

The perception on physical activity among students

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Authors' Contribution: A – Study design; B – Data collection; C – Statistical analysis; D – Manuscript Preparation; E – Funds Collection

Abstract

Background and Study Aim Questionnaires are useful tools for assessing the level of physical activity in the general population due to their brevity, ease of understanding, and ease of application. The aim of our study is to subjectively assess the physical activity of participants using the self-report scale of the Godin–Shepard Leisure-Time Physical Activity Questionnaire.

Material and Methods The study involved 299 undergraduate and graduate students from Ștefan cel Mare University of Suceava (Romania). In their academic activities, they typically engage in between 4 and 6 hours of practice. Additionally, many respondents participate in various physical activities, totalling another 4 to 8 hours of physical activity per week. The questionnaire consists of three questions regarding the level of physical activity (intense, moderate, low). It aims to collect data for the past 7 days for each physical activity lasting at least 15 minutes.

Results The intergroup analysis of the data showed statistical significance in the Wilcoxon rank-sum test for three out of six analyzed situations: graduate males versus graduate females, undergraduate males versus undergraduate females, and graduate males versus undergraduate males ($p < 0.001$). In the study, data concerning the level of physical activity among students were collected. Data analysis showed that over 80% (240 out of 299) of the respondents are moderately active or active. Statistically significant differences were observed only by study level and gender. While there was a notable difference of 10 points between males and females, it did not reach statistical significance.

Conclusions We can conclude that physical activity is an important aspect of students' daily routines. However, awareness programs are necessary to encourage them to remain physically active. These programs also promote the benefits of physical activity for physical, mental, and social well-being, as well as overall quality of life.

Keywords: physical activity, questionnaire, students, assessment

Introduction

Questionnaires are valuable tools for assessing the level of physical activity in the general population. Other benefits of using questionnaires include their brevity, ease of understanding, and application, facilitated by technology. They also allow for fast analysis of results and enable appropriate actions based on the findings [1, 2]. In the field of physical education, various questionnaires are utilized, such as the International Physical Activity Questionnaire, Baecke Questionnaire, Physical Activity Index, Global Physical Activities Questionnaire, and Godin–Shepard Leisure-Time Physical Activity Questionnaire.

For good health and quality of life, the recommendation is to engage in various types of physical activities for at least 150 minutes per week with moderate and vigorous intensity [3, 4]. In recent years, many studies have revealed a low level of physical activity among youth and children, with more than half of the subjects recording insufficient physical activity [5, 6, 7, 8, 9]. Additionally, two meta-studies (involving over 3 million participants) present a concerning situation regarding adolescents

and youths, with over 80% of respondents being insufficiently physically active [10, 11].

Previous studies have shown that the Godin–Shepard Leisure-Time Physical Activity Questionnaire is a valid tool for assessing the level of physical activity in the general population [12, 13, 14, 15]. The use of this questionnaire has revealed that physical activity is correlated with study level, profession (individuals with higher education and office jobs tend to have more physical activity during leisure-time), and gender (males being more active than females) [16].

A study conducted on Finnish adults showed that vigorously active individuals had better physical and health functioning compared to inactive and moderately active individuals, with those in the vigorously active category experiencing greater benefits and a higher quality of life [17]. Another study conducted on a Scandinavian population revealed that regular physical activity during leisure time improves bone mineral density and reduces the risk of osteoporosis [18]. The Godin–Shepard Leisure-Time Physical Activity Questionnaire is a useful tool for measuring changes in physical activity in response to an intervention, treatment, or medication for health issues [19, 20, 21, 22].

Questionnaires are considered reliable and valid tools for assessing the level of physical activity. Previous studies have shown a low level of physical activity among youths, but there is a lack of information concerning Romanian youth. The aim of our study is to subjectively assess the physical activity of participants using a self-report scale, specifically the Godin–Shepard Leisure-Time Physical Activity Questionnaire.

Materials and Methods

Participants

The study involved 299 undergraduate and graduate students from the Faculty of Physical Education and Sport at Stefan cel Mare University of Suceava (Romania): undergraduate males - 110, undergraduate females - 80; graduate males - 49, and graduate females - 60. In their academic activities, they typically engage in between 4 and 6 hours of practice. Additionally, many respondents participate in various physical activities, resulting in an additional 4 to 8 hours of physical activity per week.

Research Design

The questionnaire comprises 3 questions concerning the level of physical activity (intense, moderate, low) to collect data for the last 7 days, for each physical activity that lasts for at least 15 minutes. In the analysis of the results, each strenuous activity will be multiplied by 9, each moderate activity by 5, and each mild/light activity by 3. This questionnaire could be applied to healthy individuals as well as those with health issues. According to the author of this questionnaire [23], a healthy person is considered active if they accumulate 24 or more points or units within

one week. Between 14 and 23 units is considered moderately active, and less than 14 is considered insufficiently active or sedentary. For students in the field of Sport Science, a different benchmark was established: a person will be considered active if they accumulate 48 or more points/units within one week; between 28 and 47 points/units is considered moderately active, and less than 28 is considered insufficiently active or sedentary. This is twice as high as compared to the general population.

Statistical Analysis

The study utilized descriptive statistics (mean, standard deviation) and the Wilcoxon rank-sum test (statistical significance set at $p < 0.05$) for each analyzed category (gender; study level; gender and study level). Statistical analysis was conducted using the IBM SPSS Statistics program (version 26).

Results

The intergroup analysis of the data (male–female, graduate–undergraduate, graduate male–graduate female, undergraduate male–undergraduate female, graduate male–undergraduate male, graduate female–undergraduate female) showed statistical significance at the Wilcoxon rank-sum test for three out of six analyzed situations (Table 1).

All analyzed groups in the study demonstrated a very good level of physical activity, with participants being classified as active individuals. Males achieved the highest average values, with scores exceeding 50 points, which were 10 points higher than those of females. However, at the individual level, the situation varied within each category. Among undergraduate males (110), 18 respondents were classified as sedentary, 32 as moderately active, and 60 as active. For undergraduate females (80), 13 respondents were sedentary, 33 were moderately

Table 1. Statistical significance at intergroup analysis

| Statistical Parameters/Groups | X ± SD | Z | Asymptotic significance |
|--|----------------------------|-------|-------------------------|
| Graduate male vs. Graduate female | 54.65±34.60 39.47±27.78 | 6.096 | 0.001* |
| Ungraduate male vs. Ungraduate female | 51.99±26.72 43.91±25.17 | 6.346 | 0.001* |
| Graduate male vs. Ungraduate male | 54.65±34.60 51.99±26.72 | 6.032 | 0.001* |
| Graduate female vs. Ungraduate female | 39.47±27.78 43.91±25.17 | 0.356 | 0.722 |
| Graduate vs. Ungraduate | 46.39±28.62 48.59±23.40 | 1.934 | 0.053 |
| Male vs. Female | 52.81±26.56 42.08±22.81 | 1.495 | 0.135 |

X = mean, SD = standard deviation, Z = standardized test statistic value from the Wilcoxon test,

* significance level 0.05.

active, and 33 were active. Among graduate males (49), 8 respondents were sedentary, 18 were moderately active, and 23 were active. For graduate females (80), 19 respondents were sedentary, 26 were moderately active, and 15 were active.

Statistical significance was observed in three out of six analyzed situations (graduate male vs. graduate female; undergraduate male vs. undergraduate female; graduate male vs. undergraduate male).

Discussion

The aim of our study was to subjectively assess the physical activity of participants using a self-report scale, specifically the Godin–Shepard Leisure-Time Physical Activity Questionnaire. Previous research has shown that the level of education influences adherence to regular physical activity [24], which is consistent with our findings where over 80% of respondents were classified as moderately active or active. Questionnaires are generally accepted to have moderate reliability and validity, making them accessible tools for quickly assessing the level of physical activity within a population, whether administered in written or online format [25]. In our research, we utilized a translated version of the Godin–Shepard Leisure-Time Physical Activity Questionnaire, which was deemed more appropriate for our participants, with response times similar to those reported in other studies [26].

A follow-up study revealed that individuals who graduated from a higher vocational school or university maintained their level of physical activity compared to those with lower levels of education, among whom a decrease in physical activity was observed alongside perceived changes in health status [27]. This finding is particularly relevant to our study, as it raises the question of whether, during a follow-up assessment, the same subjects will maintain or improve their level of physical activity when the questionnaire is administered again.

Leisure-time physical activity has benefits for life quality, health status, and life expectancy, with many of our respondents being active individuals experiencing multiple physical and psychological benefits due to regular physical exercise [28]. Education, occupation, and income are factors that influence perceptions of physical activity in leisure time, and over generations/years, these factors have remained constant in assessing the level of physical activity in the general population [29]. The Godin Leisure-Time Exercise Questionnaire is affordable and easy to apply to adolescents and youth, yielding reliable data for determining the level of physical activity [30, 31] and for developing intervention programs in specific situations based on the analyzed data. These findings are particularly relevant to our study, as they provide context and support for our own research into the subjective assessment of physical activity among our participants.

General recommendation is to practice regular physical exercise with moderate to vigorous intensity [32, 33], a vast majority of our respondents fits in this recommendation, meaning physical, psychological and social benefits. For our subjects was noticed a significant difference both by study level and gender in 3 out of 4 situations; also, only by gender, males average scores were better than females with over 20%, but without statistical significance. 240 out of 299 respondents are moderate active or active, the main goal being for the rest of the participants to practice regular physical activity for at least 150 minutes with moderate to vigorous intensity per week and muscle-strengthening activities at least 2 days per week [3].

The use of questionnaires to determine the level of physical activity had some limitations, primarily due to the subjective nature of respondents' self-reports. Additionally, all respondents were students in the field of Sport Science, which may limit the generalizability of the results. Our study included 299 participants from one university, serving as a benchmark for further research focused on the level of physical activity among Romanian students and its impact on health-related fitness. Furthermore, it is recommended to increase the number of participants in future studies to establish a more comprehensive understanding of the impact of physical activity on the daily routines of Romanian students.

Conclusions

The main challenge when using questionnaires to collect data on physical activity is to minimize subjectivity to obtain accurate information and facilitate appropriate data analysis. Our findings underscore the importance of physical activity in students' daily lives. Awareness programs are necessary to encourage them to remain physically active and promote the numerous benefits of physical activity, including physical, mental, and social well-being, and overall quality of life. Future studies should consider incorporating specific physical fitness tests alongside questionnaires to enhance objectivity in evaluation and establish a benchmark for this demographic of the Romanian population.

Funding

The APC was funded by Ștefan cel Mare University of Suceava.

Conflict of interest

The authors declare that there is no conflict of interest in writing this article.

References

1. Karolinska Institute. *International Physical Activity Questionnaire. Guidelines for Data Processing and Analysis of the International Physical Activity Questionnaire (IPAQ)—Short and Long Forms*. Stockholm: Sweden; 2005.
2. Leuciuc FV, Ghervan P, Popovici IM, Benedek F, Lazar AG, Pricop G. Social and Educational Sustainability of the Physical Education of Romanian Students and the Impact on Their Physical Activity Level. *Sustainability* 2020; 12: 9231. <https://doi.org/10.3390/su12219231>
3. World Health Organization. *WHO guidelines on physical activity and sedentary behavior: at a glance*. Geneva [Internet]. 2020 [updated 2022 Jun; cited 2022 Dec 12]. Available from: <https://www.who.int/publications/i/item/9789240015128>
4. World Health Organization. *Global status report on physical activity* [Internet]. 2022. Geneva [updated 2022 Jun; cited 2022 Dec 12]. Available from: <https://www.who.int/publications/i/item/9789240059153>
5. Dyrstad SM, Hansen BH, Holme IM, Anderssen SA. Comparison of self-reported versus accelerometer-measured physical activity. *Medicine & Science in Sports & Exercise*, 2014; 46: 99–106. <https://doi.org/10.1249/MSS.0b013e3182a0595f>
6. Pedisic Z, Rakovac M, Bennie J, Jurakic D, Bauman AE. Levels and correlates of domain-specific physical activity in university students: Cross-sectional findings from Croatia. *Kinesiology*, 2014; 46: 12–22.
7. Raddi LLD, da Silva JP, Ferrari GLD, de Oliveira LC, Matsudo VKR. Physical activity level and accumulation of sitting time among medical students. *Revista Brasileira de Medicina do Esporte*, 2014; 20: 101–104. <https://doi.org/10.1590/1517-86922014200201350>
8. Gabrys T, Nowak Z, Michalski C, Szmatlan-Gabrys U, Stanula A. Obesity in 18–25-year-olds in relation to their physical activity, and lifestyle. *Physical Activity Review*, 2018; 6: 64–72, <https://doi.org/10.16926/par.2018.06.09>
9. Nikolic M, Jovanovic R, Stankovic A. Characteristics of physical activity among healthy Serbian adolescents. *Revista Brasileira de Medicina do Esporte*, 2020; 26: 30–33. <https://doi.org/10.1590/1517-869220202601187598>
10. Guthold R, Stevens GA, Riley LM, 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. *Lancet Global Health*, 2018; 6(10): e1077–e1086. [https://doi.org/10.1016/S2214-109X\(18\)30357-7](https://doi.org/10.1016/S2214-109X(18)30357-7)
11. Guthold R, Stevens GA, Riley LM, Bull FC. Global trends in insufficient physical activity among adolescents: a pooled analysis of 298 population-based surveys with 1.6 million participants. *Lancet Child Adolescent Health*, 2020; 4(1): 23–35. [https://doi.org/10.1016/S2352-4642\(19\)30323-2](https://doi.org/10.1016/S2352-4642(19)30323-2)
12. Kimm SY, Glynn NW, Kriska AM, Fitzgerald SL, Aaron DJ, Similo SL, McMahon RP, Barton BA. Longitudinal changes in physical activity in a biracial cohort during adolescence. *Medicine and Science in Sports and Exercise*, 2000; 32(8): 1445–1454. <https://doi.org/10.1097/00005768-200008000-00013>
13. Scerpella TA, Tuladhar P, Kanaley JA. Validation of the Godin-Shephard questionnaire in prepubertal girls. *Medicine and Science in Sports and Exercise*, 2002; 34(5): 845–850. <https://doi.org/10.1097/00005768-200205000-00018>
14. Amireault S, Godin G. The Godin-Shephard leisure-time physical activity questionnaire: validity evidence supporting its use for classifying healthy adults into active and insufficiently active categories. *Perceptual and Motor Skills*, 2015; 120(2): 604–622. <https://doi.org/10.2466/03.27.PMS.120v19x7>
15. João TM, Rodrigues RC, Gallani MC, Miura CT, Domingues GB, Amireault S, Godin G. Validity of the Brazilian version of the Godin-Shephard Leisure-Time Physical Activity Questionnaire. *Cadernos de Saude Publica*, 2015; 31(9): 1825–1838. <https://doi.org/10.1590/0102-311X00189713>
16. Seiluri T, Lahti J, Rahkonen O, Lahelma E, Lallukka T. Changes in occupational class differences in leisure-time physical activity: a follow-up study. *The International Journal of Behavioral Nutrition and Physical Activity*, 2011; 8: 14. <https://doi.org/10.1186/1479-5868-8-14>
17. Lahti J, Laaksonen M, Lahelma E, Rahkonen O. The impact of physical activity on physical health functioning--a prospective study among middle-aged employees. *Preventive Medicine*, 2010; 50(5-6): 246–250. <https://doi.org/10.1016/j.ypmed.2010.02.007>
18. Morseth B, Emaus N, Wilsgaard T, Jacobsen BK, Jørgensen L. Leisure time physical activity in adulthood is positively associated with bone mineral density 22 years later. The Tromsø study. *European Journal of Epidemiology*, 2010; 25(5): 325–331. <https://doi.org/10.1007/s10654-010-9450-8>
19. Amireault S, Godin G, Lacombe J, Sabiston CM. Validation of the Godin-Shephard Leisure-Time Physical Activity Questionnaire classification coding system using accelerometer assessment among breast cancer survivors. *Journal of Cancer Survivorship: Research and Practice*, 2015; 9(3): 532–540. <https://doi.org/10.1007/s11764-015-0430-6>
20. Amireault S, Godin G, Lacombe J, Sabiston CM. The use of the Godin-Shephard Leisure-Time Physical Activity Questionnaire in oncology research: a systematic review. *BMC Medical Research Methodology*, 2015; 15: 60. <https://doi.org/10.1186/s12874-015-0045-7>
21. Motl RW, Bollaert RE, Sandroff BM. Validation of the Godin Leisure-Time Exercise Questionnaire classification coding system using accelerometry in multiple sclerosis. *Rehabilitation Psychology*, 2018; 63(1): 77–82. <https://doi.org/10.1037/rep0000162>
22. Sikes EM, Richardson EV, Cederberg KJ, Sasaki JE, Sandroff BM, Motl RW. Use of the Godin leisure-time exercise questionnaire in multiple sclerosis research: a comprehensive narrative review.

- Disability and Rehabilitation*, 2019; 41(11): 1243–1267. <https://doi.org/10.1080/09638288.2018.1424956>
23. Godin G. The Godin-Shephard leisure-time physical activity questionnaire. *Health & Fitness Journal of Canada*, 2011; 4(1): 18–22.
24. Kružliaková N, Estabrooks PA, You W, Hedrick V, Porter K, Kiernan M, Zoellner J. The Relationship Between the Stanford Leisure-Time Activity Categorical Item and the Godin Leisure-Time Exercise Questionnaire Among Rural Intervention Participants of Varying Health Literacy Status. *Journal of Physical Activity & Health*, 2018; 15(4): 269–278. <https://doi.org/10.1123/jpah.2017-0284>
25. Helmerhorst HJ, Brage S, Warren J, Besson H, Ekelund U. A systematic review of reliability and objective criterion-related validity of physical activity questionnaires. *The International Journal of Behavioral Nutrition and Physical Activity*, 2012; 9: 103. <https://doi.org/10.1186/1479-5868-9-103>
26. São-João TM, Rodrigues RC, Gallani MC, Miura CT, Domingues GB, Godin G. Cultural adaptation of the Brazilian version of the Godin-Shephard Leisure-Time Physical Activity Questionnaire. *Revista de Saude Publica*, 2013; 47(3): 479–487. <https://doi.org/10.1590/s0034-8910.2013047003947>
27. Droomers M, Schrijvers CT, Mackenbach JP. Educational level and decreases in leisure time physical activity: predictors from the longitudinal GLOBE study. *Journal of Epidemiology and Community Health*, 2001; 55(8): 562–568. <https://doi.org/10.1136/jech.55.8.562>
28. Kujala UM, Kaprio J, Sarna S, Koskenvuo M. Relationship of leisure-time physical activity and mortality: the Finnish twin cohort. *JAMA*, 1998; 279(6): 440–444. <https://doi.org/10.1001/jama.279.6.440>
29. Mäkinen T, Borodulin K, Laatikainen T, Fogelholm M, Prättälä R. Twenty-five year socioeconomic trends in leisure-time and commuting physical activity among employed Finns. *Scandinavian Journal of Medicine & Science in Sports*, 2009; 19(2): 188–197. <https://doi.org/10.1111/j.1600-0838.2007.00739.x>
30. Koo MM, Rohan TE. Comparison of four habitual physical activity questionnaires in girls aged 7-15 yr. *Medicine and Science in Sports and Exercise*, 1999; 31(3): 421–427. <https://doi.org/10.1097/00005768-199903000-00011>
31. Eisenmann JC, Milburn NJ, Jacobsen LN, Moore SJ. Reliability and convergent validity of the Godin Leisure-Time Exercise Questionnaire in rural 5th-grade school-children. *Journal of Human Movement Studies*, 2002; 43: 135–149.
32. Prochaska JJ, Sallis JF, Long B. A physical activity screening measure for use with adolescents in primary care. *Archives of Pediatrics & Adolescent Medicine*, 2001; 155(5): 554–559. <https://doi.org/10.1001/archpedi.155.5.554>
33. Pardo A, Roman-Vinas B, Ribas-Barba L, Roure E, Vallbona C, Serra-Majem L. Health-enhancing physical activity and associated factors in a Spanish population. *Journal of Science and Medicine in Sport*, 2014; 17: 188–194. <https://doi.org/10.1016/j.jsams.2013.04.002>

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Cite this article as:

Leuciuc FV, Pricop G. The perception on physical activity among students. *Physical Education of Students*, 2024;28(2):85–89.

<https://doi.org/10.15561/20755279.2024.0205>

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Received: 18.02.2024

Accepted: 21.03.2024; **Published:** 30.04.2024