

HABITUAL PHYSICAL ACTIVITY OF UNIVERSITY STUDENTS EXTRAMURAL FORMS OF STUDIES: THE LEVEL OF PHYSICAL ACTIVITY DEPENDING ON GENDER, AGE, AND EDUCATION

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INTRODUCTION

The rapid expansion and introduction of new technologies into people's daily lives have exacerbated several problems associated with physical inactivity (PA) in adults around the world. The adverse health effects caused by sedentary lifestyles are well documented¹. It is known that the lack of PA is the fourth most important risk factor for mortality, and a sedentary lifestyle has negative consequences for the muscular, and cardiovascular systems, and adversely affects the psychological state of the person²⁻³. Regular physical activity significantly reduces the risk of premature death, is an essential component in the prevention of many diseases, and in addition, encourages people to take personal responsibility for their health.

According to the World Health Organization (WHO), as of 2016, the average life expectancy of Ukrainian men and women is 72.5 years, and the average healthy life expectancy is only 64 years, which is below the world average⁴. A large part of the population of Ukraine is physically inactive, so the number of persons covered by physical fitness and sports activities in 2019 was only 14.7 % of the total population⁵.

At the same time, it is known that physical activity is the most important factor in increasing the life expectancy of the working-age population and has a significant health-improving potential. A sustained positive attitude to PA, different types of physically active activities, and physical activity at work and

¹ World Health Statistics 2022: Monitoring Health for the SDGs. World Health Organization 2022. <https://www.who.int/data/gho/publications/world-health-statistics>.

² Does Physical Activity Matter for the Mental Health of University Students during the COVID-19 Pandemic? / A. M. Rogowska та ін. *Journal of Clinical Medicine*. 2020. Т. 9, № 11. С. 3494. URL: <https://doi.org/10.3390/jcm9113494>

³ Physical activity and sleep quality in relation to mental health among college students / A. K. Ghrouz та ін. *Sleep and Breathing*. 2019. Т. 23, № 2. С. 627–634. URL: <https://doi.org/10.1007/s11325-019-01780-z>

⁴ World Health Statistics 2022: Monitoring Health for the SDGs. World Health Organization 2022. <https://www.who.int/data/gho/publications/world-health-statistics>.

⁵ Про рішення Ради національної безпеки і оборони України від 14 травня 2021 року «Про Стратегію людського розвитку»: Указ Президента України від 02.06.2021 р. № 225/2021. URL: <https://zakon.rada.gov.ua/laws/show/225/2021#Text> (дата звернення: 17.11.2022).

in free time can have a favorable impact on health indicators⁶. For example, in Finland and Sweden, where the proportion of physical activity in leisure time exceeds 90 %, the average male and female life expectancies are 81.6 and 82.4 years, and the average healthy life expectancy is 71 and 71.9 years, respectively^{7, 8}.

Of particular and serious concern is the declining PA of higher education students, who are increasingly leading sedentary lifestyles^{9, 10}. The reasons are the intensity and computerization of educational activities, the impact of nervous and mental stress, increased time for self-study, changes in the habitual conditions of life, and non-compliance with the principles of a healthy lifestyle^{11, 12}. On the contrary, reducing the time of use of modern gadgets, leading to the adoption of an inactive lifestyle and inactivity, can allow students to be physically active. One of the key tasks identified in the “Human Development Strategy” in the sphere of physical education and sport for the period up to 2025 is to create the right conditions for applicants for education to be physically active and form a positive attitude towards physical education and sport as an important component of a healthy lifestyle since it is students who are the foundation of the country’s human potential¹³.

⁶ WHO Guidelines on Physical Activity and Sedentary Behaviour. Geneva: World Health Organization; 2020.

⁷ Martinez-Gonzalez M. A., Varo J. J., Santos J. L., De Irala J., Gibney M., Kearney J., et al. Prevalence of physical activity during leisure time in the European Union. *Med Sci Sports Exerc* 2001 Jul;33(7):1142–1146.

⁸ World Health Statistics 2022: Monitoring Health for the SDGs. World Health Organization 2022. <https://www.who.int/data/gho/publications/world-health-statistics>.

⁹ Does Physical Activity Matter for the Mental Health of University Students during the COVID-19 Pandemic? / A. M. Rogowska та ін. *Journal of Clinical Medicine*. 2020. Т. 9, № 11. С. 3494. URL: <https://doi.org/10.3390/jcm9113494>

¹⁰ Physical activity and sleep quality in relation to mental health among college students / A. K. Ghrouz та ін. *Sleep and Breathing*. 2019. Т. 23, № 2. С. 627–634. URL: <https://doi.org/10.1007/s11325-019-01780-z>

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¹³ Про рішення Ради національної безпеки і оборони України від 14 травня 2021 року «Про Стратегію людського розвитку»: Указ Президента України від 02.06.2021 р. № 225/2021. URL: <https://zakon.rada.gov.ua/laws/show/225/2021#Text> (дата звернення: 17.11.2022).

1. The problem's prerequisites emergence and the problem's formulation

There are well-known factors that influence the improvement of a person's well-being with an increase in the level of physical activity. The most important of these is the level of physical fitness, long-term commitment to exercise, and frequency and intensity of exercise¹⁴. To achieve overall health benefits, the World Health Organization recommends that adults should devote at least 150–300 minutes of moderate aerobic exercise or 75–150 minutes of high-intensity exercise in addition to strength and balance exercises¹⁵. Current WHO recommendations emphasize the need to take all possible measures to exceed the recommended levels of moderate and vigorous physical activity in adults and thereby reduce the harmful effects of prolonged inactivity¹⁶. Despite a wealth of evidence on the importance of physical activity and a growing body of information on the impact of sedentary lifestyles on health outcomes across the life course, there has been little evidence of differences in the health impacts of different types of physical activity during leisure, work, learning, and sedentary activities lifestyle. To prevent the negative consequences of a sedentary lifestyle and to take the necessary measures to increase PA it is necessary to study, record, and monitor the dynamics of the PA level of adults, including students. Many people around the world are not aware of the recommended levels of PA and therefore do not comply with them¹⁷. Following the recommendations for PA during the student phase of life and continuing to do so as a conscious choice can have a positive effect on a person's PA in later years, and adequate and natural levels of physical activity will contribute to long-term health^{18,19}.

The recent COVID-19 outbreak, quarantine, isolation, and other social distancing measures have exacerbated the situation and contributed to the regression of adult FA, the time spent sitting in front of a screen (participating

¹⁴ WHO Guidelines on Physical Activity and Sedentary Behaviour. Geneva: World Health Organization; 2020.

¹⁵ Global recommendations on physical activity for health. Genève : WHO, 2010. 58 c.

¹⁶ Ibid.

¹⁷ Perceptions of physical activity and sedentary behaviour guidelines among end-users and stakeholders: a systematic review / H. Hollman et al. *International Journal of Behavioral Nutrition and Physical Activity*. 2022. Vol. 19. № 1. URL: <https://doi.org/10.1186/s12966-022-01245-9>

¹⁸ Physical activity and sleep quality in relation to mental health among college students / A. K. Ghrouz та ін. *Sleep and Breathing*. 2019. Т. 23, № 2. С. 627–634. URL: <https://doi.org/10.1007/s11325-019-01780-z>

¹⁹ Does knowledge of physical activity recommendations increase physical activity among Chinese college students? Empirical investigations based on the transtheoretical model / K. Abula та ін. *Journal of Sport and Health Science*. 2018. Т. 7. № 1. С. 77–82. URL: <https://doi.org/10.1016/j.jshs.2016.10.010>

in computer games, watching TV, using mobile gadgets) has increased significantly²⁰. Moreover, the literature shows that during the period of distance learning, caused by quarantine measures, there was a sharp decrease in the weekly PA of students^{21, 22}. A recent study found that the number of university students with decreased physical activity increased during the pandemic, such that 16.27 % of students doing PA before quarantine stopped exercising, and only 12.96 % of previously inactive students increased their physical activity during the pandemic²³.

Previous publications show the results of research on the complex determinants and correlate of physical activity as health-related human behavior, showing data on the level of habitual FA of university students in the USA, Lithuania, Italy, Turkey, China, and other countries. In a study examining the influence of awareness of and self-assessment of recommended PA among Chinese students, it was determined that only 4.4 % of respondents were correctly aware of PA recommendations and they were the ones who were more physically active than other students, with men more than women underestimating PA guidelines²⁴. In addition, 49.8 % of the physical education teachers who participated in the same study were not aware of the PA guidelines and were not aware of the importance of physical activity in their free time and its impact on health⁹. Equally disturbing are the findings of Cuppett M., Latin R. W. (2002) found that 16 % of certified athletic trainers were physically inactive²⁵. Therefore, fears are fully justified that athletes, who are physically inactive themselves, will be able to influence the formation of this habit in someone else.

²⁰ Amo C., Almansour N., Harvey I. S. Physical Activity and Mental Health Declined during the Time of the COVID-19 Pandemic: A Narrative Literature Review. *International Journal of Environmental Research and Public Health*. 2022. Vol. 19. № 18. P. 11230. URL: <https://doi.org/10.3390/ijerph191811230>

²¹ A cross-sectional study investigating lifestyle and weight perception of undergraduate students in southern Italy / F. Gallè та ін. *BMC Public Health*. 2019. Т. 19. № 1. URL: <https://doi.org/10.1186/s12889-019-7695-z>

²² Плешакова О. Особливості фізичної активності студентів закладів вищої освіти в умовах дистанційного навчання. *Теорія і методика фізичного виховання і спорту*. 2021. № 4. С. 86–89. URL: <https://doi.org/10.32652/tmfvs.2020.4.86-89>

²³ Does Physical Activity Matter for the Mental Health of University Students during the COVID-19 Pandemic? / A. M. Rogowska та ін. *Journal of Clinical Medicine*. 2020. Т. 9, № 11. С. 3494. URL: <https://doi.org/10.3390/jcm9113494>

²⁴ Does knowledge of physical activity recommendations increase physical activity among Chinese college students? Empirical investigations based on the transtheoretical model / K. Abula та ін. *Journal of Sport and Health Science*. 2018. Т. 7, № 1. С. 77–82. URL: <https://doi.org/10.1016/j.jshs.2016.10.010>

²⁵ Cuppett M, Latin RW. A Survey of Physical Activity Levels of Certified Athletic Trainers. *J Athl Train*. 2002 Sep;37(3):281–285. PMID: 12937586; PMCID: PMC164357.

A recent study of the PA of Italian students found that students who live away from home are most likely to be sedentary, although female students are more physically active than male students²⁶.

A comparison of PA of students from different faculties at Dokuz Eylül University (DEU), Turkey, showed greater PA of 2–3 year students in the School of Sports Sciences, which is indirectly explained by the fact that these students had previously engaged in regular physical activity and that their family members were also physically active²⁷.

Recently, a study was conducted on the relationship between the level of PA of Ukrainian students aged 17–22 years with the factors determining this activity, such as gender, place of residence, and self-assessment of physical fitness. So it was revealed that men are more physically active than women, which was associated with their academic and sports activities, on the contrary, women are highly active when doing household chores²⁸. A study conducted among Ukrainian students showed that the highest physical activity is observed among residents of rural areas and small towns, and the lowest among residents of large cities. Among the objective reasons for the decrease in the physical activity of students in large cities of Ukraine, the researchers name the lack of a comfortable environment for the practice of physical activity²⁹.

Regular physical activity is important for increasing the self-esteem and working capacity of students. In addition, the consequence and advantages of physical activity are positive thinking, and successful overcoming of stresses that accompany student and professional activities.

Presenting data on a small number of students regularly participating in FA, the mentioned studies showed some differences in the results from study to study and were focused exclusively on the problems of PA of full-time students.

The level of physical activity of extramural forms of studies students, and the issues of gender and social stratification of adult physical activity are poorly understood, while their knowledge will provide a useful basis for creating and implementing effective tools to increase their participation in physical activity.

²⁶ Cuppett M, Latin RW. A Survey of Physical Activity Levels of Certified Athletic Trainers. *J Athl Train*. 2002 Sep;37(3):281–285. PMID: 12937586; PMCID: PMC164357.

²⁷ Determination of Factors Affecting Physical Activity Status of University Students on a Health Sciences Campus / A. Dayı ta in. *Medical Science Monitor*. 2017. T. 23. C. 325–334. URL: <https://doi.org/10.12659/msm.899816>

²⁸ Bergier B., Tsos A., Bergier J. Factors determining physical activity of Ukrainian students. *Annals of Agricultural and Environmental Medicine*. 2014. Vol. 21. № 3. P. 613–616. URL: <https://doi.org/10.5604/12321966.1120612>

²⁹ Ibid.

Education in higher education is one of the most popular forms of continuous education, with 24.8 % of applicants choosing a correspondence form of education³⁰. Extramural forms of studies students study on the job, which allows them to earn their higher education, gain professional experience, some advantage over full-time students forms and acquire a unique skill by the end of the university – “I study while working”.

Most often these are adults with professional experience, but their training is accompanied by intense mental and psychological stress and requires greater focus and self-discipline. Accordingly, time for outdoor activities is limited, which significantly disrupts the balance between work and personal life, leading to an increase in morbidity.

In addition, in extramural forms of studies students often combine academic and sports careers, and knowledge of the recommended physical activity and maintaining its sufficient level is necessary for future teachers of physical culture and sports because their health is a necessary resource for professional activity. Specialists in the field of physical education and sports are called upon to work on increasing the physical activity of the population the functions of such a specialist are not limited to the management of physical education and the development of physical abilities. Graduates of physical education universities, after graduation, become the main providers of health services for physically active people and should be role models, actively shaping the health-creating lifestyle of their students³¹.

In most studies assessing PA, questionnaires are used for practical reasons. The survey allows you to monitor all actions taken over time, assess the amount of effort, and indirectly their intensity. The Baecke questionnaire is widely used to assess physical activity and has a reliable and reliable measurement of PA in adults with an average and high level of education^{32, 33, 34}. We believe this will be the first study to examine the

³⁰ Про схвалення Стратегії розвитку вищої освіти в Україні на 2022–2032 роки : Розпорядж. Каб. Міністрів України від 23.02.2022 р. № 286-р. URL: <https://zakon.rada.gov.ua/laws/show/286-2022-p#Text>

³¹ Cuppett M, Latin RW. A Survey of Physical Activity Levels of Certified Athletic Trainers. *J Athl Train*. 2002 Sep;37(3):281–285. PMID: 12937586; PMCID: PMC164357.

³² Baecke J. A., Burema J., Frijters J. E. A short questionnaire for the measurement of habitual physical activity in epidemiological studies. *The American Journal of Clinical Nutrition*. 1982. Т. 36. № 5. С. 936–942. URL: <https://doi.org/10.1093/ajcn/36.5.936>

³³ Validity and reliability of the Baecke questionnaire against accelerometer-measured physical activity in community dwelling adults according to educational level / W. R. Tebar та ін. *PLOS ONE*. 2022. Т. 17. № 8. С. e0270265. URL: <https://doi.org/10.1371/journal.pone.0270265>

³⁴ Measurement of physical activity in urban and rural South African adults: a comparison of two self-report methods / A. L. Oyeyemi et al. *BMC Public Health*. 2016. Vol. 16 № 1. URL: <https://doi.org/10.1186/s12889-016-3693-6>

physical activity levels of part-time students using The Baecke Physical Activity Questionnaire (BPAQ).

The study aimed to determine the levels of (a) habitual PA associated with work, (b) PA associated with sports, (c) PA associated with recreation, and (d) general habitual physical activity of students of the extramural forms of studies and determine their relationship with the variables of gender, age, and level of education.

The target audience was the students of the correspondence department of the Department of Physical Culture and Sport Management of the National University “Zaporizhzhia Polytechnic”. The sample consisted of 99 students aged 21.03 to 48.66 years ($m = 33.76$, $SD = 5.77$), of which 51.5 % were men ($n = 51$) and 48.5 % were women ($n = 48$), studying at the second (master’s) level of higher education in the specialty 017 “Physical Culture and Sport” of the named university. The study was conducted from September to October 2022.

The web questionnaire was created and administered in Ukrainian using Google modules, and posted on the MOODLE website of the specified university. The survey was anonymous, the form consisted of the following parts: informed consent, gender, and age, and PA self-assessment. The BPAQ contained 24 questions and consisted of three parts: work-related PA, sports-related PA, and leisure-related PA in the last 12 months. The work-related physical activity section included questions on the physical requirements of the job (daily physical activity performed at university and/or at work), the sports section included questions on the frequency and intensity of sports activities, and the daily physical activity section activities outside of work and sports are about leisure. Responses were scored on a five-point scale, where 5 indicates the most activity and 1 indicates the least activity for each indicator, and were used to calculate the index for each section. The sum of these indices is the overall Baecke Physical Activity Index (BPAI), the range of possible achievable scores can vary from 3 (inactive) to 15 (very active)³⁵.

Information about the study was provided to students in class and by email. All participants were reminded (verbally during class and by email) that participation in the study was optional and they could opt out of the study at any time. Before starting the study, the respondents expressed their intention to participate in the study in an online written informed consent. The study was conducted following the Declaration of Helsinki, and the protocol was approved by the Ethics Committee of the National University “Zaporizhzhia Polytechnic”.

³⁵ Baecke J. A., Burema J., Frijters J. E. A short questionnaire for the measurement of habitual physical activity in epidemiological studies. *The American Journal of Clinical Nutrition*. 1982. T. 36. № 5. C. 936–942. URL: <https://doi.org/10.1093/ajcn/36.5.936>

Mean values and 95 % confidence intervals for the lower and upper bounds were calculated according to descriptive statistics. To substantiate the differences between different groups of subjects, we used a comparative analysis using Student's t-test for independent samples. The Pearson correlation coefficient (r) was calculated to examine the relationship between age, gender, education level, and physical activity indices. Statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS version 23.0, Chicago, IL) with a significance level set at $p < 0.05$.

2. Levels of habitual PA associated with work, sports, recreation, and general habitual physical activity

Sufficient physical activity, the ability to maintain, preserve and strengthen the health of oneself and others, and create conditions for health-saving activities, are necessary conditions for the professional development of future teachers. Part-time university students, future and current specialists in the field of physical culture and sports are the main target group for physical education, which should be considered, including from the point of view of how their ideas about physical education can influence the recommendations that sports specialists give to their pupils^{36,37}.

The results of the survey showed that 56.25 % of female students and 47.06 % of male students have a bachelor's degree, and 43.75 % of female students and 53.94 % of students have a master's degree (not in the above specialty). The frequency distribution of the age of part-time students is presented in Table 1.

Table 1

Frequency distribution of the age of part-time students (n = 99)

Variable	Males (n = 51), %	Females (n = 48), %
Age (years)		
21-30	25,49	35,42
31-39	52,94	54,17
40-48	21,57	10,41

As a result of the study, it was found that 49.49 % of students (both sexes) have a high-intensity main labor activity and only 14.85 % reported its low intensity. At the same time, 24.2 % reported that they sit most of the working

³⁶ Martinez-Gonzalez MA, Varo JJ, Santos JL, De Irala J, Gibney M, Kearney J, et al. Prevalence of physical activity during leisure time in the European Union. *Med Sci Sports Exerc.* 2001 Jul;33(7):1142-1146.

³⁷ Cuppett M, Latin RW. A Survey of Physical Activity Levels of Certified Athletic Trainers. *J Athl Train.* 2002 Sep;37(3):281-285. PMID: 12937586; PMCID: PMC164357.

time, and only 10.1 % reported that they never sit during work. Our data are consistent with the data of other studies and indirectly confirm the drawback of motor activity in most students³⁸.

Strong fatigue after a working day was noted by 67.68 % of respondents. Note that some students mistakenly identify physically active work with the usual hustle and bustle in the office, walking through corridors of institutions or classrooms of the university, because it is precisely such loads that create a feeling of fatigue, not physical, but rather psychological. However, the data from previous studies show that the subjective assessment of the route covered in a day exceeds the real one³⁹.

44.4 % consider their PA to be higher than their peers, and the same number of respondents go in for sports in their free time. Our results are indirectly confirmed by the study by Bergier B., Tsos A., and Bergier J. (2014), in which students who highly assessed their physical fitness had a higher level of general motor activity⁴⁰. At the time of the study, in their free time, 56.6 % of the students we surveyed were engaged in sports for more than 4 hours a week, and only 2.2 % did not engage in any physical activity that is part of the sports index.

Habitual physical activity was examined in three different areas: physical activity at work, sports in leisure time, and other physical activity in leisure time. Men reported higher levels of PA than women in terms of Work Index, Sport Index, and Total PA Index (BPAI). The results of our research showed that there are significant differences in the Work Index between female students and male students. Thus, the average Work Index score of female students was 2.49 ± 0.73 , which was less than that of students at 2.99 ± 0.7 ($p < 0.05$). These data confirm data from other studies and may be related to the level of traditional household PA in women⁴¹. At the same time, it should be noted that many of the male students who took part in our survey were active athletes.

³⁸ Плешакова О. Особливості фізичної активності студентів закладів вищої освіти в умовах дистанційного навчання. *Теорія і методика фізичного виховання і спорту*. 2021. № 4. С. 86–89. URL: <https://doi.org/10.32652/tmfvs.2020.4.86–89>

³⁹ Validity and reliability of the Baecke questionnaire against accelerometer-measured physical activity in community dwelling adults according to educational level / W. R. Tebar та ін. *PLOS ONE*. 2022. Т. 17. № 8. С. e0270265. URL: <https://doi.org/10.1371/journal.pone.0270265>

⁴⁰ Bergier B., Tsos A., Bergier J. Factors determining physical activity of Ukrainian students. *Annals of Agricultural and Environmental Medicine*. 2014. Vol. 21, no. 3. P. 613–616. URL: <https://doi.org/10.5604/12321966.1120612>

⁴¹ Validity and reliability of the Baecke questionnaire against accelerometer-measured physical activity in community dwelling adults according to educational level / W. R. Tebar та ін. *PLOS ONE*. 2022. Т. 17. № 8. С. e0270265. URL: <https://doi.org/10.1371/journal.pone.0270265>

The average Sport Index score for female students was 2.54 ± 0.79 and for students 3.31 ± 0.9 ($p < 0.05$). These results are comparable to those of other authors who have reported that men have significantly higher sports index scores than women⁴². It has recently been found that lower work or leisure physical activity does not predict higher sport-related physical activity⁴³. In addition, this can be explained by the fact that although female students have chosen a profession in the field of physical culture and sports, they traditionally have more homework and, accordingly, less time than male students have time for sports.

The average values of the Leisure-time Index were 2.7 ± 0.90 and 2.5 ± 0.78 points for male and female students, respectively, significant differences were found ($p > 0.05$). The obtained results are similar to the results of studies devoted to the study of the levels of PA of Lithuanian students and determined a higher level of this indicator in women^{44, 45}. The high PA of women in their free time can be partly explained by concern for their health and body image. The indicators of the levels of the named types of physical activity in the free time of part-time students are low. Compared to the results of examinations of other categories of adults and almost do not differ^{46, 47}.

Analysis of the results of a comparative study of the total PA index (BPAI) shows that the values of both samples correspond to the average level. Thus, BPAI for female students was 7.73 ± 1.44 , and for female students – 8.81 ± 1.14 ($p < 0.05$), which corresponds to the average level. These results

⁴² Measurement of physical activity in urban and rural South African adults: a comparison of two self-report methods / A. L. Oyeyemi et al. *BMC Public Health*. 2016. Vol. 16. № 1. URL: <https://doi.org/10.1186/s12889-016-3693-6>

⁴³ Miežienė B., Šiupšinskas L., Jankauskienė R. Relationships between Sport, Work and Leisure-Time Physical Activity among Lithuanian University Students. *Baltic Journal of Sport and Health Sciences*. 2018. Vol. 2. № 81. URL: <https://doi.org/10.33607/bjshs.v2i81.327>

⁴⁴ Ibid.

⁴⁵ Baranauskas M., Kupčiūnaitė I., Stukas R. Mental Health and Physical Activity of Female Higher Education Students during the COVID-19 Pandemic: A Comparative Cross-Sectional Study from Lithuania. *International Journal of Environmental Research and Public Health*. 2022. T. 19. № 15. C. 9725. URL: <https://doi.org/10.3390/ijerph19159725>

⁴⁶ Does Physical Activity Matter for the Mental Health of University Students during the COVID-19 Pandemic? / A. M. Rogowska et al. *Journal of Clinical Medicine*. 2020. T. 9, № 11. C. 3494. URL: <https://doi.org/10.3390/jcm9113494>

⁴⁷ Leuciuc F. Perception on Physical Education among Students. *Revista Romaneasca pentru Educatie Multidimensionala*. 2018. T. 10. № 2. C. 134. URL: <https://doi.org/10.18662/rrem/51>

are consistent with other recent studies and seem to support the thesis that men are more active than women⁴⁸.

However, such a generally insufficient level of PA among students can be explained by the difficult situation in Ukraine, caused both by the previous long-term quarantine restrictions and Russian military aggression, which reduced the ability of people to be physically active. However, we note that our data differ from those of Cuppett M., Latin R. W. (2002), who found those female trainers had higher overall levels of habitual physical activity than male trainers⁴⁹. Male students in this study scored higher in general fitness than students interviewed in the previous studies^{50, 51}. This is due both to their characteristics and to professional activities directly related to sports and physical culture. This is consistent with the data of Tashkin A., Eroglu Kolaiish I. (2022), who emphasizes that there are significant differences in physical activity at work, in sports, and in leisure time between active and inactive people. Thus, people who regularly go in for sports have a general level of PA of 8.95 ± 0.82 points, and people who go in for sports irregularly – 7.06 ± 0.96 points⁵².

3. Relationship between PA indices and variables of gender, age and level of education

According to previously published data, PA may depend on age, gender, social status, level of education, and other factors that determine a physically active lifestyle⁵³. However, the results obtained in this study indicate that there was no significant relationship between age and PA indices (table 2).

⁴⁸ Miežienė B., Šiupšinskas L., Jankauskienė R. Relationships between Sport, Work and Leisure-Time Physical Activity among Lithuanian University Students. *Baltic Journal of Sport and Health Sciences*. 2018. Vol. 2. № 81. URL: <https://doi.org/10.33607/bjshs.v2i81.327>

⁴⁹ Cuppett M, Latin RW. A Survey of Physical Activity Levels of Certified Athletic Trainers. *J Athl Train*. 2002 Sep;37(3):281–285. PMID: 12937586; PMCID: PMC164357.

⁵⁰ Does knowledge of physical activity recommendations increase physical activity among Chinese college students? Empirical investigations based on the transtheoretical model / K. Abula та ін. *Journal of Sport and Health Science*. 2018. T. 7. № 1. C. 77–82. URL: <https://doi.org/10.1016/j.jshs.2016.10.010>

⁵¹ A cross-sectional study investigating lifestyle and weight perception of undergraduate students in southern Italy / F. Gallè та ін. *BMC Public Health*. 2019. T. 19. № 1. URL: <https://doi.org/10.1186/s12889-019-7695-z>

⁵² Taşkin A., Eroğlu Kolayış İ. Relationship with physical activity habits, quality of life and sleep quality in different exercise types. *International Journal of Recreation and Sports Science*. 2022. URL: <https://doi.org/10.46463/ijrss.1083923>

⁵³ Cuppett M, Latin RW. A Survey of Physical Activity Levels of Certified Athletic Trainers. *J Athl Train*. 2002 Sep;37(3):281–285. PMID: 12937586; PMCID: PMC164357

This is somewhat contrary to previous studies that found that a stable or increasing activity level with age was recorded in adults up to 33 years old, and in older people, it tended to decrease⁵⁴. Shaw et al. (2010) found that young, adult Americans tend to show a gradual decline in physical activity levels, moreover, among older age groups, the decline in activity is characterized by a rapid pace⁵⁵. Martínez-González et al. (2001) noted in both women and men an inverse relationship between age and physical activity⁵⁶.

Probably, this discrepancy can be explained by the fact that the choice of adult extramural forms of studies students to engage in physical activity is determined by their inner desire, they already have some skills and experience in independent physical activity.

Table 2

Correlations between physical activity estimates from the Baecke Questionnaire and Age, Gender, Education level

Variable		Age	Gender	Education level	BPAI (total)	Work Index	Sport Index	Leisure-time Index
1	2	3	4	5	6	7	8	9
Age	Pearson Correlation	1						
	Sig. (2-tailed)							
Gender	Pearson Correlation	,143	1					
	Sig. (2-tailed)	,158						
Education level	Pearson Correlation	,068	-,071	1				
	Sig. (2-tailed)	,501	,485					

⁵⁴ Age Differences and Social Stratification in the Long-Term Trajectories of Leisure-Time Physical Activity / B. A. Shaw et al. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*. 2010. Vol. 65B. № 6. P. 756–766. URL: <https://doi.org/10.1093/geronb/gbq073>

⁵⁵ Age Differences and Social Stratification in the Long-Term Trajectories of Leisure-Time Physical Activity / B. A. Shaw et al. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*. 2010. Vol. 65B. № 6. P. 756–766. URL: <https://doi.org/10.1093/geronb/gbq073>

⁵⁶ Martínez-González MA, Varo JJ, Santos JL, De Irala J, Gibney M, Kearney J, et al. Prevalence of physical activity during leisure time in the European Union. *Med Sci Sports Exerc*. 2001 Jul;33(7):1142–1146.

Table 2 (ending)

1	2	3	4	5	6	7	8	9
BPAI (total)	Pearson Correlation	,067	,419**	-,036	1			
	Sig. (2-tailed)	,511	,000	,725				
Work Index	Pearson Correlation	,098	,300**	-,154	,562**	1		
	Sig. (2-tailed)	,335	,003	,129	,000			
Sport Index	Pearson Correlation	,096	,500**	,132	,616**	,187	1	
	Sig. (2-tailed)	,347	,000	,192	,000	,064		
Leisure- time Index	Pearson Correlation	-,066	-,073	-,059	,498**	-,111	-,159	1
	Sig. (2-tailed)	,514	,473	,562	,000	,276	,117	

** . Correlation is significant at the 0.01 level (2-tailed).

The relationship between the Work Index and Sport Index and the gender of the respondents revealed in this study is statistically significant and confirms the thesis that male respondents have a higher level of PA. We assume that this is because many master's students continued their sports careers at the time of their studies. No significant relationship was found between the Leisure-time index and PA in respondents of both sexes.

We also revealed the relationship between the gender of the respondents and the overall PA index. Male students showed a higher level, which is also confirmed by the data from many studies^{57, 58, 59}.

No significant relationship was found between the level of education and PA of extramural forms of studies students of both sexes. These results are inconsistent with some data published earlier, which showed that people with lower levels of education had the highest prevalence of physical inactivity

⁵⁷ Cuppett M, Latin RW. A Survey of Physical Activity Levels of Certified Athletic Trainers. *J Athl Train*. 2002 Sep;37(3):281–285. PMID: 12937586; PMCID: PMC164357.

⁵⁸ Measurement of physical activity in urban and rural South African adults: a comparison of two self-report methods / A. L. Oyeyemi et al. *BMC Public Health*. 2016. Vol. 16. № 1. URL: <https://doi.org/10.1186/s12889-016-3693-6>

⁵⁹ Miežienė B., Šiupšinskas L., Jankauskienė R. Relationships between Sport, Work and Leisure-Time Physical Activity among Lithuanian University Students. *Baltic Journal of Sport and Health Sciences*. 2018. Vol. 2. № 81. URL: <https://doi.org/10.33607/bjshs.v2i81.327>

(43.11 %) and, conversely, the lowest prevalence was found among the population with high levels of education (23, 30 %), among which 63.92 % were physically active^{60, 61, 62}. According to Bergier B., Tsos A., Bergier J. (2014), in mature adult students, the predictor of recognizing the important role of physical activity in caring for one's health is the formed internal need for physical activity⁶³.

As one of the possible measures of promoting the physical activity of distance learning master students, we propose to create a special educational interactive blog "Physical activity as a lifestyle" within the MOODLE virtual learning environment. For students receiving higher education in absentia, this can be a comfortable, convenient form of gaining knowledge in addition to classroom studies. Blog content may include information about the health benefits and risks of physical activity, recommended physical activity patterns to promote health and fitness, basic self-management, and injury prevention techniques.

In addition, students can be given advice on how to start regular practice and maintain PA for a long time, and how to plan, dose, and perform various types of exercises.

However, the transformation of knowledge into life practice can remain a serious problem. Unfortunately, there is no universal remedy for increasing physical activity. Each person must work on this persistently and independently, which, of course, is not always easy.

Our study was limited by the number of participants, the data are based on PA self-reports and may be somewhat overestimated. Nevertheless, the information obtained through a survey of part-time students can be compared with other studies and can become a guide for research aimed at finding opportunities to optimize PA and maintain an active lifestyle.

⁶⁰ Martinez-Gonzalez MA, Varo JJ, Santos JL, De Irala J, Gibney M, Kearney J, et al. Prevalence of physical activity during leisure time in the European Union. *Med Sci Sports Exerc.* 2001 Jul;33(7):1142–1146.

⁶¹ Shaw B. A., Spokane L. S. Examining the Association Between Education Level and Physical Activity Changes During Early Old Age. *Journal of Aging and Health.* 2008. Vol. 20. № 7. P. 767–787. URL: <https://doi.org/10.1177/0898264308321081>

⁶² Moreno-Llamas A., García-Mayor J., De la Cruz-Sánchez E. Physical activity barriers according to social stratification in Europe. *International Journal of Public Health.* 2020. Vol. 65. № 8. P. 1477–1484. URL: <https://doi.org/10.1007/s00038-020-01488-y>

⁶³ Bergier B., Tsos A., Bergier J. Factors determining physical activity of Ukrainian students. *Annals of Agricultural and Environmental Medicine.* 2014. Vol. 21. № 3. P. 613–616. URL: <https://doi.org/10.5604/12321966.1120612>

CONCLUSIONS

Due to several objective reasons, in recent years the population of the planet as a whole has become more physically inactive. A justified fear is caused by a decrease in the level of PA of university students. Our goal was to determine the indicators of habitual PA, based on self-reports of physical education students' extramural forms of studies, and to study the relationship between them and age, gender, and level of education.

The habitual physical activity of students' extramural forms of studies covered three different dimensions. It was revealed that the level of physical activity at work, and the level of sports activity in free time in men was higher than in women. The level of other types of physical activity in free time was higher among female students. A relationship was found between the Work Index, Sport Index, and BPAI (total) on the one hand and the gender of the respondents on the other hand, which indicated a greater PA of male students. We consider it important to pay more attention to promoting and maintaining a sufficient level of PA in young women as an integral part of their healthy lifestyle.

Our findings point to the need for physical activity interventions targeting students' extramural forms of studies. To popularize physical activity, we propose to create a special educational interactive blog.

Understanding the importance of lifestyle changes can be helpful for future professionals, as they are professionals in the field of education helping to increase the PA of their students. Information about the intensity and number of PA among students in extramural forms of studies is of great practical importance for scientists and teachers who develop for promoting PA, in particular, knowledge of the characteristics of PA of female and male students will help develop gender-oriented models of PA.

In conclusion, we note that state and national interest in the promotion of physical activity is an important key to a successful and long-term health-saving policy. The transition from the currently available data on the health benefits of physical activity to the effective and natural integration of physical activity into the daily activities of part-time students should be based on the axiological concept of physical culture, supported by a social environment that provides physical activity throughout life.

As a promising direction for further study, we consider it appropriate to conduct a similar study among part-time students of other specialties to determine the difference in their PA level indicators.

SUMMARY

In recent years, the level of physical activity in Ukraine has been steadily decreasing; only a small fraction of adults, including students' extramural

forms of studies, follow modern international recommendations for a daily minimum of physical activity. The study aimed to determine the level of indicators of habitual physical activity of part-time students and to study the relationship between them and age, sex, and level of education. It was found that the level of physical activity at work, as well as the level of sports activity in free time in men, was higher than in women. The level of the Leisure-time Index in female students was slightly higher than in men. The relationship found between the Work Index, Sport Index, and BPAI (total) and the gender of the respondents indicate greater PA in male students.

The results we obtained indicate the need to implement modern forms and methods of promoting physical activity among students' extramural forms of studies, in particular, it is especially important to pay more attention to promoting and maintaining a sufficient level of PA in young women. Understanding the importance of lifestyle changes can be useful for future professionals, as they, as educational professionals, help to increase the PA of their students.

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