

Spanish University students' barriers to practising physical activity and sports according to their social characteristics and gender

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The objective of this study was to analyse gender differences in barriers to physical activity (PA) according to social characteristics in Spanish university students. The Scale of Perceived Barriers was administered to 3,060 Spanish university students (1,463 women and 1,597 men, with a mean age of 20.88±2.01). The women showed a higher score in the time and disliking barriers to PA in comparison to the men (p<0.001). Number of inhabitants and zone influenced time, disliking and environmental barriers to PA while ownership influenced disliking barriers (p<0.05). In conclusion, sociodemographic variables such as number of inhabitants, geographic zones or the ownership of the study centre influence the perception of these barriers, being greater in more populated areas, southern and western areas and in public centres. Additionally, the time barrier was greater for men in overpopulated areas and the disliking barrier was greater for women from southern and western areas. Therefore, social characteristics should be considered when analysing gender differences in barriers to PA.

KEY WORDS: Physical activity, Gender, Sports, Barriers, students.

Introduction

In 2010, the World Health Organisation (WHO) alarmingly identified physical inactivity as the fourth worldwide risk factor of mortality, responsible for 6% of premature mortality worldwide. Likewise, scientific literature reveals that physical activity (PA) and exercise are complementary strategies for the treatment of numerous psychiatric, neurologic, cardiorespiratory, metabolic or musculoskeletal diseases among others (McKeon et al., 2022; Pedersen & Saltin, 2015). However, despite international organisations at-

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tempting to highlight the health benefits related to PA, many people do not meet the recommended standards (Bull et al., 2020; Herazo-Beltrán et al., 2017). According to the latter, a recent study about sports and PA practice consisting of 26,580 reports from participants belonging to 27 member states of the European Union revealed that 45% of the European population has never been involved in exercise or PA (Eurobarometer, 2022). Given this lack of PA, the barriers to reach acceptable PA levels have been previously studied (Espada y Galán, 2017) and are suggested to be relevant to explain the reasons for this detrimental health behaviour (Schwarzer & Luszczynska, 2008). Analyses of perceived barriers to be physically active are also important because such data can contribute to the design of health promotion programs (Sukys et al., 2019).

The main barriers to PA and sports practice are low levels of motivation, the lack of time due to work or studying duties, or the lack of support from family or friends (Sharifi et al., 2013). In fact, among the European population the lack of time was the main barrier to PA, followed by low motivation or even interest in sport (Eurobarometer, 2022). In addition, previous literature has related socioeconomic status and demographic characteristics such as accessibility to PA, to increasing barriers to PA practice in free time (Reichert et al., 2007). Another important factor associated with time barriers that has been suggested to influence PA is beginning university studies, since it seems to be a transition between school physical education and some lifestyle changes that result in a dropout from PA practice (Maldari et al., 2021; Sevil et al., 2016). In this regard, the autonomy and responsibility that are supposed to be acquired at this stage of life to properly attend to academic studies, work and social duties may enhance overweight and obesity as a consequence of an increase in sedentarism (Pope et al., 2019).

Other issues affecting PA practice are sex and gender. In fact, in previous gender-based research, authors suggest that the biological conception of sex is determined by some rules that turn out to attribute different roles to men and women (Erikainen et al., 2022). In this line of thought, a previous study conducted with Iranian women indicated that these women preferred to show themselves available to care for their families instead of practising PA, which Dashti et al. (2014) consider a social and cultural barrier for this population. Likewise, women university students from the Arab Emirates reported the following barriers to practising PA: lack of family support, lack of time after finishing house and academic chores, inaccessible facilities and hot temperatures (Burton et al., 2021). In any case, the lower PA levels in women in comparison to men has been widely reported (Daskapan et al., 2006; Dashti et al., 2014, de Looze, 2019; Sevil et al., 2016), and is corrob-

orated by higher regular PA practice in European men than in their women counterparts (Eurobarometer, 2022). Specifically, in Spain, adult women are the group reporting the lowest PA levels (Ministerio de Cultura y Deporte, 2020; Moscoso & Rodríguez, 2020; Rodríguez et al., 2022). Although some previous research has studied barriers to PA practice in university students (Elmagd et al., 2016; Sevil et al., 2016) considering gender differences (Burton et al., 2021), not many studies have analysed the barriers for Spanish university students to practise PA considering gender and sociodemographic status. Therefore, the purpose of the present study was to analyse the differences by gender in Spanish university student's barriers related to social characteristics.

Method

PARTICIPANTS AND STUDY DESIGN

This research followed a quantitative descriptive methodology using a survey with a standardised procedure for collecting data via questions to the sample of the study population (Stockemer, 2019). A total sample of 3,060 university students, 1,463 women (47.8.1%) and 1,597 men (52.2%), with a mean age of 20.88 ± 2.01 years participated in this cross-sectional study consisting of structured interviews. Considering the population of university students of the Madrid Region (435,347 according to the National Institute of Statistics, Municipal Census), a representative sample of participants was recruited from different universities and colleges in the region (confidence interval of 95.5%, and assuming in the populational variance the most unfavourable case of p equals q , the sampling margin of error was $\pm 1.85\%$). The selection of the sample was non-probabilistic and selected for accessibility.

According to retribution data from the National Institute of Statistics, the Organisation for Cooperation and Economic Development (OCDE) classifies social classes as low, medium or high, on the basis of the average household income under 75%, between 75% and 200%, or over 200% of the median retribution of the Madrid region. An informative introductory letter was sent to all universities in the Madrid Region and those that volunteered to accept participated in the study. After obtaining the approval for collaboration from participants, the aforementioned questionnaires were administered. The questionnaire was created on the *Google Forms* platform and sent by email to the students. All procedures complied with the Declaration of Helsinki and were approved by the Universidad Rey Juan Carlos Ethics Committee Board (registration number 1306201809818).

PROCEDURES

The instrument used was The Scale of Perceived Barriers (Chinn et al., 1999) to evaluate university students' barriers, which has been previously used in a Spanish population (Zaragoza et al., 2011). Sevil et al. (2016) used it with 901 Spanish universities students (408 men, 493 women; mean age 22.59 ± 3.59). The questionnaire consisted of 17 items preceded

by the sentence "How much of a problem are the following reasons for you to do physical activity?". Each item response was graded on a Likert scale from 0 being "no problem at all to perform PA" (and hence no barrier was considered), to 6 meaning "a reason that is very likely to prevent PA from being performed". The 17 items were grouped into three categories or constructs with previously assessed internal reliability. The three factors obtained accounted for 60% of the total variance (Sevil et al., 2016) The barriers relating to disliking of PA, with a factorial weight of between 0.420 and 0.865, accounted for 14% of the variance. The barriers relating to time constraints, with a factorial weight of between 0.784 and 0.860, accounted for 19% of the variance. Finally, the barriers relating to environmental and safety reasons, with a factorial weight of between 0.650 and 0.754 accounted for 14% of the variance. Cronbach's α coefficients of 0.87 were obtained for the disliking barriers in PA, 0.87 for the time constraint barriers and 0.81 for the environmental and safety reasons barriers in terms of engagement in PA.

STATISTICAL ANALYSIS

Data are presented as mean and standard deviation ($M \pm SD$). The statistical analysis was conducted using the software package SPSS for Windows, version 27.0 (IBM Corp, Armonk, NY, USA). The Kolmogorov-Smirnov test of normality was performed, indicating the need to use parametric statistics ($P > 0.05$). A two-way ANOVA was performed to analyse time, disliking and environmental barriers to PA according to sex and sociodemographic variables (inhabitants, zone, retribution, social class and ownership of the study centre). When appropriate, Bonferroni's post hoc test was performed to explore pairwise comparisons. Effect sizes were expressed with partial eta squared (η_p^2), with values of 0.01, 0.06 and 0.14 for small, medium and large effects, respectively (Cohen, 1988). The level of significance was set at $\alpha = 0.05$.

Results

Results of barriers to PA practice according to gender and main effects are shown in Table I. There are an effect of gender for the time barrier ($F=8.08$; $p=0.00$; $\eta_p^2= 0.27$) and disliking barrier ($F=278.00$; $p=0.00$; $\eta_p^2= 0.18$). The women showed higher scores in both barriers ($p < 0.001$).

TABLE I
University Students' Barriers According To Gender.

Barriers	Time					Disliking					Environmental and safety				
	M	SD	F	p	η_p^2	M	SD	F	p	η_p^2	M	SD	F	p	η_p^2
Men	2.35	1.53*	8.08	.00	.27	.92	.89*	278.00	.00	.18	.98	1.04	2.630	.69	.03
Women	3.21	1.62				1.67	1.32				1	1.09			

*Different from women ($p < 0.001$).

The influence of sociodemographic variables on time, disliking and environmental & safety barriers to PA is shown in Table II. For the time barrier, an effect of number of inhabitants ($F=4.41$; $p=0.012$; $\eta^2=0.003$) and zone ($F=4.38$; $p=0.002$; $\eta^2=0.006$) was observed, while for the disliking barrier, an effect of number of inhabitants ($F=7.12$; $p=0.001$; $\eta^2=0.005$), zone ($F=17.91$; $p<0.001$; $\eta^2=0.024$) and ownership ($F=12.40$; $p<0.001$; $\eta^2=0.004$) was observed. Finally, for the environmental & safety barrier, an effect of number of inhabitants ($F=3.06$; $p=0.047$; $\eta^2=0.002$) and zone ($F=5.68$; $p<0.001$; $\eta^2=0.008$) was observed.

Interaction effects between sex and sociodemographic variables on barriers to PA are presented in Table III. An interaction between number of inhabitants and sex ($F=3.31$; $p=0.037$; $\eta^2=0.002$) was observed for the time barrier, while interactions between zone and sex were observed for time ($F=3.09$; $p=0.015$; $\eta^2=0.004$) and disliking ($F=4.12$; $p=0.002$; $\eta^2=0.006$) barriers. No other effects were observed for the rest of sociodemographic variables (data not shown).

TABLE II
University students' barriers according to sociodemographic characteristics. Data expressed as mean \pm sd.

		Time	Disliking	Environmental and Safety
Number of inhabitants	10,001 - 50,000	2.42 \pm 1.61	0.96 \pm 0.97	0.99 \pm 1.02
	50,001 - 100,000	2.77 \pm 1.71*	1.46 \pm 1.29**	1.10 \pm 1.14
	>100,000	2.79 \pm 1.61*	1.26 \pm 1.16**	0.97 \pm 1.06***
	Avg.	2.76 \pm 1.63	1.28 \pm 1.18	0.99 \pm 1.07
Zone	North	2.43 \pm 1.59	0.89 \pm 0.93	0.93 \pm 1.01
	South	2.97 \pm 1.67#	1.49 \pm 1.30*##	0.94 \pm 1.07
	East	2.67 \pm 1.45	1.25 \pm 1.12#	0.85 \pm 1.04
	West	2.72 \pm 1.76	1.57 \pm 1.31*##	1.12 \pm 1.15
	Centre	2.72 \pm 1.63	1.12 \pm 1.06	1.08 \pm 1.08
	Avg.	2.76 \pm 1.63	1.28 \pm 1.18	0.99 \pm 1.07
Social class	Low	2.90 \pm 1.83	0.99 \pm 1.08	1.05 \pm 0.98
	Medium	2.75 \pm 1.63	1.28 \pm 1.18	0.99 \pm 1.08
	High	2.82 \pm 1.76	1.24 \pm 1.23	1.06 \pm 1.16
	Avg.	2.76 \pm 1.63	1.28 \pm 1.18	0.99 \pm 1.07
Ownership	Public	2.77 \pm 1.64	1.32 \pm 1.21	0.99 \pm 1.07
	Private	2.72 \pm 1.62	1.10 \pm 1.05§	1.03 \pm 1.07
	Avg.	2.76 \pm 1.63	1.28 \pm 1.18	0.99 \pm 1.07

* Trend to be dif. from 10,000 to 50,000 inhabitants ($p=0.07$); **Different from 10,000 to 50,000 inhabitants ($p<0.001$); ***Different from 50,000-100000 ($p<0.05$); # Different from north ($p<0.001$); ## different from centre ($p<0.001$); § different from public ($p<0.001$).

TABLE III
Interaction effects (gender x n° of inhabitants; gender x zone) on Time and Disliking barriers to PA.

		Time		Disliking	
		Men	Women	Men	Women
Number of inhabitants	10,001 - 50,000	2.08 ± 1.52 [#]	3.03 ± 1.59	0.78 ± 0.86	1.30 ± 1.08
	50,000 - 100,000	2.09 ± 1.57 [#]	3.24 ± 1.64	1.02 ± 1.09	1.77 ± 1.34
	>100,000	2.44 ± 1.52 [†]	3.21 ± 1.62	0.92 ± 0.86	1.67 ± 1.33
Zone	North	2.25 ± 1.54 [†]	2.84 ± 1.63	0.78 ± 0.87 [*]	1.14 ± 1.01
	South	2.44 ± 1.52 [†]	3.44 ± 1.66 ^{††}	1.01 ± 0.92 [*]	1.93 ± 1.44 ^{††}
	East	2.31 ± 1.35 [†]	3.15 ± 1.46	0.95 ± 0.83 [*]	1.64 ± 1.33
	West	2.03 ± 1.61 [†]	3.23 ± 1.69	1.09 ± 1.14 [*]	1.93 ± 1.32 ^{††}
	Centre	2.43 ± 1.59 [†]	3.07 ± 1.60	0.85 ± 0.84 [*]	1.44 ± 1.20

*Different from women (p<0.001); # Different from >100,000 inhabitants (p<0.05); † Different from north (p<0.05) †† Different from centre (p<0.05).

Discussion

The aim of this study was to analyse university students' perceived barriers to PA and sports practice according to gender and sociodemographic status. One of the most relevant results is that women university students rated the perception of time and disliking as barriers to PA higher, which may explain the lower levels of PA practice than their men counterparts (Eurobarometer, 2022; Lazarowicz et al., 2020; McGuire, Seib & Anderson, 2016). According to previous research, lack of time has been reported as the main barrier to PA practice (Daskapan et al., 2006; Elmagd et al., 2016; Eurobarometer, 2022; Joseph et al., 2015; Sharifi et al., 2013,), more pronouncedly in women university students (Burton et al., 2021). This may be related to the combination of work or academic duties and household chores and family care, the latter traditionally attributed to women, which may impair the availability to do exercise in free time (Martín et al., 2022). Specifically in Spain, a higher inequality by gender has been observed in terms of work (Cabe-ro-Rubio et al., 2019), which could mean extra pressure for women university students in their employment preparation. Other authors like Coleman et al. (2008) highlight the importance of supporting young women during the key moments of transition in their lives when PA practice might be compromised, such as the step from secondary school into college. Likewise, the rate of the disliking barrier was higher for women university students in comparison to their men counterparts. In this line of research, previous studies revealed that men university students tend to prefer sports activities in their leisure time while women give greater importance to other social activities or personal hobbies to the detriment of PA (Práxedes et al., 2016a). In addition,

men seem to practise PA in response to intrinsic motivation while women tend to practise PA for external rewards such as weight control or physical appearance (Práxedes et al., 2016b; Roberts et al., 2015), which could explain women's higher scores in this barrier. Finally, no differences by gender were observed for the environmental and safety barrier which, interestingly, is in line with previous results on Spanish children and adolescents (Delfa et al., 2022). In spite of the lack of differences for this barrier, it has been suggested that certain individual barriers could also be considered environmental barriers when they are related to external influences and hence, they can be addressed via the implementation of specific environmental initiatives providing the required amount of PA to those adolescents with limited opportunities to engage in PA outside of school (Jongenelis et al., 2018). In fact, participation in organised sports seems to favour long-term maintenance of leisure-time PA (Aarnio et al., 2002; Pitsavos et al., 2015).

Findings regarding sociodemographic variables are the second main outcome to mention. Firstly, areas of over 50,000 inhabitants present greater time and disliking barriers than areas of under 10,000 inhabitants while areas of over 100,000 inhabitants showed greater environmental & safety barriers than less populated areas. Specifically, men university students from the most populated areas (>100,000 inhabitants) presented greater time barriers to PA than those from the less populated areas (<50,000 inhabitants). One of the reasons suggested for less PA practice in youth from rural areas is that most sports facilities are located in urbanised areas where a means of transport is needed for accessibility (Moore et al., 2010). However, a previous study with a total of 1,818 United States adults determined that time barrier ratings were greater for residents from rural areas in comparison to their counterparts in urban and suburban areas, and then the former ones were less likely to meet recommendations to be physically active than the latter (Parks et al., 2003). Secondly, geographic zone seemed to influence perceived barriers to PA as well. The time barrier rating was higher in the south of the Madrid region than in the north whereas the disliking barrier rating was higher in the south and west in comparison to the north for both men and women. Additionally, the disliking barrier rating was higher in southern and western areas in comparison to the centre only for the women. This might be related to some reasons, though highly speculative, like better or more sports facilities, in northern and central areas of the region according to greater retribution levels in these areas (Romero-Parra et al., 2022). In this line of thought, previous studies have indicated that worse accessibility to sports facilities and thus a less varied provision of activities could enhance the perception of barriers to PA (Moschny et al., 2011; Patay et al., 2015) and therefore, the decrease of PA practice (Burton et al., 2021).

Finally, university students' social class turned out not to influence the perception of barriers to PA practice, which coincided with previous studies showing no association between social class and PA-related habits of men and women (Espada et al., 2018; Pitsavos, 2005). In contrast, public ownership study centres did rate disliking barriers more than private ones.

Results from the present investigation may be of interest to consider more attractive PA programmes for university students that are suited to their preferences, especially for women who rated barriers higher than men. In addition, an improvement in accessibility to sports facilities especially in more urbanised areas could help this collective to keep good levels of PA. A strategy to enable PA practice in university students could be for study centres to offer exercise programmes according to students' availability and demands. In this regard, the ecological model for an active lifestyle suggests that the environment affects PA practice (Sallis et al., 2006) and that those responsible for the designing of educational policies are the ones who should promote healthy and active patterns (Práxedes et al., 2016b). Finally, some limitations should be mentioned such as the impossibility to go more deeply into the reasons for these university students to perceive barriers to PA practice. Likewise, it would be interesting to analyse the demands of this population and further study the facilitators that could help to mitigate the perceived barriers. As a future line of research, it would be very interesting to carry out a qualitative study to look at these topics in greater depth.

Conclusion

Spanish women university students present greater time and disliking barriers to PA practice than their men counterparts. Besides, some socio-demographic variables such as number of inhabitants, geographic area or the ownership of the study centre influence the perception of these barriers which is greater in more populated areas, southern and western areas and in public centres. Additionally, the time barrier was greater for men in the most populated areas and the disliking barrier was greater for women from southern and western areas. As a counterpoint, social class did not seem to affect perceived barriers to PA.

Disclosure Statement

No potential conflict of interest was reported by the authors.

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