

Physical Activity: Benefits and Barriers Perceived by University Students

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Abstract

Objective: To describe the benefits and barriers perceived by university students to perform physical activity.

Method: Qualitative study composed by a sample of 2,576 university students (1,317 men and 1,259 women). The Exercise Benefits/Barriers Scale (EBBS). of Nola Pender was used to collect the data.

Results: Global results show higher scores above the theoretical mean established in the EBBS, which locates students on a higher perception of the benefits compared to the barriers; however, statistically meaningful differences among the benefits perceived according to the gender ($p=0,000$), the type of university ($p=0,000$), the area of expertise ($p=0,000$) and the year of study ($p=0,000$) are observed. Regarding the perceived barriers, there is evidence of the statistical differences of this variable with marital status ($p=0,040$), type of university ($p=0,012$) and the area of expertise ($p=0,040$).

Conclusion: Students give higher importance to their perception of physical and psychological well-being benefits that may lead them to do physical activity. Relevance to social benefits is not given. In addition, the perception of barriers is related to demotivation and lack of self-management to schedule this activity.

Keywords: Exercise; Perception; Motivation; Students; Universities

Introduction

To understand the human behaviors and responses is one of the main objectives of the sanitary workers to contribute to health promotion, helping the person to make decisions that benefit their own care. The present article is based on the theoretical postulates of Nola Pender, who states that “the characteristics and individual experiences, as well as the knowledge and specific affections of the behavior, lead the individual to participate or not in health behaviors” [1,2].

These experiences make people think that a specific behavior (in this case, physical activity) bring with it benefits and barriers that must be assessed so that the individual can make the decision of assuming it as a condition of personal care that could guarantee his/ her well-being.

Health promoting life styles must prevail ideally in adult people; however, for this to happen, it is important to generate behaviors to be conserved from the youngest stages of life; such behaviors are related to personal characteristics, level of knowledge, culture and life experiences that allow in a higher or lower level the individuals to take behaviors that favor their health and diminish the risks of presenting diseases [3].

In young people, and especially in university students, the currently promoted life-styles could turn into behaviors that cannot be perceived as a risk factor that promotes for future health alterations. Taking this into account, it has been established that the university stage does not benefit a healthy lifestyle, due to the fact of consumption of cigarette and alcohol increases because of the social environment of the university students; likewise, feeding habits change, the sedentariness levels increase and the motivation to do physical activity can be modified depending on intrinsic and extrinsic factors [4-6].

It has been said that the intrinsic types of motivation allow a higher attachment to the physical activity as the participants achieve objectives and develop a sense of value for this activity, looking for the satisfaction of their psychological needs, the benefit, the stress management, and revitalization [7,8]. However, there are also extrinsic motivations that lead the university students to do physical activity looking for appearance, weight control, as a challenge and competition, to gain agility, strength, resistance, affiliation and social recognition [9-11].

The motivation or the benefits perception that lead young people to perform physical activity are important and must be considered in the university environment, since some more than others will allow this activity to be adopted as a permanent lifestyle, establishing differences according to the gender principally [12-14]. A motivation may lead a student to consider conserving and self-regulate specific physical activity done in the past; this activity allows the achievement of objectives belonging to university life.

On this matter it has been demonstrated that behaviors showed in the past in relation to physical activity, allow students to achieve in a cognitive way a better administration of their time and their objectives in the first year of study, succeeding in the conservation of this activity as a part of their daily life [15]. Moreover, predictors such as, self-efficiency, familiar support, result expectations and friends support, have been proved to increase the level of physical activity on young people making them recognize it as a priority for a healthy lifestyle [16].

On the other hand, there are personal and environmental barriers, that do not favor the adhesion of physical activity. On a personal level it has been identified that, the lack of intrinsic motivation and the lack of time, are predictors for the non-practice of physical activity [17-19]. In addition, at a university level, the difference of assigned hours in the curriculum for the physical education subject as a requirement, the classes based only on sportive final results, and the comparison among peers, do not allow the opportunity of being successful to many of the students on the physical education subject and end up being factors that promote the avoidance of this type of activity [20,21].

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Finally, it can be said that the benefits and barriers perceived by the university students are different in the multiple stages of change regarding physical activity, for this reason different intrinsic and extrinsic motivations on each stage, depending on personal and academic characteristics of students, have been reported [22,23].

The current study had as objective, to describe the benefits and barriers perceived by university students regarding physical activity during the time in which they are doing their studies.

Method

Quantitative approach and observational design whose population was constituted by 19,250 university students registered in the undergraduate face to face programs of 4 universities in the city of Manizales (Colombia) during 2017. This population represented the undergraduate programs of the following areas: agronomy and veterinary science and related, fine arts, education, health, social and human studies, economy, administration and related, engineering, architecture, mathematics, and natural sciences.

Population

A probabilistic sample by means of stratified random sampling with proportional allocation design was obtained in order to get a representation of the 4 universities. First, a pilot test with a total of 170 students representing the 4 universities was performed to confirm the reliability of the chosen instrument on an exploratory way (The Exercise Benefits/Barriers Scale-EBBS), getting a Cronbach alpha of 0.899.

Based on the pilot test results, it was estimated a total sample of 2,576 students representing on a proportional way each of the defined strata. The study was developed with a 95% level of confidence and a 5% error margin. The allocation of student by university is shown in Table 1.

In order to develop the work field the following stages were followed: authorization requested to universities, permission requested to use the EBBS scale. Undergraduate students registered in the institutions during the time in which they were doing their studies were included and those who were on the first 4 years of study of their major in order to standardize the time for the different majors.

Students who refused to answer more than 5% of the questions provided by the chosen instrument were excluded. Participants were approached on each university at the end of their classes and on their free time; an informed consent was requested followed by the application of the instrument on an individual and self-administrated manner. The principle of autonomy was guaranteed, inviting people to participate voluntarily and the confidentiality of the obtained data was kept, protecting the identity of students and of each university.

Statistical Measures

For the data collection, the Exercise Benefits/Barriers Scale (EBBS) designed by Nola Pender was used on its Spanish version [24]. This instrument can be used as a whole, or as two sub-scales that identify the perception of Exercise Benefits/Barriers separately. The instrument

comprises 43 items, 29 of which correspond to the perception of benefits, and 14 to the perception of barriers. The scale counts with 4 liker-type possible answers already established (strongly agree, agree, disagree, strongly disagree) of which only one can be chosen. To analyze the benefits scale, the options are interpreted with scores from 4 to 1, and to analyze and interpret the barriers scale the scores must be reversed.

The instrument total score goes from 43 to 172 and its interpretation is done considering that the highest the score, the highest the positive perception on the exercise. The benefits sub-scale range of score is of 29-116, and for the barriers, sub-scale is of 14-56. Besides to the application of the EBBS, the following information about socio-demographic and academic variables of interest were collected for the result analysis: age, gender, marital status, the field of knowledge of their undergraduate majors, and year of study at the moment of the research.

Data analysis

The socio-demographic and academic data were taken as independent variables and descriptive statistics and measures of central tendency were used for their analysis. The benefits and barriers identified through the EBBS scale were taken as dependent variables; this information was globally and separately analyzed according to possible theoretical scores established by the instrument and by the response percentages obtained for each item. An analysis with non-parametric tests was performed for the benefits and barriers identified regarding the socio-demographic and academic variables, through the Kruskal-Wallis test, considering the statistically meaningful values $P < 0.05$.

Results

Regarding the total sample, 51.1% of students were men and 48.9% women. The minimum age data was 16 years old and the maximum age data was 29 years old, with an average of 20 years old and a variation of 2.5 years for all the group. The predominant marital status was single with a percentage of 96.5%. Concerning the field of knowledge, it was found that the main part of the students belonged to the area of engineering, architecture and related, representing a 35.9% of the total. The distribution by year of study was proportional with percentages from 23.9% to 26.5 for each year (Table 2). In respect of the practice of physical activity, only the 20% of the sample reported a practice period longer than six months with a frequency of 5 to 6 days per week, the rest of the participants reported not practicing physical activity or a random practice with a frequency of 1 to 4 days per week.

Concerning the benefits and barriers perceived for the practice of physical activity, the scale global results show a minimum score of 69 points and a maximum score of 172 points, evidencing higher results than the theoretical average, which locates students in a higher perception of benefits vs barriers (Table 3).

The analysis of reliability reported a Cronbach alpha of 0.95 for the benefits sub-scale and of 0.81 for the barriers sub-scale. For the total sample, the benefit interquartile sub-scale showed an average of 95 points and a median of 96 points; the interquartile range was of 19 points. When analyzing the response percentages obtained on each of

University	n	%
Public university 1	1271	49,3%
Public university 2	573	22,2%
Private university 1	444	17,2%
Private university 2	288	11,2%
Total	2.576	100%

Table 1: Sample allocation by University.

Variable	Category	n	%
Gender	Male	1317	51,1
	Female	1259	48,9
Marital status	Single	2487	96,5
	Married	22	0,9
	Common law relationship	65	2,5
	Divorced	2	0,1
Field of knowledge of the undergraduate program of students.	Veterinary agronomy and related	80	3,1
	Fine arts	86	3,3
	Education	300	11,6
	Health	298	11,6
	Social sciences and humanities	486	18,9
	Economy, administration and related	238	9,2
	Engineering, architecture and related	924	35,9
Year of study at the moment of the research.	Mathematics ad natural sciences	164	6,4
	First year	646	25,1
	Second year	683	26,5
	Third year	616	23,9
Practice of physical activity >6 months	Fourth year	631	24,5
	Does not practice and is not a future plan	978	38
	Practice 1-4 days/week	1088	42
	Practice 5-6 days/week	510	20

Table 2: Socio-demographic and academic characteristics of the students.

Variable		Theoretical	Minimum	Maximum	Average	Median	Typical
		Min/Max					deviation
Global score. Benefits/Barriers	Total sample	43/172	69	172	135	135	15
	Males		76	172	136	137	15
	Females		69	172	134	134	15
Benefits perceived	Total sample	29/116	37	116	95	96	12
	Males		48	116	96	97	11
	Females		37	116	94	94	12
Barriers perceived	Total sample	14/56	14	56	30	30	6
	Males		14	56	29	30	6
	Females		14	53	30	30	6

Theoretical Min/Máx = Possible minimum values and maximum theoretical according to the EEBS.scale

Table 3: Scores obtained on the Benefits Barriers scale.

the items of the benefits scale, it was identified that 16 of them were answered for more than 90% of the sample in the options “agree” and “strongly agree”.

In this sense, students provided a higher score to the following benefits: improvement of the physical condition 98%, improvement of heart condition 97.8%, increase of muscle strength 97.4%, increase of resistance 97.1%, improvement of the general body functioning 96.8%, prevention of heart attacks 96.6%, improvement of physical strength 96.2%, improvement of body flexibility 95.1%, improvement of the muscular tone 94.8%, decreased stress and physical tension 93.5%, improvement of physical appearance 93.4%, improvement of mental health 93.1%, avoiding high blood pressure 92.6%, improvement of the sense of well-being 92.3%, night sleep improvement 91.4%, enjoying the performance of physical activity 90.6% (Table 4).

The total sample barrier sub-scale revealed an average of 30 points and a median of 30 points; the interquartile range was of 19 points and revealing that the 25% of the sample was located below 26 points and the 75% below 34 points. Each item answer percentage revealed that only in two of them more than 50% of students answered “agree” or “strongly agree”, being perceived as obstacles for the practice of this

activity as they expressed that: physical activity is “tiring” 67.2% and physical activity causes fatigue 59.7%.

Other barriers were reported on a lower percentage as the fact that the physical activity is “time-consuming” 48.3%; the places where physical activity can be performed are not easy to access 37.3%, and that the places where physical activity can be practiced do not have convenient working hours 32.2% (Table 4).

The bivariate analysis applied to benefits and barriers in relation to socio-demographic and academic variables showed statistically meaningful differences among the benefits perceived according to the gender (p=0.000), the type of university (p=0.000), the area of knowledge (p=0.000) and the year of study (p=0.000). Concerning the barriers perceived, meaningful differences of this variable were evidenced according to the marital status (p=0.040), the type of university (p=0.012) and the area of knowledge (p=0.040) (Table 5).

Discussion

The global score obtained on the EBBS shows that perception of benefits is higher than the perception of barriers related to the practice of physical activity in the complete sample of students; however, when

Variable	Statements	% Obtained answers		
		Strongly agree	Agree	Total
Perceived	Practicing physical activity improves my physical condition.	69,5	28,5	98
	Practicing physical activity improves my hearth functioning.	59	38,8	97,8
Benefits	Practicing physical activity increases my muscles strength.	61,2	36,2	97,4
	Practicing physical activity increases my resistance.	57,9	39,2	97,1
	Practicing physical activity improves the general functioning of my body.	52,6	44,2	96,8
	Practicing physical activity prevents hearth attacks.	56,9	39,7	96,6
	My physical strength improves by practicing physical activity.	49,3	46,9	96,2
	Practicing physical activity improves my flexibility.	53,6	41,5	95,1
	My muscles tone improves by practicing physical activity.	50,5	44,3	94,8
	Practicing physical activity diminish my levels of stress and tension.	54,6	38,9	93,5
	Practicing physical activity improves my physical appearance.	48,4	45	93,4
	Practicing physical activity improves my mental health.	52,3	40,8	93,1
	Practicing physical activity helps me to avoid suffering from high blood pressure.	41,5	51,1	92,6
	Practicing physical activity helps me to improve my well-being sense.	43,4	48,9	92,3
	Practicing physical activity helps me to sleep better at night.	51,1	40,3	91,4
	I like practicing physical activity.	47,1	43,5	90,6
	Practicing physical activity is tiring.	20	47,2	67,2
Perceived Barriers	I feel fatigue when I practice physical activity.	15,4	44,3	59,7
	Practicing physical activity is really time consuming.	14,2	34,1	48,3
	The places to practice physical activity are not accessible.	12	25,3	37,3
	The places to practice physical activity don't offer convenient schedules.	9,6	22,7	32,3

Table 4: Average of answers obtained on the items of the Exercise Benefits Barriers Scale.

Variable	Category	Average benefits scale	p Value	Average barriers scale	p Value
Gender	MEN	96,9	0,000	29,9	0,079
	WOMEN	94,6		30,2	
Marital status	Single	95,8	0,862	30,0	0,040
	Married	93,0		34,3	
	Common law relationship	95,7		30,2	
	Divorced	104,5		27,5	
University	Public university 1	95,3	0,000	29,6	0,012
	Public university 2	94,8		30,1	
	Private university 1	98,1		30,9	
	Private university 2	96,4		30,4	
Field of knowledge of the undergraduate program of students.	Veterinary agronomy and related	95,2	0,000	28,9	0,000
	Fine arts	93,7		33,7	
	Education	97,4		28,8	
	Health	98,4		30,0	
	Social sciences and humanities	92,9		30,4	
	Economy, administration and related	96,2		30,6	
	Engineering, architecture and related	95,9		29,8	
Year of study at the moment of the research.	Mathematics ad natural sciences	96,2		30,4	
	First year	95,3	0,000	29,9	0,398
	Second year	94,8		29,8	
	Third year	95,5		30,4	
	Fourth year	97,5		30,0	

Table 5: Bivariate analysis between the socio-demographic and academic variables and, the averages obtained on The Exercise Benefits/Barriers Scale.

associating the scores obtained on the scale with the socio-demographic and academic variables, statistically meaningful differences were evidenced on male students, single or divorced, that study on private universities and belonging to majors related to the health area. Besides, a higher average related to the score of benefits was found on those taking their last year of study.

A similar study [25], reports higher averages obtained on the benefits scale than on the barrier scale, besides, authors describe that benefits and barriers mainly perceived are the physical ones (physical condition improvement, better heart functioning, increase of muscular strength and resistance), data that agree with the motivation expressed by the participants of this study.

Additionally, the present research reports psychological benefits, showing the importance given to mental health and well-being improvement, and to the fact of having a high-quality sleeping at night. Regarding this, a recent study shows that young people beliefs about getting enough physical activity, are associated with high-quality sleeping and positive psychological functioning [26]. In this sense, it is necessary to consider these aspects when developing physical conditioning programs at the university, where mental health and sleeping quality are taken as main variables, due to the importance young people give to those facts. Regarding barriers, it can be said that women reported higher averages on the EBBS, with meaningful differences in the type of university, where the highest averages prevailed on private universities and on groups of students that belonged to majors related to fine arts.

Within the reported barriers “tiredness”, “fatigue” and “lack of time”, are frequently highlighted as data coinciding to similar studies that highlight “laziness” or “unwillingness” and “inability to schedule the time” as factors that impeded the practice of physical exercise on a daily basis [27-29].

Most of the sample shows barriers that demonstrate that to be motivated towards the practice of physical activity, it is necessary to provide easy access to the activity and also to make people see it as something meaningful and likeable that awakes interest to invest some time and effort. This phenomenon could be explained with the fact that a low percentage of students had practiced any form of physical activity as a routine for longer than 6 months, even when they assured to know its benefits, at least when considering cardiovascular health; besides, a significant low percentage stated that their family members did not encourage them to practice physical activity; being this the evidence to state that the most important barrier is the lack of motivation and the inability to manage time.

Another meaningful aspect to be highlighted is the fact that private university students had declared higher benefits when practicing physical activity; and at the same time, the highest number of barriers. In this sense there is a limitation to explain this phenomenon, as it would be necessary to carry out other research projects considering more specific variables for private university students and public university students, for example, the socio-economic level, the accessibility to different sport programs and the areas offered by the institutions during each semester.

In addition, it is important to develop a deeper analysis of the benefits and barriers according to the field of knowledge, as the current research does not allow to unveil if some professions feel a higher level of commitment to this activity. Even though it was found that most of the students knew about the benefits for the cardiovascular health, this aspect cannot be generalized because the four universities counted with

students belonging to health-related programs, however, it was not the case with other majors.

Conclusion

In general, the results of this study show that university students state the same motivation for performing physical activity as the ones reported on other studies performed with adolescents and university students. Students state, with higher importance, to perceive physical and psychological benefits when it comes to the practice of physical activity. No relevance is given to social benefits. In addition, the barriers perceived are related to lack of motivation and self-management to plan this type of activity.

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Conflict of Interest

The authors declare not to have any conflict of interest.

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