

Association of Learning Style & Stress with Academic Achievement Among Physical Therapy Students

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A B S T R A C T

Background: Learning styles are one of the different learning strategies used by students to enhance their academic performance. Medical education is linked with high stress among students There is little evidence regarding the association of stress and learning styles with the academic grades in Pakistan.

Objective: To determine the association of learning styles and stress with academic performance, preferred learning style among final year Physical Therapy students and their level of stress.

Methodology: A cross sectional study was conducted among 171 final year Physical Therapy students of Shifa Tameer-e-Millat University, Riphah international university, Rawalpindi medical college & Margalla institute of health sciences from 15 July to 15 December 2017. The population was selected using non-probability convenient sampling. Final year physical therapy students who were unmarried and with age ranging from 18-25 were included whereas students who were clinically diagnosed with depression and a learning disability including dyslexia were excluded. Standard questionnaire VARK (Visual, Aural, Read & Write & kinesthetic) was used to determine the preferred learning style and PSS (Perceived stress scale) was used to determine the level of stress among students. The results were analyzed using SPSS Version 21.0.

Results: The preferred learning style among Physical Therapy students was Unimodal [54 out of 171(31.6%)] followed by Bimodal [53 out of 171 (31%)]. The statistical analysis showed no significant association between learning style and stress with academic performance ($P>0.05$).

Conclusion: Preferred learning styles of Physical Therapy students were unimodal and bimodal, stress levels were moderate among students and there was no association between learning styles and stress with students' academic performance.

Introduction

Learning processes vary from person to person due to differences in cognitive processing.¹ Students adapts their learning preference according to the learning environment.² With passing years medical education trends have changed from a teacher centered subject

based teaching, to student centered interactive and problem solving learning.³ The knowledge of learning styles among students is important for understanding the key concepts of learning.⁴ Fleming and Miles designed a questionnaire the Visual, Aural, Read and Write and

Kinesthetic to determine the preferred learning style among students.⁵ According to VARK perspective, Visual learners learn best through visual presentation, aural learners learn best through listening, read and write learners learn best through hand notes and lectures and kinesthetic learners learn best through physical activities.⁶ Literature regarding the association of learning styles with academic grades is inconsistent.⁷ Few studies suggests that aligning the students learning styles with teaching strategies results in good academic grades, as each preferred style needs different teaching style.⁸ Awareness of learning styles is important to gain more information in less time.⁹

Medical education is linked with high stress among students.¹⁰ Studies have shown that high levels of stress are seen in undergraduate medical students.¹¹ Various factors contribute to academic stress among students including academic performance, motivation, academic pressure and personality. High stress levels negatively affects the learning ability and ultimately academic results.¹⁴ Academic stress from workload negatively affects academic performance.¹⁵ Excessive stress is the commonest restriction that will adversely affect students' health and academic performance.^{16, 17}

The purpose of our study was to determine the association of learning styles and stress with academic performance, preferred learning style among final year Physical Therapy students and their level of stress. Understanding the learning style preferences and its association with stress or academic grades can help students and teachers working together to improve the learning process.

Methodology

A cross sectional study was conducted on a sample of 171(20 males, 151 females) undergraduate Doctor of Physical Therapy students after approval of title from Institutional Review Board (IRB). The data was collected from Shifa tameer-e-millet University, Riphah international university, Rawalpindi medical college & Margalla institute of health sciences after approval from their Head of departments. The study was completed in duration of 6 months i.e. 15th July to 15th December 2017. The population was selected using non-probability convenient sampling. Final year physical therapy students who were unmarried and with age ranging from 18-25

were included whereas students with clinically diagnosed depression and learning disability including dyslexia were excluded.

VARK (visual, aural, read/write & kinesthetic) questionnaire version 7.8 was used to determine the preferred learning style among students. This questionnaire consisted of 16 multiple choice questions, each with four options representing one of the learning style.⁵ The Perceived stress scale version 10.0 was used to measure the level of stress. Each question has 4 options from 0 to 4 and GPA of last semester was taken from university record. Demographic information was added in the questionnaire.

Frequency and percentages were calculated for qualitative variables, mean and standard deviation were calculated for quantitative variables. To find out the association between learning styles and stress with academic achievement Chi-square test was used. After a process of data collection results were analyzed using SPSS Version 21.0.

Results

Total number of participants for study were 171, out of which 151(88.3%) were females and 20(11.7%) were males. Mean age of participants was 23.08 ±1.13 years. Out of 171 students 54(31.6%) students had unimodal learning style followed by Bimodal 53(31.0%), Multimodal 33(19.3%) and Trimodal 31(18.1%). 119(69.6%) students had moderate level of stress, 45(26.3%) had mild level of stress and 7(4.1%) had mild stress. Regarding the academic grade 85(49.70%) had B grade followed by A=48(28.07%), C=25(14.61%) and D=13(7.60%) as seen in Table I.

Table II shows that among A grade achievers unimodal and bimodal styles were equally preferred, among B grade achievers unimodal, among C+ grade achievers bimodal and among C grade achievers Unimodal was most preferred style. Chi-square test findings showed no association between learning styles and academic grades as P value was .707.

Figure 1 shows that moderate level of stress was present among all the grades but it was more prevalent among B grade students. Chi-square test showed no association between stress and academic grades (P = .468).

Table III is showing the association of stress with the learning styles. The study showed that the stress is not associated with learning styles $P>0.05$.

Table I: Demographics

Demographics	Mean \pm SD
Age	23.08 \pm 1.13 years
Gender	Frequency (%)
Male	20 (11.7%)
Female	151 (88.3%)
Learning styles	
Unimodal	54 (31.6%)
Bimodal	53 (31.0%)
Trimodal	31 (18.1%)
Multimodal	33 (19.3%)
Stress Levels	
Mild	45 (26.3%)
Moderate	119 (69.6%)
Severe	7 (4.1%)
Academic Grades	
A	48 (28.07%)
B	85 (49.70%)
C	25 (14.61%)
D	13 (7.60%)

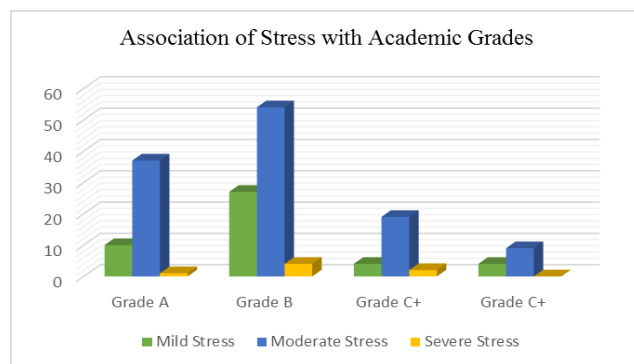


Figure 1: Association of Stress & Academic Grades

Discussion

The results of our study reported that the most preferred learning style among physical therapy students was unimodal, level of stress was moderate and no

association was found between learning styles, stress, and academic achievement.

Table III: Association of Learning Styles & Stress (Learning Styles)

	Unimodal P value	Bimodal P value	Trimodal P value	Multimodal P value
Stress	.110	.833	.108	.228

According to the results of our study, the most preferred learning styles were unimodal 54(31.6%) out of 171 and Bimodal 53(31.0%). In contrast to our results a study conducted by Turkey H. Almigbal on medical showed that students prefer the multimodal style of learning.¹⁸ The difference in results might be due to the difference in exposure to teaching environment and facilities.

The current study showed no association of learning styles and stress with academic performance. Our study results were supported by a study conducted by Salilthip Paiboonsithiwong et al showing no significant differences regarding the VARK modalities types or modes between the female and male participants of the study in terms of academic achievement.¹⁹

The study also identified that there is no association of stress and academic performance of the final year Doctor of Physical Therapy students. The study results were supported by a study conducted by Hyder Osman Mirghni and colleagues in Sudan showed higher stress levels among medical students but these stresses were not negatively influencing their performance.²⁰

Larger sample size was not achieved mainly because it was only limited to final year Physical Therapy students in universities situated in Rawalpindi and Islamabad. The previous researches were limited and inappropriate to provide the relevant information for this study as majority of them were conducted on other medical disciplines. Large sample size can be achieved to generalize the study results. Use of study type other than cross sectional survey will be helpful in identifying that whether learning styles preference and students'

Table II: Association of Learning Styles with Academic Grades

Grades	Unimodal n (%age)	Bimodal n (%age)	Trimodal n (%age)	Multimodal n (%age)	P Value
Grade A	15 (8.77%)	15 (8.77%)	5 (2.92%)	13 (7.6%)	0.707
Grade B	28 (16.37%)	27 (15.79%)	18 (10.52%)	12 (7.01%)	
Grade C+	6 (3.5%)	8 (4.68%)	6 (3.5%)	5 (2.92%)	
Grade C	5 (2.92%)	3 (1.75%)	2 (1.17%)	3 (1.75%)	

stress levels changes with each passing year.

Conclusion

The study concluded that the preferred learning style of Physical Therapy students was unimodal, stress levels were moderate among students & there was no association between learning styles and stress with students' academic performance.

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