

## Predictive model of the intention to practice physical activity in university students of pedagogy in Antofagasta (Chile)

### Modelo predictivo de la intención de práctica de actividad física en estudiantes universitarios de pedagogía de Antofagasta (Chile)

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**Abstract.** The drop in the physical activity between the youth produces concern among the physical activity and health professionals. Several authors present the existing problems of physical inactivity in Latin America, highlighting the decrease in practice as age increases. Different researches have tried to identify variables that could explain this decline. The aim of this study is to establish the relationship between the perceived fitness and some characteristics of present practice and how these ones predict the future physical practice. The sample was composed of 299 students of several careers of Pedagogy belonging to the University of Antofagasta (Chile). Descriptive, correlational and regression analyses were performed using the SPSS statistical program. Among the obtained results, it stands out, on the one hand, the significant interrelationship between the variables which describes the current physical activity, the perceived fitness and the priority physical activity. And on the other, all the variables under study are predictors of physical activity practice in the future. This discovery highlights the importance of strengthening the sports programs from the university that adapt to the needs of university students.

**Keywords:** physical activity; perceived fitness; university; Latin America.

**Resumen.** El paso a la universidad supone un descenso en la actividad física entre la población joven, produciendo preocupación entre los profesionales de la actividad física y la salud. Diversos autores abordan los problemas de inactividad física existentes en América Latina, destacando la disminución de la misma según aumenta la edad. Distintas investigaciones han intentado identificar variables que puedan explicar este descenso. El propósito de este estudio es establecer la relación entre la percepción de forma física y la práctica actual y cómo estas predicen la actividad deportiva en un futuro. La muestra estuvo compuesta por 299 estudiantes de distintas carreras de pedagogía de la Universidad de Antofagasta (Chile). Se realizaron análisis descriptivos, correlacionales y de regresión utilizando el programa estadístico SPSS. Entre los resultados obtenidos, se destaca, por un lado, la correlación significativa entre las variables que describen la actividad física en la actualidad, la condición física percibida y la intención de práctica futura hacia la práctica y, por otro lado, que la totalidad de las variables de estudio son predictoras de la práctica de actividad física futura. Este hallazgo destaca la importancia que desde la universidad se fortalezcan los programas deportivos, y que se adapten a las necesidades del estudiantado universitario.

**Palabras Clave:** actividad física, condición física percibido, universidad, Latinoamérica, deporte.

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## Introduction

There is currently a growing concern about the consequences of not practicing enough physical activity. The benefits of systematic practice to psychological and physical well-being have been demonstrated by several authors (Moral-Campillo, et al., 2022; Mella-Norambuena, et al., 2019). This idea is reinforced by the current concept of health, which is approached from a holistic vision that integrates the human being and includes them in their physical, mental, social, emotional and spiritual dimensions (Valenzuela, 2016; WHO, 2021). However, the decrease in young adults who regularly engage in physical activity is noteworthy, with the percentage of practice dropping in recent decades well below the levels recommended by the World Health Organization (Owen, et al., 2014; Ramos, et al., 2012). The WHO states that adults should accumulate a minimum of 150-300 minutes of moderate-intensity aerobic physical activity, or a minimum of 75-150 minutes of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity activities, over the course of a week in order to obtain significant health benefits (WHO, 2021).

Several studies (Chales-Aoun & Merino Escobar, 2019; Pérez, et al., 2012; Vasquez-Bonilla, Zelaya-Paz, & García-Aguilar, 2019), address the problems of physical inactivity existing in Latin America. Specifically in Chile, the most recent studies highlight the decrease and abandonment of physical activity practice as age increases (Mayorga-Vega, et al., 2020; Ministerio del Deporte, 2016; Valdés-Badilla, et al., 2014). Likewise, the study conducted by Aguilar-Farias, Martino-Fuentealba & Chandia-Poblete (2020), related the intensity of practice with different psychosocial aspects, being vigorous physical activity the one that scored higher in the case of men and those who scored higher in self-efficacy.

This reality is similar to the data provided at international level by different research (Luis-De Cos, Luis-de Cos, & Arribas-Galarraga, 2017; Práxedes, et al., 2016), which raise the risks not only at a physical level, but also at an emotional and psychological level linked to inactivity or low frequency of physical activity. Paying attention to the characterization of physical activity practice, previous studies (Zamarripa-Rivera, et al., 2014; Zhengfeng, 2022) have analyzed the different parameters that constitute this practice, such as frequency and duration. These parameters have

been studied to analyze the repercussions that physical exercise has on health in its broadest conception (Reloba, Chirrosa, & Reigal, 2016; Ordóñez Guamán, Higuera Aguirre, & Pozo Prado, 2021). The frequency of practice refers to how many times physical activity is performed, likewise, the duration and intensity of such practice must be considered in order to reach the minimums established by the WHO (2021), in terms of regular practice.

Focusing on the psychological aspects that affect and are related to health, several studies (Castañeda-Vazquez, Campos-Mesa & Del Castillo-Andrés, 2016; Fuentes & Lagos, 2019) point out that the relationship between physical activity and the perception of fitness are key essential factors in the perception of health. Likewise, self-perception of physical competence and health have an impact on the intention to remain active (Ruiz, et al., 2014). It is important for society to identify physical activity as a priority, as it is an important aspect that not only helps us to feel good about ourselves or our bodies, but it is also a key for our health to maintain a healthy lifestyle (Montilla, 2013).

This leads us to consider the relevance of maintaining physical activity, or the intention to engage in a physical activity practice in the future. Lifestyles are identified as one of the main determinants of the health of populations, enabling the prevention of inappropriate habits and customs that result in the appearance of chronic transmissible and non-transmissible diseases in young populations (Herazo, et al., 2020).

As evidenced by various studies (Fuentes & Lagos, 2019; Montilla, 2013), there is a positive relationship between the practice of physical activity and physical and mental health states and benefits. However, it is relevant to determine if the variables of frequency and duration of physical activity, as well as the perception of physical fitness and the priority given to physical activity, are predictive of the future or maintenance of physical activity. The aim of this research is to understand the nature of the relationship between current active lifestyle and psychological well-being. Therefore, this study attempts to examine the predictive value of these variables in the intention to practice physical activity in the future. In short, to identify what actions can be taken in the present to ensure an active and healthy lifestyle in the future. This study has been proposed in youth and early adulthood, since it is fundamental in this period to establish and maintain healthy lifestyle habits, considering the arrival at university, the lives of young people become more complex, facing new schedules, student activities and academic demands (Rodríguez-Rodríguez, et al., 2018). Therefore, this study has been proposed in young university students, since at this age there is a greater dropout of physical activity practice (Rico-Díaz, et al., 2019) and the analysis of these variables can provide relevant information.

## Materials and Methods

### Participants

The selection of the sample was by convenience, with

only one inclusion criterion, being student of pedagogy at the Universidad de Antofagasta. The universe under study was a total of 1304 pedagogy students, composed by both universities (Universidad de Antofagasta and Universidad Católica del Norte) that offer these degrees in the city of Antofagasta (Chile).

The sample under study was made up of 299 man and women, students of university careers of Pedagogy belonging to the University of Antofagasta (Chile), the selected sample was  $\frac{1}{4}$  of the universe. 25.1% of the sample were students of Physical Education Pedagogy and the other 74.9% were students of other Pedagogies specialized in Early Childhood Education, Basic Education and Biology. Regarding the sex, 40.5% were men and 59.5% were women, age range between 18 and 22. Pedagogy careers are those that train the future teachers of infant, primary and secondary education in all their specialties.

### Instrument

The questionnaire used in this study is the: Physical Activity and Sports Practice Habits Questionnaire (C-PAFYD for its Spanish acronym) by Arribas-Galarraga et al. (2013). This questionnaire is the sum of the Project Seeking The Co-Ordinated Monitoring Of Participation In Sport In Europe (COMPASS) and the International Physical Activity Questionnaire (IPAQ), both validated and highly accredited instruments. Socio-demographic issues were asked. An ex post facto design of a descriptive, correlational and multivariate nature was carried out.

The C-PAFYD is the sum of two internationally recognized and validated questionnaires, with other questionnaires that address psychosocial and structural aspects, so that the validation and internal consistency is of each of the subscales.

Independent variables:

- Physical and sports habits: these variables provide information about the participation on physical activity and the frequency (FPA) and duration of these practice (DPA).
- Psychosocial variables:
  - Priority towards the practice of physical activity (PPA), understood as the importance that physical activity has in their life.
  - Perceived Fitness (PPF): understood as the subjective thoughts about the capacity and ability of the physical condition.

Dependent variable:

- Intention to practice physical activity in the future: measures the intention to practice physical activity in the long term.

### Procedure

The itinerary used to obtain the data began with a previous selection of the pedagogical careers at the Universidad de Antofagasta, after which the days and times for the survey were agreed with the director of the Department of Education. The collaborators made a brief introduction explaining the objective of the study and clarifying

the doubts raised by the students who were the object of the study. A letter was provided to all students informing them about the type of study, the implication of participating in it, and the preservation of anonymity. Thus, this letter was a proof of the informed consent of every one of the participants. This was followed by the completion of the questionnaire, which lasted a total of 15 minutes.

### Data Analysis

The statistical analysis were carried out by SPSS 26 program. Firstly, descriptive statistics were calculated for all the variables under study (means and standard deviations). In order to analyze the relationships between the variables, Pearson's bivariate correlations were used. The main statistical analysis consisted of a linear regression procedure using the method of successive steps. Akaike information criteria analysis (AIC) has been performed.

Before starting with the data analyses, the values of skewness and kurtosis were examined to analyze the normality of the sample, indicating that they follow a normal distribution, as they are within the range  $\pm 1.5$  (Pérez & Medrano, 2010). Likewise, analysis was performed to check the internal consistency of each subscale (Cronbach's alpha).

### Results

In order to obtain information about the relationship between the variables studied, bivariate correlations were carried out. The results revealed that the Intention of Future Practice is positively and statistically significantly related to the total of the variables under study (Table 1). A positive and statistically significant correlation was also observed between the set of independent variables FPA, DPA, PPA and PPF.

The results obtained with the AIC corroborate the idea that this model with its 4 steps is a better and more accurate estimate.

To examine the predictive utility of the independent

variables in explaining future practice intention, beyond relationships between variables, linear regression analyses were performed, one for each of the independent variables (frequency of practice, duration of practice, priority of practice, and perception of fitness).

Table 1.

Descriptive and correlational analyses between the variables under study

	M	SD	$\alpha$	Correlations			
				1.	2.	3.	4.
1. Frequency Physical Activity	2.67	1.25	.77	-			
2. Duration Physical Activity	3.44	1.51	.77	.598**			
3. Priority Physical Activity	7.24	2.01	.79	.513**	.460**		
4. Perceived Fitness	3.06	1.02	.83	.374**	.391**	.310**	
5. Intention of Future Practice	7.51	1.81	.74	.608**	.563**	.633**	.391**

Note: \*\* $p < .001$ ; M = Mean; SD = Standard Deviation

The results of the regression analysis are shown in Table 2. When the analysis focused on frequency of practice the percentage of variance explained was 37% [ $R^2 = .370$ ;  $F(1,290) = 160.99$ ,  $p < .001$ ]. In the second step when the duration of practice was introduced, the percentage of variance explained increased to 43.4% [ $R^2 = .434$ ;  $F(2,290) = 110.48$ ,  $p < .001$ ]. In this sense, the physical and sports habits of the students predict in a high percentage the intention to perform physical activity in the future.

In steps 3 and 4 the psychosocial variables are introduced for the analysis of the prediction of the intention to practice physical activity in the future. In relation to the priority or importance given to the practice of physical activity the percentage of variance explained was 9.8%, adding up to a total explained variance of 53.2% [ $R^2 = .532$ ;  $F(3,290) = 108.70$ ,  $p < .001$ ]. In the fourth and final step that takes into account the 4 variables the percentage of variance explained was 54.1% [ $R^2 = .541$ ;  $F(4,290) = 84.13$ ,  $p < .001$ ].

Table 2.

Linear regression analysis (successive steps) for predicting future physical activity intention.

Variables	B	E.T.	beta	t	F/R2	AIC
<b>Step 1:</b>					$F(1,290) = 160.99^{**}$	
Frequency Physical Activity	.864	.066	.609	13.038**		1039,967
					$R^2 = .370$	
<b>Step 2:</b>					$F(2,290) = 110.48^{**}$	
Frequency Physical Activity	.596	.079	.420	7.588**		1010,382
Duration Physical Activity	.374	.066	.315	5.697**		
					$R^2 = .434$	
<b>Step 3:</b>					$F(3,290) = 108.70^{**}$	
Frequency Physical Activity	.402	.076	.283	5.304**		951,295
Duration Physical Activity	.264	.062	.223	4.300**		
Priority Physical Activity	.342	.044	.374	7.741**		
					$R^2 = .532$	
<b>Step 4:</b>					$F(4,290) = 84.13^{**}$	
Frequency Physical Activity	.375	.076	.264	4.921**		947,838
Duration Physical Activity	.237	.062	.199	3.804**		
Priority Physical Activity	.332	.044	.364	7.546**		
Perceived Fitness	.182	.078	.104	2.327*		
					$R^2 = .541$	

Note: \* $p < .01$ ; \*\* $p < .001$ .

## Discussion

The present study examined the association of between future physical activity practice intention with different variables, as the actual practice of physical activity and perceived fitness in Chilean university students. The results show that all the variables studied were positively associated with the intention to practice physical activity in the future. Our findings are consistent with those obtained by Luis-de Cos et al. (2017) and Jodra, Maté-Muñoz & Domínguez (2019). These authors found that the frequency of physical activity could be a precursor of fitness perception, since the higher frequency of practice, the better perception of fitness was. However, we agree with Rodríguez-Rodríguez et al. (2018) when they argue that practicing physical activities regularly and with an optimal duration is a challenge for university students, since the university stage is critical to maintain or acquire physical-activity habits, due to the academic requirements that students face. On the other hand, as main objective, the predictive value of frequency and duration of physical activity was examined, as well as the priority/importance given to PA practice and perceived health status, to explain the intention to practice physical activity in the future in the Chilean university population. The results showed that all the variables under study positively predicted future practice intention.

Thus, the frequency of current physical activity practice was shown to be one of the greatest predictors of future practice 37%. These findings are in line with those obtained by Arribas-Galarraga et al. (2020). They concluded that young women who performed physical activity more frequently intended to continue practicing physical activity in the future, thus establishing that the existing association was significant.

Regarding to psychosocial factors (priority given to physical activity practice and perceived fitness), the results obtained show the importance of perceiving each self in good shape and prioritizing physical activity practice as determinant factors that predict future practice. These results are consistent with the research conducted by Fuentes & Lagos (2013), who pointed out that one of the reasons for young people to practice physical activity. A was the increment of the self-believes. Likewise, Arribas-Galarraga et al. (2020), indicated that it is relevant to highlight the importance of physical activity in achieving healthy habits and therefore, it is important to strengthen them for a continuous and prolonged physical activity practice. This will lead, not only to maintain physical health but also psychological well-being. In this same sense, the study conducted by Mella-Norambuena et al. (2021) in a Chilean university population, indicates that the self-concept of physical fitness positively influences physical activity, being also a predictor of the level of physical activity.

These results show that the prediction model explains 54.1% of the intention to practice physical activity in the

future, showing a good fit, according to its assumptions and the AIC value. As Herazo et al. (2020) point out, the healthy lifestyles of college students can be explained by various individual factors, depending on their category or nature. Therefore, it is relevant that considering the practice of physical activity as one of the healthy lifestyles, these 4 variables explain such a high percentage of their intention to continue with the practice.

These variables should be taken into account in any intervention to promote physical activity among young people. The knowledge provided by this study could constitute a good theoretical framework for the development of effective programs to promote physical activity in the university context, focusing their intervention on increasing the frequency and duration of practice, as well as designing programs focused on improving fitness, which will increase adherence to the practice and make it a priority. Along these lines, Sanchis-Soler et al. (2022) state that a physical exercise program carried out in the university population and within the university itself can be an appropriate option for maintaining physical activity. However, in addition to the variables studied, still other variables should be considered in the design and implementation of physical activity promotion programs.

## Conclusions

The obtained data indicate that the variables: Frequency of physical activity, Duration of physical activity, Priority of physical activity and Perceived fitness predict the intention to practice physical activity in the future of university students in Antofagasta, Chile. This suggests that new strategies for action in terms of physical activity practice for university students directed to maintain levels of physical activity practice are recommended to be taken into account. As for future research, it would be interesting to pay attention to the variables that would explain the remaining 46% of future practice, as well as to repeat the study taking into account the contextual characteristics of the population. Finally, it would be interesting to develop a fitness promotion program with emphasis on the duration and frequency of practice, in order to subsequently analyze adherence to future practice.

## Study limitations

After the completion/finalization of the study and subsequent/following reflection, some limitations have been detected that must be taken into account for future research. Among them, it should be noted that due to an error in data collection we had to discard one of the class groups to which the questionnaire was passed, affecting the N of the sample.

On the other hand, although the questionnaire is validated, some of the questions were not completely clear when it was carried out in Latin America, and we detected errors in the data, therefore we discarded these questions

from the questionnaire and they have not been taken into account in this study. Which leads us to consider the need to adjust the wording of the questionnaire in some of its questions for Latin America.

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