

Research article

Perceived barriers by university students in the practice of physical activities

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Abstract

The main goal of this research is to study in detail the main characteristics of university students in order to find out the reasons why they have adopted an inactive lifestyle. In order to do so, a questionnaire on the analysis of sports habits and lifestyle was given to 323 students. They were taken from a representative sample of 1834 students. These 323 students had pointed out at the moment of the fieldwork, not having practiced any sport in their spare time. Our findings point out that there are diverse reasons for this. On one hand, reasons referred to as external barriers such as lack of time, on the other hand, internal barriers such as not liking the physical activity, not seeing its practicality or usefulness, feeling lazy or with apathy, or thinking that they are not competent in this type of activities. Other reasons such as the lack of social support are grouped within the external barriers. Finally, it is important to stress that there are also differences based on gender with respect to motivation.

Key words: University students, barriers, physical and sport practice.

Introduction

At present, the promotion of physical exercise has become one of the Government's main objectives with respect to public health. This is due to the fact that, among the goals to be achieved by the Government, is the prevention of the illnesses caused by sedentarism (Patrick et al., 2001), as well as the boost of a healthy and suitable lifestyle (Tuero et al., 2001) and is linked to the health and quality of life of the person (Gómez et al., 2009). This concept has gained increasing importance in the last decade. This can be proved by the epidemiological researches (Raitakari et al., 1994; Rowland, 1999), consensus agreements (Cavill et al., 2001; Shephard, 1995) and reports elaborated for Health Authorities in Europe, Canada, England, The United States and Latin America (Craig and Cameron, 2004; Jacoby et al., 2003; U.S. Department of Health and Human Services, 1996; World Health Organization, 2007). They all clearly pointed out the existing relations between physical activity, everyday life sport and health not only on an individual level but also on a public one (Piéron et al., 2007).

Physical activity practiced on a regular basis is associated with a great amount of physical, psychological and physiological benefits (Biddle, 1993), and plays an exceptional role in preventing a variety of illnesses. Leading a sedentary lifestyle, on the contrary, is closely connected with the pathologies mentioned above and can become a serious health problem both in childhood and in adolescence (Roberts, 1991) and particularly among Uni-

versity students (Irwin, 2007).

A large amount of the population are aware of the benefits of regular physical activity in conjunction with a healthy lifestyle, but also that physical inactivity and low fitness levels are one of the main problems of worldwide health. However, there is still a high prevalence of sedentary habits (Ku et al., 2006; Niñerola et al., 2006), both in childhood and adolescence (Trost and Loprinzi, 2008).

The majority of the countries stated not having practice any sport ever, for example 4.7% of Spanish youngsters with ages between 15 and 24 years old (Centre of Sociological Researches, 2000) and 62% aged between 15 and 74 years old (García, 2006) confirmed not having practiced any sport. Some Mediterranean countries, as is the case of Spain and Italy, are among the ones with the lowest level of regular exercise not only on an intensive level but also on a recreational one. Other countries like Scandinavian countries show a higher practice of a regular sport (Martinez-González et al., 2001). In addition to this, different studies have demonstrated that, in general, the engagement in physical activities in the spare time decreases as we get older and that women devote less time to the practice of moderate and vigorous physical activities (Crews, et al., 2004; Gómez et al., 2008; Plotnikoff et al., 2004).

Even in adolescences (Park and Kim, 2008) and in the transition to university, and more specifically during the period of study at university, there is a rise in the disregard of a healthy lifestyle and a decrease in the practice of moderate to vigorous physical activity (Bray and Born, 2004; Han et al., 2008; Sinclair et al., 2005). This becomes a critical moment for the promotion of physical activity; mainly among women (Han et al., 2008; Pintanel and Capdevilla, 1999; Sanz and Ponce, 2006) who start to reduce their level of physical-sport practice from 11/12 years old (Trost et al., 1997). It is important that the necessary steps are taken in order to deal with this problem. The lack of adherence to daily physical exercise is considered to be one of the main obstacles when promoting a healthy and active lifestyle. This is because many people starting physical exercise tend to find some degree of difficulty not only in continuing with the activity undertaken but also practicing it on a regular basis. Perhaps, as Garcia (2001) highlights, the complexity of our modern social life and each person's personal development have to be blamed for this as many people do not abandon the activity for life and reengage in it when they have the opportunity, in its double dimension, social and personal, that is to say, we could talk about sport itineraries (Garcia, 2001; Puig, 1996).

That is the reason why the analysis of the barriers

that hinder the beginning and continuation of an active lifestyle is a determining factor of physical activity. This is therefore an essential step before planning the strategies so as to try to raise motivation and adherence in the beginning and continuation of an active conduct (Niñerola et al., 2006). These barriers have been the focus of study in a great variety of populations and have been increasing in developed countries due to two main reasons. On one hand, due to the advances in technology, that is to say, the reliance on technology, the urbanization of the population and the mechanization within the workplace; on the other hand, due to the fact that physical and sport practice has been relegated to leisure time, thus competing with a wide range of offers and volunteering options during the spare time that sometimes are more appealing to people.

Results from different studies indicate that people who encounter more barriers have less possibilities of becoming active (Pate et al., 2002; Sallis et al., 2000) and that these may vary depending on age and gender (Brown, 2005). Capdevila et al. (2007) establish that, in order to eliminate some of the barriers that hinder the possibility of engaging in an active and healthy lifestyle, the participants should receive feedback on their reasons towards physical exercise together with advising on the improvement of fitness.

Therefore, we aim at studying in detail the features of inactive university students. At the same time, we will approach the goal of our research: to identify the determining barriers of the university students who have never practiced physical and sport activities in their spare time.

Methods

Participants

The representative sample was composed of 1834 students from the University of Almeria (Spain), of whom 991 were male and 843 female (Table 1). A $\pm 3\%$ margin of error and a 95% confidence level were assumed to demonstrate validity of the results. Sample selection followed a stratified multistage sampling procedure with proportional allocation.

As our study focuses on those university students who are inactive, from the 100% of the sample, the students with active habits and those who have abandoned the practice have been removed. This leaves our study sample with 323 subjects (105 male and 218 female) who answered not having done any physical and sport activity at the moment of the fieldwork.

Instrument

The gathering of data was carried out by means of the CHDEV standardized questionnaire (Questionnaire for the Analysis of Sports Habits and Lifestyles), consisting of 51 questions included in different thematic blocks.

To analyze the barriers that prevent university students from doing any physical and sport activity during

their free time we used question 22 consisting of a scale that has 12 items. In the instructions, the students were asked to point out to what extent the reasons for being inactive; not having done any physical and sport activity during their free time, up to the moment of the study, have had an influence on them. The answers were gathered in a Likert scale of 4 points ranging from “not at all (1)” to “a lot (4)”.

Taking into account that we aim at measuring behaviours, attitudes and opinions expressed by each of the participants, the content validity of instrument is ensured through an extensive and comprehensive review of it, that is to say, the items of the questionnaire. This is to determine if it has a relevant and representative sample of all the content to be measured. In order to do so, the suggestions given by authors such as Buendia (1998), García (2000) and Martinez (1995) have been considered. The reliability has been verified by conducting three pilot studies in real conditions that bear in mind at all times, the suggestions and inputs arisen in the process. This includes the ones from experts and university specialists in Sociometry, Psychometrics and Sport and Physical Activity, as by Cronbach's Alpha that provides us with a high reliability of the 12 items.

Procedure

The questionnaire was presented to the participants in a single Spanish document. It was done during the usual class time, with previous consent given from the corresponding teacher. The questionnaire was administered during the academic year between the months of April and May. It was done away from the period of exams since it could have had an influence on the emotional state of the participants and on the results.

The information was collected in a self-administered approach designed for a massive classroom impact and in the presence of an administrator at all times. Students were asked for their collaboration in an anonymous and volunteering way. Special emphasis was placed on the openness of their answers. The participants did not receive either financial or academic compensation for their collaboration in the study.

Statistical analysis

For the statistical treatment of the information gathered, the SPSS 15.0 for windows was used. This has enabled the implementation of the statistical techniques of descriptive and inferential analysis. We carried out a factor analysis (analysis of the main components with Kaiser's Varimax rotation) of the question concerning the reasons for university students from Almeria who have not done any physical and sport practice in their spare time.

It is important to point out that the students were offered the possibility to mark all the reasons they deemed appropriate and not just one. The data has been analyzed by obtaining the mean and standard deviation

Table 1. Population and sample of university students from University of Almeria, Spain (2001 – 2002).

	Population			Sample		
	Male	Female	Total	Male	Female	Total
First Cycle	4.257	5.345	9.602	439	552	991
Second Cycle	1.411	2.145	3.556	334	509	843

Table 2. Factor analysis. Rotated component matrix. Extraction Method: Main Component Analysis. Rotation Method: Varimax with Kaiser Normalization, visualization coefficient 0.45.

	Ext. Barriers Lack of time	Internal Barriers	Ext. Barriers Lack of social support
I leave work tired	.827		
No time	.751		
There are no facilities nearby and / or appropriate	.661		
I do not like physical activity		.735	
I see no utility. I do not see benefits		.691	
On laziness and unwillingness		.667	
I do not have capacity		.522	
My parents did not practice			.724
My parents did not let me			.668
My friends did not practice			.521

for each of the items. The KMO (Kaiser-Meyer-Olkin) coefficient has been taken as an index to analyze the suitability of the factor analysis applied to the group of variables examined. Bartlett's test of sphericity was also considered for positive correlations between variables. For the analysis of the gender differences, we used the Student's T test for the independent samples. It is important to highlight that in order to ensure homogeneity of the variance, the relevant test for normality and test of homoscedasticity have been carried out. An analysis based on age differences has not been performed. This is because, among the reasons pointed out above, no marked patterns justifying the different behaviours for the inactivity of the physical and sport practice were found. This is due to the characteristics of the population studied.

Results

Factorial structure of the motivations

In order to determine the factorial structure of the reasons given by university students from Almeria to be inactive during their spare time, an analysis of the main components has been carried out. In deciding the number of factors to rotate, the applied criteria have been based on the factors with an eigenvalue greater than 1. The construct validity was examined through the factorial analysis of the main components with Varimax rotation, also requiring a minimum correlation of 0.45 so that the variable can be considered important within a factor (Pedhazur, 1982).

Table 2 shows the results of the factorial analysis of the variables measuring the reasons given by university students to be inactive. It should be highlighted that, due to the fact that the visualization coefficient is 0.45, there are two reasons that do not override it. As a result, the correlation of these variables is not regarded as important within any factor.

These two reasons are "due to health" and "I was not taught in the centre of studies". If we consider the results obtained in the matrix of rotated components, we can notice that these variables have been grouped in three factors, as it is also recommended by the interpretation of the sedimentation graph (Figure 1).

To denominate the different factors, we have con-

sidered the international literature that makes reference to the diverse barriers, internal and external, encountered by students (Daskapan et al., 2006), bearing in mind that the different variables can be grouped according to factors that refer to the categories proposed by different authors (Sallis and Hovell, 1990; Sallis et al., 1992; Ziebland et al., 1998).

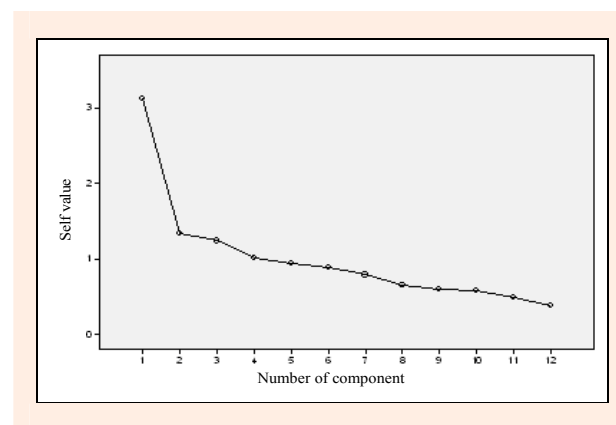


Figure 1. Graph mining sedimentation of factor analysis.

The first factor gathers the variables related to *external barriers-lack of time* to devote to physical and sport practice-, including the answers: "I leave work very tired", "I do not have any time", and "there are no facilities nearby and/or appropriate". The second factor comprises the reasons that are related to the *internal barriers* that are set to be inactive during their spare time: "I don't like physical activity", "I don't see its use". "I don't see any benefits", "laziness and apathy" and "I think I am not capable". The third factor gathers the variables making reference to *external barriers-lack of social support*, such as "my parents did not do any sport" and "my parents did not let me" and "my friends didn't do any sport". Overall, as shown in Table 3, the five dimensions explain the 49.6% of the variance.

The KMO coefficient obtained is 0,769. This shows the high degree of sampling adequacy since the degree of total sample variability is 76.9%. Likewise, the critical level (unilateral sig.: 0,000) of the Bartlett's test of sphericity illustrates the high degree of the positive correlations between variables.

Table 3. Factor analysis. Total variance explained. Extraction Method: Principal Component Analysis.

Components	Initial self values and sums of squared loadings for extraction			Sum of squared loadings of the rotation		
	Total	% variante	% cumulative	Total	% variante	% cumulative
Ext. Barriers Lack of time	3,014	27,400	27,400	2,421	22,009	22,009
Internal Barriers	1,243	11,301	38,700	1,577	14,334	36,343
Ext. Barriers Lack of social support	1,201	10,917	49,617	1,460	13,274	49,617

The internal consistency of the motivation dimensions has been measured by means of Cronbach's Alpha, obtaining adequate results in the first two factors ($\alpha=0.77$ in the factor of internal barriers, lack of time; 0.73 in the one called internal barriers, while in the third factor: external barriers - lack of social support, the reliability results are low ($\alpha=0.51$). This is why the differences that occur in relation to the latter dimension will not be analyzed, as they are composed of variables that could lead to confusion at some stage (as indicated by the measure of internal consistency).

The results show that there are differences of motivations in terms of the gender variable. It is striking that in relation to the two analyzed dimensions, the male one has above average values (Table 4). In addition, as it can be observed in Table 5, the Student's T test for the equality of means shows that there are significant differences between men and women concerning one of the analyzed dimensions, external barriers – lack of time ($p < 0.001$).

Discussion

When analyzing and considering the results one has to be consistent and prudent. It should be taken into account that the questionnaires' technique depends on the veracity of the answers expressed by the participants. However, it is true that the measurement and verification reality checks confirm results in the studies where this questionnaire has been used (Piéron et al., 2008).

This would be the main point to improve in the research. With regards to our population under study, it is important to say that, apart from being a large and interesting group, they have individual characteristics. These have to do with personality and they are typical of their age. They also have distinctive features that, as a group, show in a different way and with a different lifestyle to the rest of other young people (Rodríguez and Agulló, 1999).

The university student who is used to a lifestyle regulated by the family and school has to undergo many changes. Among them we can highlight, in many cases moving away from home, increasing the hours devoted to study, having a night schedule for recreational activities (García, 1993), the lack of facilities to do sport, an increase on the stress due to pressure from work or from

study (Wang et al., 2009). We also need to consider the increase in responsibilities. We cannot forget the presence or absence of a high quality physical and sports offers from universities adapted to students, both regarding the features of the programs on offer and the existing facilities. This is important since it has been proved that the proximity of these facilitates promotes and increases the sport and physical practice (Reed, 2007; Reed and Phillips, 2005).

Taking the above into account, we find that many people who do sport come across with some type of difficulties to continue practicing it. Thus, the analysis of the barriers that hinder the adherence to the daily practice is a key factor within physical activity, mainly in youth. This is because the risk of adopting a sedentary behavior in adulthood would increase (Campbell et al., 2001; Tamelin et al. 2003).

Results from different studies confirm that those people perceiving more barriers towards physical activity have less probabilities of becoming active (Pate et al., 2002; Sallis et al., 2000). In our study and following the international literature, (Daskapan et al., 2006; Sallis and Hovell, 1990; Sallis et al., 1992; Ziebland et al. 1998) we have come across with a set of external barriers that refer to the lack of time, leaving work very tired, not having facilities nearby and/or suitable for the practice of sport. On the other hand, we have found barriers that have to do with the lack of social support such as the lack of parental support. This is because either they did not allow them to practice or because they were not a suitable model to follow. We also noticed that the lack of friends to practice sport was another barrier. Finally, we have also found internal barriers such as the fact that they don't like physical activity or that they don't find it useful.

Our findings coincide with other studies that have been done both with teenager secondary education students and university students. A proof of this is that the limitation of time has been the greatest obstacle in adolescent students (Grubbs and Carter, 2002; Gyurcsik et al., 2004; Kimm et al., 2006; Leslie et al., 2001; Wang et al., 2009). This was, in some cases, due to school tasks, social and family support and consequently the increase in responsibilities, self-esteem, tiredness, or just the lack of interest in physical exercise. These reasons are very

Table 4. Student T test for independent samples. Statistics by sex.

Gender	N	External barriers, lack of time		Internal barriers	
		Average	Desv. typical	Average	Desv. typical
Men	105	.106	.813	.020	.994
Women	218	-.074	1.,107	-.014	1.005

Table 5. Student T test for independent samples. Independent sample T test as the sex variable.

Components	T test for equality of averages		
	t	Significant (bilateral)	Average difference
External barriers - <i>lack of time</i>	3.755	.000	.180
Internal barriers	.723	.470	.034

similar to the ones found in our study. In many occasions we would be even referring to the lack of organization to combine studies with family and the practice of physical activities.

As was the case in the study made by Daskapan et al. (2006) in Turkey, in our research, the perceived external barriers also appear to have more importance than the internal ones. On the contrary, in Allison et al. (2005) and Gyurcsik et al. (2004), both types of barriers seem to be equally important among the reasons pointed out by adolescents. Ziebland et al., (1998) state that those people who only select internal barriers are less prone to do more physical exercise than those who mention only external barriers or mixed.

Similar results can also be found in the different investigations carried out among university students. It has been proved that not only the lack of time, but also the weather, class assignments and the lack of interest or just the desire to do any other activity, have been among the most mentioned barriers by them (Sanz and Ponce, 2006; Tappe et al., 1990).

Other similar reasons to the ones found in our research were the ones highlighted by Gyurcsik et al., (2006), where the lack of social and institutional support as well as the physical environment was the main barriers found.

The lack of time, mainly due to the time devoted to work or study, has also been the most highlighted barrier among the inhabitants of the European Union when it was composed of fifteen countries, with the exception of Belgium, Germany, Portugal and Sweden. These countries blame the fact that they do not find a suitable physical and sport activity as the main barrier; and Finland, with the lack of energy as its biggest obstacle (Steptoe et al., 2002). This tendency has not changed at all. In fact, in the last Euro barometer, 45% of the Europeans state not having enough time to practice sport. Cyprus, Romania, Luxemburg, Malta and Holland head up the long list of the consulted countries (European Commission, 2010).

Other investigations show that the barriers are diverse and can vary depending on age and gender (Brown, 2005). This is the case of the research developed by Robbins et al. (2003) with adolescent girls, who point out the lack of self-efficacy as one of the main reasons for becoming inactive or also the one addressed by Allison et al. (2005) with the lack of trust as the main barrier.

A proof of this is that we have also found motivational differences regarding gender, since, in relation to the analyzed dimensions, the male gender shows higher than average values. There are considerable differences with respect to the lack of time as an external barrier.

Similar patterns have been obtained in studies realised among adults, where women have pointed out the lack of support, resources and, in many occasions, lack of will, tiredness and lack of time as the major barriers to-

wards physical activity (Ball et al., 2000; Brown et al., 2000; Hoebeke, 2008; Jewson et al., 2008; Kowal and Fortier, 2007; Rye et al., 2009; Sit et al., 2008). Most of the time, this lack of time is created in the adult population because of the build up of responsibilities not only family related but also work and home related (Heesch et al., 2000; Jewson et al., 2008; King et al., 2000; Sit et al., 2008; Zhu et al., 2001).

But we also have to value and take into account the internal barriers. This is because it is more difficult for the people who see them as their main barriers to include active lifestyle habits in their spare time.

The importance of having both female and male university students pointing out this type of reasons, make us inquire into their opinions before this stage so as to find out what is this lack of motivation due to; this is an internal barrier that has been found in different papers as laziness and unwillingness or lack of energy (Ball et al., 2000, Booth et al., 1997, Robbins et al., 2003).

These results have been found in studies such as the one by Deem and Gilroy (1998) or Flintoff and Scraton (2001). They make clear that the adolescents, who received Physical Education in the secondary stage, and above all girls, focus their criticisms on not really understanding the purpose of the classes they receive, as well as the limited choice of real physical education activities. This emphasizes its claim in the need of having Physical Education that could be useful for learning new skills, in which socialization is important.

Maybe we should think about the importance of a more appropriate design of contents in which the use and applicability to daily life (Penney and Jess, 2004) are the main characteristics. These questions have to be considered in order to try to overcome these internal barriers in a university level since, as it is suggested by some recent investigations (Thompson et al., 2003; Trudeau and Shepherd, 2005), the quality of Physical Education programs could contribute in a positive way to initially maintain favorable positions towards physical activity.

Conclusion

Finally, we can confirm that, among the university students, external barriers prevail over the internal ones. Among them we can highlight the lack of time, the stress and tiredness incited by the work or study overload, not having facilities nearby/ or suitable for the practice of physical activities and the lack of social support. It is important to keep in mind that university students increase the number of hours dedicated to study and that the majority of them are left with a night time schedule for their spare time activities (Garcia, 1993). It is also important to point out that, even though the barriers vary depending on gender and age, we have not found statistically significant results in the latter variable. This is due

to the short difference in age among the university students. With respect to gender, and in relation to the analyzed dimensions, the male gender shows higher than average values. There are also significant differences with respect to the lack of time as an external barrier.

Due to the large sample of the subjects analyzed, our results are of paramount importance since they will help university institutions in the orientation and diversification of physical and sport activity offers. It will also assist them with the existing problem concerning the free use of sports facilities and whether they are adequately equipped and have the goal of always promoting an active lifestyle.

All this information will provide guidance to design supportive policies and national sport management guidelines that help structuring a healthier university environment (Cheng et al., 2003). Our results will hopefully help encourage quality motor skills practice within university students. This practice should be focused on the awareness, knowledge and guidance of leisure physical activity experiences (Sanz and Ponce, 2006) since we cannot forget that the University is a transitional period that offers many good conditions for the acquisition of healthy lifestyles (Wang et al., 2009).

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Key points

- External barriers prevail in university students. The lack of time is among the most highlighted ones.
- Statistically significant results have been found regarding the gender variable.
- The results are very important since they are considered to be valuable information for university institutions when guiding and diversifying their offer of physical and sport activities. Also as a guide in the design of support policies and national sport management guidelines.

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