

Role of Physical Exercise on Symptoms of Depression, Anxiety, and Stress in a Clinical Population

Farah Aftab farah.aftab89@gmail.com | Syeda Zainab Salam syeadazainu@gmail.com
Institute of Professional Psychology, Bahria University, Karachi, Pakistan

Introduction

- Research suggests that moderate amount of exercise improves levels of serotonin, dopamine, and endorphin—neurotransmitters which are associated with improving one's psychological state (Bergland, 2012). Concurrently, individuals who exercise at least two to three times per week have significantly less depression, anger, and stress than those who exercise too often or not at all (Hassmén et al., 2000). Exercise also reduces sensitivity to anxiety through an introduction to otherwise dreaded physiological sensations (Broman-Fulks et al., 2004).
- Hence, in the present research we wished to investigate and understand the elements of physical exercise within the Pakistani society to promote a sustainable way of controlling one's negative thoughts, anger and mood swings.
- Operational Definitions:**
Physical Exercise is defined as the subset of physical activity that is planned, structured and repetitive, and that has the objective of improving and maintaining one's physical health. For the purpose of our study, we further define physical exercise as the daily 30-minute exercising ritual adhered to by the participants of the experimental group.
Clinical Population—also our target population—is defined as individuals who scored mild to moderate on DASS-21 scale of Depression, Anxiety and Stress Symptoms.
- Hypotheses:**
 - There will be a significant decrease in the post-intervention levels of depression, anxiety, and stress.
 - There will be a significant difference between control and experimental group on the post-intervention levels of depression, anxiety, and stress.
 - There will be a significant difference between male and female gender on the post-intervention levels of depression, anxiety, and stress.

Method

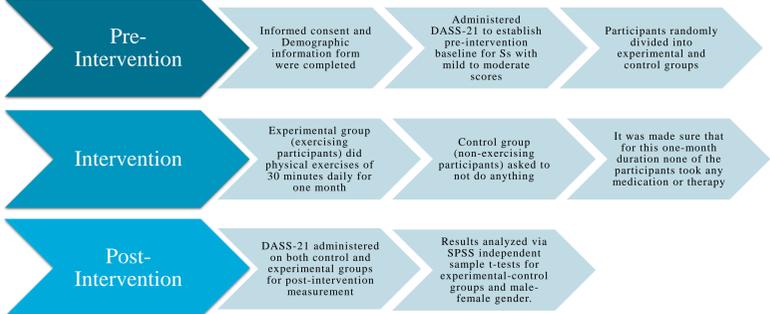
- A quasi pre- and post-intervention experiment.
- Participants:** $N = 75$, 34 males, 41 females, ages 20-40. Citizens of Islamabad, Pakistan. Further divided into experimental group ($n = 35$) and control group ($n = 40$). Participants were individuals who had scored mild to moderate on DASS-21 scale, who did not have any medical issues, who were not taking psychotropic medication or psychological treatment, and who were not enrolled in any relaxation programs at the time, like, meditation classes, etc.
- Materials:** Consent form; Demographic information sheet; DASS-21, scale shown in fig. 1—a self-report questionnaire with three scales that assess the emotional states of depression ($\alpha = .86$), anxiety ($\alpha = .91$), and stress ($\alpha = .87$).
- Procedure:**

- Ethical Considerations:** All participation was voluntary, and the participants were briefed as to the nature of the study. Informed consent was obtained, and confidentiality was maintained. No monetary reward was promised to the participants, and the participants did not incur any physical or psychological harm as a result of this research.

Figure 1

DASS-21 Name: _____ Date: _____

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:
 0 Did not apply to me at all
 1 Applied to me to some degree, or some of the time
 2 Applied to me to a considerable degree, or a good part of time
 3 Applied to me very much, or most of the time

1	I found it hard to wind down	0	1	2	3
2	I was aware of dryness of my mouth	0	1	2	3
3	I couldn't seem to experience any positive feeling at all	0	1	2	3
4	I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5	I found it difficult to work up the initiative to do things	0	1	2	3
6	I tended to over-react to situations	0	1	2	3
7	I experienced trembling (eg, in the hands)	0	1	2	3
8	I felt that I was using a lot of nervous energy	0	1	2	3
9	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10	I felt that I had nothing to look forward to	0	1	2	3
11	I found myself getting agitated	0	1	2	3
12	I found it difficult to relax	0	1	2	3
13	I felt down-hearted and blue	0	1	2	3
14	I was indifferent of anything that kept me from getting on with what I was doing	0	1	2	3
15	I felt I was close to panic	0	1	2	3
16	I was unable to become enthusiastic about anything	0	1	2	3
17	I felt I wasn't worth much as a person	0	1	2	3
18	I felt that I was rather touchy	0	1	2	3
19	I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)	0	1	2	3
20	I felt scared without any good reason	0	1	2	3
21	I felt that life was meaningless	0	1	2	3

Results

Figure 2

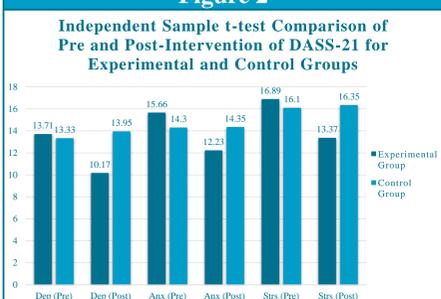
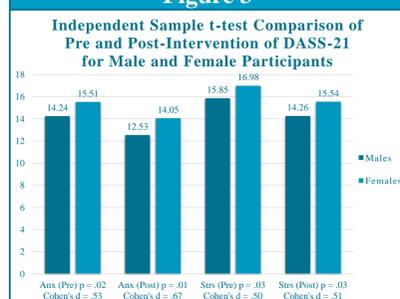


Figure 3



- Figure 2 is the analysis of independent sample t-test between experimental and control groups on DASS-21 pre- and post-intervention. Results showed significant decrease ($p = .001$) of symptom levels for experimental group as compared to the control group participants—hypotheses 1 and 2 proved.
- Figure 3 is the analysis of independent sample t-test between male and female participants on DASS-21 pre- and post-intervention. Results showed significant differences ($p = .01$ to $.03$) in Anxiety and Stress symptoms scales. The effect sizes were moderate. There was no significant difference found between male and female participants on the Depression symptoms scale—hypothesis 3 partially proved.

Conclusion

- The National Institute of Mental Health recognizes physical exercise as a legitimate treatment for depression and anxiety, and our present study stands to add evidence to the same stance, i.e., physical exercises decreases clinical symptoms.
- The differences in levels of anxiety and stress for males as compared to females are noticeable and can be attributed to usually higher rates of exercise for adolescent males (Ströhle, 2009). However, further research is needed to better understand these results.
- The results of our research encourage Pakistani therapists to include physical exercise in their treatment plans for clients with clinical symptoms of depression, anxiety, and stress.
- Limitations of our research stem from its limited sample. Thus, we recommend future studies to have a larger and more diverse sample. Moreover, we recommend that our quasi experiment be conducted in the form of a lab experiment in future to better control for possible confounding variables.

References

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