



To Analyse the Physical Fitness of Female Physiotherapy Students and its Correlation with Depression and Anxiety

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ABSTRACT

Aim: The aim of the study is to analyze the physical fitness of female Physiotherapy students in correlation with depression, anxiety and stress. This study also aims to create awareness among the students to engage them in the physical activities to improve their physical and mental fitness.

Background of the Study: The effectiveness to carry out daily task with vigor and alertness, without undue fatigue is not easy, therefore in order to complete all of these tasks; one must consistently address their fitness. Schools and colleges are also marked as a stressful environment that often has a negative effect on students' academic performance, physical health, and psychosocial well-being.

Methodology: After getting proper approval from the Institutional review board, 50 female physiotherapy students were selected from 75 volunteers based on the inclusion criteria (age of 17-22, normal BMI, healthy human being). The samples with psychological problems, tachycardia, and wheezing was been excluded. This observational study was carried out for the duration of 1 week among the students of faculty of physiotherapy. After getting consent from the samples they were assessed by six minute walk test (6MWT) focusing on gauging the aerobic capacity and endurance and psychological status by depression anxiety stress scale (DASS 21).

Result and Conclusion: In analyzing the data it shows that the subject with less fitness have more anxiety, depression and stress and the samples with more fitness have less depression anxiety and stress.

Key Words: Physical fitness, 6MWT, DASS 21, Anxiety, Stress, Depression

INTRODUCTION

Our ability to carry out daily tasks and routine activities without undue fatigue is called physical fitness. Physical fitness is generally achieved through proper nutrition, vigorous physical exercise. In order to achieve physical fitness one must consistently address their physical activities. The six walk test is a low cost, simple test that requires little equipment and shows good to excellent test-retest reliability

across the literature. The 6MWT is a practical simple test that requires a 100-ft hallway but no exercise equipment or advanced training for technicians. This test measures the distance that a patient can quickly walk on a flat, hard surface in a period of 6 minutes (the 6MWD)(1,2). To access the emotional syndromes like depression and anxiety, a scale called as depression anxiety stress scale (DASS21) can lead to a useful assessment. The short version of the depression anxiety stress scale (DASS 21) was developed to provide

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a self-report measure of anxiety depression and stress signals(3). The level of depression in the group who do physical activity in their leisure time comparing with group who do sedentary activity instead, had significant difference(4). The main symptoms of depression are psychological aerosol, low self-esteem, and hopelessness, devaluation of life, self-deprecation and inertia. The stress construct of the scale emerged empirically during the development of the depression and anxiety scales, through aggregation of items relating to difficulty relaxing, tension, impatience, irritability and restlessness. The prevalence of depression among students in public universities has been estimated to be 10.4% in Greece (5), 15.2% in USA (6) 21.7% in Malaysia (7), 24%in UK (8), 29.1% in India (9), and 43.8% in Pakistan (10). The prevalence of depression among medical students, however, has been estimated to be 19% in USA (11), 49.1% in India (12), and 60% in Pakistan(13).

METHODOLOGY

After the approval from the institutional review, board 50 female physiotherapy students were selected from 75 volunteers among the students faculty of physiotherapy. The age group was 17-22yrs (early adolescent). The inclusion criteria normal Body mass index (BMI), normal healthy human being (not merely absence of disease), we have excluded psychological problems, tachycardia and wheezing criteria. The subjects were assessed by six minute walk test (6MWT) which focuses on gauging the aerobic capacity and endurance giving us picture about their physical fitness. The equipment used was stopwatch, measuring tape, cones and chairs, colour tapes. We setup cones as either end of 30m stretch corridor or surface (plane and non-skit), by having chairs on both sides and half way along the walking stretch. Performance ability is assessed using 6 MWT walk test. The objective of this test is to walk as far as possible for six minutes. The students have to walk back and forth with 30 meter corridor. They could be encouraged but the walking speed must not be influenced. Walking cones are placed along the participant just behind them and should lead them. The distance walked is calculated from total laps and in meters recorded. To gauge the psychological aspect the short form version of depression anxiety stress scales (DASS21). Students were explained about the questionnaire and asked to answer truthfully. The mode of Depression, Anxiety, and Stress level that is Mild, Moderate and severe for every female physiotherapy students were also calculated. SPSS version 16 is used for the statistical analysis.

RESULT

In analysing the mean values of the data collected shows that the subjects with less fitness have more anxiety depression

and stress and the samples with more fitness have less depression, anxiety and stress. Hence the study emphasizes on regular physical activities to have a good psychological well-being resulting in good academic record.

DISCUSSION

In this study, 50 females were selected based on the inclusion criteria from 75 volunteers and have undergone 6 MWT and asked to fill a questioner to know their level of mental fitness to measure depression, anxiety and stress. This is done to correlate distance walked during 6MWT with psychological parameters (Depression, anxiety and stress). The mean value shows that as the mean value of 6 MWT increases, the mean of depression decreases showing a negative correlation. The mean value shows that as the mean value of 6 MWT increases, the mean of Anxiety decreases showing a negative correlation. The mean value shows that as the mean value of 6 MWT increases, the mean of stress also increases showing a positive correlation. This clearly states that a person in depression and anxiety don't have a proper physical fitness nor unable to perform in any physical task efficiently. In other words a person whose physical fitness is compromised or sedentary for long time will lead to depression and anxiety later. Person with stress are able to perform better in physical fitness tasks as stress is a temporary one which can be easily handled by engaging in physical task.

Untreated depression and anxiety are likely to be related to a student's suicidal behaviour, poor scholastic performance, and withdrawal from their course. Identifying the Factors which precipitate stressors for depression and anxiety may facilitate clinicians' and educational organisations to know the important stressors faced by depressed and anxious students during their program(14). Exercise and cognitively based distraction techniques were shown to have equal effectiveness at reducing state anxiety, however exercise was more effective in reducing trait anxiety(15).Moreover, in a study of elementary students as subjects, physical fitness is significantly correlated with mental health (16).The Hypothalamic-Pituitary-Adrenal(HPA) axis plays a critical role in developing adaptive responses to physical and psychological stressors (17). Dysregulations in the HPA axis have been implicated in the manifestations of depression and anxiety symptoms. The findings suggest that exercise induced changes in the HPA axis modulates stress reactivity and anxiety in humans.

CONCLUSION

Even though they are physically fit, due to lack of some physical activities, there is a decline in DASS. Therefore, each student should be individually involved in fitness along

with their daily physical activities. Hence, this study concludes that regular physical activities are required to have a perfect physical and mental well-being.

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Ethical Considerations

This study is approved by the Institutional Review board of faculty of physiotherapy. All the procedures were performed in accordance with the ethical standards of the responsible ethics committee both (Institutional and national) on human experimentation and the Helsinki Declaration of 1964 (as revised in 2008).

Conflict of Interest: ‘Conflicts of interest: none’

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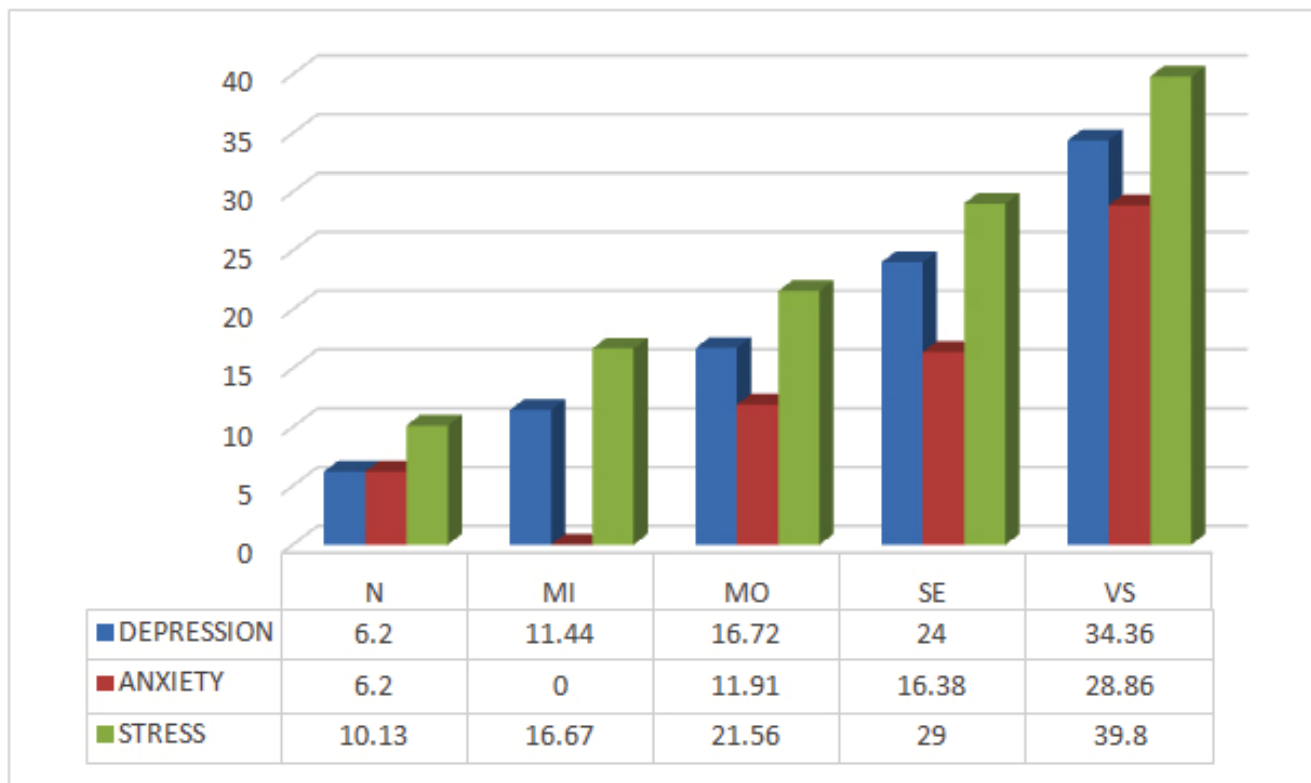
REFERENCE

1. Harada, N., Chiu, V., et al, “Mobility-related function in older adults: assessment with a 6-minute walk test.” Archives of physical medicine and rehabilitation 1999 80(7): 837-841.
2. American Thoracic Society, Am J Respir Crit Care Med Vol 166. pp 111–117, 2002,DOI: 10.1164/rccm.166/1/111.ATS Statement: Guidelines for the Six-Minute Walk Test.
3. Lovibond, S.H. & Lovibond, P.F. (1995). Manual for the depression anxiety & stress scales. (2 Ed.) Sydney: Psychology Foundation.
4. Samira Aliabadi a*, Majed Zobairy b, Layla Zobairy c. The Relationship between Depression and Leisure Time Activity in Female High School Students. Procedia - Social and Behavioral Sciences 84 (2013) 256 – 258

5. S. Mancevska, L. Bozinovska, J. Tecce, J. Pluncevik-Gligoroska, and E. Sivevska-Smilevska, “Depression, anxiety and substance use in medical students in the Republic of Macedonia,” *Bratislavske Lekarske Listy*, vol. 109, no. 12, pp. 568–572, 2008.
6. J. Tjia, J. L. Givens, and J. A. Shea, “Factors associated with undertreatment of medical student depression,” *Journal of American College Health*, vol. 53, no. 5, pp. 219–224, 2005.
7. M. S. B. Yusoff, A. F. A. Rahim, and M. J. Yaacob, “The prevalence of final year medical students with depressive symptoms and its contributing factors,” *International Medical Journal*, vol. 18, no. 4, pp. 305–309, 2011.
8. M. E. Dahlin and B. Runeson, “Burnout and psychiatric morbidity among medical students entering clinical training: a three year prospective questionnaire and interview-based study,” *BMC Medical Education*, vol. 7, article 6, 2007.
9. S. Sidana, J. Kishore, V. Ghosh et al., “Prevalence of depression in students of a medical college in New Delhi: a cross-sectional study,” *Australasian Medical Journal*, vol. 5, no. 5, pp. 247–250, 2012.
10. N. A. Jadoon, R. Yaqoob, A. Raza, M. A. Shehzad, and Z. S. Choudhry, “Anxiety and depression among medical students: a cross-sectional study,” *Journal of the Pakistan Medical Association*, vol. 60, no. 8, pp. 699–702, 2010.
11. M. S. Hendryx, M. G. Haviland, and D. G. Shaw, “Dimensions of alexithymia and their relationships to anxiety and depression,” *Journal of Personality Assessment*, vol. 56, no. 2, pp. 227–237, 1999.
12. A. Singh, A. Lal, and A. Shekhar, “Prevalence of depression among medical students of a private medical college in India,” *Online Journal of Health and Allied Sciences*, vol. 9, no. 4, pp. 8–12, 2010.
13. S. N. Inam, A. Saqib, and E. Alam, “Prevalence of anxiety and depression among medical students of private university,” *The Journal of the Pakistan Medical Association*, vol. 53, no. 2, pp. 44–47, 2003.
14. Coumaravelou Saravanan and Ray Wilks. Medical Students’ Experience of and Reaction to Stress: The Role of Depression and Anxiety, *The Scientific World Journal* Volume 2014, Article ID 737382, 8 pages.
15. Petruzzello, S. J., Landers, D., Hatfield, B., Kubitz, K., and Salazar, W. A. (1991). A meta-analysis on the anxiety reducing effects of acute and chronic exercise. Outcomes and mechanisms. *Sports Med.* 11, 143–182.
16. Choi HG. Association of blood leptin level with cardiorespiratory fitness, body composition and metabolic syndrome in female college students. *Journal of Korean Physical Education Association for Girl and Women* 2008;22:137-148.
17. De Kloet, E. R., Joëls, M., and Holsboer, F. (2005). Stress and the brain: from adaptation to disease. *Nat. Rev. Neurosci.* 6, 463–475.

Table 1: Shows the mean value and standard deviation of Depression Anxiety Stress Scale (DASS), F-value and significance

Depression Anxiety Stress Scale(DASS)	Depression		Anxiety		Stress		F	Significance
	M	SD	M	SD	M	SD		
NORMAL	6.20	1.79	6.20	1.79	10.13	3.10	6.438	.006
MILD	11.44	1.01	nil	Nil	16.67	1.40	72.902	.000
MODERATE	16.72	2.14	11.91	1.38	21.56	2.19	60.098	.000
SEVERE	24.00	2.31	16.38	1.56	29.00	2.14	111.13	.000
VERY SEVERE	34.36	5.80	28.86	7.42	39.80	3.56	6.539	.004



GRAPH -1

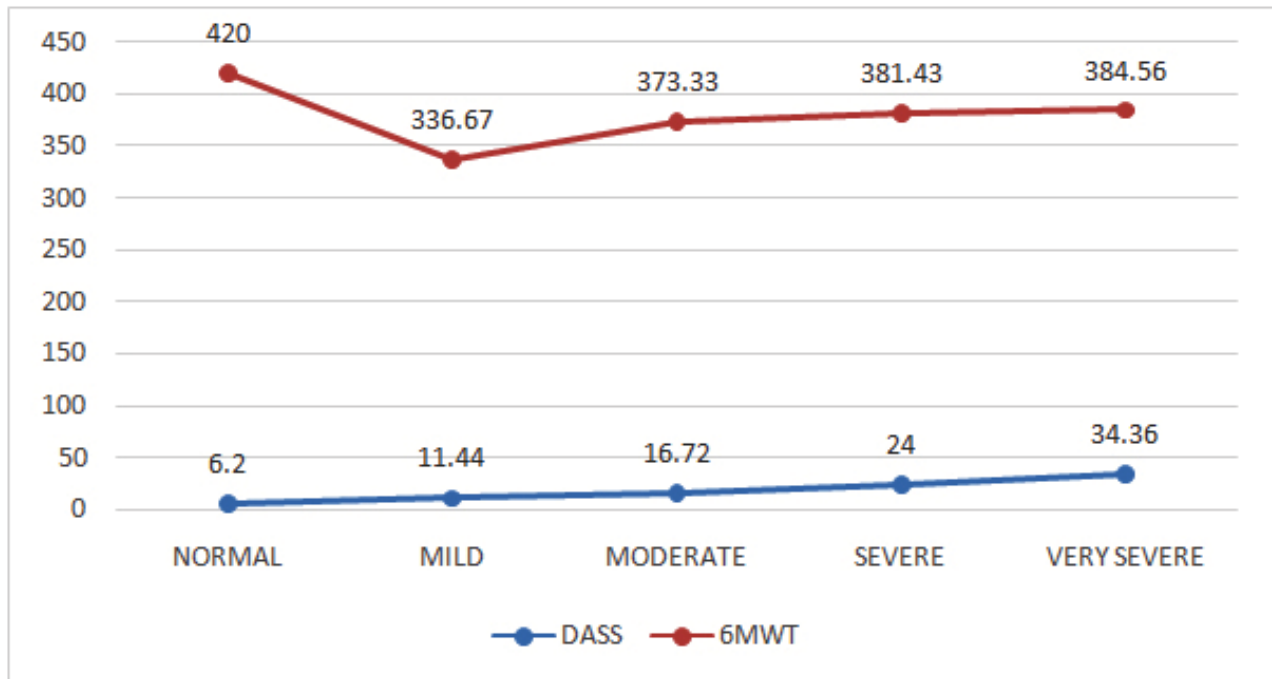
Table 2: Shows the mean value and standard deviation of 6MWT, F-value

6 minute walk test (6MWT)	Depression		Anxiety		Stress		F	Significance
	M	SD	M	SD	M	SD		
NORMAL	420.00	70.36	420.00	72.36	375.00	70.14	1.264	.301
MILD	336.67	51.48	nil	nil	380.00	46.71	4.059	.058
MODERATE	373.33	53.69	354.56	62.67	360.00	58.09	0.406	.669
SEVERE	381.43	53.98	373.85	49.92	371.25	53.03	0.078	.925
VERY SEVERE	384.56	46.12	375.71	48.95	396.00	25.10	0.439	.649

GRAPH -2

Table 3: Shows the mean value and standard deviation of 6MWT AND DASS

Depression	Dass Mean	Standard deviation (SD)	6MWT Mean	Standard deviation(SD)
NORMAL	6.20	1.79	420.00	70.36
MILD	11.44	1.01	336.67	51.48
MODERATE	16.72	2.14	373.33	53.69
SEVERE	24.00	2.31	381.43	53.98
VERY SEVERE	34.36	5.80	384.56	46.12



GRAPH -3