

Physical Activity and Levels of Depression in the Kingdom of Saudi Arabia

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Abstract

Depression, the most prevalent form of mood disorder, has triggered significant public health concern in developed and developing countries due to its high prevalence and the heavy burden of disease. Physical activity and sedentary behavior may be associated with depressive symptoms. We conducted this study to reassess the correlation in Saudi Arabia. Observational cross-sectional evaluation using the (Beck Depression Inventory) that measures the characteristic attitudes and symptoms of depression and the (International Physical Activity Questionnaire) to assess the levels and patterns of PA in healthy adults. The sample was conducted in the Makkah region, Saudi Arabia, with inclusion criteria being any adult between 18-50 years.

There was a higher number of female participants (58.8%). Based on the participants' (body mass index), we noted that many were overweight (34.67%). The most common response in 469 participants (48%) was normal ups and downs; 196 (20%) had mild mood disturbance; 75 (7.7%) had borderline clinical depression; 112 (11.5%) had moderate depression; 33 (3.4%) had severe depression, while 93 (9.5%) had extreme depression. Based on findings we suggest that Psychiatrist practice encouraging depressed patients to do more physical activity and explain the impact of the physical activity on improving their symptoms and their Health.

Keywords: Physical Activity; Depression

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Citation: Sulhi Ali Alfakeh, Alshehri HG, Alghamdi MH, et al. (2020) Physical Activity and Levels of Depression in the Kingdom of Saudi Arabia. *Prensa Med Argent*, S2:017. DOI: <https://doi.org/10.47275/0032-745X-S2-017>.

Received: June 20, 2020; **Accepted:** July 31, 2020; **Published:** August 04, 2020

Introduction

Depression, the most prevalent form of mood disorder, has triggered significant public health concerns in both developed and developing countries due to its high prevalence and the heavy burden of disease [1]. It affects nearly 350 million people, and accounts for 12.7% of all-cause mortality around the globe [2]. Major depressive disorder is estimated to impact 4.5% of the general population in Saudi Arabia [3]. According to the Saudi National Mental Health Survey, 2019, major depressive disorder affects 6% of the Saudi population [4]. Furthermore, depressive episodes can have harmful effects on social relations, education, and functional performance, eventually leading to a decrease in quality of life (QOL) [5]. In fact, QOL among adults with depression is more affected than in adults with diabetes, hypertension, or chronic lung disease [6].

There is consistent evidence that physical activity is associated with increased well-being, improved cognitive functioning and decreased depression and anxiety [7]. In the case of depression, physical activity reduces its incidence and severity, and can prevent recurrence. Cross-sectional studies have shown that physical activity is associated with lower risk of current and/or depression lasting for 12 months [8-10]

Methods

Participants, Study Design and Settings

This observational cross-sectional study used data collected during January and February 2020 by electronic survey comprising the International Physical Activity Questionnaire (IPAC) and Beck's Depression Inventory (BDI) translated to Arabic [11].

The sample was collected in Makkah region, Saudi Arabia, with inclusion criteria being any adult between the ages of 18 and 50 within the geographical area and exclusion criteria being people younger than 18 and older than 50 years, or out of the geographical area [12].

Ethical Review

This study was approved by the Institutional Review Board (IRB) at King Abdulaziz University Hospital (KAUH).

Analysis of Data

Using the Statistical Package for the Social Sciences (SPSS) version 21, the data was entered and analyzed. Qualitative variables were described in frequencies and percentages, while quantitative data were expressed in means and \pm standard deviations. Also, P-values were calculated by the Pearson chi-square test to define the significance of the results. P-value less than 0.05 was considered significant.



Measurement

Depression

The Beck Depression Inventory (BDI) is a 21-item, self-reporting rating inventory measuring the characteristic attitudes and symptoms of depression with a sensitivity of 81% and a specificity of 92% [13].

Physical activity

The comprehensive, self-administered IPAQ questionnaire has acceptable validity when assessing levels and patterns of PA in healthy adults [14]. The IPAQ is, however, better implemented in larger surveillance studies comparing groups within or between countries rather than on an individual basis. Findings also suggest that the IPAQ validity scores may be strengthened by providing additional detail of the types of activities older adults might do daily, to improve recall. It may also be necessary to provide an example of a break-down of the typical activities performed daily as this may enable older adults to comprehend more fully the amount of time spent on being active or sitting and/or lying down during waking hours [15].

Results

Participant's Characteristics

Female participants were in the majority (58.8%) compared with males (41.2%), while the highest number of participants according to age group were <40 years old (68.9%), and >40 years old (31.1%). Based on the participants' BMI, we noticed that most of them were overweight (34.67%), followed by those who were normal (34.25%), obese (25.35%) and underweight (5.6%) (Table 1).

The levels of depression in participants according to Beck's tool was as follows:

The most common response recorded in 469 subjects (48%) was normal ups and downs; 196 (20%) had mild mood disturbance; 75 (7.7%) had borderline clinical depression; 112 (11.5%) had moderate depression; 33 (3.4%) had severe depression, while 93 (9.5%) had extreme depression (Table 2).

Association between Depression and Levels of Physical Activity

Low levels of physical activity were recorded in 537 subjects, among

Table 1: Demographics of the participants.

Variable	Median	(Q3-Q1)
Age	32	(23-42)
Gender(Females)	575	58.8
Height	163	(157-169)
Weight	70	(60-80)
BMI	26.36	(22.87-30.07)

Note: All variables are summarized as median and IQR except gender is summarized as number and percentage.

Table 2: Beck's levels of depression among participants according to Beck's tool.

Variable	n = 978	%
Normal ups and downs	469	48
Mild mood disturbance	196	20
Borderline clinical depression	75	7.7
Moderate depression	112	11.5
Severe depression	33	3.4
Extreme depression	93	9.5

Note: All variables are summarized as number and percentage.

these 246 (45.81%) had normal mood, 123 (22.9%) had mild mood disturbance, 45 (8.37%) had borderline depression, 67 (12.47%) had moderate depression, 14 (2.6%) had severe depression and 42 (7.82%) had extreme depression. Moderate levels of physical activity were recorded in 174 subjects, among these 93 (53.44%) had normal mood, 24 (13.79%) had mild mood disturbance, 13 (7.47%) had borderline depression, 16 (9.19%) had moderate depression, 10 (5.74%) had severe depression, and 18 (10.34%) had extreme depression. High levels of physical activity were found in 267 subjects, among these 130 (48.68%) had normal mood, 49 (18.35%) had mild mood disturbance, 17 (6.36%) had borderline depression, 29 (10.86%) had moderate depression, 9 (3.37%) had severe depression, and 33 (12.35%) had extreme depression (Table 3).

Table 3: Correlation between demographics, depression, and levels of physical activity.

Demographics	Variables	n	Levels of physical activities						Spearman correlation and p value
			Low		Moderate		High		
			n	%	n	%	n	%	
Gender	Female	575	310	53.9	103	17.9	162	28.2	r = -0.026
	Male	403	227	56.3	71	17.6	105	26.1	p = 0.422
Age	< 40	674	350	51.9	132	19.6	192	28.5	r = -0.077
	≥ 40	304	187	61.5	42	13.8	75	24.7	p = 0.015
BMI	Underweight	55	33	60	6	10.9	16	29.1	
	Normal	335	167	49.9	70	20.9	98	29.3	r = -0.081
	Overweight	340	180	52.9	58	17.1	102	30	p = 0.012
	Obese	248	157	63.3	40	16.1	51	20.6	
Depression level	Normal	469	246	52.5	93	19.8	130	27.7	
	Mild mood disturbance	196	123	62.8	24	12.2	49	25	
	Borderline depression	75	45	60	13	17.3	17	22.7	r = -.001
	Moderate depression	112	67	59.8	16	14.3	29	25.9	p = .965
	Severe depression	33	14	42.4	10	30.3	9	27.3	
	Extreme depression	93	42	45.2	18	19.4	33	35.5	

Note: All variables are summarized as number and percentage

Discussion

Based on our study with its sample size of 978, low physical activity can be associated with most individuals with moderate to extreme depressive symptoms.

Physical activity

The results of this study suggest that most individuals or participants (54.9%) reported low levels of physical activity. Individuals with moderate physical activity levels accounted for 17.8% and those with high physical activity levels 27.3%, according to the International Physical Activity Questionnaire (IPAQ). In line with previous research studies, physical activity was found to have a significant effect on decreasing the symptoms of depression and anxiety by providing social support, increased self-esteem while at the same time encouraging a feeling of achievement and self-worth. This explains the importance of this finding as physical activity is a modifiable factor and open to intervention [16]. Physical activity is also important in preventing other systemic and metabolic disorders such as high blood sugar levels and hypertension while promoting an individual's sense of well-being. [17-18].



Depression

We observed that 48% of our participants reported no depressive symptoms, 20% reported mild mood disturbances, 7.7% were on the borderline of clinical depression, 11.5% had moderate depressive symptoms, and 3.4% had severe depressive symptoms and 9.5% extreme depressive symptoms according to Beck's Levels of Depression Questionnaire. In all, 238 of our participants (24.33%) reported moderate to extreme depressive symptoms.

In previous studies of depression in communities in 30 countries between 1994 and 2014, viewed by continent, South America had the highest aggregated prevalence at 20.6% followed by Asia at 16.7%, North America at 13.4%, Europe at 11.9%, Africa at 11.5%, and Australia with the lowest prevalence of depression at 7.3%.

Correlation between Depression and Physical Activity

We noted that 469 of our participants did not complain of any symptoms of depression, of which 52.5% were physically inactive. Mild mood disturbances were recorded in 196 participants and 62.8% were physically inactive while 238 participants complained of moderate, severe, and extreme depression 59.8%, 42.4%, 45.2% respectively. These participants were physically inactive which accounted for most of those with clinical depression.

Conclusions

Based on findings we suggest physical inactivity is a major risk factor for the development of symptoms of depression and mood disturbances thus, we suggest that Psychiatrist practice encouraging depressed patients to do more physical activity and explain the impact of the physical activity on improving their symptoms and their Health.

The strength points of our study include the large participant sample, using of International Physical Activity Questionnaire (IPAQ) to assess the level of physical activity and using Beck Depression Inventory (DBI) questionnaire to assess the depression. The main limitation in our study is the inability to enable the direction of these relationships to be clarified, because we're using the cross-sectional design, and the fact that the exposures and outcome were self-reported by the participants, not objectively measured thus, both physical activity and depression symptoms may have been underestimated, also we didn't assess the use of antidepressant medication in the questionnaire.

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