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International Journal of Current Research
Vol. 9, Issue, 12, pp.62070-62074, December, 2017

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

ISSN: 0975-833X

RESEARCH ARTICLE

BARRIERS TO PHYSICAL ACTIVITY PRACTICE IN UNDERGRADUATES AT *UNIDAD CENTRAL DEL VALLE DEL CAUCA*

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ARTICLE INFO

Article History:
Received 10th September, 2017
Received in revised form
19th October, 2017
Accepted 15th November, 2017
Published online 25th December, 2017

Key words:
Physical activity,
Undergraduates,
Barriers.

ABSTRACT

The high level of sedentarism in the adult-young population that studies undergraduate programs is a public health problem. Therefore, it becomes inevitable to answer the following research question ¿What are the barriers to physical activitypractice in undergraduates atUnidad Central del Valle del Cauca? A quantitative, transectional study with a descriptive scope was carried out during the first half of 2017. A population of 3,958 subjects was included. The sample consisted of 193 undergraduates. This sample was probabilistic stratified by proportional affixation. The age of 67,9% of the sample was in a range of 19 to 28 years. 95,9% did not use tobacco and the usual means of transport of 58,5% was the motorcycle and only 3,6% and 5,7% used the bicycle or walked respectively. 47,7% had a low level of physical activity. Of the women surveyed, 55,3% had a low level of activity and 21,8% had three barriers to physical activity, among them lack of time, lack of will and lack of energy are highlighted. The low level of physical activity found is mainly related to barriers such as lack of time, lack of will and energy to perform some physical activity. As this perception is more accentuated in women given that they have a lower level of physical activity.

Citation: César Augusto Mazuera Quiceno, Alfonso Céspedes Manrique and Albeiro Antonio Dávila Grisalez, 2017. "Barriers to physical activity practice in undergraduates at *Unidad central del valle del cauca*", *International Journal of Current Research*, 9, (12), 62070-62074.

INTRODUCTION

Nowadays, many researches suggest that participation in regular physical activity (PA) brings multiple benefits in the physical, psychological and socio-affective field. Among the benefits of PA at the physical level are the better performance of cardiovascular, respiratory, digestive and endocrine systems and the strengthening of the musculoskeletal system, as well as having a beneficial effect on the alterations of plasma lipoproteins associated with atherosclerosis; likewise, glucose intolerance, adiposity and obesity are diminished (Márquez Rosa and Garatachea Vallejo, 2010). The risk of noncommunicable diseases (NCDs) or also known as chronic diseases has been shown to decrease when PA is regularly performed (World Health Organization, 2014). The psychological and socio-affective benefits are reflected in the adoption of protective health habits, improved self-concept, self-esteem and self-efficacy, increases the perception of health, has tranquilizing and antidepressant effects; regulates the sleep-wake cycle and improves socialization (Márquez Rosa and Garatachea Vallejo, 2010). Besides, Abalde-Amoedo and Pino-Juste (2015) in their theoretical review of how physical activity and overweight affect academic performance, show how PA has shown in recent years to be an effective means to optimize cognitive processes in humans. Similarly, it is explained how the practice of aerobic exercise produces improvements at the cognitive level and, hence, in academic performance. In spite of the evidences that demonstrate all the benefits that comes with the regular practice of physical exercise.The National Survey of Nutrition Situation in Colombia (*ENSIN* 2010) led by the Ministry of Health and Social Protection, the National Institute of Health (*INS*), the National Department for Social Prosperity and the Colombian Institute of Family Welfare (*ICBF*), with the support of the Pan-American Health Organization (PAHO). It has revealed that only 21% of the population aged 18-64 performed at least 150 minutes of PA in free time, 34.3% of the population met the criteria of PA as a means of transportation and 54.8% did it for global AF (free time AF and AF as a means of transport). These being lower prevalences in women compared to *ENSIN* men as cited in (National Institute of Health, 2015). In 2014, 23% of adults aged 18 and older were not active enough. Women were less active than men, and older people were less active than young men (World Health Organization, 2014). Regarding the levels of PA in undergraduates, studies such as the one carried out by Rodríguez Salazar, Molina, Jiménez Muñoz and Pinzón Bautista (2011) have found insufficient

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levels of PA in 42.1% of the undergraduates surveyed at a University in Bogotá. In the research made by Varela, Duarte, Salazar, Lema and Tamayo (2011). This one described the practices of PA in young university students from four universities in Colombia (Bogota, Cali, Manizales and Tuluá), it was perceived that 75.3% of young people, rarely or never, practice a competitive sport. Those who least perform this practice, 40.9% seldom or never do some exercise or a body practice for at least 30 minutes three times a week, with women being the least performing; 50.1% never or seldom walks or rides a bicycle instead of using another means of transport if he or she must move to a nearby place. In the research by Rubio Henao and Varela Arevalo (2016) that aimed to identify the level of physical activity in university students and its relation with perceived barriers to perform it, it was found that 57% had a high level of physical activity, 18% a moderate level and 25% a low level. Statistically, different levels of physical activity were found based on gender, as there was a higher proportion of women at low and moderate levels, while a higher proportion of men were at the high level (p= 0,005). These authors found no differences according to age (p = 6.636). It was found that the main barriers in those who registered a low level of physical activity were lack of time and willingness. To understand this worrying situation of physical inactivity in undergraduates, the following research question has been asked: What are the barriers to physical activity practice in undergraduates at *Unidad Central del Valle del Cauca*? At present, the study of the barriers to the practice of physical activity has become more relevant since the first report delivered in 2010 by the WHO, referring to noncommunicable diseases NCDs, where a worrying situation is exposed. This situation has not changed since in the recent report on the world situation of NCDs of WHO 2014. It reveals that NCDs remain the leading cause of death in the world, causing 38 million of the 56 million deaths recorded in 2012 (World Health Organization, 2014). According to WHO (2014), NCDs are largely due to behavioral risk factors, among which physical inactivity (PI) stands out as the fourth leading risk factor for mortality worldwide and causes 6% of all deaths. It is therefore that characterizing the barriers to the practice of physical activity practice in the undergraduates of the Institution will serve as an input in order to propose strategies encouragingthe physical activity practice, as well as increasing the motivation and the adherence towards the beginning and the maintenance of the active behavior and thereby prevent the occurrence of NCDs and create healthy lifestyle habits.

MATERIALS AND METHODS

Sample

A quantitative, transectional study with descriptive scope was carried out during the first half of 2017. A population of 3,958 subjects was involved. The sample consisted of 193 undergraduates, 90 men and 103 women. This sample was probabilistic stratified by proportional affixation; the following strata were taken into account when distributing the sample: educational program, semester and gender.

Instruments and assessment procedure

In order to determine the levels of physical activity, the International Physical Activity Questionnaire (IPAQ) was used, which is an instrument for the assessment of physical activity of adults between 18 and 69 years old and considers physical activity during the last 7 days. The short version is validated for Colombia. This questionnaire is divided into 4 domains (work, transportation, home and leisure activities), where the frequency and duration of physical activity is questioned for more than 10 minutes: in vigorous, moderate activities; and walk. In the last part, it asks about the downtime on one day a week and on the weekend (Roldán Aguilar, Lopera Zapata, LondoñoGiraldo, Cardéño Tejada, & Zapata Vidales, 2008).

With the IPAQ, an individual can be classified into three possible categories: category one or low this is the lowest level of physical activity. In it, there are those people who do not meet the criteria for categories two and three are considered low / inactive. In category two or moderate: individuals are classified that meet any of the following three criteria:

- Three or more days of vigorous activity of at least 20 minutes per day.
- Five or more days of moderate-intensity activity or walking for at least 30 minutes a day.
- Five or more days of any combination of walking, moderate intensity or vigorous intensity activities that achieve a minimum of at least 600 MET-min / week.

And finally the category three or high: individuals are classified that meet any of the following two criteria:

- Intense physical activity in at least 3 days and accumulation of at least 1500 MET-minute / week.
- Seven or more days of any combination of walking, moderate intensity or vigorous intensity activities that achieve a minimum of at least 3000 MET-minute / week.

Barriers to physical activity practice of undergraduates were collected through the self-administered questionnaire for the perception of barriers to physical activitypractice or BBAQ by its abbreviations in English, "Barriers to Being Active Quiz". This instrument was developed by the Department of Health and Human Services of the United States and was translated into Spanish by the team that developed it and used it by the Centers for Disease Prevention. In addition, this test was validated for the Colombian university population by Rubio - Henao, Correa and Ramírez-Vélez (2015) finding that the test showed at a global level anα-cronbach of 0.83 and a ICC between 0.46 and 0.87. The BBAQ consists of 21 items or statements to which a probability scale is answered. This allows us to evaluate the following barriers to physical activity: lack of time, social influence, lack of energy, lack of will, fear of being hurt, lack of ability, and lack of resources, a score of 5 or more in any of the categories shows a barrier.

Statistic analysis

The data were systematized in the SPSS program, version 20. Measurements of central tendency and of variability or dispersion were calculated for quantitative variables included in the study and that allowed the descriptive analysis.

RESULTS

It can be evidenced from Table 1 that 53.4% of the sample was made up of women, in terms of age, 67.9% of the sample was

in a range of 19 to 28 years. 35.2% and 31.1% of them were in a lower-middle and middle socioeconomic stratum respectively and 85.0% of the sample were single. 95.9% of the sample did not consume tobacco, the means of transport of 58.5% was the motorcycle, and only 3.6% and 5.7% used the bicycle or walked respectively.

Table 1. Distribution of the sample by sociodemographic variables

Variables	Frequency	Percentage
Gender		
Female	103	53,4
Male	90	46,6
Age		
<= 18	39	20,2
19 - 28	131	67,9
29 - 38	17	8,8
Socioeconomic		
Low	45	23,3
Lower-middle	68	35,2
Middle	60	31,1
Upper-middle	15	7,8
Civil status		
Married	11	5,7
Single	164	85,0
Consensualunion	16	8,3
Tobaccoconsumption		
Yes	8	4,1
No	185	95,9
Means of transport		
Car	29	15,0
Motorcycle	113	58,5
Bicycle	7	3,6
Publictransport	33	17,1
Walking	11	5,7

Source: authors.

Table 2. Distribution of the sample per day and educational program

Variables	Frequency	Percentage
Education Day		
Daytime	114	59,1
Night-time	79	40,9
Educationalprogram		
Business Management	9	4,7
EnvironmentalEngineering	12	6,2
DaytimeInternational Trade	6	3,1
Night-time International Trade	4	2,1
PublicAccounting	13	6,7
DaytimeLaw	18	9,3
Night-timeLaw	23	11,9
PhysicalEducation	21	10,9
ElectronicEngineering	6	3,1
Nursing	14	7,3
Industrial Engineering	15	7,8
AgriculturalEngineering	2	1
ForeignLanguages	9	4,7
Medicine	31	16,1
SystemsEngineering	3	1,6
SocialSciences	7	3,6

Source: authors.

Table 3. Physical activity level of the sample

PhysicalActivityLevel	Frequency	Percentage
Low	92	47,7
Moderate	55	28,5
High	46	23,8
Total	193	100,0

Source: authors.

Of the sample, 59.1% attended daytime programs. And the medicine and night-time law programs contributed 16.1% and 11.9% respectively. The programs of agricultural engineering and social sciences were the programs that contributed to a lesser extent to the sample.

Table 3 shows that 47.7% of the sample had a low level of physical activity and only 23.8% had a high level of physical activity.

Table 4. Level of physical activity according to gender

Gender	Physical Activity Level			Total
	Low	Moderate	High	
♀	57	28	18	103
	55,3%	27,2%	17,5%	100%
♂	35	27	28	90
	38,9%	30,0%	31,1%	100%
Total	92	55	46	193
	47,7%	28,5%	23,8%	100%

Source: authors.

When analyzing the level of physical activity according to gender, it can be observed in Table 4 that 55.3% of the women surveyed had a low level of activity and only 17.5% had a high level of physical activity. As for the male gender of 100%, 38.9% of the men had a low level of physical activity and 31.1% had a high level of physical activity.

Table 5. Distribution of the number of barriers in the sample

Number of barriers	Frequency	Percentage
None	54	28
One	27	14
Two	33	17,1
Three	42	21,8
Four	23	11,9
Five	7	3,6
Six	6	3,1
Seven	1	0,5
Total	193	100

Source: authors.

As can be seen in Table 5, 28% of the sample did not present any barriers; it is worth noting that 21.8% had three barriers to physical activity.

Table 6. Percentage of barriers according to gender

Type of barrier		Women	Men
Lack of time	Yes	54,4%	48,9%
	No	45,6%	51,1%
Lack of energy	Yes	47,6%	40%
	No	52,4%	60%
Lack of will	Yes	48,5%	36,7%
	No	51,5%	63,3%
Fear of beinghurt	Yes	6,8%	4,4%
	No	93,2%	95,6%
Inability	Yes	11,7%	7,8%
	No	88,3%	92,2%
Social Influence	Yes	26,2%	22,2%
	No	73,8%	77,8%
Lack of ressources	Yes	21,4%	23,3%
	No	78,6%	76,7%

Source: authors.

Table 6 shows that 54.4% of the women perceived a lack of time as a barrier to physical activity, while 48.9% perceived as a barrier the lack of time. In contrast to gender and lack of energy as a barrier to the practice of physical activity can be seen that the female gender with 52.4% did not perceive the lack of energy as a barrier, just as men with 60% did not perceive lack of energy as a barrier. It can be seen that lack of will as a barrier to the practice of physical activity iss not an

obstacle for 51.5% of the women and 63.3% of the men in the sample. 93.2% and 95.6% of women and men surveyed respectively did not perceive as a barrier to physical activity practice the fear of being hurt. Finally, it is observed that the lack of skill is not perceived in both women and men as a barrier to physical activity practice, since 88.3% of the women and 92.2% of the men described them that way.

Similarly, 73.8% of women and 77.8% of men did not perceive social influence as a barrier to physical activity, and lack of resources were not perceived as necessary for physical activity; this can be seen in the percentages where 78.6% and 76.7% of women and men perceived it.

Table 7. Percentage in the external barriers according to the educational day

Type of barrier		Women	Men
Lack of time	Sí	50,9%	53,2%
	No	49,1%	46,8%
Lack of energy	Sí	44,7%	43%
	No	55,3%	57%
Lack of will	Sí	46,5%	38,0%
	No	53,5%	62,0%
Fear of beinghurt	Sí	7,0%	3,8%
	No	93%	96%
Inability	Sí	11,4%	7,6%
	No	88,6%	92,4%
Social Influence	Sí	22,8%	26,6%
	No	77,2%	73,4%
Lack of ressources	Sí	23,7%	20,3%
	No	76,3%	79,7%

Source: authors.

As can be seen in Table 7, the lack of time is a barrier for both daytime and night-time programs since the percentages were very similar, it is to highlight how the fear of being hurt and lack of ability is not a barrier affecting physical activitypractice of both sessions. The lack of will presents a greater percentage as a barrier in the daytime programs compared to the night-time programs. Social influence and lack of resources are not perceived in a large percentage by both programs as barriers to physical activity practice. It can be observed that social influence and lack of resources are not perceived in a large percentage as barriers to physical activitypractice by both types of programs. Table 8 (see below) shows that of the 8 people who consumed tobacco 3 did not perceive any barrier and two had three barriers to physical activity practice, and of those who did not consume tobacco 51 people did not have any barrier. From table 9 (see below), it can be highlighted how the people who used as usual means of transport the motorcycle are those who had up to three barriers to physical activitypractice.

DISCUSSION

It was found that the undergraduates surveyed in this research had a low level of physical activity, which is in agreement with the results of Rodríguez Salazar, Molina, Jiménez Muñoz and Pinzón Bautista (2011) where they found insufficient levels of FA in 42.1 % of the students surveyed at a University in Bogotá. Regarding the physical activity level, according to the genre, it was evidenced that women presented a lower level of physical activity given that only17,5% of them presented a high level of physical activity. This result matches to the one found byRubio Henao and Varela Arevalo (2016) who found out, statistically, different levels of physical activity in terms of genres, given that there was a greater proportion of women in both low and moderate level while a greater proportion of men was placed in a high level (p= 0,005). It is clear that research studies of this matter have begun to point out the importance of studying the barriers to physical activitypractice and thus preventing a number of noncommunicable diseases. In this study, it was found that 28% of the sample did not present any barrier. However, it is noteworthy that 21.8% had three barriers, which highlight the lack of time, lack of will and lack of energy in both women and men. This finding is similar to that described by Rubio Henao and Varela Arevalo (2016) where they found that undergradutes with a low level of physical activity exposed as barriers the lack of time and will. The lack of time is a barrier for both daytime and night-time programs as the percentages were very similar, barriers such as fear of being hurt and lack of ability do not limit the practice of physical activity of the programs in question. The lack of will presents a higher percentage as a barrier in the daytime versus the night. Social influence and lack of resources are not perceived in a large percentage for both days as barriers to physical activity practice. In terms of tobacco consumption, 95.9% did not consume it and eight of the eight students had three barriers. It should be noted that people who used the bike as a means of habitual transportation are those who possessed up to three barriers to practice physical activity.

Conclusion

Based on the findings, it can be concluded that the low level of physical activity found in the sample evaluated is mainly related to the perception of lack of time, lack of will and energy to perform some physical activity. Moreover, since this perception is more pronounced in women because they have a lower level of physical activity.

Acknowledgements

Special thanks to the valuable collaboration of the undergraduates Andrés Felipe Figueroa and Joaquín Alberto Cano Ospina.

Conflicts of interest: The authors declare no conflict of interest.

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