

## The effects of physical exercise on mental health among adults in Ajman, United Arab Emirates

Hira Fatima<sup>1\*</sup>, Sidra Mansha Sohail<sup>1</sup>, Fatima Rana<sup>1</sup>, Amina Saleh<sup>1</sup>, Hanaan Ashraf<sup>1</sup>, Faheem Ahmed Khan<sup>2</sup>, Rizwana B Shaikh<sup>2</sup>, Shatha Al Sharbatti<sup>2</sup>

<sup>1</sup>M.B.B.S. Students, College of Medicine, <sup>2</sup>Department of Community Medicine, Gulf Medical University, Ajman, UAE

\*Presenting Author

### ABSTRACT

**Objectives:** To study the frequency of anxiety, depression amongst those who exercise regularly and those who do not.

**Materials and Methods:** A cross-sectional study was conducted in different gyms and health clubs in Ajman during March 2012. A self-administered questionnaire was completed by 350 people aged 18 to 65 years selected using a convenient sampling technique.

**Results:** Females (55.0%) are more likely to be anxious than men (46.4%). Females (39.9%) are also more likely to be depressed compared to males (26.4%). Chi square test showed anxiety levels were significantly increased in non-exercisers compared to exerciser (p value < 0.015). Individuals that exercised had a lower prevalence of depression (28.9%) than non-exercisers (41.8%).

**Conclusion:** Physical exercise activity was significantly associated with decreased anxiety level and decreased depression. Results suggest the need for educating on the positive health effects of exercise.

**Key words:** exercise, mental health, Ajman

### INTRODUCTION

Physical exercise is increasingly being advocated as a means to maintain good mental health. Improvement in the mental health of normal individual are either modest in magnitude or do not occur, whereas the elevated anxiety and depression are more pronounced. Movement of any size in the body that results in utilization of energy is considered physical activity, whereas exercise is described as a specific, planned, structured subset of physical activity directed to maintain optimal physical fitness.

Exercises can be aerobic or anaerobic. Anaerobic exercises are short, intense bouts of activity, also called isometric exercise; they do not require the muscles to burn oxygen as fuel. Aerobic exercises are long, light bouts of activity that mainly use the large muscles in body and linked in cardiovascular health if performed regularly<sup>1</sup>. The benefits of exercise are well known and include the

achievement of optimal physical health and mental health fitness. Its absence is mainly associated with increasing the risk of coronary heart disease, diabetes mellitus, cancers, obesity, hypertension, stroke, depression, etc. The specific benefits of regular exercises are better posture, higher self-esteem, weight control, stronger muscles and bones, feeling more energetic, relaxation and reduced high stress, continued independent living in later life, longer life, and increasing the ability to continue enjoying work and recreation. Therefore, exercise provides the first step to establish a healthy life style<sup>2</sup>.

The absence of exercise in an individual's life has been identified as the fourth leading risk factor for mortality, reflecting an estimated 3.2 million deaths globally. Some clinical and epidemiological studies have shown association between physical exercise activities and reduced symptoms of depression and anxiety among

individuals<sup>3</sup>. Physical exercise inactivity especially when combined with poor dietary habits leads to being overweight and obese. As countries change to westernized lifestyles, obesity tends to increase<sup>4</sup>. Taking part in any form of physical exercise activity improves the health condition, and these benefits do not require participating in vigorous intensity activities as benefits can be seen even with moderate intensity exercise activity. Regular moderate intensity activity such as walking, cycling, or participating in sports has significant benefits for health. Exercise has been shown to improve the psychological and physical symptoms of depression, and anxiety and can have non-specific effects on morale and optimism. In men, increased levels of serotonin and endorphins are linked with exercise and these levels are known to stay elevated if exercise is continuous. Endorphins act as analgesics, diminish the perception of pain and also act as sedatives<sup>5</sup>.

Studies on the relationship of anxiety, depression and exercise had shown that the psychological and physical benefits of exercise can also help to reduce the anxiety and improve mood<sup>6</sup>. Anxiety is a subjective unpleasant feeling in man and characterized clinically by physical and mental manifestation such as palpitations, sweating, and feelings of increasing stress, fear, etc. The decrease in anxiety level resulting from exercise has been evident to be in greater size effect than the size effects of a tranquilizing drug meprobamate. Landers and Petuzello had concluded that physical activity/exercise was related to anxiety reduction following exercise<sup>7</sup>. In case of chronic anxiety, daily exercise has been recommended to achieve a health effect. Morning and afternoon exercises have been suggested as a means for dealing with insomnia and job load stress<sup>8</sup>.

Depression is the also most common kind of psychopathology that physicians see nowadays. The prevalence of clinical depression is 2 to 5% per year among the United States population, accounting for 6 to 8% of visits to general medical practices. Management of depression is a heavy burden on the health care

system<sup>9</sup>.

Aerobic exercises performed at moderate intensity produce greater positive psychological outcomes than do higher intensity aerobic or anaerobic exercises. They have been prescribed for a variety of psychiatric conditions and also for medical conditions like cardiovascular diseases, osteoarthritis, fibromyalgia and diabetes<sup>10</sup>. Many studies show the association between exercise and mental health. Regular exercise decreases anxiety and depression levels as well as may be used as adjuvant treatment of these conditions. Therefore our study assessed the anxiety and depression levels in participants with exercise activity and those who do not engage in exercise activity in Ajman, United Arab Emirates.

## **MATERIALS AND METHODS**

A cross sectional study was conducted during March 2012 among adults at gymnasiums and health clubs in Ajman in the UAE. A self-administered questionnaire was completed by 350 people aged 18 to 65 years. Participant selection was based on a convenient sampling technique. Approval for the study was obtained from the Ethical Committee Gulf Medical University. The participants were informed about the objective of the study and verbal consent was taken from them. Anonymity of the participants was maintained. The questionnaire was prepared by the investigators, validated by experts and pre-tested with a pilot group of people. It included WHO-5 Questionnaire for depression, Zung scale for anxiety, perceived stress, and exercise questionnaire modified by experts. The questionnaire was in English language and was translated into Arabic language. The first section of the questionnaire dealt with personal data on gender, age, nationality, ethnicity, height, weight, educational level, occupation and health status. The remainder of the questions was about the types of exercises undertaken by the participants, use of tobacco, anxiety and perceived stress scale. Anxiety depression scale system was used to evaluate the physical mental

status of the adults in different domains. The highest response to each item was given a score and to identify the adequacy in physical mental health, values in each domain was calculated out of hundred percent. High physical, mental score was considered adequate. Percentages for the participant responses were calculated. Statistical analysis for comparing the subgroups was conducted using Chi square test. Statistical significance was set at probability value less than or equal to 0.05.

## RESULTS

Table 1 indicates the distribution of study participants by socio-demographic variables age, gender, nationality, level of education and employment status. Most of the participants were between 21 to 30 years of age (48%) and more than half

(52%) were males. Nearly a half (47%) was South Asian and approximately a third Arab (29%). More than half were students (54.1%) and the commonest level of education was Bachelor (48.3%).

Table 2 shows the distribution of the study participant by anxiety level which was found to be increased in non-exercise group compared to the exercise group, and significant association found on the Chi square test. Physical exercise was significantly associated with decreased anxiety.

## DISCUSSION

The present study is aimed to determine the association of anxiety and depression levels amongst those who exercise regularly and those who do not. Our results show that females (55.0%) are more likely to be anxious than men (46.4%).

Table 1. Frequency distribution of the participants by socio-demographic characteristics

Variables	Groups	Distributions of Participants	
		No.	%
Gender	Male	141	51.8
	Female	131	48.2
Age	≤20	76	28.0
	21-30	130	48.0
	31-40	53	19.6
	≥41	12	04.4
Nationality	South Asian	127	47
	Arabs	77	28.5
	Others	66	24.4
Occupation	Student	132	54.1
	Office Employees	66	27.0
	Others	46	18.9
Education	High School	94	35.5
	Bachelors	28	48.3
	Post Graduates	43	16.2

Table 2. Distribution of anxiety levels in exercising and non exercising individuals

Details	Normal	Moderate	Severe to Extreme	Total	Chi Square Test (p valve)
Exercise	75 (55.6)	40 (29.6)	20 (14.8)	135 (100.0)	0.015
Do Not exercise	51 (38.1)	57 (42.5)	26 (19.4)	134 (100.0)	
Total	126 (46.8)	97 (36.1)	46 (17.1)	269 (100.0)	

Females (39.9%) are also more likely to be depressed compared to males (26.4%). The results are similar to the results reported in a study done in Oslo, Norway which showed that any lifetime mental disorder, with the exception of substance use disorders, is more common in women than men. The study also showed the lifetime episode of an anxiety disorder is 2.5 times more likely in women and men<sup>11</sup>. There is a significant association between physical exercise and mental health as shown in Table 2.

Our findings are similar to those of a study done on physical activity and common mental disorders that showed exercise was significantly associated with a decrease in depressive symptoms regardless of the intensity<sup>12</sup>. However the association between physical activity and perceived stress was not found to be significant. This is contrary to another study which states that there is an association between physical activity and perceived stress<sup>13</sup>. Our study shows that body mass index is significantly associated with anxiety and depression. Extreme of body mass index (BMI), either being underweight or overweight, is clinically well known for its detrimental effect on physical and mental health. Individuals with a BMI greater than 30 had a higher prevalence of all three disorders compared to normal weight individuals. Similarly Underweight individuals also were more likely to suffer from all three disorders compared to those with a normal BMI<sup>14</sup>. There was a significant association between physical activity and mental health between gender (p value <0.001) which is consistent with other study findings<sup>15</sup>.

Our study was cross sectional and therefore, participant characteristics were measured only once and we had no information on life-events in the past or how the variables may change in the future. Because of convenience sampling, our results cannot be generalized as it is not representative. There was no access to the male gymnasium section as all the members in the research group are female. We relied on the participation of

men on their way in and out of the gym. The questionnaire was very long running into two pages, and most participants preferred not to fill it out.

## CONCLUSION

Physical exercise activity is significantly associated with decreased anxiety level and depression in individuals at Ajman, UAE. Participants had higher levels of anxiety and depression, compared to participants with normal body mass index. Physical activity in males was significantly associated with decrease in anxiety level and prevalence of depression. It is desirable to educate the public in Ajman, United Arab Emirates regarding the health benefits of exercise.

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