

Association of Physical Exercise on Anxiety and Depression Amongst Adults

Faizan Jameel Khanzada¹, Nabila Soomro² and Shahidda Zakir Khan²

ABSTRACT

This study was done to determine the frequency of anxiety, depression among those who exercise regularly and those who do not. A cross-sectional study was conducted at different gymnasiums of Karachi in July-August 2013. A total 269 individual's ages were 18 - 45 years completed a self-administered questionnaire to assess the data using simple descriptive statistics. One hundred and thirty four individuals were those who did not perform exercise which included females (55.0%) being more frequently anxious than male (46.4%). Females (39.9%) were more frequently depressed as compared to males (26.4%) less depressed. Chi-square test showed association between anxiety levels and exercise was significantly increased in non-exercisers compared to regular exercisers found to be significant ($p=0.015$). Individuals who performed regular exercise had a lower frequency of depression (28.9%) than non-exercisers (41.8%). Physical exercise was significantly associated with lower anxiety and depression frequency amongst the studied adult population.

Key Words: Physical exercise. Anxiety. Depression. Adult.

Physical exercise is defined as any bodily movement produced by skeletal muscles that result in energy expenditure.¹ It is a subset of physical activity that is planned, structured, repetitive, and purposeful in the sense that improvement or maintenance of physical fitness.² The key benefits of regular physical exercise include better health, improved body fitness, better posture, higher self-esteem, feeling more energetic, relaxation and reduced high stress, continued independent living in later life and advocated as a mean to maintain good mental health and physical fitness.³

Physical inactivity in individual's life has been identified as the fourth leading risk factor for mortality causing an estimated 3.2 million deaths globally⁴ and is on the rise in Pakistani population.⁵ Physical inactivity in individual's life especially when combined with poor dietary habits leads to being overweight, depression and obesity. As countries transition to modernized lifestyles, obesity tends to increase.⁶ Taking part daily leisure time exercise such as walking, cycling, swimming or participating in sports has significant benefits for health. Different studies on anxiety, depression and exercise show that the psychological and physical benefits of exercise can also help reduce anxiety and improve mood.⁷ For example, in case of chronic anxiety, aerobic exercise recommended every day to achieve anti-anxiety health effect. Morning and afternoon rousing and

nature hike physical exercise is suggested in case of insomnia and job load stress to bump up the production of endorphin transmitters.⁸ Many studies done^{9,10} have shown that regular physical exercise decreases anxiety and depression as well as may be used as adjuvant treatment of these conditions and improved health. Therefore, our study assessed the level of anxiety and depression among the adults who exercise and who do not exercise regularly in Karachi, Pakistan.

A cross-sectional study was conducted from July to August 2013. A total of 269 individuals, ages 18 - 50 years of both gender were approached on the basis of convenient sampling. Consent of participation was taken before entering in the study. Interviews were conducted and 135 individuals were selected ($n=135$) who were performing exercise regularly 60 minutes in the gymnasium for at least one month like brisk walking, jogging, bicycling. Also included ($n=134$) were those participants who did not perform any physical exercise in the gymnasium for more than a month. A self-made questionnaire was used as a data collection tool. Initially questionnaire was pre-tested on a pilot group of 81 people who were not included in this study to assess the flow and clarity of questions. The first portion of the questionnaire involved demographic data. And the final portion of the questionnaire included WHO-5 Questionnaire for depression; zung scale for anxiety, perceived stress scale, and physical exercise questionnaire modified by occupational therapist and added questions related Activity of Daily Living (ADL) to assess the functional status. The questionnaire answered on 4 point scale ranging from 1 to 4. The questionnaire scale has a cut off score of 15, with the range of 15 - 20 for severe to extreme, 21 - 39 for moderate and 40 - 75 for normal. The highest response

Department of Occupational Therapy¹ / Institute of Physical Medicine and Rehabilitation², Dow University of Health Sciences, Karachi.

*Correspondence: Mr. Faizan Jameel Khanzada,
House No. 3/964, Shah Faisal Town, Karachi.
E-mail: faizanahmedkhanzada@yahoo.com*

Received: February 03, 2014; Accepted: May 04, 2015.

Table I: Frequency distribution of the participant by socio-demographic.

Variables	Groups	Distribution of participants	
		Numbers	Percentages
Genders (Total = 269)	Male	140	52. 04%
	Female	129	47. 95%
Age	< 20	76	28. 25%
	21 - 30	130	48. 32%
	31 - 40	51	18. 95%
	> 41	12	04. 46%
Ethnicity	Urdu	127	47. 21%
	Pakhtoon	77	28. 62%
	Others	65	24. 16%
Occupation	Students	150	55. 76%
	Employees	70	26. 02%
	Others	49	18. 21%
Education	Blank	20	07. 43%
	Primary	95	35. 31%
	Secondary	85	31. 59%
	Graduate	69	25. 65%

Table II: Distribution of anxiety and depression levels in exercising and non-exercising individuals.

Distribution	Normal	Moderate	Severe to extreme	Total	Chi-square (p-value)
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%)	

to each item was given a score to identify the adequacy in anxiety and depression and values in each domain was calculated out of hundred percent. Percentages for the participants' responses were calculated. Statistical analysis for comparing the sub-groups was conducted using chi-square test. Statistical significance was set at probability value less than or equal to 0.05.

This study showed that females (55.0%) are more likely to be anxious than male (46.4%). Females (39.9%) are also more likely to be depressed compared to males (26.4%). And there is a significant association between physical exercise and mental health as shown in Table II. The present findings are similar to a study done on physical activity and common mental disorders. Their research also showed exercise was significantly associated with a decrease in depressive symptoms regardless of the intensity.¹¹ However, the association between physical exercise and perceived stress was not found to be significant. This is contrary to another study which states that there was a significant association between physical activity and mental health in gender ($p < 0.001$) which is consistent with study findings.¹² Overall, this study suggests the need for educating the public about positive health effects of exercise. Further, this study was a cross-sectional study, therefore, participants 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, its results, therefore, cannot be generalized in all Pakistan.

Questionnaire

Name: _____ Gender: _____ Age: _____

Ethnicity origin: _____ Marital status: _____

Highest education: _____ Employment status: _____

Listed below are a series of statements. Please circle the appropriate number that reflects how often you could make the following statements.

1. In my daily work I have felt active, vigorous and in good spirits.	1. Never	2. Sometimes	3. Usually	4. Always
2. When i woke up feeling fresh and rested.	1. Never	2. Sometimes	3. Usually	4. Always
3. My daily life has been filled with things that interest me.	1. Never	2. Sometimes	3. Usually	4. Always
4. I get upset easily or feel panicky.	1. Never	2. Sometimes	3. Usually	4. Always
5. I feel that everything is all right and nothing bad will happen.	1. Never	2. Sometimes	3. Usually	4. Always
6. My arms and legs shake and tremble.	1. Never	2. Sometimes	3. Usually	4. Always
7. I am bothered by headaches, neck and back pains.	1. Never	2. Sometimes	3. Usually	4. Always
8. I feel weak and get tired easily.	1. Never	2. Sometimes	3. Usually	4. Always
9. I have fainting spells or feel faint.	1. Never	2. Sometimes	3. Usually	4. Always
10. I engage in physical exercise on a daily basis.	1. Never	2. Sometimes	3. Usually	4. Always
11. I engage in one/more of the following forms of exercise: walking, jogging, running, weightlifting and swimming.	1. Never	2. Sometimes	3. Usually	4. Always
12. When I don't exercise or miss I feel, guilty tense, irritable or depressed.	1. Never	2. Sometimes	3. Usually	4. Always
13. I keep a record of my exercise performance on monthly basis, such as how long I work out, how far or fast I run.	1. Never	2. Sometimes	3. Usually	4. Always
14. I have exercised when advised against such activity (i.e. by a doctor, friend, etc.)	1. Never	2. Sometimes	3. Usually	4. Always
15. In my daily office or home when problem occur I have the capability to handle these situation.	1. Never	2. Sometimes	3. Usually	4. Always

Scoring: The questionnaire include 15 statements each statement is answered on four point scale with the range of 15 to 20 for severe to extreme, 21 to 39 for moderate and 40 to 75 for normal.

REFERENCES

- Caspersen CJ, Powell KE, Christenson GM. Physical activity, exercise, and physical fitness: definitions and distinctions for health-related research. *Public Health Rep* 1985; **100**: 126-31.
- Melzer K, Kayser B, Pichard C. Physical activity: the health benefits outweigh the risks. *Current opinion clinical nutrition and metabolic care* 2004; **7**:641-7.
- Zaret BL, Moser M, Cohen LS, Subak-Sharpe JG, Goetz DM. Chapter 7 exercise, Yale University School of Medicine Heart Book. William Morrow and Company Inc., 1350 Avenue of the Americas, New York 1992, 85-94.
- Gapa. Position statement No. 2 support for the inclusion of a global target on physical inactivity. WHO monitoring framework and targets for the prevention and control of NCDs. March 27, 2012.

5. Sherin A. Obesity: How to prevent Pakistani people from getting heavier? *Khyber Med Univ J* 2013; **5**:59-60.
6. Dominguez D. The benefits of physical activity: active living at work. Public Health Agency of Canada. 2011.
7. Fox KR, Hillsdon M. Physical activity and obesity: *Obes Rev* 2007; **8**:115 -21.
8. William C Shiel Jr. Anxiety symptom checker: symptoms and signs index. Medicinenet.com
9. Goodwin RD. Association between physical activity and mental disorders among adults in the United States. *Prev Med* 2003; **36**:698-703.
10. Ang ET, Pinilla FG. Potential therapeutic effects of exercise to the brain. *Curr Med Chem* 2007; **14**:2564-71.
11. Akandere M, Tekin A. The effect of physical exercise on anxiety. *Sport J* 2002; 5-2.
12. Cohen GE, Shamus E. Depressed, low self esteem: what can exercise do for you? *IJAHP* 2009; **7**:1540-80.

