. Factors cited in reasons given for importance of physical activity for health.

	Identify major health-related reasons for engaging in physical-sports activity	Percentages
1	Physical and psychological well-being	97.3
2	Prevention of illness	50.5
3	Enjoy physical activity, raise self-esteem	14.9
4	Improve interpersonal and social relationships	10.4

Basically, the students consider physical activity to bestow physical and psychological well-being. A high percentage also values it as a means of disease prevention and also, in much less percentages, the enjoyment of engaging in the activity and improvement of interpersonal relationships. Certain texts that illustrate the analytical categories chosen have been selected:

"Engaging in physical activity is important since it helps in preventing certain illnesses or makes them easier to deal with. And all of this influences people's state of mind and thus improves our social relationships. Finally, it is important to recall that sports are a good way to relate to others"(E106AEP).

"It makes you feel better physically and psychologically, it lets you set challenges and small goals that raise your self-esteem. Group activities are good socialization experiences and allow one to have a good time with people or friends. It is also a good excuse to have a drink afterwards with your friends. It makes you feel stronger and more secure and it helps with self-esteem"(E150AEP).

"Physical-sports activity is important to engage in because we are helping our bodies not to suffer from illness, to be more active and have better self-esteem – generally to feel better about ourselves. It is also a fun way to pass free time and get to know new people who could become confidantes and friends"(E196EI).

These opinions could be attributable to the training that students receive during their secondary education, where this idea is highlighted in various subject areas in Physical Education as well as Environmental

Studies or Biology. Addressing the most habitual difficulties in pursuing a habit of physical activity, five causes were cited (Table 3).

Table 3. Factors cited in reasons given for importance of physical activity for health.

	Most regular difficulties you have creating physical activity habits	Percentages
1	Lack of free time and organization of free time	70.7
2	Lack of appropriate sports facilities and spaces. Transportation, schedule and cost	15.8
3	Find others with whom to share activity	15.3
4	Weather conditions	7.2
5	Discouragement, apathy, truancy, tiredness, lack of motivation	1.4

A majority of the students refer to the lack of free time and the difficulty in organizing it. In fact they almost always express it together with other factors:

"Lack of time, ignorance of the correct practise of the exercises, friends who rarely participate in sports and laziness" (E168AEI).

"The greatest difficulty that I have is finding enough time to engage in physical activity under the circumstances, in addition to finding companions who want to go and find an appropriate place" (E180AEI).

"The most chronic difficulty is laziness and lack of time, since you propose to begin and you do it, but one day you can't for some reason, another day for another reason and that keeps you from developing the habit. Another influence is not knowing where to do the physical activity that interests you and the lack of information" (E210AEI).

We have not found differences in these justifications either according to the university degree or the gender, which leads us to believe that the reasons are common to all the groups except in one category. As might be expected, they are the students with fewer physical activity habits who perceive more barriers compared with those with a greater physical activity index.

DISCUSSION

It is important to be able to establish strategies and policies that promote physical activity in the school context, since this is synonymous with future quality of life. Therefore, teachers should demonstrate coherence between their behaviors and attitudes and the content they transmit. Hence, the importance of knowing the current habits of these future teachers in order to design possible strategies to overcome this situation.

In fact, if we compare the results of our study, we deduce that the physical activity habits of future Primary and Early Childhood teachers are scarce, while those of future teachers of secondary Physical Education are higher (López et al., 1994).

In terms of gender, it has also been demonstrated that men are physically more active than women. Other studies carried out with university students show the same trend, in national and international research investigations (Castillo & Giménez, 2011; Yoh et al., 2008); although we are aware of exceptions such as a study done with German university students that produced no significant differences in terms of gender (Stock et al., 2001).

Along this line, the 2009 European Health Survey in Spain (National Statistical Institute, 2009) showed that, in the age range of 16-24 years 80.8% of men engage in at least moderate activity versus 64.9% of women. These distinctions by gender are present in the general Spanish population (García-Ferrando & Llopis, 2011).

We have also found differences with respect to age. We can state that the increase in age causes a progressive reduction in the amount of physical activity, a decrease that is reflected in the latest survey published by the Center for Sociological Research and the Advanced Sports Council regarding the sports habits of Spaniards (García-Ferrando & Llopis, 2011). After 17 years of age is when this decrease begins, due in many cases to either leaving school or beginning studies, whether vocational or university. Other research reviewed from foreign countries agrees with these findings (Chung & Phillips, 2002). Pavón & Moreno (2006), based on the literature, showed that this age-related decline in physical activity was a generalized trend; however, in their work with university students they found that the percentages of those engaged in physical activity were higher in the group older than 22 years than among those younger than 21.

The majority of the subjects of the study practiced a sport during school age, although PSE students have done the most. But we know that practicing sports, understood as the most general physical activity during the school years, tends to be abandoned or replaced when it fails to meet the expectations of the subjects. Hence, the importance of establishing educational policies that promote active schools and so-called "sports for everyone".

Regarding the difficulty of acquiring habits, the basic causes are lack of time and lack of sports facilities or suitable spaces, as well as not finding others with whom to share this activity, or apathy and lack of initiative. Other studies in various contexts reach the same conclusions, with the main reason for abandoning sports activities in numerous investigations being lack of time (Kimm, et al., 2006). In other works, subjects cite lack of time and facilities as the main barriers, in addition to time devoted to studies (Berry et al., 2005). In the university context, the outstanding reasons for not engaging in sports were studies, the lack of time (Berger & Luckmann, 1991), decreased motivation and the influence of others (Rogers, 1972).

In studies of perception of barriers in participation in physical activity by adolescents it was verified that subjects who showed the lowest levels of physical activity also perceived the greatest number of barriers (Juniper et al., 2004). These data coincide with those of our research, since it is the least active students who perceive more barriers compared with those classified as active.

Regarding the reasons for engaging in physical activity, in our study it is basically related to health (whether because it causes psychological and physical well-being or because it prevents illness). In addition, in most of the studies centered on knowing the causes for university students to practice sports, health was shown to be an important motivation for participation, in addition to fun and enjoyment of engaging in exercise (Castillo & Sáenz-López, 2007; Yoh, 2009). In addition, on occasion the reasons given for practicing sports

are multidimensional, the most significant being social reasons, the quest for mastery and recreational aspects (Edmunds et al., 2007).

The contribution of this study focuses on two issues: On the one hand, it demonstrates the application of a highly reliable tool for measuring physical activity habits, the Self-Report Habits Index (SRHI), already administered in different European countries and recently validated in the Spanish context (Gutiérrez-Sánchez & Pino-Juste, 2011). This scale is useful for determining the force of habit without measuring the frequency of the behavior. The particularity of this study is that it is the first time a study has been performed using the SRHI scale in our country, and specifically with college students.

On the other hand, it contributes to the body of scientific knowledge concerning not only physical activity habits, but also the perceptions of future educators regarding the importance given to physical activity for health reasons as well as the importance given to the most common difficulties for creating habits of physical activity.

The main future course of action would be to conduct a longitudinal study with a large sample of subjects to determine whether the physical activity habits of the teacher influence the acquisition of habits by students, starting with intervention in the contexts of school, family and community.

Another main future course of action would be the implementation of training and intervention activities that promote a healthy lifestyle in college students, mostly for women and those of younger ages since the conclusions of the study show that these are the groups with less physical habits.

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