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# LINKING STUDENTS ANXIETY AND THEIR ACADEMIC ACHIEVEMENTS IN THE SUBJECT OF STATISTICS AT MS-LIBRARY AND INFORMATION SCIENCES LEVEL IN PAKISTAN

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## Abstract

Anxiety plays a very dynamic role in the academic performance of the students. A normal level of anxiety is beneficial for students. It motivates students for study and hard work that results into a prosperous future, but high level of anxiety badly affects the students learning process. This study explains the students' anxiety and academic achievements of the MS-Library and Information Science students of Sarhad University of Science and IT, Pakistan. Survey based quantitative approach was applied for data acquisition. Descriptive statistics was used to analyze the data. Lack of motivation from teachers, class tests, and assignments were regarded as the most vibrant factors that enhance students' anxiety about the subject of statistics. It was recommended that encouragement and motivation to students from teachers and enhancement of pedagogical skills of teachers are the sources that can be used to minimize the anxiety of students and will improve the academic performance of the students.

**Keywords:** Students anxiety- academic performance, academic achievement- MS- Scholars, MS-Scholars- Sarhad University Peshawar Pakistan, Students anxiety-Pakistan.

## Introduction

Anxiety is a very dynamic and powerful emotion experienced by a student in a class environment (Chew & Dillon, 2014). It is an individual feeling of stress, trepidation and fear linked with provocation of nervous system (Spielberger, 1983). Students with anxiety disorder reflects least interest in learning, low grades in examinations, quizzes and presentations. Cold, worry, sweaty palms, quick breathing, rapid heartbeat, stomach disorder are the most common symptoms of anxiety (Ruffins, 2007). Anxiety has a very crucial effect on academic performance of students and is considered as an analysis tool (Mc Craty, 2007). Researchers highlighted that level of anxiety is inversely proportional to the working performance of an individual. Higher level of anxiety would result into lesser academic achievement (Luigi et al., 2007). Phycologists and researchers are of the general opinion that anxiety is not weak aspects of human being. A normal level of anxiety is beneficial for students. It motivates students for study and hard work that results into a prosperous future, but high level of anxiety badly affects the students learning process (DordiNejad *et al.*, 2011).

Academic success of students is the level of studying in a specific discipline/subject assessed by teachers. It is the level of achievements of students at their educational institutions. Promotion of students from a lower grade to higher is usually done on the basis of this scale (Shakir,2014).

## Review of previous studies

Literature review plays a significant role in research and enables researchers to scrutinize the existed knowledge and dig-out gaps in the literature in the past 50 years. A lot of research studies have been has

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conducted on attitudes, motivation and anxiety, and other factors that affected learning process. The most relevant literature available on the anxiety of the subject of the statistics is noted here in this section.

Lavasani, M. G., Weisani, M., & Ejei, J. (2011), examined the 345 undergraduate students from the faculties of Psychology, and Educational Sciences of Tehran were selected using census sampling method for the collection of data for the study in hand. This study aims at analyzing the effect of achievement goals on statistics anxiety through academic motivation and statistics learning approaches. The population consisted of 277 female and 68 male. The Path Analysis method indicated that mastery goals have direct negative effects on statistics anxiety ( $p < 0.05$ ). It is revealed that all the 3 variables of academic motivation directly influence statistics anxiety. The findings of this research indicate that achievement goals affect statistics anxiety more often through academic motivation and learning strategies. Baloglu, M. (2007), studied the relationship between the statistics anxiety and attitudes toward subject of statistics. The applications of statistical techniques have increased the author studies the problems faced by teachers while teaching statistics have increased as well or not with the increased in the techniques. The canonical correlation techniques have been used for this study by the Baloglu. A total of 150 senior and graduate students participated in this research from faculty of social science. The analysis shows no significant in terms of statistics anxiety and attitudes towards subject of statistics were related.

Mandap, C.M. (2016) described and compared the statistics anxiety of male and female college students. The data was collected from 180 students who enrolled in the basic courses of statistics. The six dimensions anxiety rating scale was used to measure statistics anxiety of the students. The analyses present that the participants have the highest level of anxiety when interpreting statistical data, and least anxious towards their teachers. While a significant effect for gender, which was mainly attributable to fear of asking for help/questions from the teacher. Najmi, A., Raza, S.A., and Qazi, W. (2018) examined the role of student commitment, self-concept, and adaptability in statistical anxiety and performance in higher education. Data were collected from 320 students enrolled in a Pakistan University Business School through questionnaires. After exploratory and confirmatory factor analysis, the results of the structural equation model show that although student input, self-concept and adaptability are negatively related to statistical anxiety, the emergence of the above attitudes reduces the importance of statistical anxiety to student performance. The study concluded that a positive attitude towards students can minimize the impact of statistical anxiety on student performance. In addition, the actual meaning of the discovery was discussed.

Faber, G. & Drexler, H. (2019) analyzed the role of prior statistical experience within the framework of self-concept and value variables in a specific field to predict the statistical anxiety of education science students. Data from two independent samples were analyzed, including 113 and 87 participants in each

case. Statistical tests were applied for the measurement of the experience. In these two samples, the results of the three-item analysis of variance showed that students' statistical anxiety was largely explained by their negative utility value, self-concept, and to a large extent can only be explained by their previous statistics. Learn from experience to explain. Students' statistical anxiety seems to depend on their value and self-concept scores at all experience levels. Although there have been some varying impact patterns, the findings of the two samples have led to similar impacts, indicating the key role of the confidence variable. Tutkun, T. (2019) conducted an analysis under title "Statistics Anxiety of Graduate Students". The term anxiety was commonly described by psychologists as "Anxiety is a psychological construct, as a state of apprehension, a vague fear that is only indirectly associated with an object". A small amount of anxiety is believed to be needed for learners since it improves performance which is known as facilitating anxiety. While Statistics anxiety is a feeling of anxiety when taking a statistics course or doing statistical analysis. This study aimed to determine the anxiety-related views of graduate students towards the subject of statistics as a course. The qualitative analysis has been applied in this research study, and data were gathered from graduated students studying in the Department of Educational Sciences at Çanakkale Onsekiz Mart University. A semi-structured interview was conducted for data collection. Which is aims to determine the anxiety related views of graduate students. Analysis of the results revealed five themes of statistics anxiety includes; Importance of the course, Math skills, Computer skills, Exam stress, and Foreign language skills.

Vahedi, S., Farrokhi, F., Gahramani, F., and Issazadegan, A. (2012) used questionnaire surveys for data collection, and a total of 246 female college students participated in this study. To examine the independent relationship between procrastination, learning strategies, and statistical anxiety variables, a typical correlation analysis was performed. The research results show that the two-gauge functions are statistically significant. The self-regulation of meta-variables, source code management, homework preparation, test preparation, and term paper preparation variable-sets help predict changes in statistical anxiety in fear behavior, attitudes to mathematics and classroom, performance rather than anxiety. This paper proposes a normative model by using academic procrastination (AP), learning strategy (LS) as predictor variables, and statistical anxiety (SA) as explanatory variables.

### **Objectives of the study**

The main objective of this study was to investigate the statistics anxiety level of the Postgraduate student of the Department of Library and Information Science (DLIS), Sarhad University of Science and Information Technology (SUIT), Peshawar-Pakistan. However, the following objectives will try to archive thought this research paper;

1. To Examine The fear/worthlessness of statistics in the postgraduate students of Library and Information Science.

2. To learn about the academic achievement of the targeted scholars.
3. To study the level of Classroom anxiety of the MS-LIS Students of SUIT.
4. To observed the fear of test and asking questions in the subject of statistics of MS-LIS program
5. To investigate the problem of analysis and interpretation in the subject of statistics at DLIS, SUIT.

### **Research Methodology**

The quantitative approach was adopted for the study in hand to discover the anxiety level of the Master of Science (MS) in Library and Information Science (LIS) of the Postgraduate students of the Department of Library and Information Science, Sarhad University of Science and Information Technology, Peshawar, Pakistan. Being the part of this institute, the collection of basic information about targeted palpitation was an easy job for the authors. The information about the batch, students list that studied “Advance Statistical Methods” as Subject, appeared and passed the Second semester exam were acquired. The officially declared results of 2<sup>nd</sup> semester were used as sources of data for batch strength, marks obtained in the subject, “Advance Statistical Methods”, and total marks obtained in the 2<sup>nd</sup> semester. This study was delimited to the pioneer three batches of MS-LIS program only. Total twenty-two students were enrolled in the 1<sup>st</sup> batch of the first postgraduate program in the MS- Library and Information Science in the Khyber Pakhtunkhwa (KP) Province, followed by twenty-one in 2<sup>nd</sup> batch and ten in 3<sup>rd</sup> batch in the said program. Total targeted population was (N=53). Response of the students of MS-LIS was collected using a stricter questioner thought Google Forms via social media and personal emails, phone calls and Personal visits were used as follow-up for obtaining maximum response. The collected data was organized, edited, filtered for error and merged with basic data already collected from the LIS department, SUIT. Final filtered data was imported to SPSS version 20.0 for analysis and desired and required results.

### **Analysis of data and Interpretation:**

The analysis of demographics depicted that about three-fourth of the total population is male. Second batch of the MS-program in LIS possesses more female scholars as compared to the rest of MS-Batches. Batch-first is reported as the most crowded session among the three batches.

*Table No.1: Marks obtained in the Subject of Statistics in MS-LIS program*

Statements	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Marks Obtained in the subject of Statistics	53	55	92	79.17	9.087	82.567
Total Marks Obtained Last Semester	53	110	193	157.02	16.623	276.327
Valid N (listwise)	53					

The figure presented in the above Table pinpointed that majority of the students have obtained eighty percent marks in the subject of Statistics titled “Advance Statistical Methods” of MS-Library and Information Science program of Department of Library and Information Science, Sarhad University

Peshawar. It was reported that ninety-two percent is the maximum marks obtained by any students in “*Advance Statistical Methods*. Fifth five percent is the minimum marks taken by any MS-Scholar in the said program.

Table No.2: *Fear of Statistics/ Worthlessness of Statistics*

Statements	N	Minimum	Maximum	Mean	Std. Deviation
I am worried about the difficulty of Statistics.	53	1	5	3.47	1.120
I get tension due to the extensive course of Statistics.	53	1	5	3.45	1.234
I get nervous through the long calculations in Statistics.	53	1	5	2.96	1.315
Too much homework in Statistics is stressful for me.	53	1	5	3.21	1.246
I am worried when I make mistakes in Statistics.	53	1	5	2.66	1.108
I feel distress due to the failure in Statistics.	53	1	5	3.23	1.266
I feel discomfort when I attend Statistics lectures.	53	1	5	4.11	1.155
I lose interest in learning Statistics when I cannot get good grade in Statistics course.	53	1	5	3.43	1.448
I afraid that I cannot pass Statistics course easily.	53	1	5	3.64	1.429
I am frustrated that other students are better than me in Statistics course.	53	1	5	3.51	1.436
I feel fear about Statistics due to my poor mathematical background.	53	1	5	3.47	1.449
I face trouble when I find relation of Statistics with mathematics.	53	1	5	3.47	1.367
Valid N (listwise)	53				

Number of queries were asked about the *Fear of Statistics/ Worthlessness of Statistics* in Table No.2. The statistical analysis of twelve constructs in above Table reflects that MS-LIS scholars of DLIS, Sarhad University Peshawar feel more fear about the construct “*I am worried when I make mistakes in Statistics*” (Mean=2.66 & St. Deviation=1.108), followed by “*I am worried about the difficulty of Statistics*”( Mean=3.47 & St. Deviation=1.120). The students of Advanced Statistical Methods were less worried about the queries “*I feel fear about Statistics due to my poor mathematical background*” (Mean=3.47 & St. Deviation= .1.449) and “*I am frustrated that other students are better than me in Statistics course*” ( Mean=3.51 & St. Deviation= .1.436).

Table No.3: Classroom Anxiety

Statements	N	Minimum	Maximum	Mean	Std. Deviation
I get upset when I enter into Statistics class.	53	1	5	3.87	1.020
I get tension because learning environment of class is not suitable.	53	1	5	4.00	1.209
I feel more distress in Statistics class than other classes.	53	1	5	3.66	1.108
I am worried by presentation in Statistics class	53	1	5	3.30	1.339
I face problems with my peers in Statistics class.	53	1	5	3.23	1.120
I face trouble due to heavy work in Statistics class.	53	1	5	3.53	1.154

I get upset through the tense situation in Statistics class.	53	1	5	3.83	1.105
I feel nervous in Statistics class due to lack of physical facilities.	53	1	5	3.58	1.117
Valid N (listwise)	53				

Table No. 3 consists of eight queries about classroom anxiety. “*I get upset when I enter into Statistics class (St. Deviation=1.020)*” and “*I feel more distress in Statistics class than other classes (St. Deviation=1.020)*” were declared as classroom anxiety by most of the MS-LIS postgraduate students under study. “*I get tension because learning environment of class is not suitable (St. Deviation=1.020).*” and “*I am worried by presentation in Statistics class (St. Deviation=1.339).*” are the constructs with which most of the respondents disagreed. In response to the query “*I face trouble due to heavy work in Statistics class*”, majority of the students disagreed with the statement.

Table No.4: Fear of Statistics Teacher

Statements	N	Minimum	Maximum	Mean	Std. Deviation
I am worried when I don't understand what the teacher of Statistics is teaching.	53	1	5	3.09	1.260
Teacher of Statistics does not motivate me to do well in Statistics.	53	1	5	4.08	1.313
I get tension when teacher does not help me in Statistics.	53	1	5	3.74	1.332
I get upset when too many questions are asked by teacher.	53	1	5	3.47	1.339
I get frustrated when Statistics teacher asks me questions which I don't know.	53	1	5	2.96	1.330
I dislike when too many assignments are given by Statistics teacher.	53	1	5	3.28	1.336
Valid N (listwise)	53				

Table No. 4 contained questions/ queries about fear of statistics teacher. This Table comprises of six constructs. Descriptive statistics was used to examine the responses. It was reported that most of the students were of the opinion that “*we are worried when we don't understand what the teacher is teaching ( Mean=3.09 & St. Deviation=1.260)*”. “*Teacher of Statistics does not motivate me to do well in Statistics*” also addressed by a reasonable number of students. The MS-Scholars of Library and Information science at Department of Library and Information Science, Sarhad University Peshawar was not agreed with the queries “*I get upset when too many questions are asked by teacher (Mean=3.47 & St. Deviation=1.339)* and “*I dislike when too many assignments are given by Statistics teacher (Mean=3.28 & St. Deviation=1.336)*”.

Table No.5: Fear of Tests

Statements	N	Minimum	Maximum	Mean	Std. Deviation
I get tension when I go to take Statistics test.	53	1	5	3.49	1.187
I get frustrated by the preparation for Statistics test.	53	1	5	3.49	1.187
I dislike the lengthy calculations in Statistics test	53	1	5	3.04	1.192

I am afraid of getting bad marks in Statistics test.	53	1	5	3.43	1.294
I feel distress about the consequences of failing Statistics test.	53	1	5	3.38	1.042
I get tension in exam when I forget facts which I know.	53	1	5	2.53	1.234
I feel nervous due to the lack of concentration during test.	53	1	5	3.13	1.301
I face trouble in choosing suitable answers for given questions in Statistics test.	53	1	5	3.13	1.194
Valid N (listwise)	53				

The respondents were given options about “Fear of Tests” in Table No.5. “*Distress about the consequences of failing Statistics test (Mean=3.38 & St. Deviation=1.042)*”. were given top ranking by the Postgraduate scholars of MS-LIS program of Sarhad University Peshawar. The queries “*I get tension when I go to take Statistics test*” and “*I get frustrated by the preparation for Statistics test*” are the second most agreed constructs of Table No.05. “Getting bad marks in Statistics test” proved to be a low response query.

Table No.6: Problem of Analysis and Interpretation

Statements	N	Minimum	Maximum	Mean	Std. Deviation
I am worried by the process of data collection.	53	1	5	3.40	1.182
Tabulation of collected data is stressful for me.	53	1	5	3.09	1.148
I face some trouble in the selection of appropriate Statistical techniques for analysis.	53	1	5	2.89	1.138
I am worried by the interpretation of statistical results.	53	1	5	3.40	1.166
Valid N (listwise)	53				

Table No.06 focuses on problem analysis and interpretation in statistics. “*Selection of appropriate Statistical techniques for analysis (Mean=2.89 & St. Deviation=1.138)* were reported as the most vibrant issue to the MS-Scholars of DLIS Sarhad University Peshawar followed by “*Tabulation of collected data is stressful (Mean=3.09 & St. Deviation=1.148)*. Processing and interpretation of data was not a big issue for the scholars of Library and Information Science as reflected in above Table.

### Findings and Discussion

Mc Craty, (2007) examined that anxiety has a very crucial effect on academic performance of students and is considered as an analysis tool for their academic achievements. In current study, respondents were of the view that they got worried when make mistakes in Statistics. This response of students results a very adverse effect on learning ability of Statistics students. The weak teaching methodology of the teachers of statistics was also reported as a cause of anxiety. Preparation of Statistics and attempting test of Statistics is also a source of fear for the MS-scholars of Department of Library and Information Science, Sarhad University of Science and Informing Technology Peshawar. High anxiety student yield has a low ability to



study (Vitasari, P., Wahab, M. N. A., Othman, A., Herawan, T., & Sinnadurai, S. K., 2010). The Examination is meant to evaluate and determine modification in terms of change in behaviour, expression, level of knowledge and mode of logical reasoning (Khattak, H., Mughal, A. W., Marwat, M. K., Jan, S., Waseem, M., & Bibi, S. (2015). Heavy workload given by teachers was also responded as a reason of fear about the Statistics. The bulk of assignments given by Statistics teacher is also a fear in the mind of students. Lack of motivation on the part of teachers is also reported as one of the causes of anxiety about the subject of Statistics. It was noted that tabulation of collected data is a stressful job, whereas processing, analysis and interpretation of data is not a big issue for the MS-LIS students of DLIS, Sarhad University Peshawar. A positive attitude towards students can minimize the impact of statistical anxiety on student performance (Najmi, A., Raza, S. A., & Qazi, W. (2018).

### **Recommendations**

In order to minimize students' anxiety and improve the academic performance of the students, it is recommended that students should be properly motivated. The teaching methodologies of the teachers needs special attention. In this regard, special training sessions should be arranged to improve the pedagogical skills of the teachers of statistics. Special attention should be given to psychological aspects of the students to remove the fear and worry of the students about this important research-oriented subject of social science.

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