JSTMU Journal of Shifa Tameer-e-Millat University

https://j.stmu.edu.pk

Open Access

ORIGINAL ARTICLE

Association of depression, physical activity levels and general psychological health among physical therapy students of Rawalpindi and Islamabad

Sidra Qureshi[1], Huma Riaz[2], Malik Muhammad Ali Awan[3], Kiran Khushnood[3], Rida Hussain[4]

[1] Bashir Institute of Health Sciences, Islamabad, Pakistan
[2] Riphah College of Rehabilitation Sciences, Riphah International University, Islamabad, Pakistan
[3] Department of Physical Therapy, Shifa Tameer-e-Millat University, Islamabad, Pakistan
[4] Riphah College of Rehabilitation Sciences, Riphah International University, Islamabad, Pakistan

Author`s Contribution

[1] Conception, synthesis, planning of research and manuscript writing
[2] Interpretation and discussion
[3, 4] Data analysis, interpretation and manuscript writing

Article Info.

Conflict of interest: Nil
Funding Sources: Nil

Correspondence

Malik Muhammad Ali
mmaawan@gmail.com

Cite this article as: *Qureshi S, Riaz H, Awan MM, Khushnood K, Hussain R,. Association of depression, physical activity levels and general psychological health among physical therapy students of Rawalpindi and Islamabad. JSTMU 2019; 2(1):26-30.*

A B S T R A C T

Objective: To determine the association of depression, physical activity (PA) levels and general psychological health among physical therapy students of Rawalpindi and Islamabad.

Methodology: This was a cross-sectional study conducted among students of physiotherapy department at Rawalpindi and Islamabad Institutions, from August 2015 to January 2016. Five hundred students were recruited using non-probability convenient sampling. The data was collected through a questionnaire that comprised of demographic information, Beck Depression Inventory-II (BDI-II), General Health Questionnaire-12(GHQ-12) and Rapid Assessment of Physical Activity (RAPA). The data were analyzed using SPSS version 20 and correlation analysis was performed to see the relationship amongst depression, PA and general psychological health.

Results: Majority of the students (42.6%) had mild depression. However, 64.8% students had no psychological distress. Moreover, 33.4% of the students were involved in aerobic activities and majority of them (37.6%) were not doing any activities to improve flexibility and increase muscle strength. There was an inverse correlation between RAPA and BDI-II ($p<0.001$) and a positive association between RAPA and GHQ-12 ($p<0.001$).

Conclusion: The study concluded that majority of the students had mild depression but their general psychological health was not affected as they were involved in routine physical activity. The result of this study provides evidence that there is a negative relation between physical activity and depression and a positive relation between physical activity and general psychological health.

Keywords: *Depression, general psychological health, physical activity, students.*

Introduction

Physical activity (PA) is an important consideration to lead a healthy life.[1] Physical inactivity (PI) is considered as modifiable risk factor for depression and other medical conditions e.g. cardiovascular disease, hypertension, diabetes mellitus and obesity. There are psychological benefits of PA among patients with depression and poor psychological health as it reduces stress, ward off anxiety and feelings of depression, boosts self-esteem, add and improves sleep.[2] PI is the fourth leading risk factor for global mortality.[3] The present test is to create projects and researches to advance physical exercise for all in our undeniably sedentary environment. Aerobic and resistance exercise improves mental states.[4] Routine PA presumably eases a few manifestations connected with mild to moderate depression. Daily activity exhibits an improved physical as well as psychological health.[5]

Psychological issues might be the underlying cause of distress felt by a person. The clinical therapy can inhibit

distress but may not address the psychological diseases.[6] Depression is one of the many primary factors that leads to psychological distress and thus interferes with the general psychological health/well-being of a person.[7] An increase in physical fitness will reduce the risk of premature death and vice versa. Even a small improvement in physical fitness is associated with a significant reduction in risk. A study showed that the participants with the highest levels of physical fitness at baseline and who maintained or improved their physical fitness over a prolonged period had the lowest risk of premature death. Modest enhancements in physical fitness in previously sedentary people have been associated with large improvements in health status. For instance, in another study, people who went from unfit to fit over a 5-year period had a reduction of 44% in the relative risk of death compared with people who remained unfit.[8]

Students who are habitual of doing daily PA exhibit more noteworthy self-confidence, improved general psychological health and better classroom execution.[9] Increased PA can manage sleep deprivation and depression and expand the capacity to concentrate on a specific assignment.[10] Taliaferro LA et al, provided empirical evidence to establish association between physical exercise, particularly aerobic movement, and decreased depression, hopelessness and suicidal conduct among students.[11]

Deepthi R et al. have shown that engagement in PA may be an essential contributing element in high-quality intellectual health of medical students and hence promotion of PA is essential for good mental wellbeing and treating mental health problems among medical students.[12] Robert A et al. concluded that PA is mandatory for prevention of mental illness among medical students, by introducing PA in medical student's curriculum to assist the students in improving their mental as well as physical health.[5]

Over ninety percent of mental health problems are anxiety and depression and co-morbidity which one make it clear and revise sentence is common. Five out of the ten leading disorders that generate the most disability-adjusted life year (DALYs) are psychiatric in nature including depressive disorders. Two-third of the affected people is living in the developing countries; and this ratio is expected to rise. Pakistan is a developing country, where 25% to 30% of study population is suffering from anxiety and depression.[13] An estimated 121 million people living in the world revise sentence writing world population rather living in world currently suffer from depression. Doctors face particular challenges and conditions such as high patients' attendance, long duty hours, limited resources to work, repetitive exposure to traumatic events, potentially violent situations, difficult patients, ethical dilemmas and critical decision making that place them at more risk of anxiety, depression and other stress related psychosocial problems.[13] A study conducted in Azra Naheed Medical College, Lahore assessed the physical therapy students and recommended that engagement in physical movement can be a vital contributory component in the psychological wellness of college students.[14]

Rehabilitation is an emerging field in Pakistan and has a key role in patient care and treatment.[13] Students of rehabilitation studies are under constant pressure of tough study schedule as the physical therapy practice is becoming increasingly complex.[15] A study was conducted among rehabilitation students to assess level and causes of depression by Anum Hussain et al. to determine the level of depression among rehabilitation students which reported that depression prevails among physical therapy students.[16] So attention should be given to improve academic outcomes of physical therapy students by exploring the factors that can boost up their general psychological health.

This study aimed to explore the association of depression, physical activity levels and general psychological health among physical therapy students in Rawalpindi and Islamabad.

Methodology

This was a cross-sectional study conducted among students of physiotherapy department at Rawalpindi and Islamabad Institutions, from August 2015 to January 2016. Five hundred students were recruited using non-probability convenient sampling. Physical therapy students of both genders with age ranging between 18 and 26 were included in the study. Students of other professions/disciplines, with underlying disease, disability, trauma, and students with diagnosed psychological

illnesses were excluded. A questionnaire used in the current study was pre-tested and consisted of questions regarding age, gender, domicile, accommodation, and semester of a student. Questions on Depression, Physical activity and General Psychological Health were taken from Beck Depression Inventory-II (BDI-II) with 21 questions, Rapid Assessment of Physical Activity (RAPA) with 9 questions, and General Health Questionnaire-12 (GHQ-12) with 12 questions respectively. These tools demonstrated high reliability (Cronbach's Alpha = 0.814). Students were approached in the universities and their consents were taken. Data were analyzed using SPSS software version 20. Descriptive statistical methods were used to determine mean and standard deviation in the assessment of the data and spearman's rank-order correlation test was performed to relate the three variables. The significance was defined as $p<0.01$.

Results

There were 307 (61.40%) female and 193 (38.60%) male students registered in the study. The mean age of the students was 20.73±1.626 (range 18-26). Demographic characteristics of participants are presented in table 1.

Table 1: Demographic characteristics

Variable		n (%)
Age	18	21 (4.2%)
	19	113 (22.6%)
	20	126 (25.2%)
	21	75 (15.0%)
	22	83 (16.6%)
	23	54 (10.8%)
	24	24 (4.8%)
	25	3 (0.6%)
	26	1 (0.2%)
Gender	Male	193 (38.6%)
	Female	307 (61.4%)
Domicile	Rural	133 (26.6%)
	Urban	367 (73.4%)
Accommodation	Day scholar	320 (64%)
	Living in dormitory	180 (36%)
Semester	1st	55 (11.0%)
	2nd	76 (15.2%)
	3rd	65 (13.0%)
	4th	56 (11.2%)
	5th	50 (10.0%)
	6th	88 (17.6%)
	7th	14 (2.8%)
	8th	43 (8.6%)
	9th	16 (3.2%)
	10th	37 (7.4%)

More students (42.6%) had mild depression on BDI-II scale (2.13±0.876) while 64.8% students had minimal psychological distress on GHQ-12 scale (1.41±0.606). A significant proportion (33.4%) of students were involved in aerobic activities on RAPA - aerobic exercise scale (3.76±1.126) while 37.6% students were not doing any physical activity to improve flexibility and increase muscle strength on RAPA-anaerobic exercise scale (Table-2).

Table 2: Descriptive statistics of BDI-II, GHQ-12, RAPA

Variable		n (%)
BDI-II	minimal depression	128 (25.6%)
	mild depression	213 (42.6%)
	moderate depression	124 (24.8%)
	severe depression	35 (7.0%)
GHQ-12	minimal distress	324 (64.8%)
	mild distress	147 (29.4%)
	moderate distress	28 (5.6%)
	severe distress	1 (0.2%)
RAPA 1: Aerobic Exercise	1-sedentary	23 (4.6%)
	2-underactive	48 (9.6%)
	3-under active regular light activities	108 (21.6%)
	4-5 under active regular	167 (33.4%)
	6-7 active	154 (30.8%)
RAPA 2: Anaerobic Exercise	0-none	188 (37.6%)
	1-Strengthening exercises	44 (8.8%)
	2-Flexibility exercises	161 (32.2%)
	3-both strengthening and flexibility exercises	107 (21.4%)
	minimal depression	128 (25.6%)
	mild depression	213 (42.6%)
	moderate depression	124 (24.8%)
	severe depression	35 (7.0%)
	minimal distress	324 (64.8%)

Spearman's rank-order correlation test was performed to correlate depression, physical activity and general health (table 3).

Table 3: Inferential Statistics of the Study

Spearman's rank-order correlation	r	p-value
BDI-II* RAPA-Aerobic exercise	-0.459	<0.001
BDI-II* RAPA-Anaerobic exercise	-0.554	<0.001
GHQ-12* RAPA-Aerobic exercise	-0.419	<0.001
GHQ-12* RAPA-Anaerobic exercise	-0.485	<0.001
BDI-II* GHQ-12	0.591	<0.001

(*) shows that correlation is run between 2 particular variables.

Discussion

The study found that physical therapy students suffered from mild depression, minimal psychological distress and were physically active. Furthermore, there was a significant negative correlation between physical activity and general psychological health measured on RAPA and GHQ-12; and physical activity and depression measured on RAPA and BDI-II respectively as the higher scores of RAPA are associated with low scores of GHQ-12 and BDI-II which suggests that higher levels of physical activity are associated with improved psychological health and a decrease in depression.

Our study showed that more physical therapy students (24.8%) had moderate depression. This finding differs from another cross-sectional survey done on medical college students in 2008 in Dubai that showed only 3.88% students had significant depression.[17] The potential reason of this inconsistency could be the burden of academic syllabus.[18] Overall, 74.4 % students were found to have mild, moderate or severe depression. This result is supported by another study performed on a public medical college in Karachi, which reported high prevalence (70%) of depression among the students.[9] It was found that more than half of the students (64.2%) were physically active as compared to a study conducted on undergraduate students, which reported that more than half of the students were physically inactive. This could be due to the lack of time and motivation of the medical students as reported in that study.[19]

We found that 64.8% students had minimal psychological distress, a few (5.6%) students had moderate psychological distress and only one (0.2%) student had severe psychological distress. Compared to our study, another study conducted on physical therapy students showed that 27% students had a significant psychological morbidity.[20] It could be due to higher level of physical activity among physical therapy students of Rawalpindi and Islamabad.[16] We found a significant negative association of physical activity level and depression; this finding is similar to previous studies reporting a bidirectional relationship between physical activity level and depression i.e. higher physical activity levels can lesson depression and vice versa.[21] Many studies favored the study outcome that higher intensity of physical activity can improve general psychological health of physical therapy students.[22]

Strengths and limitations:

No study has been conducted on Doctor of Physical Therapy Students that addresses the association between physical activity, depression and general psychological health in Pakistan. The study is limited by the fact that majority of students in the study were females. The sample size was small and non-probability convenient sampling was used to collect the sample; which could be a source of potential bias and influence external validity of the study. However, an effort was made to collect data equally from different physical therapy colleges of Rawalpindi and Islamabad to improve the overall representation so that it can be generalized within the two cities. It is a challenge for all of the physical therapy colleges to enhance the well-being of students by organizing "coping course" skills sessions so that they can learn how to deal with the depression. Students should be encouraged to engage in physical activities. Both individual as well as population level approaches are required for this. Individual approach can be mediated by developing social influence from friends and families as a key tactic to enhance physical activity. For population-based approach, physical therapy college policymakers can take appropriate measures to highlight significance of student's involvement in regular physical activity programs as an active participant to overcome the

difficulties they face during their studies and/or personal life.

Conclusion

Our study showed that majority of the students had mild depression but their general psychological health was not affected as they were involved in routine physical activity.

References

1. Strong WB, Malina RM, Blimkie CJ, Daniels SR, Dishman RK, Gutin B, et al. Evidence based physical activity for school-age youth. *J Pediatr* 2005; 146(6):732-7. DOI: https://doi.org/10.1016/j.jpeds.2005.01.055
2. Ströhle A. Physical activity, exercise, depression and anxiety disorders. *J Neural Transm* 2009; 116(6):777. DOI: https://doi.org/10.1007/s00702-008-0092-x
3. Organization WH. Global recommendations on physical activity for health. Geneva, Switzerland. WHO. 2010.
4. Blair SN. and Morris JN. Healthy hearts—and the universal benefits of being physically active: physical activity and health. *Ann Epidemiol* 2009; 19(4):253-6. DOI: https://doi.org/10.1016/j.annepidem.2009.01.019
5. Morgan WP. and Goldston SE. Exercise and mental health. *Taylor & Francis* 2013;13.
6. Bitonte RA, DeSanto DJ. Mandatory Physical Exercise for the Prevention of Mental Illness in Medical Students. *Mental Illness* 2014; 6(2):5549. DOI: https://doi.org/10.4081/mi.2014.5549
7. Mirowsky J. and Ross CE. Social causes of psychological distress: Transaction Publishers; 2003.
8. Sterling M. General health questionnaire–28 (GHQ-28). *Journal of physiotherapy* 2011; 57(4):259. DOI: https://doi.org/10.1016/S1836-9553(11)70060-1
9. Khan MS, Mahmood S, Badshah A, Ali SU. and Jamal Y. Prevalence of depression, anxiety and their associated factors among medical students in Karachi, Pakistan. *Journal-Pakistan Medical Association* 2006; 56(12):583.
10. Al-Eisa E. and Melam GR. Association between physical activity and psychological status among Saudi female students. *BMC Psychiatry* 2014; 14:238. DOI: https://doi.org/10.1186/s12888-014-0238-3.
11. Taliaferro LA, Rienzo BA, Pigg RM, Miller MD. and Dodd VJ. Associations Between Physical Activity and Reduced Rates of Hopelessness, Depression, and Suicidal Behavior Among College Students. *J Am Coll Health* 2009; 57(4):427-36. DOI: https://doi.org/10.3200/JACH.57.4.427-436.
12. Deepthi R, Ashakiran S, Akhilesh TV and Reddy M. Good Mental Health Status of Medical Students: Is There A Role for Physical Activity? *Journal of Krishna Institute of Medical Sciences University* 2015; 1(4):55-63.
13. World Health Organization. Overview of Rehabilitation Services in Health System Perspective. 2017 [cited 2019 February]; Available from: http://www.who.int/disabilities/care/1130-Pakistan.pdf?ua=1
14. Tanveer F, Ahmad A, Adeel M and Afzal A. Association of physical activity and satisfaction with life among DPT students of Azra Naheed Medical College, Lahore, Pakistan. *Rawal Med J* 2017; 42(4):518-21.
15. Jensen GM, Gwyer J, Shepard KF. and Hack LM. Expert Practice in Physical Therapy. *Physical Therapy* 2000; 80(1):28-43. DOI: https://doi.org/10.1093/ptj/80.1.28
16. Hussain A, Shoukat E. and Zafar H. Level and Factors Responsible for Depression among Doctor of Physical Therapy Students in Islamabad. *J Riphah Coll of Rehab Sci* 2013; 1(1):7-12.
17. Ahmadi J, Kamel M. and Bayoumi A. Dubai Medical College students' scores on the Beck Depression Inventory. *Iranian Red Crescent Med J* 2008; 2008(3):169-72.
18. Tucker B, Jones S, Mandy A. and Gupta R. Physiotherapy students' sources of stress, perceived course difficulty, and paid employment: Comparison between Western Australia and United Kingdom. *Physiother Theory Pract* 2006; 22(6):317-28. DOI: : https://doi.org/10.1080/09593980601059550
19. Wattanapisit A, Fungthongcharoen K, Saengow U. and Vijitpongjinda S. Physical activity among medical students in Southern Thailand: a mixed methods study. *BMJ Open* 2016; 6(9):e013479. DOI: http://doi.org/10.1136/bmjopen-2016-013479
20. Walsh JM, Feeney C, Hussey J. and Donnellan C. Sources of stress and psychological morbidity among undergraduate physiotherapy students. *Physiotherapy* 2010; 96(3):206-12. DOI: http://doi.org/10.1016/j.physio.2010.01.005
21. Jerstad SJ, Boutelle KN, Ness KK. and Stice E. Prospective reciprocal relations between physical activity and depression in female adolescents. *Journal of consulting and clinical psychology* 2010; 78(2):268. DOI: http://doi.org/10.1037/a0018793
22. Kim YS, Park YS, Allegrante JP, Marks R, Ok H, Ok Cho K, et al. Relationship between physical activity and general mental health. *Preventive medicine* 2012; 55(5):458-63. DOI: https://doi.org/10.1016/j.ypmed.2012.08.021