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Sohag University Students Are They Active or Not?

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ABSTRACT

Background: Physical activity **(PA)** is such movements that resulted from any muscular or skeletal movements that require energy expenditure. This includes all types of human movements such as competitive sports and exercise or the daily activities. **PA** is a key factor in reducing the risk of many chronic diseases and promotes psychological well-being; only if practiced throughout the life span. **Objectives:** The current study aimed to determine the prevalence of **PA** and its predictors among Sohag University students.

Patients and Methods: A cross- sectional study was conducted among 536 students of Sohag University in four randomly chosen faculties during the academic year 2020/2021. A self- administered questionnaire was used for collecting data about socio-demographic characteristics; the second section was the International Physical Activity Questionnaire **(IPAQ)**.

Results: Most of the participants (95%) were physically active. Most females (99.2%) were physically active compared to males (91.3 %). Students enrolled Faculty of Literature and Faculty of Law were more active (98.4% and 955%, respectively) than others in Faculty of Engineering and Faculty of Medicine (90.4% and 81.5%, respectively). The studied students in the fourth grade were the most physically active (97.4%). Females spent more time in domestic activities than males. Regarding work while studying, the studied students who work were physically active (99.2%) much more than those who didn't work (93.8%). Predictors of PA among Sohag University students were being a female and student in Faculty of Literature and Faculty of Law.

Conclusion: High prevalence of PA is present among students in Sohag University. Females were more active than males.

Keywords: Physical activity, Sohag University students, International Physical Activity Questionnaire.

INTRODUCTION

Physical activity (PA) is crucial in the prevention of several chronic diseases and is vital for reducing the incidence of cardiovascular diseases. Regular PA reduces the incidence of ischemic heart disease, stroke, diabetes, and breast and colon cancer. Regular PA is also necessary for energy balance, maintaining a healthy weight, and preventing obesity since it plays a critical role in determining energy expenditure [(1,2)].

Insufficient moderate-to-vigorous PA is referred to as physical inactivity (PI). It is different from sitting down all day [(1)]. With cigarette use, hypertension, and high blood sugar levels as the top three risk factors for non-communicable illnesses, PI was ranked as the fourth most dangerous factor, accounting for roughly 3.2 million fatalities annually.

According to the WHO, the Eastern Mediterranean and the Americas had the highest rates of PI as of 2008. About 40% of males in the Americas and 36% of men in the Eastern Mediterranean were physically inactive, making up almost half of all women in each of these locations. Southeast Asia, in contrast, has the lowest frequency of PI. Physical inactivity is seen there among 19% of women and 15% of men [(1)].

At Al-Mansoura University in Egypt, a cross-sectional survey found that 11.3% of students were PI, with female students being more inactive (14.4%) than male students (8.2%) [(3)]. The setting of a university is great for promoting PA and other healthy living activities. Therefore, it is crucial to perform this study in order to assess the existing situation and create a set of suggestions for interventions to assure a high level of PA in university life [(3)].

Reduce your use of mobile devices, television, and video games [(4)]. Families are a crucial source of influence for kids in modelling healthy habits since many illness risk factors (physiologic and behavioral) congregate there [(5)]. A lower risk of early death, cardiovascular disease, type 2 diabetes, hypertension, obesity, and several forms of cancer is linked to PA.

The current study aimed to determine the prevalence of **PA** and its predictors among Sohag University students.

PATIENTS AND METHODS

A cross- sectional study was conducted among students of Sohag University in 4 randomly chosen faculties, 2 theoretical (Faculty of Law and Faculty of Literature) and 2 practical (one medical, Faculty of Medicine and one non-medical, Faculty of Engineering), in a 4 months duration (from April 2021 to July 2021 during the academic year of 2020/2021.

The sample size was calculated using Danial sample size formula based on the following assumptions: Prevalence of PA of the last previous study conducted in Egyptian University was 86.7%, with a confidence level of 95%. It was estimated that 536 samples were the minimum needed.

The participant students were chosen using a stratified random sample method. Based on the percentage of the total number of students in this

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faculty, the students were separated into 4 strata to symbolise the 4 faculties. According to the ratio of students in this grade to the total number of students in the faculty, 1 or 2 classes were randomly chosen from a list that includes all classes in each grade. Students were then split into strata reflecting the grades in each faculty.

Data were gathered using a self-administered structured questionnaire that the researcher had created. In the first section, there were questions regarding the sociodemographic details of the students, including their age, gender, faculty, grade, marital status, way of life, place of residence, employment status, and parental education.

The second component was a 27-item self-reported measure of PA called the International Physical Activity Questionnaire (IPAQ), which was translated into Arabic for use with patients between the ages of 15 and 69. The IPAQ may be used in population research to compare PA levels among populations globally as well as in therapeutic settings. In the previous 7 days, PA was assessed in the following domains: 1) job-related, 2) transportation, 3) housekeeping, home maintenance, and family care, 4) recreation, sport, leisure time, and 5) sitting time.

Answers were computed using the answers to all of the questions. Walking, moderate-intensity exercise, vigorous-intensity activity, and each domain's sub-scores may all be computed. The pupils under study fall into one of three categories based on their PA:

1) Low or inactive do not fit the requirements for groups 2 or 3.
2) Moderate - satisfy 1 of the criteria below:
   A) At least 20 minutes of intense activity on five or more days.
   B) 5 or more days with at least 30 minutes of brisk walking or other moderate-intensity exercise.
   C) Participating in at least 600 MET-min/week of any combination of walking, moderate-intensity, or vigorous-intensity exercise on five or more days.
3) High satisfy 1 of the criteria below: A) At least 1500 MET-min of strenuous exercise over three days or more. B) Any seven-day period including at least 3000 MET-minutes/week of activity that includes walking, moderate-intensity, or vigorous-intensity activities. 3 to 6 METs have been identified as the range for moderate-intensity exercises. Activities with a high level of intensity have been defined as >6 METs.

Ethical consideration:

The Sohag University Faculty of Medicine's Ethical Committee gave its approval to the study idea, and the researchers adhered to the Helsinki Declaration's principles and the International Guidelines for Research Ethics.

The university president was then asked for his approval. Additionally, the deans and administrative leaders of the faculties of the chosen faculties gave their consent and cooperation for the study to be conducted. The chosen university students were asked to give their written agreement before participating in the study, and they were also told of its purpose and the confidentiality of any information they provided to the researchers.

Statistical Analysis

Data input and analysis were done using SPSS version 23 (Statistical Package for Social Sciences). Means and standard deviation (SD) were used to express numerical variables. Frequencies were used to characterize quantitative variables (percentages). For categorical data, frequencies and percentages were taken into account.

The association between PA and socio-demographic information was examined using Chi-square test/Fisher exact test. To identify the independent predictors of PA, significant bivariate components were incorporated into a multivariate logistic regression analysis. A ratio of odds was determined. Statistical significance was defined as a P-value equals or less than 0.001.

The IPAQ's data processing and analysis criteria were followed in calculating PA scores and levels. Continuous scores were presented as MET-minutes per week (MET level x minutes of exercise x days x weeks). If the data were regularly distributed, the T test would be used to compare the two groups; otherwise, the Mann-Whitney test would be used.

RESULTS

Table 1 illustrates the socio-demographic characteristics of the studied university students in Sohag, including 536 students from different faculties.

Table (1): Socio-demographic characteristics of the studied university students in Sohag, 2021.

Variable		Summary Statistics (n=536)	
		No	%
Gender	Male	286	53.3
	Female	251	46.7
Age (years)	Mean ± SD (Range)	20.85 ± 1.61 (18-26)	
Faculty	Medicine	65	12.1
	Engineering	31	5.8
	Literature	244	45.4
	Law	197	36.7
Grade	First	151	28.1
	Second	130	24.2
	Third	115	21.4
	Fourth	115	21.4
	Fifth	17	3.2
	Sixth	9	1.7
Marital status	Single	468	87.2
	Married	17	3.2
	Engaged	52	9.7
Residence during studying(living)	Alone	110	20.5
	With family	427	79.5
Residence	Rural	264	49.2
	Urban	273	50.8
Work while studying	Yes	119	22.2
	No	418	77.8
Father education	Illiterate	38	7.1
	Primary	31	5.8
	Preparatory	46	8.6
	Secondary	102	19.0
	Higher than Secondary	320	59.6
Mother education	Illiterate	111	20.7
	Primary	41	7.6
	Preparatory	53	9.9
	Secondary	105	19.6
	Higher than secondary	227	42.3

Figure 1 shows the interpretation of total **PA** MET according to **(IPAQ)** by gender in the studied university students in Sohag, 2021**.** As regards results and according to **IPAQ**, males had higher score in walking and practicing **(VPA)** (502.21±430.68 and 407.83 ±1054.90, respectively), while females had higher score in practicing **(MPA)** (407.83 ±1054.90), and this difference was statistically significant.

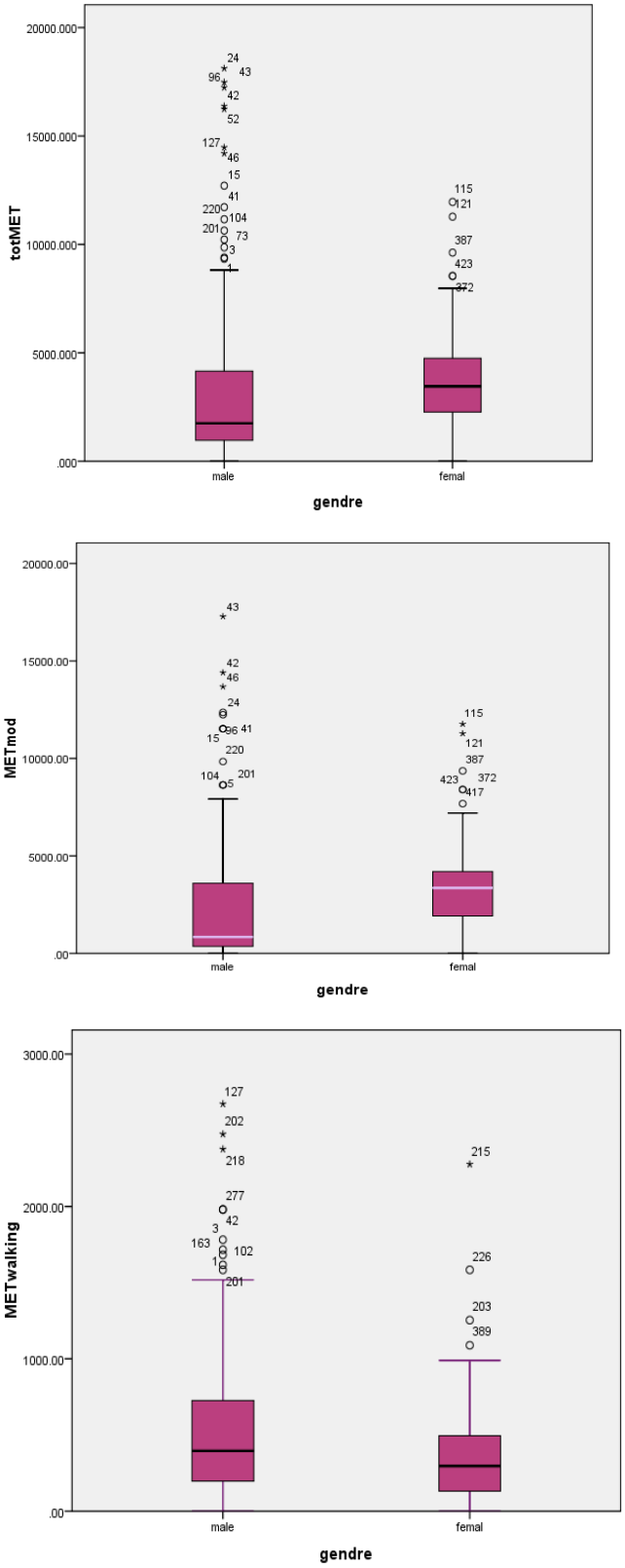

Figure (1): Interpretation of total PA MET according to IPAQ by gender in the studied university students in Sohag, 2021.

Relationship between students' characteristics and **PA** in the studied university students in Sohag is displayed in **Table 2.** The prevalence of **PA** among the studied students was 95%. Regarding gender, most females (99.2%) were physically active compared to males (91.3 %). The results were statistically significant. Regarding faculty, there were high statistically significant differences between the studied students from different faculties. Those enrolled faculty of Literature and faculty of Law were more active (98.4% and 955%, respectively) than others in Faculty of Engineering and Faculty of Medicine (90.4% and 81.5%, respectively). Regarding grades, the studied students in the fourth grade were the most physically active (97.4%), then the third, first, second, fifth and sixth grades (96.5%, 96%, 93.8%, 82.4%, and 66.7%, respectively). The results were statistically significant. Regarding work while studying, the studied students who work were physically active (99.2%) much more than those who didn't work (93.8%). The results were statistically significant. There was no statistically significant difference between the physically active and inactive students regarding parents' education.

Table (2): Association between students' characteristics and PA in the studied university students in Sohag, 2021.

	Socio-demographics	Physically active (n=510) (95%)		Physically inactive (n=27) (5%)		Total (n=537) (100)		P-value*
		No.	%	No.	%	No.	%	
Gender	**Males**	261	91.3	25	8.7	286	53.3	0.001
	Females	249	99.2	2	0.8	251	46.7	
Age	**<20**	128	97.0	4	14.8	132	24.6	0.261
	≥20	382	94.3	23	5.7	405	75.4	
Faculty	**Medicine**	53	81.5	12	18.5	65	1201	0.001
	Engineering	28	90.3	3	9.7	31	5.8	
	Literature	240	98.4	4	1.6	244	45.4	
	Law	189	95.5	8	4.1	197	36.7	
Grade	**First**	145	96.0	6	4.0	151	28.1	0.005
	Second	122	93.8	8	6.2	130	24.2	
	Third	111	96.5	4	3.5	115	21.4	
	Fourth	112	97.4	3	2.6	115	21.4	
	Fifth	14	82.4	3	17.6	17	3.2	
	Sixth	6	66.7	3	33.3	9	1.7	
Marital status	**Single**	444	94.9	24	5.1	468	87.2	0.795
	Engaged	49	94.2	3	5.8	52	9.7	
	Married	17	100.0	0	0	17	3.2	
Living	**Alone**	105	95.5	5	4.5	110	20.5	0.795
	With family	405	94.8	22	5.2	427	79.5	
Residence	**Urban**	265	93.8	17	6.2	273	50.8	0.196
	Rural	254	96.2	10	3.8	264	49.2	
Work	**Yes**	118	99.2	1	0.8	119	22.2	0.016
	No	392	93.8	26	6.2	418	77.8	
Father education	**Illiterate**	35	92.1	3	7.9	38	7.1	0.914
	Primary	30	96.8	1	3.2	31	5.8	
	Preparatory	44	95.7	2	4.3	46	8.6	
	Secondary	97	95.1	5	4.9	102	19.0	
	Higher than secondary	304	95.0	16	5.0	320	59.6	
Mother Education	**Illiterate**	104	93.7	7	6.3	111	20.7	0.790
	Primary	40	97.6	1	2.4	41	7.6	
	Preparatory	52	98.1	1	1.9	53	9.9	
	Secondary	100	95.2	5	4.8	105	19.6	
	Higher than secondary	214	94.3	13	5.9	227	42.3	

Predictors of **(PA)** were female gender, studying at faculty of literature and faculty of Law, fourth grade and not working (**Table 3**).

Table (3): Logistic regression analysis (multivariate) for predictors of PA among the studied University students in Sohag, 2021

Physical activity predictors	P-value	OR	95% C.I.	
			Lower	Upper
Gender (Ref. =Male)				
Female	0.002	10.272	2.288	46.119
Faculty (Ref. = Medicine)				
Engineering	0.259	2.197	0.560	8.615
Literature	0.010	4.975	1.457	16.988
Law	0.039	2.813	1.053	7.515
Work (Ref. = working)				
Not working	0.042	0.120	0.015	0.929

The final regression for predictors of **PA** among the studied university students in Sohag was illustrated in **Table 4.** Predictors were female gender, studying n faculty of Literature and faculty of Law and not being work.

Table (4): Final regression table for predictors of PA among the studied university students in Sohag, 2021.

Physical activity predictors	P-value	OR	95% C.I.	
			Lower	Upper
Gender (Ref. =Male)				
Female	0.001	20.721	3.828	112.155
Age (Ref. =<20)				
≥20	0.234	0.519	0.176	1.529
Faculty (Ref. = Medicine)				
Engineering	0.100	4.186	0.759	23.093
Literature	0.003	14.049	2.518	78.400
Law	0.040	3.958	1.063	14.742
Grade (Ref. = First)				
Second	0.655	0.697	0.143	3.391
Third	0.546	1.761	0.281	11.047
Fourth	0.099	4.822	0.745	31.206
Fifth	0.477	2.130	0.265	17.135
Sixth	0.626	1.739	0.188	16.068
Marital status (Ref. = Single)				
Engaged/ Married	0.424	0.551		2.375
Living (Ref. =Alone)				
With family	0.076	0.333	0.099	1.123
Residence (Ref. = Rural)				
Urban	0.160	0.456	0.153	1.365
Work (Ref. = working)				
Not working	0.016	0.067	0.008	0.599
Father Education (Ref. = Illiterate)				
Primary	0.623	2.273	0.086	59.747
Preparatory	0.623	1.770	0.181	17.267
Secondary	0.877	1.170	0.160	8.544
Higher than secondary	0.190	4.039	0.501	32.537
Mother Education (Ref. = Illiterate)				
Primary	0.353	3.142	0.280	35.221
Preparatory	0.430	2.722	0.226	32.759
Secondary	0.896	0.895	0.168	4.757
Higher than secondary	0.311	2.556	0.415	15.705

The relationship between students' characteristics and **PA** level in the studied university students in Sohag was demonstrated in **Table 5**.

As regard gender 79.8% of males were moderately active compared to 20.2% of females, while 57.5% of females were highly active compared to 42.5% of males. As regard faculty, studied students in faculty of Medicine had the highest percentage of low and moderate **PA** (44.4% and 30.3%, respectively), while those in faculty of Literature were the most highly active (52.7%). Regarding grade, studied students in the second grade had the highest percentage of low **PA** (29.6%), while those in the first grade had the highest percentage of moderate and high **PA** (29.4% and 28.1%, respectively).

These differences were statistically significant. Regarding work while studying 96.3% of the studied students who didn't work were low active compared to 3.7% among those who worked. Students who didn't work were moderately active in a percentage of 100%. Those who didn't work were highly active in a percentage of (69.8%) compared to 30.2% among students who didn't work. These differences were statistically significant.

Table (5): Association between students' characteristics and PA level in the studied university students in Sohag, 2021.

Variable		Physical Activity Level			P-value
		Low (n=27) (%5)	Moderate (n=119) (22.2%)	High (n=391) (72.8%)	
		No. (%)	No. (%)	No. (%)	
Gender	Male	25 (92.6%)	95(79.8%)	166(42.5%)	0.001
	Female	2 (7.4%)	24 (20.2%)	225 (57.5%)	
Age	< 20	4 (14.8%)	31 (26.1%)	97 (24.8%)	0.496#
	≥ 20	23 (85.2%)	88 (73.9%)	294 (75.2%)	
Faculty	Medicine	12 (44.4%)	36 (30.3%)	17 (4.3%)	0.001
	Engineering	3 (11.1%)	15 (12.6 %)	13 (3.3%)	
	Literature	4 (14.8%)	34 (14.8%)	206 (52.7%)	
	Law	8 (29.6%)	34 (28.6%)	155 (39.6%)	
Grade	First	6(22.2%)	35(29.4%)	110 (28.1%)	0.001
	Second	8(29.6%)	21(17.6%)	101(25.8%)	
	Third	4(14.8%)	20(16.8%)	91(23.3%)	
	Fourth	3(11.1%)	27(22.7%)	85(21.7%)	
	Fifth	3(11.1%)	11(9.2%)	3(0.8%)	
	Sixth	3(11.1%)	5(4.2%)	1(0.3%)	
Marital status	Single	24(88.9%)	111(93.3%)	333(85.2%)	0.059
	Engaged	3(11.1%)	8(6.7%)	41(10.5%)	
	Married	0(0.0%)	0(0.0%)	17(4.3%)	
Living	Alone	5(18.5%)	27(22.7%)	78(19.9%)	0.783
	With family	22(81.5%)	92(77.3%)	313(80.1%)	
Residence	Rural	10(37.0%)	59(49.6%)	195(49.9%)	0.433
	Urban	17(63.0%)	60(50.4%)	196(50.1%)	
Work	Yes	1 (3.7%)	0 (0.0%)	118 (30.2%)	0.001
	No	26 (96.3%)	119 (100.0%)	273 (69.8%)	
Father education	Illiterate	3 (11.1%)	5 (4.2%)	30(7.7%)	0.414
	Primary	1 (3.7%)	3 (2.5%)	27 (6.9%)	
	Preparatory	2 (7.4%)	11 (9.2%)	33 (8.4%)	
	Secondary	5 (18.5%)	19 (16.0%)	78 (19.9%)	
	Higher than secondary	16 (59.3%)	81 (68.1%)	223 (57.0%)	
Mother education	Illiterate	7 (25.9%)	23 (19.3%)	81 (20.7%)	0.440
	Primary	1 (3.7%)	6 (5.0%)	34 (8.7%)	
	Preparatory	1 (3.7%)	10 (8.4%)	42 (10.7%)	
	Secondary	5 (18.5%)	19 (16.0%)	81 (20.7%)	
	Higher than secondary	13 (48.1%)	61 (51.3%)	153 (39.1%)	

DISCUSSION

PA has a number of positive health effects including lower rates of morbidity and death, regular **PA** is crucial in the prevention of several chronic diseases and is vital for reducing the incidence of cardiovascular diseases, which are still the first cause of death in Egypt and in the world. It improves the quality of life for people of all ages [(6)].

According to researchers, **PA** should be managed by age-appropriate exercise intensity and should be systematic [(7)].

In our study 510 (95%) of the studied students were physically active, 261 (48.6%) were males and 249 (46.4%) were females. According to an Egyptian study which was conducted in Assiut University among 850 students to estimate the prevalence of **PI** and its determinants, the prevalence of **PA** was (86.7%) compared to (14.3%) of **PI** [(8)].These results agreed with ours in that the studied students in both studies were mostly physically active; however our study showed higher prevalence of **PA**.

In a study among university students in Al-Jouf University, Saudi Arabia among 283 students the results revealed that the prevalence of **PA** was (39.9%) only compared to (60.1%) to **PI** [(9)]. This was lower than level of total **PA** in our study. A cross sectional study was conducted in Annamalai University, Chidambaram, India was one of 454 participants, and the study's goal was to determine the PA level among university students. The prevalence of **PA** in this study was (23.8 %) [(10)]. These results disagreed with ours as the percentage of physically active students in our study was much higher.

A study was conducted in the University of Maribor, Slovenia among 297 undergraduate students. This study's goal was to ascertain the PA that students engaged in. The results indicated that (20.2%) of the studied students were active [(11)]. Hence our situation in Sohag University appeared to be much better. The results of our study showed a more positive picture as (95%) were active.

In our study regarding gender, most females (99.2%) were physically active compared to (91.3%) of males. According to **Abd El Aty *et al.*** [(8)], females were less physically active with a percentage of (80%) compared to (90.7%) of males. There was significant difference regarding the association between **PA** levels and gender in both studies, but **PA** level among male and female students in our study was higher than among those in Assiut University.

According to **Praveen Kumar** [(10)], among 454 (23.8%) participants were physically active, 62 (13.6%) were males and 46 (10.2 %) were females. These results disagreed with ours as the percentage of physically active students in our study was much higher and females were more physically active than males.

Type of faculty was an important predictor of **PA** level in our study as our results revealed that the chance of **PA** increased by approximately 5 times among students in faculty of Literature and medical students were less likely to be physically active. According to **Abd El Aty *et al.*** [(8)] the higher level of **PI** was among medical students and those students were 2.5 times more likely to be physically inactive than students in theoretical faculties**.** The inclusion of theoretical, practical, and medical students in the sample and the lower level of PA among medical students distinguish these studies from one another.

In our study regarding to domestic activities, we found that females spent more time in this domain. There were statistically highly significant differences between males and females in mean time of domestic activities (P<0.001). In a study done among 5008 students at Eastern European National University, Lutsk, Ternopil State Medical University, Hungary's University of Pécs, Slovakia's University of Kosice, and the Czech Republic's University of Olomunec. It was found that Ukraine female students were more active than males with significant differences between sexes in housework **PA** domain for females(P<0.001) [(12)]. Our results were in harmony with such study.

Students in our study reported that they spent an average of 79.50 (SD 53.31) minutes/day sitting (sedentary time). A study in USA among 91 students was conducted to investigate the differences between estimates of sedentary behavior and PA. Students in such study reported that they spent 508.7 (SD 86.4) minutes /day sitting (sedentary time) [(13)]. As regard, students in our study spent less sedentary time sitting.

In our study, mean of total **PA** MET for males and females were 3068.38 (SD 3225.37) and 3776.69 (SD 2062.33), respectively. In a study conducted in a university in Adnan Menderes University in Aydin, Turkey, it was found that male students engaged in significantly (P<0.05) more total PA than females as 4,527 MET (minutes/week) for male students and 2,539 MET (minutes/week) for females. So results of our study disagreed with such study as our results showed higher total **PA** MET for males and females and the total **PA** level for females was more than that in males and this was also contradictory to such study [(14)].

CONCLUSION

The current study showed a high prevalence of PA among the studied students in Sohag University. Males were less active than females, who also spent more time engaging in household tasks. Being a female and a student in the law or literature faculties were predictors of PA among Sohag University students. Developing routine programs for **PA** among university students is needed. It is recommended

proper evaluation, management and follow-up of barriers to **PA** in university student.

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