

# PHYSICAL ACTIVITY AND DEPRESSION AMONG HEALTH AND SOCIAL SCIENCE STUDENTS AT PUBLIC SECTOR UNIVERSITY, DAMMAM, KSA

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## ABSTRACT

**Background.** Lack of physical activity and depression are the common problem among university students. The purpose of this study was to compare the physical activity and depression between health science students and social science students at public sector university, Dammam, KSA.

**Methods.** It's a cross sectional study and participant were selected by using multistage cluster sampling. International physical activity questionnaire (IPAQ) and "Becks depression scales were used to determine the physical activity and depression. Students of age group between 20 and 25 years were included. Comparison of depression and physical activity between health and social students was determined through chi square and Man Whitney U test. P value < 0.05 was considered significant.

**Results.** The mean age of participants was 21.09±1.49 years. Among health and social science students, 41.3% and 25.9% were suffering from severe depression respectively (p<0.05). Mean and SD of mild physical activity among health and social science students were 150.96±147.89 and 171.13±160.63 respectively with p value is 0.04. Mean and SD of moderate physical activity among health and social science students were 175.16±157.07 and 204.93±152.57 respectively with p value is 0.06. Mean and SD of vigorous physical activity among students of health and social science were 169.65±148.77 and 219.28±146.04 respectively with p value is 0.05.

**Conclusion.** Results of study found that health science students had high prevalence rate of depression and low level of physical activity compare to social sciences students.

**Keywords:** depression, health, physical activity, science, social, students

## INTRODUCTION

There are different factors which restrict the physical activity among students such as inconvenience, academic burden and social obligation (1). Previous study found that health science students have less physical active compare to social science students because of more academic burden and not time for physical activity and behaviors of health science students are more towards study than physical exercise (2). Other study results have found that personal barrier or social factors have reduced the physical activity among health science students (3).

Depression has become inevitable with increasing time; it does not only encompass aged people but also undergraduate students, housewives, employee's etc. in its circle. Many researches have been carried out among medical students and result found that a higher prevalence of depression among medical students and low physical activity than general population. According to different studies, stress among medical students has been ranging from 12% to 73% (4-5). There are different factors which restrict the physical activity among students such factors as inconvenience, academic obligations, social obligation (6).

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Different studies result found that depression are common in public sector medical students, in USA the prevalence of depression is 15.2% (5), 21.7% in Malaysia (4), 29.1% in India (6), and Private medical school students the prevalence as 19% in USA (7), 49.1% in India (8), and 60% in Pakistan (9).

According to different studies result found that nearly half of the students were found to be depressed with 2% having severe depression (10,11). Depression was found to be present in 60% and 70% in two different studies of medical and private colleges. The studies also show that there was no difference of gender with regard to the development of depression symptoms (12-16).

The objective of this study is to compare prevalence of physical activity and depression between health and social science students at public sector university, Dammam, KSA.

## METHODS

### Study setting and study design

Two health science colleges and two social science colleges were selected in the public sector university. Health Science Colleges: College of Medicine and college of applied medical sciences. Social science colleges: College of Business administration and college of commerce. The total strength of students in these colleges is 2,000 (estimated). Out of total, 71 participants were selected from each college. The age of students was approximately between 20 and 25 years. This is the cross-sectional study.

### Study tool

The study instrument was used a validated and structured questionnaire comprising of three sections. Section one determined the socio demographic characteristics and section two related to depression which was assessed by a 21 items questionnaire and section three is related to physical activity which comprise of 7 questions. It was prepared in English language.

The scale was used to assess depression level is Beck's depression scale A self-administered questionnaire (17) was utilized. The questionnaire includes BDI-II test which is a 21 items self-report, having a four-point scale ranging from

0(symptoms not present) to 3(extreme symptoms). The test requires approximately 5-10 minutes finishing. Participants with a cut off of 20 and above were considered depressed. Total score of 20-30 points towards mild mood disturbance, 30-40 indicates moderate clinical depression and 40-60 displays severe depression. The BDI test is broadly recognized and has been verified for concurrent, construct and content validity. This scale was formerly designed by Aaron T. Beck In 1961 collating patient's illustration of their symptoms-depressed mood, hopelessness, lack of energy, persistent sadness, poor self-esteem, guilt, perception of failure, self-discontent crying irritability, fatigue insomnia decreased appetite, weight loss social withdrawal suicidal thoughts In 1996 the Beck Depression Inventory (BDI) underwent revision as (BDI-II) enhancing its content validity with the aim of focusing on depression symptoms criteria presented by DSM-IV. Numerous researches concentrating on the psychometric assessment of depression used Beck Depression Inventory (BDI) (13-16). Physical activity of the students was determined by International Physical Activity Questionnaire (IPAQ) (18). The study participants answered questions relate to number of days and the duration of the vigorous (V), moderate (M), walking activity (W), and a combined total physical activity score. All scores were expressed in MET-minutes/week ([www.ipaq.ki.se](http://www.ipaq.ki.se)). The following values has been used for the analysis of IPAQ data: -

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- Walking MET = 3.3 x walking minutes x walking days;
- Moderate MET = 4.0 x walking minutes x walking days;
- Vigorous MET = 8.0 x walking minutes x walking days;
- Total Physical Activity MET = sum of Walking + Moderate + Vigorous MET minutes/week scores

### Sample technique and sample size

The study participants was recruited through multistage cluster sampling, first two cluster were selected, one for health science and other social science colleges then each college sample collected through stratified sampling and within each col-

lege participants were selected through simple random sampling. Total 285 students were included in the study and it was calculated by Epi info software. Proportion of depression and physical activity among students from previous study (16,19), It was estimated by using proportion of physical activity 23% and depression as 25% at confidence level 95% and bound of error 5%.

### Data collection procedure

After the approval of respective college administration, students for each year of respective college was approached, briefs the study objective and self-administered questionnaires was distributed to the students. Participation was voluntary. Each participant was explained individually the contents of the questionnaire and the importance of this study Questionnaire was return back after completing the questionnaire.

### Inclusion criteria and exclusion criteria

The inclusion criterion were Age of the participant (18- 26), willing to participate in the study. Exclusion criteria for study participants were the students who already diagnosed and treated for any psychological disorder and family history of psychological disorders will be excluded. All those who didn't give their consent will be also excluded.

### Study variables, data analysis and ethical consideration

The dependent variable are physical activity and depression and the independent variable were age, gender, marital status, father's occupation, ethnicity and the addiction history of the participants. Data were entered and analyzed in SPSS 24. Frequencies, mean, deviation and standard deviation were calculated in quantitative variables and proportions were calculated in qualitative variables. To determine the depression and physical activity difference between health and social science colleges, Chi-square and Mann-Whitney-U test was used. The relationship between dependent and independent variables were determined through Chi Square and Kruskal-Wallis-H test. Study protocol was approved from the ethical committee of IAU (IRB-UGS-2020-03-064). Informed written consent was taken prior to fill the questionnaire

from each participant. The participants were assured confidentiality and given option to quit from the study without any further questions and implications.

## RESULTS

Mean age (SD) of study participants was  $21.2 \pm 1.49$  years. Most (70.2%) of study participants were male, majority (96.8%) were single, 78.9% were never smoked in their life and 65% were securing good GPA in last semester. Most (82.5%) of students fathers were employees of companies [Table 1].

Majority (43.5%) of students were suffering from mild depression. Among health science students, majority (41.3%) were suffering from severe depression and social science students majority (45.9%) had mild depression and the difference were statistically significant different. ( $p < 0.05$ ) [Table 2].

Mean and SD of Mild physical activity among health and social science students were  $150.96 \pm 147.89$  and  $171.13 \pm 160.63$  respectively with p value is 0.04. Mean and SD of moderate physical activity among health and social science students were  $175.16 \pm 75.07$  and  $204.93 \pm 152.57$  respectively with p value is 0.06. Mean and SD of vigorous physical activity among students of health and social science were  $169.65 \pm 148.77$  and  $219.28 \pm 146.04$  respectively with p value is 0.05 [Table 3].

Male students were more suffering from depression in both colleges compare to female this difference statistically significant. Among different academic year, first year students were suffering from depression compare to other year of students in both colleges. Those students were secured high GPA score suffered more depression compare to low GPA students in both colleges and this difference is statistically significant (p value  $< 0.05$ ) [Table 4].

Male students, first year students and low GPA students were less active in both colleges compared to female, other academic year's students and high GPA students respectively. These differences were statistically significant (p value  $< 0.05$ ) [Table 5].

**TABLE 1.** Socio-demographic characteristics of study participants (n = 285)

		Total study participants	Health Science College participants (n=150)	Social Science College participants (n=135)	p-value**
Sr. No	Characteristics	Frequency (%)	Frequency (%)	Frequency (%)	
1.	Age (years) (Mean ±SD)	21.02±1.49	21.02±1.61	21.01±1.34	0.350
2.	Gender				0.743
	Male	200(70.2)	104(69.3)	96(71.1)	
	Female	85(29.8)	46(30.7)	39(28.9)	
3.	Marital status				0.617
	Single	276(96.8)	146(97.3)	130(96.3)	
	Married	9(3.2)	4(2.7)	5(3.7)	
4.	Academic year of study				0.427
	First year	138(48.42)	74(49.3)	64(47.4)	
	Second year	68(23.90)	35(23.3)	33(24.4)	
	Third year	51(17.9)	23(15.3)	28(20.7)	
	Fourth year	28(9.80)	18(12)	10(7.4)	
5.	Father occupation				0.061
	Business	50(17.55)	51(34)	37(27.4)	
	Job	235(82.45)	99(66)	98(72.6)	
6.	Smoking				0.902
	Ever	60(21.10)	32(21.3)	28(20.7)	
	Never	225(78.9)	118(78.7)	107(79.3)	
7.	Academic score (GPA)* (Last semester)				0.000
	Low	34(11.9)	21(14)	3(2.2)	
	Average	65(22.8)	48(32)	27(20)	
	Good	186(65.3)	81(54)	105(77.8)	

\*low 1-3, average 3-4, good >4, \*\*Chi-square test

**TABLE 2.** Prevalence of depression among study participants (n = 285)

S. No	Characteristics	Total study participants Frequency n= 285 (%)	Health Science College students Frequency n = 150 (%)	Social Science colleges students Frequency n = 135 (%)	**P-value
1	Mild depression*	124 (43.5)	42(28)	59(43.7)	0.04
2	Moderate depression*	82 (28.8)	43(28.66)	39(28.89)	
3	Severe depression*	79 (27.7)	65 (43.34)	37(27.41)	

\*Beck's depression scale \*\*chi square test

**TABLE 3.** Prevalence of physical activity among study participants (n = 285)

S. No	Characteristics	Total study participants Mean ±SD	Health Science College students Mean ±SD (n=150)	Social Science colleges students Mean ±SD (n=135)	**p-value
1	Mild physical activity* (Min/week)	160.47±150.09	150.96±147.89	171.13±160.63	0.04
2	Moderate physical activity* (Min/week)	190.88±170.97	175.16±157.07	204.93±152.57	0.06
3	Vigorous physical activity* (Min/week)	193.07±140.76	169.65±148.77	219.28±146.04	0.05
4	Total physical activity (Min/week)	545.89±145.39	525±15.67	568±12.15	0.03

\* International physical activity questionnaire \*\*Mann-Whitney-U test

**TABLE 4.** Relationship between socio-demographic characteristics and depression among study participants (n = 285)

S. No	Characteristics	Health Science Colleges students				Social Science Colleges students			
		Mild depression Frequency (n) (%)	Moderate depression Frequency (n) (%)	Severe depression Frequency (n) (%)	**P-value	Mild depression Frequency (n) (%)	Moderate depression Frequency (n) (%)	Severe depression Frequency (n) (%)	**P-value
1	Gender				0.01				0.04
	Male	43(77.4)	31(68.2)	30(58.1)		44 (80.6)	27(68.4)	25(57.1)	
	Female	19(22.6)	13(31.8)	14(40.9)		18(19.4)	11(31.6)	10(42.9)	
2	Academic year of study				0.02				0.01
	First year	31(50)	22(50)	21(47.7)		29(46.9)	18(28.1)	17(25)	
	Second year	14(22.6)	11(25)	10(22.7)		15(48.5)	9(18.2)	8(33.3)	
	Third year	12(19.4)	3(6.8)	8(18.2)		13(53.6)	7(28.6)	7(17.9)	
	Fourth year	5(8.1)	8(18.2)	5(11.4)		4(10)	5(60)	3(30)	
3	Smoking				0.08				0.05
	Never	49(80.6)	34(77.3)	35(77.3)		49(80.6)	30(78.9)	28(77.1)	
	Ever	13(19.4)	10(22.7)	9(22.7)		13(19.4)	8(21.1)	7(22.9)	
4	Academic score (GPA)* (Last semester)				0.05				0.07
	Low	6(9.7)	7(18.2)	8(18.2)		1(1.6)	1(2.6)	2(2.9)	
	Average	21(35.5)	13(29.5)	14.(29.5)		12(22.6)	8(21.1)	6(14.3)	
	Good	34(54.8)	24(54.5)	23(52.3)		48(75.8)	30(76.3)	27(82.9)	

\*low 1-3, average 3-4, good > 4, \*\* Chi-square test

**TABLE 5.** Relationship between socio-demographic characteristics and physical activity among study participants (n = 285)

S. No	Charac-teristics	Health Science Colleges Students				Social Science Colleges Students			
		Mild physical activity Mean $\pm$ SD	Moderate physical activity Mean $\pm$ SD	Vigorous physical activity Mean $\pm$ SD	**P-value	Mild physical activity Mean $\pm$ SD	Moderate physical activity Mean $\pm$ SD	Severe physical activity Mean $\pm$ SD	**P-value
1	Gender				0.06				0.04
	Male	161.84(155.58)	170.14.5(167.76)	166.91(146.14)		162 $\pm$ (153.47)	217.88(119.70)	177(15.02)	
	Female	125.97(120.62)	175.65(142.28)	153.04(146.90)		169.4(144.37)	187.38(175.37)	149.47(13.01)	
2	Academic year of study				0.02				0.01
	First year	152.38(140.06)	172.41(120.79)	120.23(121.25)		157.06(13.80)	190.21(13.15)	133.40(12.89)	
	Second year	149.06(122.34)	214.73(107.71)	145.50(117.14)		152.55(14.92)	301.71(13.38)	154.28(10.39)	
	Third year	147.90(123.58)	130.79(104.00)	224.85(202.35)		162.55(15.05)	156.52(13.75)	230.95(20.16)	
	Fourth year	131.34(121.29)	175.07(155.16)	243.20(147.09)		107.98(12.67)	139.11(12.26)	270.22(15.41)	
3	Smoking				0.08				0.05
	Never	173.12(155.27)	177.50(160.45)	122.33(116.54)		191.42(13.67)	225.38(20.09)	148.67(10.04)	
	Ever	163.58(152.43)	166.28(158.34)	207.71(186.29)		186.14(17.20)	129.50(11.21.)	247.00(15.14)	
4	Academic score (GPA)* (Last semester)				0.05				0.07
	Low	110(100.8)	80.00(38.56)	160.00(157.12)		145.98(13.48)	169.52(13.04)	194.28(18.44)	
	Average	198(183.27)	178.51(159.75)	193.66(189.31)		156.54(14.40)	202.83(12.67)	253.62(17.35)	
	Good	165.92(155.94)	177.07(162.89)	149.03(139.15)		148.94(13.18)	215.35(18.31)	212.07(14.93)	

\*low 1-3, average 3-4, good > 4, \*\* Kruskal-Wallis-H test

## DISCUSSION

The study results found that health college students had more depression and less physical activity compared to social science students. These differences were statistically significant.

We found out that depression is more common in health science students, mild, moderate and severe 29.3%, 29.3% and 41.3% respectively as compared to social science students. These results were consistent with the previous studies. In previous studies the depression among the students of public medical students has been estimated to be 15.2% in USA (21), 24% in UK (7), 29.1% in India (8), and 43.8% in Pakistan (9). Major factors contributed were study burden, less social time, gender, marital status and a past depression history.

In this study, the maximum mean scores of physical activity among social science students compared to health science students. These results are in agreement with the previous studies (20-23) in which the health science students were found lowest score. The low scores may be linked to less time available for leisure activities due to high burden of studies. In this study all level of physical activity among health science students were low compare to social science students and these results are consistent with other studies results (24-25). This results accordance with other studies results (26-27), who found that medical students be less likely to perform physical activity. The results indicated that in spite of awareness, health sciences students scored poorly in stress managing, health and academic liability, and physical activity.

In this study Male students in both health and social sciences were more likely to be affected as compared to female. These results were consistent with other study results. Previous study found that males health students are more likely depressed

compared to females students (28). Different reasons are associated with it such as school pressure, peer pressure, family problems, sense of loss, self-doubt, high expectations etc.

The study results found that students in first academic year were more depressed and more physical active in both health and social science students. These results contradict the previous study results. The previous studies (29-30) found that final academic year students were more depressed and less physical active. The reason to this difference is that availability of resources to the students. One plausible explanation for the results could be the immense study load of health profession students.

The study found that students had smoking habits were more depressed and less physical active. This result was consistent with other previous studies (31-32). The major reason for this situation is that students feel fresh in psychological status and does not intention to go physical activity.

The limitations of study are, first it is the cross sectional study which cannot determine the temporal relationship, second external validity is low due to small sample size.

## CONCLUSION

The study results highlights that health science students were more depressed and less physical active compared to social science students. These finding needs to reform in the health science curriculum which enable students have more physical active and healthy mind.

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