

University students' knowledge of World Health Organization guidelines.

Moreno SM¹, Pérez-Gómez J², Rojo-Ramos J², Irene Polo-Campos, Santiago Gómez -Paniagua ³,

1(Physical Education, Universidad del Tolima, Colombia)

2(Research Group on Health, Economy, Motor Skills and Education (HEME), Faculty of Sports Sciences, University of Extremadura, Cáceres, Spain)

3(BioErgon Research Group, University of Extremadura, Cáceres, Spain)

Abstract:

Background: Understanding the value of exercise can be a sign of one's health and quality of life. In this sense, physical activity is understood as any deliberate bodily movement that increases energy consumption. According to the theory of the World Health Organization (WHO) guidelines are the basis for developing positive and correct health beliefs and attitudes, preventing and reducing symptoms of health problems (heart disease, diabetes), depression, anxiety, as well as enhancing brain health. Therefore, to improve health-related behaviors. The aim of this experiment is to determine the level of knowledge that university students have about health and physical activity according to the WHO and, at the same time, to examine possible disparities according to sex, age and whether they consider themselves physically active.

Materials and Methods: Extension to thirteen items of the "CUAFYS-A Questionnaire on Knowledge of WHO Recommendations on Physical Activity and Health", was applied to 149 university students who also answered three sociodemographic questions. The Kolmogorov-Smirnov test was used to validate the assumption of normality in the statistical analysis. nonparametric tests were used. Validation of reliability was assessed by calculating Cronbach's α coefficient, the reliability coefficient divided by half. Construct validity was assessed by exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). The Chi-Square test was used to investigate sex, age and level of knowledge. Spearman's Rho test was then used to assess the association between the total questionnaire score and sociodemographic factors.

Results: Results, A total of 13 questionnaire items were proposed. The 13 items had a reliability (Cronbach's α) of 0.74. In the validity analyses performed (content and construct) the results were satisfactory. The coefficient of reliability in halves was, 0.78. two factors explained 36.31% of the total variance were also identified in EFA and confirmed in CFA. no statistically significant differences were found for the ages of the participants; however, statistical disparities were found for some items of the questionnaire in relation to gender, level of knowledge and perception of whether they consider themselves physically active.

Conclusion: The questionnaire version meets the criteria for internal consistency and content and construct validity. These results show that the proposed questionnaire with 13 items can be used as a tool to determine the level of knowledge of PA and health according to the WHO in university students.

Keywords: knowledge, physical activity, health, university students, validation, questionnaire.

Date of Submission: 24-10-2023

Date of Acceptance: 04-11-2023

I. Introduction

Physical activity (PA) is any deliberate movement of the body involving skeletal muscles that requires energy expenditure and allows contact with other people and the environment [1]. As a result, it is possible to differentiate between activities necessary for the maintenance of life and those whose main purpose is to have fun, socialize, develop physical fitness or even compete [2]. Similarly, PA is a movement that is based on the interaction between the human body and practice in three domains: biological, personal, and social [3]. It also contributes to cultural development through activities such as dancing, walking, and playing [3]. Some of the categories in which PA relates to functional capacity, cognitive capacity, productive activities, functional autonomy, self-esteem, physical health, mental health, optimism, social participation and inclusion, vitality, active aging, healthy aging, and mental focus. [4]. PA, in all its forms, has been a component of human culture because of the influence it has on social behavior and the respect a community has for those who practice it co-as a way of life [5]. It permeates all aspects of our lives, from youth to old age, whether at work, school, during leisure time or in daily and family activities [6]. Today there are three points of view linking PA, sport and health as an

improvement in quality of life [6]. The first from a rehabilitative point of view, the second from a preventive point of view and the third from a wellness-centered point of view [3].

According to the World Health Organization (WHO) [7], what is meant by health is "a condition of complete physical, mental and social well-being and not merely the absence of disease or infirmity". WHO emphasizes the crucial role that exercise plays in promoting healthy aging and a high quality of life [8]. This world organization states that the key factor in prolonging life expectancy is PA across the lifespan in its 2015 Global Report on Aging and Health [8]. Furthermore, it warns of the need to create intervention programs and strategies aimed at encouraging people to practice PA, given that this activity naturally decreases with age [8]. In this regard, there has been no progress in recent years: approximately 27.5% of adults worldwide [9] and 81% of adolescents fail to meet the WHO global PA recommendations [10].

Thus, physical inactivity (PI) has become a public health problem, giving rise to a variety of diseases such as degenerative, cardiovascular, metabolic and various forms of cancer [11]. In a study [12], it is noted that obesity and chronic diseases in adults often have their roots in childhood, emphasizing the urgent need to learn more about how PA levels affect the health status of children and adolescents in relation to health status in maturity. Due to low levels of PA during leisure time and increased sedentary behavior during work and housework, it is also more difficult to find time and motivation to engage in any form of exercise [13]. Decreased use of physical strength in work activities, transportation systems, consumption of high-calorie foods, drug abuse, and the use of new technologies are just some of the challenges that humanity will face in the coming decades. These challenges will have an impact on mental health and psychological quality of life in society [14].

On the other hand, it should be taken into account that PA and sport are inextricably linked to good lifestyle habits and can considerably improve a person's physical, mental [15] and social well-being, being crucial for both therapeutic and preventive purposes [3]. Thus, regular exercise reduces the risk of premature mortality and aids in the primary and secondary prevention of a variety of chronic diseases [16]. One study [17] found that PA, especially over prolonged periods of time, can make the brain more likely to experience situations rich in complexity and novelty that are presumably beneficial for the development of new neurons. Regular exercise may also provoke long-lasting structural changes in the brain [3].

In a study conducted less than ten years ago, the majority of college students showed "satisfactory" eating patterns. However, the PA and lifestyle score revealed that most of the students did not engage in physical exercise; moreover, only 7% of them reported an extremely active lifestyle and 4% reported having a sound knowledge of nutrition [18]. Other research on university students in Canada has highlighted the fact that this population is particularly susceptible to poor diet and little exercise [19]. Furthermore, according to the survey, 55.2% of students did not meet the Canadian 24-hour Movement Guidelines recommendation for adults of 150 minutes of moderate-intensity PA per week, and 81.2% of students did not consume the required daily servings of fruits and vegetables [20]. In view of the above, this research aims to find out the level of knowledge that university students have about PA and health, analyzing the possible differences that exist in the student body according to sex, age and their PA levels.

II. Material and Methods

Sample

The sample was composed of 160 university students from the city of Ibagué -Colombia, between August - September 2023. with a population of 245 students enrolled in the year 2023 with a confidence interval of 95%, margin of error of 0.05. Simple random sampling was used, they were selected according to student identification to select participants [21]. Inclusion criteria were: (a) university student of the University of Tolima, (b) not having any hearing or visual disability, (c) completing the "Questionnaire of Knowledge on PA and Health of the WHO Recommendations" (CUAFYS-A) [22].

Instrument

For sociodemographic characterization, the questionnaire included three questions on gender, age, and a perception pre-question on whether they considered themselves physically active. In addition, the CUAFYS-A questionnaire [22] was used. This instrument consists of nine questions, which added 4 more items: 1: "PAHO is the global entity in charge of monitoring PA, diseases and health", 6: "Young people who perform PA every day, find it difficult to control anxiety and depression due to the desire to compete and win in the game", 12: "Young people who perform PA may feel driven to use cigarettes, alcohol and drugs to participate in more social behaviors". The CUAFYS-A framework was divided into two factors: PA and health, each with 8 and 5 questions: PA (questions 4,5,7,9,10,11,13), health (questions 1,2,3,6,8,12), each with three response options: strongly agree, disagree and don't know.

In the questionnaire, each score obtained is based on a Likert scale (1-3) with a single answer, each correctly answered pre-question was assigned a value of 3 points, with 13 correct answers equaling 100%, therefore, a total score scale was made where the low score is between 13 to 22; medium from 23 to 30 and high from 31 to 39.

Procedure methodology

It is a quantitative, non-experimental, descriptive and cross-sectional study [23]. The CUA-FYS-A Moreno-Lavaho et al. 2021 questionnaire was applied, which was expanded to 13 items. validity and reliability analysis were performed, reliability was assessed by calculating cronbach's alpha and content validity was assessed by lawser and tristan expert consultation and CVR' index. The Kaiser-Meyer-Olkin sample adequacy index, Bartlett's test of sphericity ($p < 0.001$) and exploratory and confirmatory factor analysis (CFA) were evaluated. We then proceeded to complete the CUA-FYS-A questionnaire, the respondents read and signed the informed consent form, received information on the objectives of the study, the rights of the participants and the contact information of the investigator for any queries related to the study. They then proceeded to answer the questionnaire with an approximate duration of 10 minutes. All data were collected and used anonymously following the ethical standards of the 2008 Declaration of Helsinki of the World Medical Association [24], which promotes the dignity of persons involved in health research and the protection of their well-being. In addition, the study was approved by the Bioethics Committee of the University of Extremadura (66/2020). Data collection was performed between August-September 2023.

Statistical analysis

The data were processed using the IBM SPSS version 26 statistical program. First, a descriptive analysis of the demographic factors was performed, and the data were analyzed for normality using the Kolmogorov-Smirnov test. Spearman's Correlation was calculated for the total sample and segmented by sex. Exploratory and confirmatory factor analysis (CFA). The Chi-square test was used to evaluate the responses to the items, differentiating them by gender, age and level of knowledge, after performing the frequencies of the responses to the questionnaire. Finally, Spearman's Rho test was performed to determine the connection between the item scores and the sociodemographic factors previously indicated. Correlation coefficients [25] according to Mondragon-Barrera norms of 0.00 (no correlation), 0.01-0.010 (low correlation), 0.11-0.50 (medium correlation), 0.51-0.75 (considerable correlation), 0.76-0.90 (very high correlation) and 0.91-1.00 (perfect correlation) were used to interpret the correlation coefficients [25]. The reliability of the instrument was evaluated using Cronbach's alpha. The results of the reliability test were explained using Nunnally and Bernstein's [26] reference ranges of 0.70 (poor), 0.71-0.90 (good) and > 0.91 (excellent).

III. Result

Of 160 adults who formed the initial sample, 10 (6 women and 4 men) were excluded from the analysis (15%). They did not completely fill out the questionnaire administered. The final sample size was 149 participants (77 men and 72 women) ranging in age from 17 to 35 years. The characteristics of the final sample and the variables measured by the questionnaire are presented in Table 1. It is shown that men consider themselves more physically active (80%) than women. On the other hand, the variable of whether they considered themselves to be physically active showed that men had greater consideration than women.

Table no 1: The sample's sociodemographic composition

Variables		Men N= 77 (51.7%)	Women N=72 (48.3%)	Total N=149
Age	Mean (SD)	21.84 (3.3)	20 (3.2)	21.38 (3.4)
weight (kg)	Mean (SD)	7.9 (10.4)	59,7 (9.7)	68.1 (9.2)
Height (cm)	Mean (SD)	1.73 (5.7)	1,61 (5.2)	1,68 (.08)
¿ Do you consider yourself physically active?	Yes (n/%)	62 (80.5)	37 (51.4)	99 (66.4)
	No (n/%)	15 (19.5)	35 (48.6)	50 (33.6)
BMI kg/m2	Mean (SD)	23.6 (3.5)	22,9 (3.4)	23,2 (0.1)
Age Grouped	18-23 (%)	37 (48.1)	55 (76.4)	92 (61.7)
	24-29 (%)	34 (44.2)	12 (16.7)	46 (30.9)
	30-36(%)	6 (7.8)	5 (6.9)	11 (7.4)

N: number, %: percentage, SD: standard deviation.

First, the reliability and dependability of the 3 additional items of the CUA-FYS-A questionnaire was performed with 7 former experts in health areas (3 physical education, 2 physician, 1 psychologist, 1 nurse), to expand the

original questionnaire. Cronbach's alpha was used to calculate the reliability findings of the CUA-FYS-A items, and the result was a value of 0.75, which Nunnally and Bernstein considered good. For the total questionnaire, the two-half reliability coefficient was 0.76. Content validity was assessed by lawser and tristan's expert consultation, CVR' index was above 0.85. For the exploratory factor analysis, the Kaiser-Meyer-Olkin sample adequacy index (KMO = 0.73), and Bartlett's test of sphericity ($p < 0.001$) were evaluated. It showed 2 factors that explained 36.3% of the variance. Factor 1 PA, factor 2 Health.

Table 2 presents descriptive information for each question of the CUA-FYS-A based on the numerical value (N) presented by each response option according to the gender of the students.

Table no 2. Descriptive analysis and gender-specific variations of the questionnaire items.

	Items Answers	Total	Male	Female
		N	N (%)	N(%)
1	Strongly agree	73	33(42.9)	40 (55.6)
	Disagree	33	22(28.9)	11(15.3)
	Don't know	43	22 (28.9)	21(29.3)
2	Strongly agree	15	10(13)	5(6.9)
	Disagree	36	18(23.4)	18(25)
	Don't know	98	49(63.6)	49(68.1)
3	Strongly agree	16	8(10.4)	8(11.1)
	Disagree	112	55(71.4)	57(79.2)
	Don't know	21	14(18.2)	7(9.7)
4	Strongly agree	18	9(11.7)	9(12.5)
	Disagree	97	52(67.5)	45(62.5)
	Don't know	34	16(2.8)	18(25)
5	Strongly agree	14	6(7.8)	8(11.1)
	Disagree	128	66(85.7)	62(86.1)
	Don't know	7	5(6.5)	2(2.8)
6	Strongly agree	17	7(9.1)	10(13.9)
	Disagree	108	54(70.1)	54(75.0)
	Don't know	24	16(20.8)	8(11.1)
7	Strongly agree	11	5(6.5)	6(8.3)
	Disagree	130	70(90.9)	60(83.3)
	Don't know	8	2(2.6)	6(8.3)
8	Strongly agree	30	14(18.2)	16(22.2)
	Disagree	97	56(72.7)	41(56.9)
	Don't know	22	7(9.1)	15(20.8)
9	Strongly agree	16	6(7.8)	10(13.9)
	Disagree	113	64(83.1)	49(68.1)
	Don't know	20	7(9.1)	13(18.1)
10	Strongly agree	31	13(16.9)	18(25)
	Disagree	68	33(42.9)	35(48.6)
	Don't know	50	31(40.3)	19(26.4)
11	Strongly agree	17	8(10.4)	9(12.5)
	Disagree	46	29(37.7)	17(23.6)
	Don't know	86	40(51.9)	46(63.9)
12	Strongly agree	12	6(7.8)	6(8.3)
	Disagree	128	63(81.8)	65(90.3)

University students' knowledge of World Health Organization guidelines

	Don't know	9	8(10.4)	1(1.4)
	Strongly agree	26	13(16.9)	13(16.9)
13	Disagree	94	47(61)	47(65.3)
	Don't know	29	17(22.1)	12(16.7)

Note: N = number. Differences are significant at ** p < 0.01; * p < 0.05. Each dimension score is based on a Likert scale (1-3) with a single correct answer marked in bold.

Table 3 shows the findings for each CUA FYS-A question based on the numerical value (N) provided by each response option according to the ages of the students. It is clear that no major discrepancies were discovered.

Table no 3. Descriptive analysis and age-specific changes in the survey items.

Items	Answers	Age Groups				Do you consider yourself physically active?	
		Total N(%)	18-23 N(%)	24-29 N(%)	30-36 N(%)	Yes N(%)	No N(%)
1	Strongly agree	73	48(52.2)	21(45.7)	4(36.4)	44(29.5)	29(19.5)
	Disagree	33	15(16.3)	15(32.6)	3(27.3)	27(18.1)	6(4)
	Don't know	43	29(31.5)	10(21.7)	4(36.4)	28(18.8)	15(10.1)
2	Strongly agree	15	11(12)	3(6.5)	1(9.1)	6(4)	9(6)
	Disagree	36	21(22.8)	12(26.1)	3(27.3)	26(17.4)	10(6.7)
	Don't know	98	60(65.2)	31(67.4)	7(63.6)	67(45)	31(20.8)
3	Strongly agree	16	13(14.1)	3(6.5)	0	8(5.4)	8(5.4)
	Disagree	112	67(72.8)	35(76.1)	10(90.9)	75(50.3)	37(24.8)
	Don't know	21	12(13)	8(17.4)	1(9.1)	16(10.7)	5(3.4)
4	Strongly agree	18	14(15.2)	2(4.3)	2(18.2)	18(5.4)	10(6.7)
	Disagree	97	62(67.4)	31(67.4)	4(36.4)	72(48.3)	25(16.8)
	Don't know	34	16(17.4)	13(28.3)	5(45.5)	19(12.8)	15(10.1)
5	Strongly agree	14	10(10.9)	4(8.7)	0	9(6)	5(3.4)
	Disagree	128	77(83.7)	41(89.1)	10(90.9)	84(56.4)	44(29.5)
	Don't know	7	5(5.4)	1(2.2)	1(9.1)	6(4)	1(0.7)
6	Strongly agree	17	13(14.1)	3(6.5)	1(9.1)	6(4)	11(7.4)
	Disagree	108	68(73.9)	34(73.9)	6(54.5)	78(52.3)	30(20.1)
	Don't know	24	11(12)	9(19.6)	4(36.4)	15(10.1)	9(6)
7	Strongly agree	11	7(7.6)	4(8.7)	0	4(2.7)	7(4.7)
	Disagree	130	78(84.8)	42(91.3)	10(90.9)	92(61.7)	38(25.5)
	Don't know	8	7(7.6)	0	1(9.1)	3(2)	5(3.4)
8	Strongly agree	30	20(21.7)	9(19.6)	1(9.1)	17(11.4)	13(8.7)
	Disagree	97	55(59.8)	33(71.7)	9(81.8)	67(45)	30(20.1)
	Don't know	22	17(18.5)	4(8.7)	1(9.1)	15(10.1)	7(4.7)
9	Strongly agree	16	12(13)	4(8.7)	0	6(4)	10(6.7)
	Disagree	113	68(73.9)	35(76.1)	10(90.9)	83(55.7)	30(20.1)
	Don't know	20	12(13)	7(15.2)	1(9.1)	10(6.7)	10(6.7)
10	Strongly agree	31	21(22.8)	9(19.6)	1(9.1)	17(11.4)	14(9.4)
	Disagree	68	42(45.7)	21(45.7)	5(45.5)	51(34.2)	17(11.4)
	Don't know	50	29(31.5)	16(34.8)	5(45.5)	31(20.8)	19(12.8)
11	Strongly agree	17	12(13)	5(10.9)	0	8(5.4)	9(6)
	Disagree	46	23(25)	20(43.5)	3(27.3)	38(25.5)	8(5.4)

	Don't know	86	57(62)	21(45.7)	8(72.7)	53(35.6)	33(22.1)
	Strongly agree	12	5(5.4)	6(13)	1(9.1)	7(4.7)	5(3.4)
12	Disagree	128	83(90.2)	37(80.4)	8(72.7)	87(58.4)	41(27.5)
	Don't know	9	4(4.3)	3(6.5)	2(18.2)	5(3.4)	4(2.7)
	Strongly agree	26	17(18.5)	7(15.2)	2(18.2)	13(8.7)	13(8.7)
13	Disagree	94	58(63)	28(60.9)	8(72.7)	63(42.3)	31(20.8)
	Don't know	29	17(18.5)	11(23.9)	1(9.1)	23(15.4)	6(4)

Note: N = number. Differences are significant at ** $p < 0.01$; * $p < 0.05$. Each score obtained in the dimensions is based on a Likert scale (1-3) with a single correct answer marked in bold and the highest percentage per pre-question of whether it is considered physically active in bold.

In Table 4, follows the correlations between level of knowledge of the questionnaire, gender and age using Spearman's Rho test. It can be seen that there is no correlation between level of knowledge and gender and for age there is a low correlation [25].

Table no 4. Correlations of knowledge level with sociodemographic factors.

Dimensions	variables	
	Genre (<i>pag</i>)	Age (<i>p</i>)
Level of knowledge	-0.074 (0.371)	0.086(0.300)

Note: Differences are significant at ** $p < 0.01$; * $p < 0.05$.

There is a correlation between the PA and health dimensions with a value of 0.529** and a significance level of 0.00.

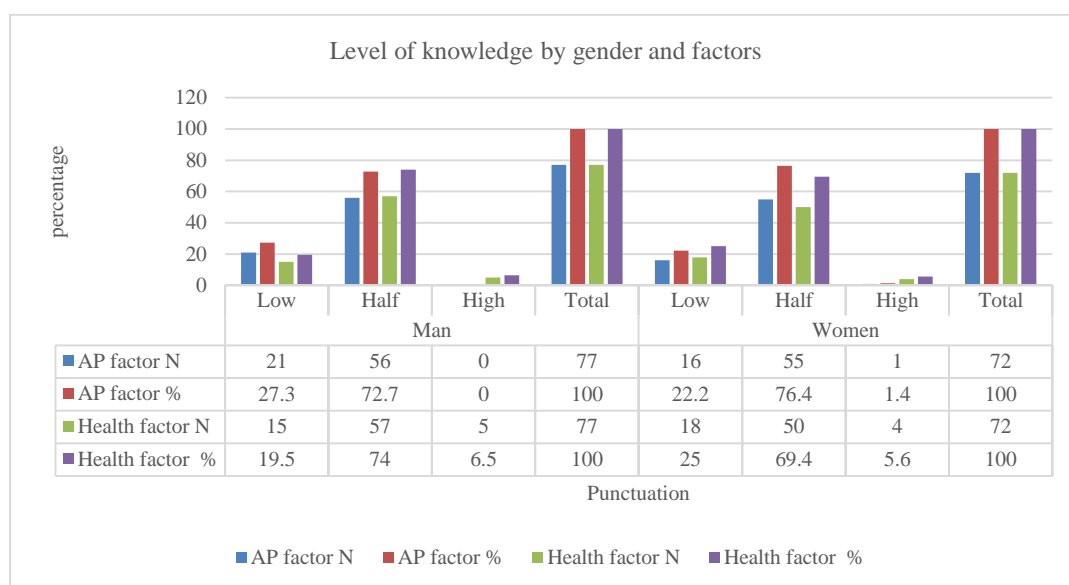
Table 5 shows the level of knowledge about PA and health according to WHO of the general sample of university students, 76.5% had a score in the medium level, 20% in the high level and 15% in the low level. In terms of gender, women have 77.8% better level of knowledge than men with 75.3%.

Table 5. General level of knowledge by gender

Level of knowledge	Low	Half	High	Total
General (n/%)	15(10.1)	114(76.5)	20(13.4)	149 (100)
Men (n/%)	8(10.4)	58(75.3)	11(14.3)	77(100)
Women (n/%)	7(9.7)	56(77.8)	9(12.5)	72(100)

In Figure 1, the level of knowledge of university students according to gender and PA and health factors were: women presented a better knowledge with 76.4% at the medium level, while men presented a similar lower percentage with 72.7% at the same medium level.

Table Size (1) Level of knowledge by gender and by factors



IV. Discussion

This study arose from the need to determine the level of knowledge that university students have about health and PA. For this purpose, the questions of the CUAFFYS-A instrument were analyzed, taking into account that gender, age and whether they consider themselves physically active could influence knowledge.

First, the level of knowledge about PA and health according to WHO of the general sample of university students is shown, 76.5% had a score in the medium level, 20% in the high level and 15% in the low level. It was observed that, women have more knowledge than men (77.8% and 76.5%). Women have better knowledge in the PA dimension (76.4% and 72.7%) and men have better knowledge in the health dimension (74% and 69.4%).

It has been found that there are no significant differences between age, gender and level of knowledge. Moreover, in a more recent research by Gomez- Mazorra et al. people between 18 and 23 years old are the most aware of these recommendations, and those male university students are considered more physically active report higher PA scores, similar results were found [28-29-32]. This discrepancy may be explained by the feeling of greater obstacles to participate in PA [33]. In terms of gender, it is generally women who perform less PA [40], with a frequency between 10 min and 1 hour, whereas men usually perform at least 1 hour of sports practice [41], in other words, women generally do not meet the WHO recommendations of 150 min of PA per week [42]. In addition, health awareness and health-promoting behaviors are correlated with each other (43). Therefore, they have less knowledge about PA and health recommendations, because the level of PA has a positive influence.

Also, according to research, in virtually all countries, girls and women are less active than boys and men, and regional and national differences in PA levels are also evident between higher and lower socioeconomic categories [10] as found in the present study and others are considered more physically. which was observed in a group of students of the Faculty of Physical Culture Sciences of a Mexican university [34]. Furthermore, according to research, in virtually all countries, girls and women are less active than boys and men, and regional and national differences in PA levels between the highest and lowest socioeconomic categories are also evident [10]. Males exceed 60% of subjects' compliance with PA recommendations, whereas females do not reach 40% [35].

On the other hand, it has been shown that there are no significant differences in the age of students in relation to PA and health literacy. They found no significant variations in age by Práxedes et al [35], which also supports this. However, several studies suggest that PA levels decline as children enter adolescence [36], with this decline being more pronounced in females than in males [37]. Adolescents are one of the population groups that do not prioritize their health needs; moreover, their unhealthy behaviors developed at a young age lead to significant health problems in adulthood, which puts them at greater risk in terms of their physical, social and psychological aspects [38]. In adulthood, this downward trend persists, demonstrating the gradual renunciation of this lifestyle practice over time [39,40].

Similarly, a cross-sectional investigation of high school and college students revealed that college students had lower levels of PA [41,42]. However, it has also been found that there are higher levels of PA practice in those who have completed their university education [43] and in those over 21 years of age [44]. It follows that they are more informed about the benefits of exercise and how it improves their health.

In addition, it was found that in the questions where there was significance, those who obtained more correct answers were those who considered themselves more physically active. In this regard, in Europe, one in four adults and four in five adolescents are currently physically inactive [45] and there is evidence that IP is prevalent among university students and is strongly correlated with female gender and obesity [46]. This inactivity may be due to household chores [13], work activity, academic activity, and motivation to engage in sports [44,47]. Participants who believe themselves to be active, on the other hand, could be due to the promotion of positive, affective and well-being experiences from the subject of PE, which has ensured the transfer of learning and generated the internalization of such behaviors. towards the adoption of active and healthy lifestyles, from social support, fundamental psychological substrates for motivation, which are positive predictors for future intention and maintenance of PA [48].

It was found that there is a correlation between item scores and gender and level of knowledge. As mentioned above, females are generally the least PA performers and the most knowledgeable about their PA recommendations. In turn, males are better informed about health than females.

In relation to the variable "If you consider yourself physically active", in the research [22], it was found that most people (68.7%) considered themselves physically active, while a smaller percentage (31.3%) considered themselves physically inactive. It was also found that 81.4% of men considered themselves physically inactive. This research found similar results. Men showed a higher level of knowledge than women in the health dimension, but there were differences where women scored slightly higher in the PA dimension than men.

V. Conclusion

This study has shown that participants' knowledge about health and PA is influenced by their age and gender and whether they consider themselves physically active. In order for all participants to benefit equally from good health, whether physical, social or psychological, it would be prudent to investigate why women are less physically active than men and, why, they have greater knowledge about PA and less about health. Given that adolescence is the period when people's participation in sports tends to decrease, it is necessary to involve teachers at all educational levels. In order to perceive greater support and participation in the realization of PA in the subjects' free time, it is also necessary to involve all administrations, the entire educational community, including the students' families.

References

- [1]. Estilos de vida saludables—Qué es la actividad física. (s. f.). Recuperado 28 de octubre de 2023, de <https://estilosdevidasaludable.sanidad.gob.es/actividadFisica/actividad/queEs/home.htm>
- [2]. Vidarte Claros, J.A.; Vélez Álvarez, C.; Sandoval Cuellar, C.; Alfonso Mora, M.L. Actividad Física: Estrategia de Promoción de La Salud. *Hacia la Promoción de la Salud* **2011**, 16, 202–218.
- [3]. Barbosa Granados, S.H.; Urrea Cuéllar, Á.M. Influencia del deporte y la actividad física en el estado de salud físico y mental: una revisión bibliográfica. *Katharsis: Revista de Ciencias Sociales* **2018**, 141–160.
- [4]. Martín Aranda, R. Actividad física y calidad de vida en el adulto mayor. Una revisión narrativa. *Revista Habanera de Ciencias Médicas* **2018**, 17, 813–825.
- [5]. Abarca Sos, A.; Murillo Pardo, B.; Julián Clemente, J.A.; Zaragoza Casterad, J.; Generelo Lanaspá, E. La Educación Física: ¿Una oportunidad para la promoción de la actividad física? Retos: nuevas tendencias en educación física, deporte y recreación **2015**, 155–159.
- [6]. Airasca, D.A.; Giardini, H.A. Actividad física, salud y bienestar; Nobuko, 2022; ISBN 978-1-64360-641-5.
- [7]. World Health Organization Constitution of the World Health Organization. *Am J Public Health Nations Health* **1946**, 36, 1315–1323, doi:10.2105/AJPH.36.11.1315.
- [8]. Organización Mundial de la Salud Informe mundial sobre el envejecimiento y la salud; Organización Mundial de la Salud: Ginebra, 2015; ISBN 978-92-4-356504-0.
- [9]. Guthold, R.; Stevens, G.A.; Riley, L.M.; Bull, F.C. Worldwide Trends in Insufficient Physical Activity from 2001 to 2016: A Pooled Analysis of 358 Population-Based Surveys with 1.9 Million Participants. *The Lancet. Global Health* **2018**, 6, e1077–e1086, doi:10.1016/S2214-109X(18)30357-7.
- [10]. Organización Mundial de la Salud Directrices de la OMS sobre actividad física y comportamientos sedentarios; Organización Mundial de la Salud, 2021; ISBN 978-92-4-003219-4.
- [11]. Pérez, B.M. Salud: entre la actividad física y el sedentarismo. *Anales Venezolanos de Nutrición* **2014**, 27, 119–128.
- [12]. William R., L. Assessing the Influence of Physical Activity on Health and Fitness. *American Journal of Human Biology* **2001**, 13, 159–161, doi:10.1002/1520-6300(200102/03)13:2<159::AID-AJHB1024>3.0.CO;2-C.
- [13]. Owen, N.; Leslie, E.; Salmon, J.; Fotheringham, M.J. Environmental Determinants of Physical Activity and Sedentary Behavior. *Exerc Sport Sci Rev* **2000**, 28, 153–158.

- [14]. Moscoso-Sánchez, D.; Moyano Estrada, E.; Biedma Velazquez, L.; Fernández-Ballesteros, R.; Martín Rodríguez, M.; Ramos González, C.; Rodríguez-Morcillo, L.; Serrano-del-Rosal, R. *Deporte, Salud y Calidad de Vida*; Colección de estudios sociales; Fundación obra social de La Caixa, 2009; ISBN 978-84-691-7290-2.
- [15]. Arruza Gabilondo, J.A.; Arribas Galarraga, S.; Gil de Montes Etxaide, L.; Irazusta Adarraga, S.; Romero, S.; Cecchini Estrada, J.A. Repercusiones de la duración de la actividad físico-deportiva sobre el bienestar psicológico. *Revista Internacional de Medicina y Ciencias de la Actividad Física y del Deporte* **2008**, *8*, 171–183.
- [16]. Warburton, D.E.R.; Nicol, C.W.; Bredin, S.S. Health Benefits of Physical Activity: The Evidence. *Canadian Medical Association Journal* **2006**, *174*, 801–809, doi:10.1503/cmaj.051351.
- [17]. Fabel, K.; Kempermann, G. Physical Activity and the Regulation of Neurogenesis in the Adult and Aging Brain. *Neuromol Med* **2008**, *10*, 59–66, doi:10.1007/s12017-008-8031-4.
- [18]. Yahia, N.; Wang, D.; Rapley, M.; Dey, R. Assessment of Weight Status, Dietary Habits and Beliefs, Physical Activity, and Nutritional Knowledge among University Students. *Perspect Public Health* **2016**, *136*, 231–244, doi:10.1177/1757913915609945.
- [19]. Bertrand, L.; Shaw, K.A.; Ko, J.; Deprez, D.; Chilibeck, P.D.; Zello, G.A. The Impact of the Coronavirus Disease 2019 (COVID-19) Pandemic on University Students' Dietary Intake, Physical Activity, and Sedentary Behaviour. *Appl. Physiol. Nutr. Metab.* **2021**, *46*, 265–272, doi:10.1139/apnm-2020-0990.
- [20]. Busque, A.; Yao, P.-L.; Miquelon, P.; Lachance, É.; Rivard, M.-C. Lifestyle and Health Habits of a Canadian University Community. *Journal of Physical Activity Research* **2017**, *2*, 107–111, doi:10.12691/jpar-2-2-7.
- [21]. Singh, R.; Mangat, N.S. Simple Random Sampling. In *Elements of Survey Sampling*; Singh, R., Mangat, N.S., Eds.; Kluwer Texts in the Mathematical Sciences; Springer Netherlands: Dordrecht, 1996; pp. 30–66 ISBN 978-94-017-1404-4.
- [22]. Moreno-Lavaño, S.M.; Mendoza-Muñoz, M.; Adsuar, J.C.; Carlos-Vivas, J.; Rojo-Ramos, J.; Manzano-Redondo, F.; Pérez-Gómez, J. Validation of a Physical Activity and Health Questionnaire Evaluating Knowledge of WHO Recommendations among Colombians. *IJERPH* **2021**, *18*, 3526, doi:10.3390/ijerph18073526.
- [23]. Maldonado Pinto, J.E. *Metodología de la investigación social: Paradigmas: cuantitativo, sociocrítico, cualitativo, complementario; Ediciones de la U*: Bogotá, Colombia, 2018; ISBN 978-958-762-861-6.
- [24]. Asociación Médica Mundial Helsinki Declaration of the World Medical Association. Ethical Principles for Medical Research Involving Human Subjects. *An Sist Sanit Navar* **2009**, *24*, 209–212, doi:10.23938/ASSN.0522.
- [25]. Barrera, M.A.M. Uso de La Correlación de Spearman En Un Estudio de Intervención En Fisioterapia. *Movimiento científico* **2014**, *8*, 98–104.
- [26]. Nunnally, J.C.; Bernstein, I.H. *Psychometric Theory*; New York : McGraw-Hill, ©1994., 1994;
- [27]. Jáuregui-Lobera, I.; Oliveras López, M.J. Información no es conocimiento: a propósito de los alimentos funcionales. *JOURNAL OF NEGATIVE AND NO POSITIVE RESULTS* **2018**, *3*, 593–613, doi:10.19230/jonnpr.2517.
- [28]. Gómez Mazorra, M.; Sánchez Oliva, D.; Labisa Palmeira, A. Actividad física en tiempo libre en estudiantes universitarios colombianos. Retos: nuevas tendencias en educación física, deporte y recreación **2020**, 181–189.
- [29]. Egli, T.; Bland, H.W.; Melton, B.F.; Czech, D.R. Influence of Age, Sex, and Race on College Students' Exercise Motivation of Physical Activity. *Journal of American College Health* **2011**, *59*, 399–406, doi:10.1080/07448481.2010.513074.
- [30]. Lauderdale, M.E.; Yli-Piipari, S.; Irwin, C.C.; Layne, T.E. Gender Differences Regarding Motivation for Physical Activity Among College Students: A Self-Determination Approach. *TPE* **2015**, *72*, 153–172, doi:10.18666/TPE-2015-V72-I5-4682.
- [31]. Concha Viera, A.M.; Cuevas Ferrera, R.; Campos Romero, P.; González-Hernández, J. Recursos Motivacionales Para La Autorregulación En La Actividad Física En Edad Universitaria. *Cuadernos de Psicología del Deporte* **2017**, *17*, 27–34.
- [32]. Molano-Tobar, N.J.; Vélez-Tobar, R.A.; Rojas-Galvis, E.A.; Universidad del Cauca; Universidad del Cauca; Universidad del Cauca Actividad Física y Su Relación Con La Carga Académica de Estudiantes Universitarios. *hpsal* **2019**, *24*, 112–120, doi:10.17151/hpsal.2019.24.1.10.
- [33]. Sevil Serrano, J.; Práxedes Pizarro, A.; Zaragoza Casterad, J.; Del Villar Álvarez, F.; García-González, L. Barreras Percibidas Para La Práctica de Actividad Física En Estudiantes Universitarios. Diferencias Por Género y Niveles de Actividad Física. *Univ Psychol* **2017**, *16*, 303–317, doi:10.11144/Javeriana.upsy16-4.bppa.
- [34]. Blanco Ornelas, J.R.; Soto Valenzuela, M.C.; Benítez-Hernández, Z.P.; Mondaca Fernández, F.; Jurado García, P.J. Barreras para la práctica de ejercicio físico en universitarios mexicanos comparaciones por género. Retos: nuevas tendencias en educación física, deporte y recreación **2019**, 80–82.
- [35]. Práxedes, A.; Sevil, J.; Moreno, A.; Del Villar, F.; García-González, L. Niveles de actividad física en estudiantes universitarios: Diferencias en función del género, la edad y los estados de cambio. *Rev. iberoam. psicol. ejerc. deporte* **2016**, *11*, 123–132, doi:10.1007/s10065-016-0386-9.
- [36]. Dumith, S.C.; Gigante, D.P.; Domingues, M.R.; Kohl, H.W. Physical Activity Change during Adolescence: A Systematic Review and a Pooled Analysis. *International Journal of Epidemiology* **2011**, *40*, 685–698, doi:10.1093/ije/dyq272.
- [37]. Murillo Pardo, B.; García Bengoechea, E.; Aibar Solana, A.; Julián Clemente, J.A.; García González, L.; Martín-Albo Lucas, J.; Estrada Tenorio, S. Factors Associated with Compliance with Physical Activity Recommendations among Adolescents in Huesca. *Revista de psicología del deporte* **2015**, *24*, 147–154.
- [38]. OMS Salud del adolescente y el joven adulto Available online: <https://www.who.int/es/news-room/fact-sheets/detail/adolescents-health-risks-and-solutions> (accessed on 18 March 2023).
- [39]. Serrano-Sanchez, J.A.; Lera-Navarro, A.; Dorado-García, C.; González-Henriquez, J.J.; Sanchis-Moysi, J. Contribution of Individual and Environmental Factors to Physical Activity Level among Spanish Adults. *PLoS ONE* **2012**, *7*, e38693, doi:10.1371/journal.pone.0038693.
- [40]. Raustorp, A.; Ekroth, Y. Tracking of Pedometer-Determined Physical Activity: A 10-Year Follow-Up Study From Adolescence to Adulthood in Sweden. *Journal of Physical Activity and Health* **2013**, *10*, 1186–1192, doi:10.1123/jpah.10.8.1186.
- [41]. Bray, S.R.; Born, H.A. Transition to University and Vigorous Physical Activity: Implications for Health and Psychological Well-Being. *Journal of American College Health* **2004**, *52*, 181–188, doi:10.3200/JACH.52.4.181-188.
- [42]. Cocca, A.; Liukkonen, J.; Mayorga-Vega, D.; Viciana-Ramírez, J. Health-Related Physical Activity Levels in Spanish Youth and Young Adults. *Percept Mot Skills* **2014**, *118*, 247–260, doi:10.2466/10.06.PMS.118k16w1.
- [43]. Pedisic, Z.; Rakovac, M.; Bennie, J.; Jurakic, D.; Bauman, A. Levels and Correlates of Domain-Specific Physical Activity in University Students: Cross-Sectional Findings from Croatia. *Kinesiology* **2014**, *46*, 12–22.
- [44]. Ferreira de Sousa, T.; Aparecido Fonseca, S.; Rodrigues Barbosa, A. Perceived Barriers by University Students in Relation the Leisure-Time Physical Activity. *Rev. Bras. Cineantropom. Desempenho Hum.* **2013**, *15*, 164–173, doi:10.5007/1980-0037.2013v15n2p164.

- [45]. CEBR The Costs of Inactivity in Europe - CEBR Available online: <https://cebr.com/reports/the-costs-of-inactivity-in-europe/> (accessed on 18 March 2023).
- [46]. García-Puello, F.; Herazo-Beltrán, Y.; Vidarte-Claros, J.A.; García-Jimenez, R.; Crissien-Quiroz, E. Evaluación de Los Niveles de Actividad Física En Universitarios Mediante Método Directo. *Rev. salud pública* **2018**, *20*, 606–611, doi:10.15446/rsap.v20n5.59003.
- [47]. King, K.A.; Vidourek, R.A.; English, L.; Merianos, A.L. Vigorous Physical Activity among College Students: Using the Health Belief Model to Assess Involvement and Social Support. *AEHD* **2014**, *4*, 267–279, doi:10.5628/aeht.v4i2.153.
- [48]. Gómez Mazorra, M.; Reyes Amigo, T.; Tovar Torres, H.G.; Sánchez Oliva, D.; Labisa Palmeira, A. Actividad física en tiempo libre en estudiantes universitarios y transición escolar a la universidad desde las teorías de comportamiento: una revisión sistemática. *Retos: nuevas tendencias en educación física, deporte y recreación* **2022**, 699–712.