



Physical Exercise Pattern for Undergraduate Students and Its Importance in the Quality of Life, Well-Being, and Future Patient Orientation

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Background: This study evaluated physical activity (PA), physical exercise (PE), quality of life (QoL), PE barriers and benefits, contents learned about PA, and related factors of PE practice among undergraduate medical and nursing students.

Methods: This cross-sectional study conducted an online survey. We collected sociodemographic data and previous knowledge regarding PA/PE. We applied the International Physical Activity Questionnaire (IPAQ), Well-being and Quality of Life Index (WHO-5), and scale of benefits and barriers for PE. We performed bivariate, univariate, and multivariate logistic regression analyses.

Results: Participants who exercised were identified as “active” and “very active” by the IPAQ, had better health self-perception, higher general total metabolic equivalent, and higher WHO-5 scores, perceived more PE benefits than barriers, and desired more information about PA/PE.

Conclusion: Undergraduate students should be encouraged to participate in PE. Adequate knowledge could be a resource they value and disseminate to their future patients.

Keywords: Exercise, Habits, Medical students, Quality of life

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INTRODUCTION

The beginning of university education is for many young people the beginning of life out of their parents' home and in this period risky behaviours are usually adopted due to the adaptation to the new environment and organization of their own lives, with a sedentary lifestyle being one of the most noticeable habits in this period [1-3].

Regular physical activity (PA) and physical exercise (PE) have been widely studied in the literature and are a great ally in the search for an active lifestyle, health promotion, quality of life (QoL), improvement of physical, mental health, and cognition, and are important mechanisms that can help undergraduate students improve healthy habits and reduce sedentary behaviour [4,5]. PA is defined as any skeletal muscle movement that triggers caloric expenditure above the levels recorded at rest and can be undertaken as part of recreation and leisure, transportation, work, or household chores, in the context of daily occupational, educational, home, and community settings [6]. PE is defined when PA is performed regularly, providing organic, physiological, biochemical, and morphological adaptations in the practicing individual, whether acute, of short duration, chronic, or long duration [6]. According to the recommendations of the World Health Organization (WHO) and the American College of Sports Medicine (ACSM), an adult should perform at least 150 minutes of moderate-intensity PE or 75 minutes of vigorous-intensity PE [7,8].

Undergraduate students are important for disseminating healthy habits, including guidelines on PA/PE [9]. However, due to academic demands, students suffer from health problems, both physical and mental, and many comments that the wear and tear caused by university style can intensify sedentary behaviour. To minimize the impacts of academic demands, the college or university campus environment has the potential to be considered a welcoming environment for initiatives to promote health, well-being, and PE practices among its students. Blake et al. [10] suggest that PE should be promoted in nursing and medical students, to reduce the barriers related to PE and enable health professionals to adhere to PE practice in their daily lives and, consequently, guide the practice of PE for their future patients.

Medical and nursing students play a big role in education and guidance about PA/PE to improve aspects of health status and community improvement [11,12]. PE as a health promoter is sometimes superficially addressed in undergraduate curricula, and doctors and nurses report the lack of knowledge as a barrier to promoting counselling for their patients about [13,14] and there was a failure in curricular programs aimed at training health professionals, as PA/PE are the least addressed content in professional counselling curricula about other topics such as drug use, and smoking,

among others [15,16]. A study conducted among medical students assessed the level of PA/PE through a questionnaire and found that although most students were considered active and practiced PE, their level of knowledge about PE was low and most received information on the subject from colleagues and social media, which could compromise the proper teaching of PA/PE and healthy habits to future patients [17].

Therefore, this study evaluated QoL, well-being, PA, PE, and perceptions of barriers and benefits for PE among medical and nursing undergraduate students. In addition, this study assessed some factors associated with the practice of PE and the contents of PA/PE taught during medical and nursing undergraduate.

MATERIALS AND METHODS

1. Study design and setting

A cross-sectional study was conducted with medicine and nursing students at the Faculty of Medical Sciences and Faculty of Nursing, of the State University of Campinas - UNICAMP. Data were collected between March and September 2021 through an online survey.

2. Participants

Students were recruited by accessing the official list of enrolled students of the Faculties of Medical Sciences and Nursing and their respective institutional email. An email was sent to each student inviting them to participate in the research, and in this email we commented on the relevance of the research. This institutional email was sent twice. The course coordinator and the Center for Evaluation and Research in Education in Health authorized access to the list of students and the research. Students were not offered any kind of incentive to complete the survey form. According to these lists, there are 720 medical students between the 1st and 12th terms and 200 nursing students between the 1st and 9th terms.

3. Ethics of human subject participation

This study was conducted according to the guidelines of the Declaration of Helsinki. All procedures were approved by the Ethics and Research Committee of the State University of Campinas under number 37595220.7.0000.5404. All participants signed informed consent.

4. Measures

Volunteers were instructed to respond via Google Forms, a semi-structured questionnaire to collect sociodemographic data (gender, age, weight, height, body mass index [BMI], marital status, housing type, salary income, and undergraduate course). Participants were asked about PE practice in a dichotomous way (yes/no), and those who practice answered information about weekly frequency, duration, and types of PE. In addition, some questions were asked to identify whether the subject of PA and PE were addressed during undergraduate courses to identify the participants' knowledge about the concepts of PA and PE.

The WHO's Well-being and Quality of Life Index (WHO-5) [18], the International Physical Activity Questionnaire (IPAQ) [19], and the Physical Exercise Benefits and Barriers (EBBS) [20] scale were applied to verify the QoL, the PA index, and the barriers and benefits to the practice of PE, respectively.

The WHO-5 [18] is a small self-reported measure of current mental well-being. It consists of 5 questions, with 5 answer options: never (0); sometimes (1); less than half the time (2); more than half the time (3); most of the time (4); all the time (5). The sum of all responses gives a raw value, which varies from 0 to 25 points, and to calculate the percentage, the value is multiplied by 4, varying the score from 0% to 100%, where 0 represents the worse QoL and 100 represents better QoL.

The IPAQ [19] consists of 19 questions that are divided into 5 sections: PA at work; PA as a means of transport; PA at home or apartment: Work, household chores, and taking care of the family; PA for recreation, sport, exercise, and leisure; time spent sitting. Each of these sections, the weekly frequency, and the time (minutes) corresponding to the PA questionnaire generate a score to capture everyone's level of PA. The classification of the IPAQ will be "very active", "active", "irregularly active A" (when meeting at least one of the recommended frequency or duration criteria), "irregularly active B" (when does not meet any of the recommended frequency or duration criteria), and "sedentary". Another measure that the IPAQ provides is the metabolic equivalent (MET), measured in minutes/week of vigorous, moderate, and walking PA, i.e., walking MET = 3.3, moderate MET = 4.0, vigorous MET = 8.0. In addition, the IPAQ contains a question about self-perception of health, which is categorized as "poor", "regular", "good", "very good", or "excellent".

The EBBS [20] is composed of 43 items, demonstrating barriers (real or imagined representations of difficulties, inconveniences, time spent, obstacles) and benefits (positive mental representations, which reinforce the adoption of behavior) that people associate with PE. This scale is answered using a 4-point Likert scale, as follows: strongly disagree (1);

disagree (2); agree (3); totally agree (4). When the benefits and barriers are evaluated separately, the total benefits score ranges from 29 to 126 points (biological aspects score ranges from 7 to 28 points; physical performances score ranges from 8 to 32 points; psychological aspects score ranges from 7 to 28 points; social interaction score ranges from 4 to 16 points; prevent health score ranges from 3 to 12 points). The score for barriers ranges from 14 to 56 points (environment for the PA practice ranges from 5 to 20 points; time for PA practice ranges from 4 to 16 points; physical effort ranges from 3 to 12 points; family encouragement ranges from 2 to 8 points).

5. Sample size

The formula used was $n = [p \times (1 - p) \times Z (\alpha / 2)]^2 / (d^2)$, where: n = sample size; p = expected proportion in the population; $Z (\alpha / 2)$ = fixed value of 1.96 for the alpha of 5%; d = stipulated sampling error.

To calculate the sample size of medical and nursing students, the estimate of PE in these people was considered, setting the alpha significance level or type I error at 5% ($\alpha = 0.05$) (or 95% confidence interval, the sampling error at 5% ($d = 0.05$) and the finite population size (720 medical students and 200 nursing students). Due to the lack of preliminary information on estimates in the population of interest, an estimate of 50% ($p = 0.50$) was used, whose value provides the largest sample size necessary for sample representativeness [21]. According to the previous formula, a minimum representative sample of 251 medical students and 132 nursing students was obtained, totaling 383 students [21].

6. Statistical analysis

Descriptive statistics were calculated to describe the variables and values of the IPAQ, EBBS, and WHO-5, with absolute frequency (n) and percentage (%), and the numeric variables, with mean values, standard deviation (SD), minimum and maximum values, median and quartiles. Chi-Square or Fisher's exact tests were used to assess the association between PE practice and categorical variables. Due to an indication of non-nominal distribution (Kolmogorov-Smirnov test), the non-parametric Mann-Whitney test was used to compare the numerical variables of PE practice and WHO-5, IPAQ, and EBBS scores. To study the factors related to PE practice and classes about PA and PE during graduation, simple and multiple logistic regression analysis was used (with the stepwise criterion for selection of variables). The statistical analysis software used was SAS (Statistical Analysis System) version 9.2 for Windows (SAS Institute Inc.). The significance level adopted for the statistical tests

was 5% ($p < 0.05$).

All Strengthening the Reporting of Observational Studies in Epidemiology consensus items were followed [22]. The following figure illustrates the study design (Fig. 1).

RESULTS

A total of 138 undergraduate students (113 medical and 25 nursing students) completely answered the questionnaires.

Participants' ages ranged from 18 to 36 years with a mean age of 22 years (SD 2.62). The sample's BMI ranged between 16.73 and 36.49, and the average was 23.17 (SD 3.47). Table 1 presents all sociodemographic variables in the sample.

Among the 106 (76.8%) participants who self-reported PE, resistance training, and walking were the most practiced types of PE, with a frequency of less than 5 weekly sessions and 1 hour of daily practice (Fig. 2).

From the 32 (23.2%) participants who do not self-reported PE, the most mentioned reasons for not doing PE were lack of time (80.0%), lack of financial resources, and an adequate environment (20.0%), the fact that participants did not feel comfortable exercising (30.0%), among other reasons (30.0%).

Among participants 91 (65.9%) participants had no con-

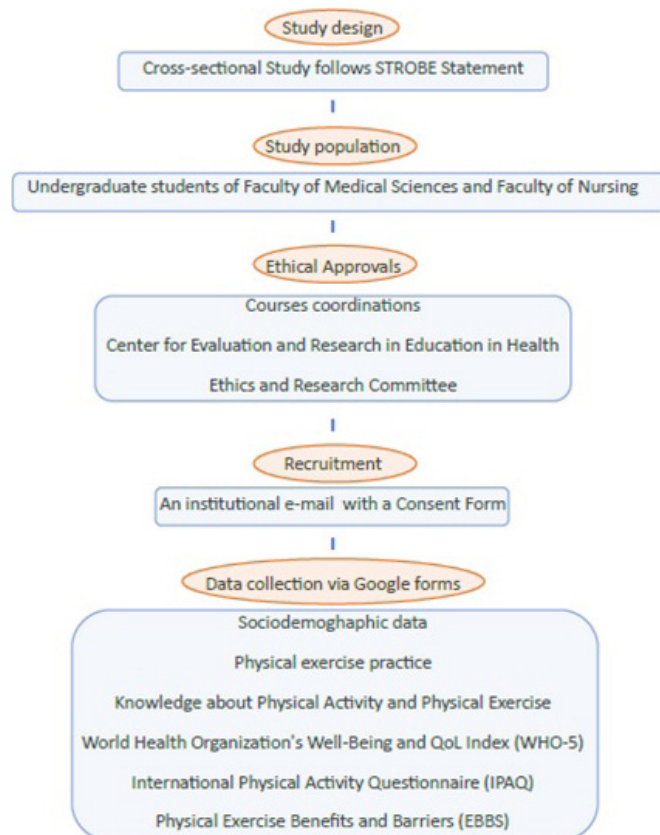


Fig. 1. Overview of study methods.

tent on PA/PE during undergraduate courses. Among the participants who reported having this content, 36 (76.6%) responded that the approaches to PA/PE were not enough to clarify doubts. Furthermore, 134 (97.1%) of students believe that content about PA/PE must have been ministered during the graduation course.

Regarding the participant's knowledge about PA/PE, 116 (84.1%) stated that PA and PE are different concepts, 120 (87.0%) stated that every PE is considered a PA, and 105 (76.1%) stated that not every PA is a PE.

The average score of WHO-5 was 13.01 (SD 4.06), with a percentage value of 52.0% of the index of well-being and

Table 1. Sociodemographic characterization of undergraduate students at UNICAMP (n = 138)

| Variable | Category | n (%) |
|---------------------------------|---------------------------|-----------------------|
| Gender | Woman | 93 (67.4) |
| | Man | 45 (32.6) |
| Skin color | White | 93 (67.4) |
| | No white | 43 (31.2) |
| | Missing | 2 (1.4) |
| Marital status | Single | 131 (94.9) |
| | With partner | 6 (4.4) |
| | Missing | 1 (0.7) |
| Who do you currently live with? | With family | 78 (56.5) |
| | Friends or other students | 31 (22.5) |
| | By yourself | 25 (18.1) |
| | Others | 4 (2.9) |
| Housing type | Rented house | 67 (48.5) |
| | Own home | 64 (46.4) |
| | Others | 7 (5.1) |
| | Salary income | Above 4 minimum wages |
| | between 1-4 minimum wages | 50 (36.2) |
| | Under 1 minimum wage | 30 (21.7) |
| | Missing | 9 (6.5) |
| College student | Medicine student | 113 (81.9) |
| | Nursing student | 25 (18.1) |
| Semester | 1-4 | 62 (44.9) |
| | 5-8 | 53 (38.4) |
| | ≥ 9 | 23 (16.7) |
| Currently works | Yes | 24 (17.4) |
| | No | 114 (82.6) |
| Practice PE | Yes | 106 (76.8) |
| | No | 32 (23.2) |
| Practice PE before college | Yes | 108 (78.3) |
| | No | 30 (21.7) |
| Health self-perception | Excellent | 16 (11.6) |
| | Very good | 56 (40.6) |
| | Good | 53 (38.4) |
| | Regular | 12 (8.7) |
| | Missing | 1 (0.7) |

The minimum wage in Brazil (1,100 Real).

UNICAMP: State University of Campinas, PE: physical exercise.

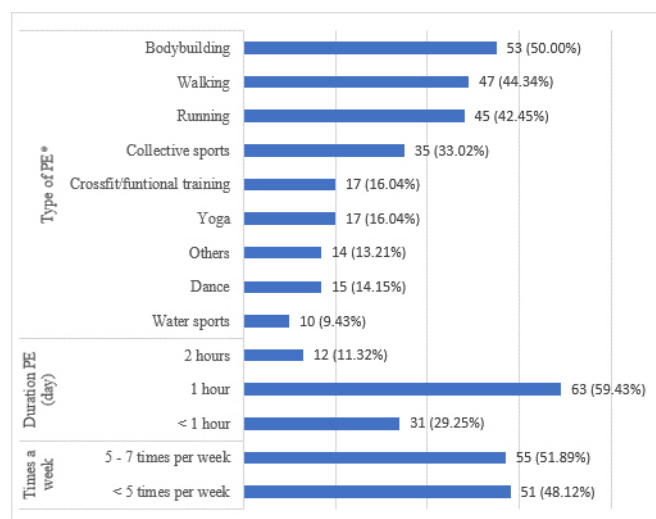


Fig. 2. Weekly frequency, daily time, and types of physical exercise practiced by participants who exercise (n = 106).

PE: physical exercise.

*In this category more than one choice could be made.

QoL, and the WHO-5 total minimum value was 2.00 (8.0%) and the maximum value was 21.00 (84.0%).

According to the IPAQ, 38 (27.5%) participants are classified as “very active”, 46 (33.3%) as “active”, 28 (20.3%) as “irregularly active A”, 24 (17.4%) as “irregularly active B” and 2 (1.5%) are considered “sedentary”. Regarding the IPAQ METs, the means were: total METs in PA at work was 211.79 (SD 975.10); total METs in transport was 171.60 (SD 357.27); total METs in domestic PA was 536.40 (SD 799.98); total leisure-time PA (LTPA) METs was 1,410.50 (SD 1,682.80); total walking METs was 453.87 (SD 933.57); total METs in the moderate PA was 968.74 (SD 1,133.30); total METs in the vigorous PA was 1,031.90 (SD 1,416.00); general total METs of PA on the IPAQ was 2,330.30 (SD 2,071.40).

The EBBS average score of benefits to PE score was 98.58 (SD 12.76), with the averages of each benefit category being 22.91 (SD 4.12) for biological aspects, 28.59 (SD 3.25) for physical performance, 24.70 (SD 3.49) for psychological aspects, 12.04 (SD 2.87) for social interactions and 10.33 (SD 1.58) for preventive health. The average score of barriers to PE was 30.68 (SD 6.66), with the averages of each category of barriers being 10.51 (SD 2.81) in an environment, 8.73 (SD 2.63) for time devoted to PE, 7.70 (SD 1.91) for physical effort and 3.74 (SD 1.48) for family encouragement.

Table 2 shows the association of PE practice with sociodemographic data and IPAQ classification. There was an association between the practice of PE and being a medical undergraduate student, living in a rented house, considering content on PE at graduation insufficient, self-perception of health as “very good” and “excellent”, classified by the IPAQ as “active” and “very active” and practiced PE before starting the undergraduate course.

Table 3 shows the comparison of WHO-5, IPAQ, and EBBS between participants who practice PE and do not practice PE. Participants who practice PE have a higher score of WHO-5, total METs of PA in transport, walking, LTPA, moderate and vigorous PA, and general MET of the IPAQ. Regarding the EBBS, there were higher scores in the perception of PE benefits (physical performance, psychological aspects, social interactions, and total score of benefits). However, there were high scores between the non-practice of PE in METs of total domestic PA in IPAQ, and higher scores on the perception of barriers to PE in the EBBS (environment, time, physical effort, family encouragement, and total score of barriers).

Students who have content on PE were from the medical course, were in the 5th semester of graduation or higher, and currently have some employment (Table 4).

According to the multiple logistic regression analysis, it was found that the medical course (p = 0.024) and rented housing (p = 0.027) were associated with the practice of PE. In addition, the medical course (p = 0.013) and students who attend between the 5th and 8th semesters (p = 0.005) were associated with having content on PE during the graduation course.

DISCUSSION

We found that students who exercise have a better self-perception of health, have higher scores in the WHO-5, perceive more PE benefits, and are classified as “active” and “very active” by the IPAQ. In addition, medical students are the most engaged in practicing PE, and students who practice PE reported that the content on PE learned during the undergraduate course is not enough to clarify their doubts. Students who had content about PE/PA during graduation were from the medical course and were between the 5th and 8th semesters of the graduation course.

In our study, 76.8% of the sample reported practicing PE. Studies indicate that students end up having their lifestyle and habits influenced by the time spent during academic activities, corroborating with sedentary behavior due to the lack of LTPA and the stressful conditions of the university environment [23-25]. In addition, the current global condition triggered by the COVID-19 pandemic has further increased cases of sedentary behavior in university students due to restrictions and lockdowns imposed [26-28]. However, a study showed that 80% of students reported that the practice of PE was a great resource used during the COVID-19 pandemic to improve mental health, and therefore, the practice of PE should be recognized as an ally important in promoting health and QoL of students.

Participants who exercise had a higher WHO-5 score and

Table 2. Graduation, type of home, previous practices and knowledge about physical exercise, self-perception of health, and IPAQ classification of students

| Variables | Total (n = 138) | PE | | p-value |
|---|-----------------|---------------|-------------|-----------------------|
| | | Yes (n = 106) | No (n = 32) | |
| Graduation course | | | | < 0.001 ^{a)} |
| Medicine | 113 (81.88) | 94 (88.68) | 19 (59.38) | |
| Nursing | 25 (18.12) | 12 (11.32) | 13 (40.63) | |
| PE before college | | | | 0.014 ^{a)} |
| Yes | 108 (78.26) | 88 (83.02) | 20 (62.50) | |
| No | 30 (21.74) | 18 (16.98) | 12 (37.50) | |
| House type | | | | 0.003 ^{a)} |
| Rented house | 67 (48.55) | 59 (55.66) | 8 (25.00) | |
| Own house | 64 (46.38) | 44 (41.51) | 20 (62.50) | |
| Others | 7 (5.07) | 3 (2.83) | 4 (12.50) | |
| Classes are enough to clarify doubts about PE | n = 47 | n = 35 | n = 12 | 0.020 ^{b)} |
| Yes | 11 (7.97) | 5 (4.72) | 6 (18.75) | |
| No | 36 (26.09) | 30 (28.30) | 6 (18.75) | |
| Self-health perception | | | | 0.004 ^{b)} |
| Regular | 12 (8.70) | 8 (7.55) | 4 (12.50) | |
| Good | 53 (38.41) | 33 (31.13) | 20 (62.50) | |
| Very good | 56 (40.58) | 49 (46.23) | 7 (21.88) | |
| Excellent | 16 (11.59) | 15 (14.15) | 1 (3.13) | |
| Missing | 1 (0.72) | 1 (0.94) | 0 | |
| IPAQ classification | | | | < 0.001 ^{b)} |
| Sedentary | 2 (1.45) | 1 (0.94) | 1 (3.13) | |
| Irregularly active B | 24 (17.39) | 8 (7.55) | 16 (50.00) | |
| Irregularly active A | 28 (20.29) | 21 (19.81) | 7 (21.88) | |
| Active | 46 (33.33) | 39 (36.79) | 7 (21.88) | |
| Very active | 38 (27.54) | 37 (34.91) | 1 (3.13) | |

There was no association of physical exercise practice with age, gender, skin color, salary, marital situation, who do they live with, semester, year of entry, content on physical activity and physical exercise and health habits during undergraduate courses.

Values are presented as number (%).

IPAQ: International Physical Activity Questionnaire, PE: physical exercise.

^{a)}Chi-square test.

^{b)}Fisher exact test.

self-perceived their health status as “very good” and “excellent”. Regular PE practice positively influences physical, mental, and emotional health, reducing the stress levels of students and health professionals, and contributing to better well-being and QoL [29-31]. Despite these results, the average WHO-5 score indicates that, despite the PE practice, the result showed that the well-being index and QoL of the sample are low for both groups. One of the supposed reasons is the fact that the sample was conditioned by academic and professional demands, especially during the COVID-19 pandemic, which mainly impacted the mental and emotional health of individuals [32,33].

One of the points of the study is about the way undergraduate students learn about PA/PE, once. Participants who exercised thought that the classes were insufficient to clarify doubts about exercises, and those who did not exercise thought that the content covered was sufficient. This demonstrates a great paradox about PE practice by undergraduate students and the perception of content transmis-

sion, something that can affect the care of future patients concerning PE guidance [34,35].

The university and the hospital institution need to review the curriculum and the way of transmitting knowledge to promote the dissemination of health practices, especially PE. Offering classes on PE in undergraduate medical and nursing courses and professional practice can mobilize them to disseminate this content to society [36,37]. In addition, offering PE practices in the university environment through extension activities in PE and sports, offering social support, and welcoming students help in the adoption of good health practices among students, encouraging the continuity of these healthy habits in post-academic life.

Studies show that encouraging patients to adhere to a more active and healthy behavior is an arduous task for health professionals, and because many hospitals do not have a physical educator, the health professional may feel overwhelmed by having to study PA/PE to help patients [38,39]. In this sense, encouraging the creation of disciplines

Table 3. Comparison between metabolic equivalents, indices of well-being and quality of life, and benefits and barriers to physical exercise among participants who exercise or not (n = 138)

| Test | Domain | PE | | | No PE | | | p-value ^{a)} |
|---------------------------------|----------------------------------|--------------------|-------|-----------|--------|-------|----------|-----------------------|
| | | MED | MIN | MAX | MED | MIN | MAX | |
| WHO-5 | Total score WHO-5 | 14.00 | 4.00 | 21.00 | 11.00 | 2.00 | 20.00 | < 0.001 |
| IPAQ | Total MET min/week at work | 0.00 | 0.00 | 5,952.00 | 0.00 | 0.00 | 7,380.00 | 0.837 |
| | Total MET min/week transport | 0.00 | 0.00 | 2,772.00 | 0.00 | 0.00 | 594.00 | 0.010 |
| | Total MET min/week domestic task | 240.00 | 0.00 | 3,600.00 | 367.50 | 0.00 | 6,780.00 | 0.012 |
| | Total MET min/week leisure PA | 1,356.00 | 0.00 | 10,080.00 | 0.00 | 0.00 | 99.00 | < 0.001 |
| | Total MET min/week walking | 297.00 | 0.00 | 6,072.00 | 0.00 | 0.00 | 5,940.00 | < 0.001 |
| | Total moderate MET min/week | 672.00 | 0.00 | 6,345.00 | 462.00 | 0.00 | 7,044.00 | 0.345 |
| | Total vigorous MET min/week | 960.00 | 0.00 | 8,000.00 | 0.00 | 0.00 | 0.00 | < 0.001 |
| | Total general MET min/week | 2,442.00 | 0.00 | 11,510.00 | 519.00 | 0.00 | 9,375.00 | < 0.001 |
| | EBBS | Biological aspects | 23.50 | 0.00 | 28.00 | 21.00 | 16.00 | 28.00 |
| Physical performance | | 30.00 | 15.00 | 32.00 | 28.00 | 22.00 | 32.00 | 0.007 |
| Psychological aspects | | 27.00 | 15.00 | 28.00 | 22.50 | 14.00 | 28.00 | < 0.001 |
| Social interaction | | 13.00 | 1.00 | 16.00 | 10.00 | 7.00 | 16.00 | 0.001 |
| Preventive health | | 11.00 | 5.00 | 12.00 | 10.00 | 8.00 | 12.00 | 0.523 |
| Total benefits score | | 103.00 | 43.00 | 116.00 | 89.00 | 71.00 | 114.00 | 0.001 |
| Environment for the PA practice | | 10.50 | 5.00 | 20.00 | 11.50 | 5.00 | 16.00 | 0.038 |
| Time for PA practice | | 8.00 | 4.00 | 16.00 | 10.50 | 7.00 | 15.00 | < 0.001 |
| Physical effort | | 7.50 | 3.00 | 12.00 | 9.00 | 5.00 | 12.00 | 0.003 |
| Family encouragement | | 3.00 | 0.00 | 8.00 | 5.00 | 2.00 | 7.00 | < 0.001 |
| Total barrier score | 29.50 | 15.00 | 56.00 | 35.50 | 21.00 | 47.00 | < 0.001 | |

WHO-5: Well-being and Quality of Life Index, PE: physical exercise, MED: median, MIN: minimum, MAX: maximum, MET: metabolic equivalent, IPAQ: International Physical Activity Questionnaire, EBBS: Physical Exercise Benefits and Barriers, PA: physical activity.

^{a)}Mann-Whitney test.

Table 4. Association of physical exercises classes during college with the course, semester, classes about health habits, and current work of students

| Variables | Total (n = 138) | PE classes during college | | p-value |
|-------------------|-----------------|---------------------------|-------------|---------------------|
| | | Yes (n = 47) | No (n = 91) | |
| Graduation course | | | | 0.010 ^{a)} |
| Medicine | 113 (81.88) | 44 (93.62) | 69 (75.82) | |
| Nursing | 25 (18.12) | 3 (6.38) | 22 (24.18) | |
| Semester | | | | 0.037 ^{a)} |
| 1-4 | 62 (44.93) | 14 (29.79) | 48 (52.75) | |
| 5-8 | 53 (38.40) | 23 (48.94) | 30 (32.97) | |
| ≥ 9 | 23 (16.67) | 10 (21.28) | 13 (14.29) | |
| Currently work | | | | 0.022 ^{a)} |
| Yes | 24 (17.39) | 13 (27.66) | 11 (12.09) | |
| No | 114 (82.61) | 34 (72.34) | 80 (87.91) | |

There was no association of physical exercise classes during college with age, gender, skin color, salary, marital situation, housing type, year of college entry, physical exercise practice, physical exercise practice before college, self-health perception, and IPAQ classification.

Values are presented as number (%).

PE: physical exercise.

^{a)}Chi-square test.

that address interdisciplinarity in PA/PE practices and integrating other qualified professionals within the interdisciplinary team in the hospital may help physicians and nurses to feel confident to guide patients about PA/PE and other healthy habits.

A limitation of this study is the low sample size of students who responded to the Google Forms survey. One of the ex-

planations for this is the high academic demand, which intensified during the COVID-19 pandemic period due to the conditions of remote teaching. Another explanation is the issue of exposure to assuming a sedentary behavior, something more veiled among undergraduate health students. Thus, those who do not practice PA tend not to respond to research related to the PE theme, elucidating how difficult

this topic is for these people. Those who exercise create an identification with the topic and seek to understand more about PE, as they recognize the importance of this topic for themselves and society. A strength of this study was to elucidate the deficiency of the PE theme in undergraduate medicine and nursing courses, something that university institutions should review in the curricula.

The university period is of great transformation in the life of the student. University environments should be more welcoming and need to offer mechanisms for college students to recognize the importance of having good health habits in everyday life, encouraging the habit of exercising among college students, regardless of the type, intensity, and volume of PE, because moving around is always better than remaining sedentary. However, there is still a paradox between what is learned at the university and what can be disseminated to future patients. The theme of PA/PE should be approached in undergraduate curricula in medicine and nursing in a welcoming and unprejudiced way, to provide resources for undergraduate students to insert PA/PE into their routine and encourage the dissemination of this knowledge to the entire community. The challenge of inserting content on PA/PE in medicine and nursing curricula is complex, but institutions must mobilize to carry out this insertion and, in a way that avoids information overload for these students [40].

CONCLUSION

Undergraduate students who exercised had a higher score of perception of well-being and QoL, with higher METs in IPAQ vigorous, moderate, walking PA and in the general total, and a better perception of PE benefits. Participants who exercise tend to need more information about PE to feel confident to correctly guide PE practice for future patients. Thus, university and hospital institutions should encourage them to engage in PE practice and provide effective knowledge so that they and their patients can enjoy this important resource.

NOTES

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