

Variations in physical activity of male and female students from the Ukraine in health-promoting life style

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Abstract

Introduction. A large-scale research was performed concerning issues relating to physical activity as an important factor in a healthy lifestyle and involved observing the differences among males and females as future elites of the Ukraine.

Objective. The objective of the research is to assess the physical activity of students from the Ukraine, considering such factors as: gender, leisure time, time spent sitting, sports performed or intended to be performed, and the BMI.

Materials and method. The extended version of the IPAQ, supplemented with 3 original questions by the authors, was applied to a 2,125-strong student group from 12 majors of the University of Luck, Ukraine.

Results. Students from Ukraine portrayed a positive picture of physical activity with significantly higher values in male students of both total activity and its fields, i.e. sports activity and work (studying). The male students performed better in their fitness (condition) self-assessment and the amount of time spent sitting, whereas the female students had better BMI results. Both genders differed considerably in their choice of sport-recreational activities.

Conclusions. Females more than males demonstrated lower indices of participation in physical activity, which did not permit the formulation of a positive assessment of their lifestyle. A positive phenomenon is the normal BMI and trace values of overweight in women, exactly the reverse to males.

Keywords

students from Ukraine, physical activity, IPAQ, sports-recreational activity, BMI

INTRODUCTION

Due to concern for a health-promoting life style, the role of physical activity has occupied an important position in recent research [1, 2, 3, 4, 5, 6]. Participation in a systematic physical activity is especially emphasized in relation with many necessities for the good health of contemporary societies [7, 8, 9, 10, 11]. Although various methods are applied for the measurement of physical activity, at present, studies with the use of the International Physical Activity Questionnaire (IPAQ) are the most appreciated, and it has been stated that this instrument is a very reliable method for assessing physical activity [12]. Currently, this questionnaire is applied in many countries [13, 14, 15, 16, 17, 18, 19], including Poland, in studies of a relatively large population among school adolescents [20, 21, 22, 23] and other socio-occupational groups [20, 24, 25]. The IPAQ research instrument allows the presentation and comparison of studies carried out in various countries. University adolescents, as the future elite of individual countries, are an especially important population group.

OBJECTIVE

The primary aim of the study was the recognition of physical activity among students from the Ukraine as an important factor of a health-promoting life style, according to the respondents' gender.

While considering the differences, the following were taken into account: the amount of leisure time, time spent sitting, sport-recreational activities currently practiced, and those which the respondents would like to practice in the future, and the BMI value.

MATERIALS AND METHOD

The study was conducted with the use of the International Physical Activity Questionnaire (IPAQ) which concerns the physical activity performed over the last 7 days, related to work, study, transportation, household activities performed in and around the house, participation in recreational activities and sport.

Physical activity is expressed in MET units – min./week, by multiplying the ratio of a particular activity per number of days of its weekly performance, and its duration in minutes per day.

On the basis of the results obtained, the respondents were classified into 3 levels of physical activity: high, moderate and low. Moreover, a sports-recreational activity questionnaire designed by the authors was conducted in 2013 among 2,125 students of 12 specialities at the National University in Lutsk, Ukraine, aged 17–22 – 1,291 females (60.8%), and 834 males

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(39.2%). Data concerning the basic parameters of physical development were also included, i.e. body height and weight, which enabled calculation of the BMI.

RESULTS

The to-date results of studies of the evaluation of physical activity with the use of the IPAQ show a higher activity among male [20, 21, 26] students from Poland and Turkey [27].

Results of the study of physical activity of university students from the Ukraine are presented with the division according to gender, taking into consideration: leisure time possessed, areas of activity, time spent sitting, currently practiced sports-recreational activities and activities which the students would like to undertake in the future, as well as the BMI.

Leisure time. An important premise enabling participation in physical activity seems to be the leisure time possessed. In the case of the students in the study, males had significantly more time at their disposal, compared to females. More than a half of the males (51.1%) had a sufficient amount of free time, compared to only 29.3% who did not. More females than males indicated the lack of leisure time – 12.3 %, and 8.4%, respectively. It may be presumed that there was a larger amount of leisure time at the disposal of male than female students, resulting from the still existing model of ascribing a larger amount of home chores to women (Fig. 1).

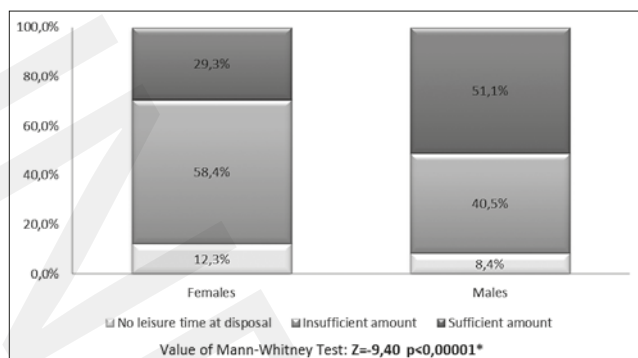


Figure 1. Amount of leisure time at respondents' disposal, according to gender
* – significant differences at $p < 0.05$

Level of physical activity and its areas. The value of total physical activity expressed in MET in females was 3.365, which is significantly lower than among males – 3.863 MET.

The lower physical activity confirmed among females is typical for the majority of the studies with the use of the IPAQ. It is noteworthy that males were also characterized by a significantly higher activity (in order of the MET values) in sports-recreational activities and activity at work (university). Female students were characterized by a significantly higher engagement in household chores. However, no differences according to the respondents' gender were observed in the area of mobility (Fig. 2; Tab. 1).

A more favourable assessment of physical activity among males was confirmed by comparing the levels of this activity – a statistically significant difference. High activity was observed among 57.1% of males and 45.7% of females, whereas low activity was noted in 3.6% of males, compared

Table 1. Differences in areas of students' physical activity, according to gender

Area of activity	Rank sum		Mann-Whitney U Test	
	Females	Males	Z	p
Total activity	1307380	951495	-4.70346	0.00000*
Activity at work	1279479	979396	-6.77109	0.00000*
Activity in mobility	1367724	891151	-0.33432	0.73814
Activity at home	1459616	799259	6.32124	0.00000*
Activity in sports	1261113	997762	-8.05420	0.00000*

* – significant differences at $p < 0.05$

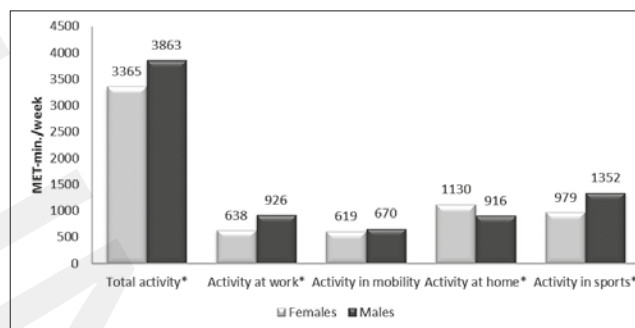


Figure 2. Areas of students' physical activity, according to gender
* – significant differences at $p < 0.05$

to 6.3% of females. Evaluation of the levels of physical activity allowed a positive evaluation of university students from the Ukraine, because more than 90% of the respondents obtained high or moderate activity, while only several percent – low activity (Fig. 3).

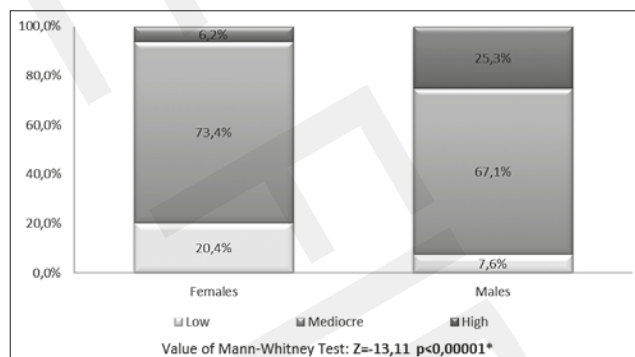


Figure 3. Students' self-reported physical fitness, according to gender
* – significant differences at $p < 0.05$

Self-reported physical fitness. It is noteworthy that males also evaluated their physical fitness in more positive terms than females, the difference being statistically significant. High evaluations were expressed by 25.3% of male students, compared to only 6.2% of female students. Low value was clearly more dominant among females – 20.4%, than males – 7.6% (Fig. 4).

Types of physical activity currently practiced and expected. While analyzing motor activity, an important issue is to recognize the types of sports-recreational activities which are currently practiced, and those expected. Also, in this compilation, a more favourable image is obtained in male than female students (a statistically significant difference). Males practice these types of activities considerably more

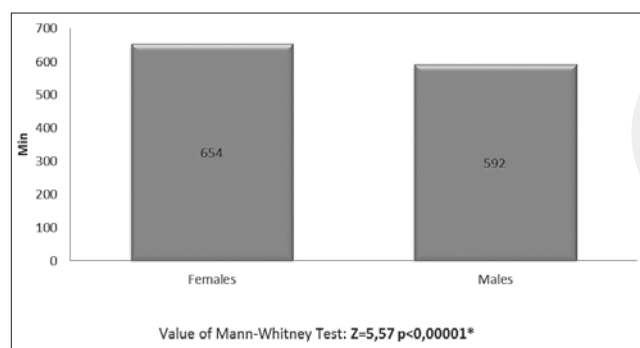


Figure 4. Differences in time devoted by students to sitting, according to gender – significant differences at $p < 0.05$

frequently and in larger numbers – 28.5%, whereas females – 19.6% (Tab. 2–5).

Table 2. Types of physical recreation most often practiced by students, according to gender

Type of physical recreation	Gender			
	Females		Males	
	No.	No.	No.	No.
Walking	965 (74.8%)*	1	430 (51.6%)*	3
Running	712 (55.2%)*	2	520 (62.4%)*	1
Dancing	595 (46.1%)*	3	126 (15.1%)*	10
Riding a bicycle	546 (42.3%)	4	340 (40.8%)	5
Volleyball	528 (40.9%)	5	356 (42.7%)	4
Aerobic – fitness	285 (22.1%)*	6	44 (5.3%)*	12
Table tennis	245 (19.0%)*	7	300 (36.0%)*	6
Skating	245 (19.0%)	8	134 (16.1%)	9
Swimming	243 (18.8%)*	9	220 (26.4%)*	8
Basketball	238 (18.4%)*	10	276 (33.1%)*	7
Football	232 (18.0%)*	11	486 (58.3%)*	2
Roller skating	228 (17.7%)*	12	98 (11.8%)*	11

* – significant differences at $p < 0.05$ according to respondents' gender

Table 3. Types of recreation which students would like to practice in the future, according to gender

Type of physical recreation	Gender			
	Females		Males	
	No.	No.	No.	No.
Walking	993 (77.0%)*	1	444 (53.3%)*	3
Dancing	800 (62.0%)*	2	172 (20.6%)*	9
Running	771 (59.8%)*	3	544 (65.3%)*	1
Aerobic–fitness	665 (51.5%)*	4	78 (9.4%)*	12
Riding a bicycle	624 (48.3%)	5	370 (44.4%)	5
Volleyball	575 (44.5%)	6	380 (45.6%)	4
Swimming	524 (40.6%)	7	320 (38.4%)	7
Skating	393 (30.5%)	8	162 (19.5%)	10
Roller skating	360 (27.9%)*	9	126 (15.2%)*	11
Table tennis	283 (21.9%)*	10	336 (40.3%)*	6
Football	264 (20.5%)*	11	502 (60.2%)*	2
Basketball	264 (20.5%)*	12	302 (36.2%)*	8

* – significant differences at $p < 0.05$, according to respondents' gender

Nevertheless, the fact should be taken into consideration that women would like to practice to a greater extent than males in new types of sports-recreational activities (a statistically significant difference; 3 or more activities were indicated by 41.2 %, compared to 31.7% of males). Also, with respect to the indicator of the lack of choice of new physical activities, the situation among females was more favourable – 19.0%, compared to as many as 33.3% of males (Fig. 5).

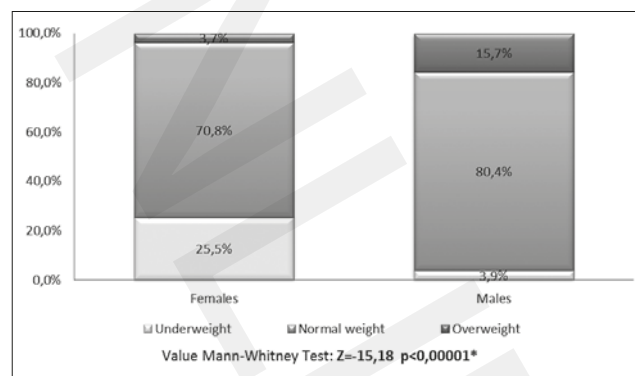


Figure 5. BMI classification of students, according to gender – significant differences at $p < 0.05$

Forms of recreational activity practiced. The most popular forms of physical activities (disciplines) most frequently practiced are commonly known. However, the question arises about their differentiation among males and females, and whether there possibly occur new types of sports-recreational activities undertaken by students.

Among females, there dominated the traditional physical activities which are not demanding with respect to special conditions for practicing them: walking – 74.8%, running – 55.2%, and riding a bicycle – 46.1%, which clearly differentiates this form of motor activity from males – 15.1% of indications. Among sports team games, female students clearly preferred volleyball – 40.9%.

Participation in the remaining recreational activities was considerably – approximately 20%, including aerobic–fitness – 22.1%. Among less traditional activities were skating – 19.0%, and football – 18.0%.

Among males, 2 traditional forms of physical activity dominate, running – 62.4%, and walking – 51.6%, with the most popular discipline, football, placed in between – 58.3%.

Considering the significance of the differences between the forms of recreational activity, females practiced more willingly than males, indicating: walking, dancing, aerobic–fitness and roller skating, whereas males more often practice: running, football, table tennis, swimming, and basketball.

Expected types of recreational activity. Among the main types of recreational activity which the respondents would like to practice, new activities did not occur, with the exception of dancing and aerobic–fitness which occupied higher positions.

Males, in their expectations, confirmed the to-date practiced forms of activity: running, football, and walking.

Females, significantly more willingly than males would like to practice: walking, dancing, and roller skating, whereas the expectations of males significantly differed in many forms of activity, especially in running, playing football and table tennis.

Time spent sitting. Female students spent a significantly larger amount of time sitting, compared to males, which may confirm their less active life style.

BMI. An important factor concerning a health-promoting life style was the appearance of silhouette expressed by the BMI. The results of the study showed that females care more about their silhouette (a statistically significant difference), because as many as 15.7% of males were overweight, with only a trace index – 3.7% in females. The fact may be somewhat alarming that 25.5% of female students were underweight, compared to males – 3.9%. Normal values were observed in 80.4% of males and 70.8% of females (Fig. 6).

DISCUSSION

In scientific studies of physical activity frequently differentiate according to the primary parameter – gender. The results of these studies almost commonly present higher values among males than females [16, 25, 28, 29]. Such a comparison conducted among university students with the use of the IPAQ is also to the benefit of males [20, 21, 26, 30]. However, it is worth posing the question: what may condition the level of this activity? This problem has been tackled in the presented study.

It may generally be assessed that considering the level of total physical activity on the background of other studies, physical activity of Ukrainian university students allows a positive evaluation. Its general level is higher among males – 3.863 MET/min./week than females – 3.365 MET/min./week, and does not basically differ from the results of other studies.

Apart from a significantly higher indicator of total physical activity, the male students in the study showed a higher participation in the area of sports-recreational activities. It is noteworthy that males also had a larger amount of leisure time at their disposal, which may result in their greater comfort while participating in physical activities.

The smaller amount of leisure time among females may also be due to the larger scope of participation in household chores still ascribed to women. This is confirmed by their significantly higher level of physical activity in the area of performing such chores in MET units.

It should be noted that a more favourable image of males with respect to physical activity is confirmed by the list of sport-recreational activities they practice at present, and those which they would like to undertake in the future.

Male and female students most often practiced traditional forms of sports-recreational activities, although the number of their choices is significantly higher among male students. Among females, there dominated activities in the form of walking, running, and riding a bicycle, whereas among sports team games, volleyball was dominant. among the above-mentioned traditional forms of activities, males often played football.

It is noteworthy that among the less popular activities, females significantly more often than males mentioned dancing, aerobics, and roller-skating, whereas males indicated swimming and basketball. An unfavourable phenomena among both genders were the relatively modest expectations with respect to practicing other (new) forms of sports-recreational activities. Among female students,

dreams about other physical activities did not appear, and they would like to practice to a greater extent only dancing and aerobic-fitness. Also, male students did not generally show new expectations with respect to practicing these types of activities. Females spent a significantly larger amount of time in a sitting position than males, which may confirm their less active life style.

Male students also evaluated their physical fitness in significantly better terms, compared to their female colleagues. Additionally, a compilation of the sedentary mode of life (time spent sitting) was to the benefit of males, who spent a significantly smaller amount of time sitting. Generally, it may be presumed that physical activity as an important factor of a health-promoting life style is more beneficial among males.

However, female students presented themselves more favourably with respect to their silhouette, expressed in the BMI, which was confirmed by other studies [26]. The majority of females than males had normal values of BMI, and overweight was observed only to a slight degree. It may be a somewhat alarming fact that one-fourth of females were underweight, which may perhaps be typical for women in this age group who are concerned about the appearance of their silhouette.

CONCLUSIONS

1. Male students have a significantly larger amount of leisure time at their disposal, compared to female students, which may condition their higher physical activity.
2. The level of physical activity of university adolescents studying in the Ukraine allows its positive evaluation, with higher values observed among males.
3. In individual areas of physical activity, males showed significantly higher values in sports-recreational activities and at work/university, whereas females – in household chores.
4. Males also evaluated their physical fitness in more positive terms.
5. The passive way of spending free time by sitting was more frequent among females, which supports a less 'beneficial' profile of physical activity among female students.
6. From among sports-recreational activities most frequently practiced by female students there dominated the traditional forms, i.e. walking, running, and bicycle riding. Male students most often run, walk and play football. Females significantly more often participate in such activities as: walking, dancing, aerobic-fitness, and roller skating.
7. Female students did not indicate new types of recreational activity in which they would like to participate, whereas they would like to practice aerobics to a greater extent. With respect to their expectations, males also confirmed the activities practiced to-date.
8. While seeking the factors of a health-promoting life style, the silhouette of females was more beneficial with the BMI, with only trace values of overweight, compared to considerably higher values in males.

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All procedures utilized in the study were in accordance with the ethical standards of the Ethics Committee on human experimentation (institutional and national), and with the Helsinki Declaration of 1975, revised version of 2000(5). Informed consent was obtained from all participants for inclusion in the study.

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