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Test anxiety and procrastination in physiotherapy students

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Abstract:

BACKGROUND: Short-term academic procrastination may be accompanied by negative outcomes such as anxiety, stress, and depression. The current study aims to evaluate the two parameters of procrastination and test anxiety in physiotherapy students and explore whether a relationship exists between them.

MATERIALS AND METHODS: A descriptive, cross-sectional survey with a prospective study design was carried out over a period of 6 months. The study used a two-staged cluster sampling method: 220 undergraduate and postgraduate physiotherapy students from colleges in Mumbai and Navi Mumbai participated in the study, ensuring participation of students from each year of the course. The Westside Test Anxiety Scale was administered to evaluate test anxiety, and the Academic Procrastination Scale was used to evaluate procrastination. To illustrate the basic demographics of the participants, descriptive statistics were used. A correlation matrix was used to analyze the correlation between the two parameters.

RESULTS: The mean procrastination score of the physiotherapy students was 74.1. Amongst undergraduates, the highest procrastination was seen in the 3rd Bachelor of Physiotherapy students (mean = 76.7), whereas among postgraduates, the highest procrastination was seen in Master of Physiotherapy 1 students (mean = 75.7). The mean test anxiety score was 3, indicating moderately high test anxiety among students. There was a statistically significant, positive correlation between test anxiety score and procrastination score (P value = 0.000, Pearson's correlation co-efficient = 0.383).

CONCLUSION: Both test anxiety and the tendency to procrastinate were present among undergraduate and postgraduate physiotherapy students, in varying degrees. There was a positive correlation between the two factors.

Keywords:

Academic success, motivation, physiotherapy students, procrastination, Test Anxiety Scale, time management

Introduction

India's higher education system is the world's third largest in terms of students, next to China and the United States. Ensuring quality in higher education is among the foremost challenges being faced in India today.^[1] Quality in higher education is a multidimensional, multilevel, and a dynamic concept. The general objective for higher education is to teach, facilitate, and encourage students to learn.^[2] To achieve

these objectives, factors that affect student learning should be explored.^[3] Educational research exploring the issue of academic achievement or success has extended beyond "simple" issues of intelligence and prior academic achievement.^[4] According to Newble and Entwistle,^[5] these factors can be classified into two categories: (a) Those related to students' characteristics and (b) those related to the learning environment. Important factors that consistently occur throughout the academic success literature are: Cognitive strategies, locus of control, procrastination, test anxiety, motivation,

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learning environment, student engagement, and academic entitlement.

Procrastination means a purposive, habitual, intentional, and needless delay in beginning or completing tasks, which prevents individuals from reaching their goals.^[6] Academic procrastination, defined as postponing academic assignments and tasks^[7] is a prevalent issue.^[8] In a study on college students, Ferrari reported that 70%–95% of the students procrastinated on their assignments.^[9] Short-term academic procrastination may be accompanied by negative outcomes such as anxiety, stress, and depression.^[10] Procrastination is connected with negative behaviors and outcomes, such as submitting late assignments, cramming, test and social anxiety, use of self-handicapping strategies, fear of failure, under-achievement, and can result in damaging mental health outcomes such as depression and anxiety.^[11]

The results of some studies have indicated that procrastination goes in tandem with a lack of self-determined motivation, intrinsic reasons for pursuing academic tasks,^[6] and low academic self-efficacy and self-esteem.^[7] Procrastination is also correlated positively and significantly with test anxiety.^[8] In consequence, academic procrastination is likely to interfere with academic achievement.^[9,10] The significance of the different medical fields dictates that medical students study deeply and gradually. It is advisable that procrastinating medical students and the reasons behind their procrastination be pinpointed so that information can be provided to them as regards the consequences of their procrastination.^[11]

Anxiety is experienced as an emotion by everybody in day to day life, and it is defined as a state of fearful expectation or apprehension as a result of real external danger or intrapsychic conflict such as anxiety in the face of examination and before delivering a lecture. This is called normal, adaptive, or realistic anxiety. Contrary to that, anxiety as an abnormal state is pathological, maladaptive, and unrealistic.^[12]

The American Psychological Association defines anxiety as “an emotion characterized by feelings of tension, worried thoughts, and physical changes such as increased blood pressure”.^[13]

Test anxiety is a widespread phenomenon when an extreme nervousness arising from an anxiety-inducing test situation prevents one from demonstrating their true potential and thus lowers performance, especially in the educational environment.^[14] Test anxiety is a multidimensional construct combining with worry, emotionality, interference, fear of failure, self-esteem, and lack of confidence.^[15] Little worry is essential to

keep students task orientated; however, excessive worry or fear debilitates and affects student academic achievement.^[16] Anxiety is acquired in a strict testing situation when the subjective anxiety state allocates individuals to have inverse psychological effect and conceptualize examination as a threat of failing and fear of imperfection, causing them to tense up profoundly.^[14] The effect of test anxiety not only affects thoughts and behavior, but also coping with exam evaluation situation.

Test anxiety is considered as one of the major problems among medical students as it most likely causes underachievement, low performance, demotivation, and psychological distress.^[17]

Anxiety affects learning, social interaction, physical, and mental health. Anxiety in physiotherapy students may be due to various reasons such as last-minute study, sleep deprivation, poor time management, and lack of confidence. This may lead to mugging up before exam, fear of forgetting information, lack of hard work, poor academic performance and under achievement, and poor engagement in class.

Thus, procrastination and anxiety may have adverse effects on the student’s well-being and on their academic performance. A review of literature has revealed that anxiety and procrastination have been separately studied in students from various fields.^[18-24] The correlation between anxiety and procrastination has been studied among pre-licensure nursing students,^[25] college students,^[26] and high-school children.^[27] Thus, there is a paucity of literature regarding the prevalence of anxiety and procrastination in physiotherapy students and also regarding the relationship between these two parameters.

The current study, therefore, aims to study the two parameters in physiotherapy students and explore whether a relationship exists between them.

Materials and Methods

Ethical Moral Code and Consideration: The study was approved by the Institutional Ethics and Research Committee of our institution. Written informed consent was obtained from the participants before the study was initiated, and their confidentiality was ensured.

Study design

The study used a quantitative research method. It was a descriptive, cross-sectional survey with a prospective study design carried out over a period of 6 months.

The study used a two-staged cluster sampling method: undergraduate and post-graduate physiotherapy

students from colleges in Mumbai and Navi Mumbai were requested to participate in the study, ensuring participation of students from each year of the course.

Inclusion Criteria: Undergraduate and postgraduate physiotherapy students from Mumbai and Navi Mumbai who were willing to participate in this study were included.

Exclusion criteria: Students who were not willing to participate in the study or who had pre-existing neurological, learning, psychological, or other impairments which could interfere in their academic performance and learning were excluded.

Anxiety can be measured using various scales such as Westside Test Anxiety Scale, Statistical Anxiety Rating Scale (STARS), Cognitive Test Anxiety Scale, Hamilton Anxiety Rating Scale, and the State Trait Anxiety Inventory. Westside Test Anxiety Scale shows good reliability and validity and hence has been used to measure test anxiety in the present study.^[28]

Westside Test Anxiety Scale has 10 questions, with scoring using Likert scale. Sum of the score of the 10 questions is then divided by 10. The scores are interpreted as follows:

- 1.0–1.9 comfortably low test anxiety
- 2.0–2.5 normal or average test anxiety
- 2.5–2.9 high normal test anxiety
- 3.0–3.4 moderately high (some items rated 4 = high)
- 3.5–3.9 high test anxiety (half or more of the items rated 4 = high)
- 4.0–5.0 extremely high anxiety (items rated 4 = high and 5 = extreme).

The Academic Procrastination Scale, Tuckmann Procrastination Scale, General Procrastination Scale, and Procrastination Assessment Scale for students are the various measures of procrastination. Academic Procrastination Scale shows good reliability and validity and hence has been used to measure procrastination in the present study.

The Academic Procrastination Scale consists of 25 questions and the maximal score that can be obtained is 125. Higher score indicates high procrastination.^[29]

Statistical analysis

To illustrate the basic demographics of the participants, descriptive statistics were used. A Correlation Matrix was used to analyze the correlation between the two parameters (procrastination and test anxiety) using the Pearson's correlation co-efficient. The data were statistically analyzed using the Data Analysis add-on in MS Excel.

Results

The study was conducted on a sample size of 220 physiotherapy students. Age of respondents ranged between the age group of 17 and 25 years; their mean age was 20.7 ± 1.56 years. Among the participants, 22.7% were male and 75.9% were female. The maximum number of students who participated in this study was from the 4th Bachelor of Physiotherapy (BPT) (32.3%), whereas the least were from Master of Physiotherapy (MPT) 2 (5.9%).

Interpretation: The above Table 1 shows that undergraduate physiotherapy students had a slightly higher procrastination as compared to postgraduates.

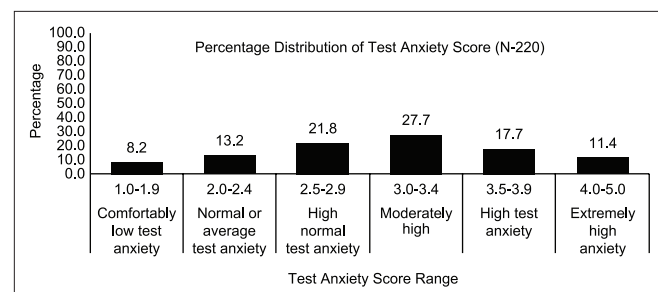
Interpretation: The above Table 2 shows that among the undergraduate students, the procrastination is the highest in 3rd BPT students and lowest in 1st BPT students. Among the postgraduate students, MPT 1 students had a higher procrastination as compared to MPT 2.

Interpretation: The above Graph 1 shows that maximum students had moderately high test anxiety (27%), whereas minimum students had comfortably low test anxiety (8.2%), as measured by the Westside test Anxiety Scale.

Interpretation: The above Table 3 shows that undergraduate and postgraduate physiotherapy students had moderately high test anxiety, as measured by the Westside test Anxiety Scale.

Interpretation: The above Table 4 shows that among the undergraduate students, 3rd year BPT students had slightly higher test anxiety as compared to students from other years. Among the postgraduates, MPT 2 students had slightly higher test anxiety than MPT 1.

Interpretation of Correlation Matrix: Table 5 and Graph 2 shows a positive correlation between test anxiety score and procrastination score. Correlation between the two variables ($P = 0.000$) is statistically significant, but the value of Pearson's correlation co-efficient shows weak association between these two variables.



Graph 1: Percentage distribution of test anxiety score

Table 1: Procrastination score in undergraduate and postgraduate students

Descriptive statistics procrastination score in UG and PG students						
Students	Mean	Maximum	Minimum	Range	Standard deviation	n
UG student	74.2	113.0	28.0	85.0	15.1699	192
PG student	73.2	102.0	47.0	55.0	12.4664	28
Total	74.1	113.0	28.0	85.0	14.8319	220

UG=Undergraduate, PG=Postgraduate

Table 2: Descriptive statistics procrastination score by year of study

Descriptive statistics procrastination score by year of study						
Year of study	Mean	Maximum	Minimum	Range	Standard deviation	n
1 st BPT	68.0	92.0	34.0	58.0	16.71	18
2 nd BPT	75.0	109.0	48.0	61.0	14.68	46
3 rd BPT	76.7	107.0	51.0	56.0	14.58	57
4 th BPT	73.3	113.0	28.0	85.0	15.33	71
MPT 1	75.7	88.0	57.0	31.0	9.60	15
MPT 2	70.3	102.0	47.0	55.0	15.02	13
Total	74.1	113.0	28.0	85.0	14.83	220

BPT=Bachelor of Physiotherapy, MPT=Master of Physiotherapy

Table 3: Mean score of test anxiety score in the total study population (n=220)

Descriptive statistics test anxiety score by UG and PG students						
Course	Mean	Maximum	Minimum	Range	Standard deviation	n
UG student	3.0453	5.0	1.0	4.0	0.8280	192
PG student	3.0240	4.7	1.9	2.8	0.6524	28
Total	3.0427	5.0	1.0	4.0	0.8065	220

UG=Undergraduate, PG=Postgraduate

Table 4: Mean test anxiety score by year of study

Descriptive statistics test anxiety score by the year of study						
Year of study	Mean	Maximum	Minimum	Range	Standard deviation	n
1 st BPT	2.8	4.2	2.0	2.2	0.70	18
2 nd BPT	3.1	4.8	1.4	3.4	0.82	46
3 rd BPT	3.2	5.0	1.2	3.8	0.84	57
4 th BPT	3.0	5.0	1.0	4.0	0.85	71
MPT 1	3.0	3.9	1.9	2.0	0.63	15
MPT 2	3.1	4.7	2.1	2.6	0.70	13
Total	3.0	5.0	1.0	4.0	0.81	220

BPT=Bachelor of Physiotherapy, MPT=Master of Physiotherapy

Discussion

The first objective of the study was to evaluate the prevalence of procrastination in physiotherapy students using Academic Procrastination Scale.

According to the findings of the present study, the mean of Academic Procrastination Scale in the total sample was 74.1 ± 14.83 . The undergraduate physiotherapy students had a slightly higher tendency to procrastinate on academic tasks, as compared to postgraduates. Amongst undergraduates, the highest procrastination was seen in 3rd BPT students, whereas among postgraduates, the highest procrastination was seen in MPT 1 students.

College students are required to complete multiple tasks and meet several deadlines throughout the

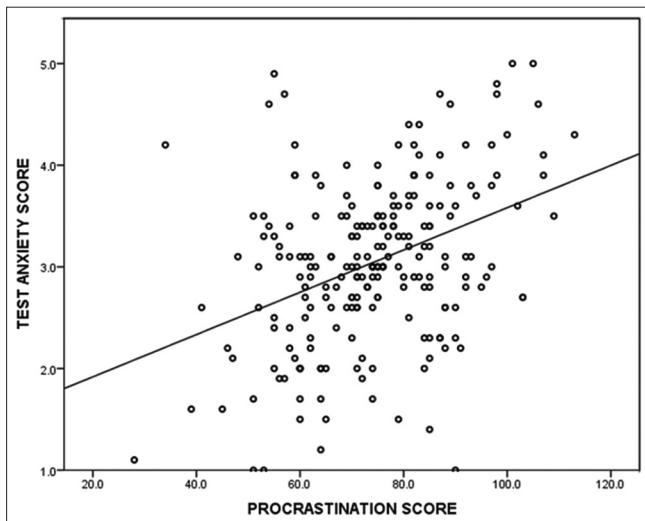
year, within a specific amount of available time. Since procrastination is known to have far-reaching negative consequences, research has focused on identifying the factors that produce and sustain academic procrastination. Research has reported academic procrastination to be a self-perceived problem for college students, with consequences ranging from reduced academic achievement, increased stress, and poor quality of life.^[30]

Academic procrastination may be due to the lack of self-determined motivation and intrinsic reasons for pursuing academic tasks^[11] and low academic self-efficacy and self-esteem,^[12] and may provoke anxiety. Feeling that it is too late to be ready for the examinations or feeling overwhelmed affects mood and wellbeing.

Table 5: Correlation between Test Anxiety and Procrastination

Parameter	Correlation matrix	
	Test anxiety score	Procrastination score
Test anxiety score		
Pearson correlation	1	0.383**
Significant (two-tailed)		0.000
n	220	220
Procrastination score		
Pearson correlation	0.383**	1
Significant (two-tailed)	0.000	
n	220	220

**Correlation is significant at the 0.01 level (two-tailed)



Graph 2: Scatter plot of test anxiety score and procrastination score

Academic procrastination is likely to interfere with academic achievement.^[14,15]

The second objective of the study was to evaluate the prevalence of the test anxiety in physiotherapy students using the Westside Test Anxiety Scale.

According to the findings of the present study, maximum students had moderately high test anxiety, whereas minimum students had comfortably low test anxiety. Moderately high test anxiety was seen in undergraduate and postgraduate physiotherapy students, as measured by the Westside test Anxiety Scale. Among undergraduates, the highest anxiety was seen in 3rd BPT students.

Our results are in agreement with the findings of a study conducted by Shah *et al.*^[13] who used the depression, anxiety, and stress questionnaire. Anxiety was found to be highest in 3rd BPT students due to their increased self-study hours, increased level of study from previous years, aspiration of scoring more in academics, increasing concern about their profession as a career. The author

further states that anxiety is like fear-it involves mental and physical mobilization to meet a perceived danger. Anxiety is manifested by mental depletion and inability to rise to a challenge. Medical and physiotherapy students are expected to learn and master a huge amount of knowledge, attitudes, and skills for which they have to work hard which in turn puts them under lot of pressure and may thus lead to anxiety.

Sharma and Wavare observed that academic examination for medical and physiotherapy students are stressful which affects their academic performance. They concluded that academics and examination are the most powerful stressors in medical and para-medical students.^[31]

Shireen *et al.* aimed to assess examination-related anxiety among final professional medical students using the Visual Analog Scale (VAS). He conducted a cross-sectional study among 120 students using structured self-administered questionnaire. The average maximum exam anxiety marked on VAS 64 ± 28 , which indicates a moderate level of exam anxiety based on a Visual Analog Scale. The author further identified the factors contributing to examination anxiety as undue course loads, lack of physical exercise, and long duration of examinations.^[16]

The lower mean anxiety score found in the above study as compared to our findings could be due to the difference in population (i.e., physiotherapy students vs. medical students), their syllabi, and course demands. Different outcome measures used by both the investigators may also have led to different components of test anxiety being assessed, which may also account for the differences in the results.

The third objective of our study was to evaluate whether a relationship exists between the procrastination and test anxiety in physiotherapy students. According to the findings of the present study, there is a strong positive correlation between the two parameters, but the value of Pearson correlation shows weak association between these two variables.

Our results are in agreement with other studies which have examined the relationship between the two parameters in students.

Carvalho *et al.* conducted a study on Procrastination, Perfectionism, and Test Anxiety in 89 students from different streams of education across various colleges in South Mumbai. The results revealed a statistically significant, positive correlation between procrastination and test anxiety ($P < 0.001$). According to the author, a possible reason could be the past negative evaluative

experiences and lack of confidence of test anxious students. The students may also believe that their efforts may not yield the desired results, which may lead to last minute studying to pass the examinations, further leading to anxiety.^[32]

Cassady and Johnson conducted a study on Cognitive Test Anxiety and Academic Performance in 168 students. The results reveal consistently strong correlations between performance and the scores on the Cognitive Test Anxiety Scale, with weak or inconsistent correlations between performance and the other measures of test anxiety or procrastination.^[33]

Strengths

Thus, our study has reported a high prevalence of procrastination and test anxiety in physiotherapy students and a strong positive correlation between two parameters. It has helped to address the gaps in existing literature with respect to anxiety and procrastination in physiotherapy students.

Both these parameters have been previously found to be associated with each other and to possibly affect academic performance.

Weaknesses

Students from a specific geographical location were chosen for the study. A larger size, spread over a wider geographical area may improve the generalizability of the results.

Suggestions

It is recommended that physiotherapy institutes should take appropriate steps for reducing procrastination and anxiety among students. This may include undertaking counseling for students, highlighting the importance of getting things done on time, and teaching strategies such as relaxation and mental imagery to reduce test anxiety. These strategies may help to promote well-being among students and may also positively impact their academic performance.

Future research can be carried out to understand how procrastination and anxiety can affect academic achievement. A similar investigation may be carried out at the beginning of the year and just before examinations to evaluate the impact of impending examinations on both the parameters.

Limitations

This cross-sectional study was subject to one common limitation of such a design-the relationship between two variables was not a cause and effect relationship.

The study contained more undergraduate students as compared to postgraduates. Equal distribution of

students (across the years and between undergraduate and postgraduate students) would have been ideal.

Conclusion

The undergraduate physiotherapy students had a slightly higher tendency to procrastinate on academic tasks, as compared to postgraduates. Among undergraduates, the highest procrastination was seen in 3rd BPT students, whereas among postgraduates, the highest procrastination was seen in MPT 1 students.

Moderately high test anxiety was seen in undergraduate and postgraduate physiotherapy students, as measured by the Westside test Anxiety Scale. Among undergraduates, the highest anxiety was seen in 3rd BPT students. There was a statistically significant, strong positive correlation between Test Anxiety and Procrastination (P value-0.01), but the value of Pearson correlation showed weak association between these two variables.

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Conflicts of interest

There are no conflicts of interest.

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