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Relationship Between Postgraduate Students' Time Management And Anxiety Level: A Case Study Of Ph.D Scholars

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Abstarct: Students' achievement heavily depends on their time management skills. In the dynamic landscape of contemporary education, students often find themselves navigating a complex web of academic, extracurricular, and personal responsibilities. This descriptive case study delves into the intricate interplay between students' time management practices and the prevalence of anxiety. The study population were consisted of PhD Scholars from universities who were working on their dissertations. A sample of 260 PhD scholars (Male = 192, Fem ale = 68) was selected using a multi-stage random sampling technique. Two questionnaires, the Time Management Scale (TMS) and the Zung Self-Rating Anxiety Scale (ZSRS), were used for data collection. The study concluded that no gender differences were found in time management among PhD scholars. The comparison of anxiety on a gender basis shows no difference. The study concluded that a moderate positive relationship between time management skills and anxiety among PhD scholars exists. The study suggested that better time management does not decrease anxiety levels in groups, while time management had an 21.9% impact on the anxiety of the students.

Keywords: Time Management; Anxiety Level; Case Study; Relationship

Introduction

With the increasing demand for advancement in knowledge and skills in an ever-changing global landscape, research scholars face challenges and obstacles (Imran et al., 2024). Scholars find challenges dealing with different academic and extracurricular activities, such as dealing with issues of time management, increase the level of anxiety. Studies conducted by (Wolters and Brady, 2021; Roshanisefat et al., 2021) concluded that the interplay between time management significantly impacts the personal and academic well-being of research scholars.

Time management is a tool that helps formulate goals, predict, and deal with obstacles fostering time management (Hafner & Stock 2010). It includes multiple steps of goal setting, plan making, time estimation, time spending, and allocation of time (Wolters & Brady, 2021). Time management skills are of primal importance for research scholars because it is positively correlated with the performance of students and negatively related to procrastination (Roshanisefat et al., 2021). The time management ability of students helps to organize, manage, and prioritize matters systematically and technically (Wu & Passerini, 2013). It shows how to divide different chores and activities better using the least energy and resources.

Anxiety is a painful uneasiness of the mind caused by an unbending or expected illness (Kaur, 2015). Its symptoms can indicate in the shape of emotional disorders. It might lead to alterations in the body and the mind. Fear, increased heartbeat, sleep disorder, chest pain, headaches, lesser focus on work, and avoiding situations are some of its emotional symptoms (Arribathi et al. 2021). Some studies show that learning anxiety can be helpful, but it can also be bad. The level of anxiety matters, as high-level anxiety is harmful to students (Abbasi et al. 2019).

Anxiety can either constrain or stimulate the learning process. Working memory can be set back by depressingly prominent levels of academic anxiety (Abbasi, Khalil & John 2020). Students' knowledge of the connection between the idea of time management and research anxiety should be raised, and they should be made conscious of the fact that this connection exists. This is because both time and anxiety are active components of learning (Alpturk, 2015). Poser (2003) concludes that individuals should learn effective time management for success in life. Through effective time management, individuals can control anxiety, and become competitive in careers they pursue after completing their university studies. The study found that effective time management skills are crucial indicators of improved performance as well as reduced stress and anxiety levels at the university level (Kearns & Gardiner, 2007).

The interplay between student's time management skills and anxiety has remained the focus of researchers for decades. Hafner et al. (2014) reported that time management and anxiety were negatively correlated. Students with better time management

practices reported a lower level of anxiety. Moreover, Ghassan et al. (2017) conducted a study and deduced that time management training programs decreased anxiety levels among nursing students. Effective time management provides a systematic approach to performing tasks. Individuals plan their activities, prioritize tasks, and gain control over responsibilities, which leads to decreased anxiety and stress. Through this approach, individuals can manage tasks and workload effectively and reduce the stress of the last minute (Blazina et al., 2016; Imran & Almusharraf, 2023). At the same time, ineffective time management leads to increased anxiety levels. Individuals who face difficulties in managing time feel stress due to tough schedules, deadlines, and complex tasks. This can lead to increased stress and in-efficiency levels (Sirois & Pychyl, 2013).

Time management skills and student performance of undergraduate students measured by Malaysia, Ismail, and Ariff Khalid (2020) found that students manage time effectively, set goals, prioritize tasks, and plan but have lower control over interruptions and implementation of the predetermined schedule. The study found that females were better than males in managing time. The study found that student's academic performance and time management skills were positively correlated. A study conducted by Alyami et al. (2021) to determine the relationship between time management and anxiety concluded that most students agreed on the preplanning for the study while less than half agreed on managing their time for academic performance. They also found that the students face problems in time management due to insufficient sleep.

Students' anxiety levels are often elevated due to difficulties with time management (Hassan, Zaheer & Khalid 2022). The relationship between academic performance and anxiety level was found significant in a study conducted by Faize and Husain (2021). Naser et al. (2021) found mild anxiety, moderate anxiety, and severe anxiety among students. They also found that anxiety may occur due to academic performance. The phrase "Research Anxiety" refers to the anxiety expected because of the work or tasks assigned by the supervisors to the research students. According to Alpturk (2015), the process of carrying out the research is the source of the anxiety. Stress is brought on by anxiety in a person (Kaur, 2015). A cross-sectional study was conducted by Ramón-Arbués et al. (2020) to find the symptoms of anxiety, depression, stress, and their factors among college students in Spain and found that the level of anxiety and stress was higher among female students than male students.

A study conducted by Al Battashi et al. (2021) to determine the relationship between anxiety, stress, and the use of smartphones among university students found that the use of smartphones had a significant positive correlation with anxiety and stress. The overuse of smartphones causes anxiety and stress, which is a type of procrastination. A similar study was conducted by Radeef and Faisal (2020) to find stress, anxiety, and depression among undergraduate students of pharmacy. They found anxiety, stress, and depression among students, and time management was one of the factors that caused them due to their performance in academic activities. Khuda et al. (2024) and Alqudah et al. (2021) investigated anxiety levels among students studying in Jordan universities at the undergraduate level during the COVID-19 pandemic period and reported moderate to severe anxiety levels. Some other factors that increase anxiety levels reported by this study include GPA, medication, distance learning, quarantine, and dynamic academic tasks. A comparative study conducted on undergraduate students in Germany by Trentepohl et al. (2022) revealed that time management knowledge and skills improve academic performance among male and female students. A similar study conducted by Tabuenca, Greller, and Verpoorten (2022) deduced that no major difference was found between males and females concerning time management skills.

The study conducted by Siraj, Shah, and Khan (2021) to explore skills for academic performance using cross-sectional study methods among undergraduate students in Pakistan assessed skills like information processing, test strategies, concentration, using study aids, self-writing, and time management. They found a non-significant negative correlation of CGPA with self-writing, time management, and concentration while a positive non-significant correlation of CGPA with self-testing, information processing, study aids, and test strategies. Whereas, motivation had a positive significant correlation with the CGPA of the students.

Research performed by BlackDeer et al. (2021) to find the impact of anxiety and depression on students' grades. They discovered anxiety and depression among undergraduate students, which have an impact on their grades. They also found that the students who have treatments for anxiety and depression got higher grades than the students who have not. A cross-sectional study conducted by Roshanisefat, Azizi, and Khatony (2021) to determine the relationship between time management and anxiety among students of health professions in Iran found that time management and academic procrastination are correlated. Furthermore, time management and test anxiety had an impact on procrastination.

Self-anxiety is referred to as a form of anxiety that depicts fear of personal inadequacy, fear of judgment, overthinking, and rumination (Beck, Emery & Greenberg, 2005)., Wells et al. 1995). Physical and emotional symptoms of self-anxiety can manifest as difficulty concentrating, muscle tension, sleep disturbance, and restlessness (Nolen-Hoeksema, 2000). A cross-sectional study conducted by Hassan, Komal, Zaheer, and Khalid (2022) found a positive significant correlation between time management and self-anxiety of the students. Kordzanganeh et al. (2021) reported that time management and self-efficacy had a significant positive relation while a significant negative relation with text anxiety but no significant relation with academic burnout of the students by researching university students. They also found that self-efficacy had a significant negative relation with academic burnout and test anxiety had a significant positive relation with academic burnout. Okoye and Onokpaunu (2020) concluded that self-esteem had a significant positive Pearson correlation with academic achievements, while academic achievements had a significant negative correlation with academic procrastination. They also concluded that post-graduate diploma students can improve performance using effective time management strategies. Mankar et al. (2021) reviewed the literature on the effect of time management on life and reported effective time management as time planning and organizing, setting goals, prioritizing work, and using a to-do list. They focus on planning as it had a 50 percent role to manage the time. They also gave importance to having balance and control over time if one wants to improve his or her performance in this fast-moving world.

Problem Statement

Time management is a pivotal human skill that strikes performance and productivity. However, many professionals particularly students experience anxiety due to difficulties in managing their time. The importance of time management is well documented but the relationship between poor time management and anxiety is not well understood. The major aim of the study is to investigate the relationship between time management and anxiety, which includes the impact of time management on anxiety levels. By understanding the relationship between time management and anxiety we hope to reduce anxiety through improved time management skills.

Material and Methods

Participants and Procedures

The study was quantitative and a descriptive survey method was used. The population of this study consisted of all the PhD scholars doing research in the public and private sector universities of Punjab, Pakistan. Total 2600 PhD scholars were enrolled in universities of the Punjab in the end of year 2023. A multi-stage random sampling technique was used to determine the sample. At first, six public and six private universities were selected from the population. Secondly, the researcher randomly selected a sample of 260 PhD scholars, of which 50% (130) were from six public and 50% (130) were from six private sector universities of Punjab. Details of the respondents are given in Table 1.

Table 1: *Details of the Respondents*

University Category	Name of University	Questionnaires Delivered		Questionnaires Collected		Response Rate
		Male	Female	Male	Female	
Public	Government College University, Faisalabad	26	9	17	06	65.71%
	University of Sahiwal, Sahiwal	6	4	5	02	70%
	Punjab University College of Information Technology	10	05	08	03	73.33%
	Bahria University Lahore Campus, Lahore	17	08	11	04	60%
	University of Okara, Okara	23	07	21	06	90%
	University of Education Multan Campus, Multan	9	06	07	03	66.66%
	Riphah International University Faisalabad Campus	20	08	19	07	92.85%
Private	Hajvery University, Lahore	12	03	09	03	80%
	University of Wah, Wah	18	04	11	02	59.09%
	Institute of Southern Punjab Multan	17	03	15	02	85%
	University of Sialkot	19	06	17	05	88%
	Minhaj University, Lahore	15	05	14	03	85%
Total		192	68	154	46	76.92%

Instruments

Data were collected using two Likert scale questionnaires, namely the Time Management Scale (TMS) and the Anxiety Level Scale (ALS). The original Time Management Scale developed by Rashid (2019) consisted of 56 items with Cronbach's Alpha reliability co-efficient score of 0.82. Anxiety levels were measured using Zung Self-Rating Anxiety Scale(1971). The original Zung Self-Rating Anxiety Scale consisted of 20 items with Cronbach's Alpha reliability coefficient score of 0.61. The Scales were pilot-tested to make it according to local requirements. For this purpose, scales were applied to 50 participants of the study. After that, a confirmatory factor analysis was performed using SPSS version 25. Measures like inter-item correlation and Cronbach alpha values were calculated. The items showing weak iter-item correlation and lower reliability values were deleted. The final TMS scale was reduced to 43 items after deleting weak items, ensuring the value of reliability (Cronbach's Alpha) as 0.94. The anxiety Level Scale was reduced to six items after deleting weak items identified during pilot testing (Pather, 2008)

Measuring Time Management Skills and Anxiety Level

Time management can be measured using the mean scores of a sample. The mean scores provide us a useful information to summarize overall time management abilities. The mean score reflects the tendency of the responses and indicates the group's average. The students with higher means were more proficient in time management (Rashid, 2020., Ahmad & Hassan, 2021). Several studies reported anxiety level interpretation using the mean scores of the samples. Mean scores were used to categorize anxiety level intensity (Dunstan & Scott, 2020., Zung, 1971., Julian., 2011**).**

Study Results

Data were collected through personal visits. After that, it was coded, entered, and analyzed using SPSS version 25. Data were analyzed using statistical methods such as mean, standard deviation, independent *t*-test, Pearson correlation, and Linear Regression. There were four objectives of the study. Objective one was to explore the difference in time management among

PhD scholars on a gender basis, so the t-test was applied. Objective two was to investigate the difference in anxiety levels among PhD scholars on a gender basis, a t-test was applied to analyze this. Objective three of the study was to determine the relationship between time management and the anxiety level of students, a Pearson correlation coefficient was measured to fulfil this objective. Objective four of the study determine the impact of time management on the anxiety level of PhD scholars, a Linear Regression analysis was performed to verify this.

Table 2 Comparison of time management between male and female students.

Variable	Gender	N	Mean	SD	T-Value	*p*-value	Effect Size
Time Management	Male Female	156 46	3.80 3.75	0.530 0.529	0.529	0.820	0.094

Note; *p*> .05

From Table 2, it can be reported that the mean score for time management of male students (3.80) is slightly higher than female students (3.75) mean scores. Standard deviations of both male and female students (Male= 0.530, Female= 0.529) are nearly identical, showing that variability in time management skills is similar within each group. A low t-value (0.529), indicates that time management between male and female students is not significantly different. The effect size for time management is 0.094 is very small. The lower effect size suggests that the difference between groups is not significant. As the p-value 0.820 is greater than 0.05 shows that male and female students do not differ significantly concerning time management skills.
We can report that gender does not influence time management skills. So, the null hypothesis that time management among PhD scholars is not different on a gender basis is accepted. The study suggests that male and female students do not significantly differ in the case of time management.

Table 3: Comparison of anxiety levels among PhD scholars is not different on a gender basis.

Gender	N	Mean	SD	T-Value	*p*-value	Effect Size
Male Female	156 46	3.54 3.39	0.602 0.518	1.586	0.217	0.249

Note; *p*> .05

Table 3, results show that the mean score for the anxiety level of male students (3.54) is a little higher than that of the female students (3.39) mean scores with standard deviations of (Male= 0.602, Female= 0.518) are nearly identical, with showing that variability in anxiety level is similar within each group. Anxiety levels do not significantly differ between males and females as the t-value is (0.1.586). As the *p*-value 0.217 is greater than 0.05 shows that male and female students do not differ significantly in anxiety level. The effect size for the anxiety level is 0.249 is very small, suggesting that the difference between groups is not significant.
We can report that gender does not influence the anxiety level of students. So, the null hypothesis Ho2 is that Anxiety levels among PhD scholars are not different on a gender basis is accepted. We can report that male and female PhD scholars do not significantly differ concerning anxiety.

Table 4 Relationship between Time management and the anxiety level of PhD scholars

Variable	M	SD	Correlation *r*	*p*-value	Effect Size
Time Management Anxiety	3.507 3.789	0.586 0.528	0.468**	< 0.001	0.481

Note; **p< .01.

A Correlation Analysis was performed and the Pearson correlation coefficient was calculated. The value of correlation coefficient (r = 0.468) ** with effect size 0.481 shows the existence of a moderate positive relationship between time management and anxiety levels of PhD scholars. The p-value of 0.001** ($p < 0.01$) shows that the relationship between time management and anxiety is statistically significant and does not occur by chance. So, we are in a position to reject the null hypothesis H03 that time management and anxiety levels of PhD Scholars are not correlated. It appears that PhD scholars who manage their time skilfully feel higher anxiety levels. The results show that factors associated with time management like taking pressure off workload and meeting deadlines and expectations where better time management is required could heighten anxiety.

Table 5: Impact of time management (TM) on the anxiety (AN) level of students.

Hypothesis	B	R^2	F	*p*-value	Hypothesis Supported
TM →AN	0.519	0.219	55.508	0.001	Yes

Note; IV = Time Management, DV=Anxiety

Calculations recorded in Table 5 after applying Linear Regression Analysis show the value of R-Squared 0.219 with a *p*-value of 0.000. The positive value of β (Beta coefficient = 0.519) suggests that time management has a significant effect on anxiety levels. The increase in time management results increase in anxiety levels. The results are unexpected but the study indicates

that anxiety levels increase with a potential increase in time management skills. F-statistics reflects that the model is significant. So, the null hypothesis H04 is rejected. It shows that the impact of time management on the anxiety level of students was found significant. Furthermore, the results show that independent variable time management has an impact of 22% approximately on the anxiety level of students (D.V.). The study concludes that time management impacts the anxiety level of PhD scholars. The p-p plot in *Fig.* 1 shows a clear picture of the regression model, as indicated in Figure 1 below.

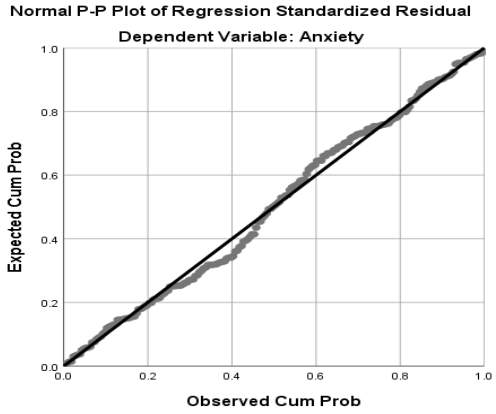

***Fig. 1*:** Normal P-P Plot of Regression Standardized Residual.

Discussion

The recent study's findings are in line with previous studies on students' anxiety and time management (Kaur, 2015). The results show no significant difference in time management between male and female students. This finding is consistent with recent literature, which has suggested that gender may not play a significant role in time management skills among students. According to the findings of the study, male and female PhD scholars did not significantly differ in their ability to manage their time. The results of the study are consistent with the results of the study conducted by Alpturk (2015), which found that time management is not gender-based. Similarly, a study conducted by Ozsoy (2014) also found that time management has no significant difference on a gender basis. The study conducted by Karim et al. (2023), deduced that there may be a small difference between males and females concerning time management skills but these differences do not come into the translation of significance statistically. It appears that both genders face similar kind of challenges in performing academic and personal tasks. Another study conducted by Dincer & Cemiloglu (2021), on university students, revealed that there are some personal traits like self-discipline, organizational skills, and motivation that influence anxiety more than gender. The study also pointed out some strategies (e.g., males emphasize efficiency and females focus on planning) that are affected by gender. We can report that overall time management ability is quite similar. The results show no significant difference in time management between male and female students. This finding is consistent with recent literature, which has suggested that gender may not play a significant role in time management skills among students.

The results of the present study indicate that anxiety levels are not different between male and female PhD scholars. The difference between the mean scores of males (M = 3.54) and females (3.39) is minimal and not statistically significant as the value of effect size (0.249) and p-value (0.217). Some previous studies' findings suggested that gender influences the anxiety levels of students. The study conducted by Devine et al. (2023) suggested that females face higher levels of anxiety in the general context. Whereas, in academic research, males and females indicated similar stress and academic pressures. A study conducted by Lee et al. (2022), revealed that both males and females face similar stress and academic pressure irrespective of their gender. There may be some other factors like academic work pressure, completing the dissertation, publishing work, and meeting deadlines that can contribute to anxiety levels. Moreover, gender differences in educational contexts are diminishing. Opportunities have become balanced; gender is no longer a determining factor for increasing anxiety levels. The study conducted by Barlow et al. (2022) deduced that students with higher time management skills reported more anxiety possibly due to increased pressure. Whereas, Wang et al (2021) time management skills can prove to double-edged sword in demanding academic environments and programs like PhD studies. The study conducted by Bai et al. (2021) concluded that time management can have a paradoxical effect and can increase anxiety as students become more conscious of the amount of time, they need to complete their research.

Keeping in view the findings, time management and anxiety were significantly positively correlated. This study's finding is consistent with research on students' anxiety and time management by Kaur (2015). As anxiety increases, time management improves as well. These findings of the study disagree with the studies on time management and anxiety conducted by Eldeklioğlu (2008), and Kaya et al. (2012). These studies found a negative correlation between time management and anxiety among students. The study revealed that anxiety was significantly affected by time management. Time management impact on anxiety was found 21.9% in this study. This finding of study is in line with a study conducted by Abdel-Aziz, Eid & Safan (2012). The study concluded that students can reduce anxiety if they manage their time properly.

Conclusions and Recommendations

The study concluded that no gender differences were found in time management among PhD scholars. It appears that male and female PhD Scholars manage their time similarly. The finding suggested that educational programs concerning time management should not be gender-specific focus on developing skills. However, anxiety management skills and support can be used to enhance their ability to manage academic obligations effectively. The comparison of anxiety on a gender basis shows no difference. Both faced similar anxiety levels due to similar pressures of academic work like dissertations, deadlines, and publication requirements. The study concludes that educational institutions should tailor programs to manage stress and anxiety irrespective of the gender of students. The study concluded that a moderate relationship between time management skills and anxiety among PhD scholars exists.

The study suggested that better time management does not decrease anxiety levels in groups. It may increase anxiety due to the conscious behavior of students toward time management. Educational institutions should provide time and stress management training for PhD scholars **(**Austin & Partridge, 2019) The study suggests that integrated training programs that may be a combination of time management and anxiety management techniques should be started at educational institutions (Locke & Latham, 2002). Also, counselling services should be provided to PhD scholars to deal with time management and anxiety issues. Further research should be carried out to explore the role of some other factors like academic pressure, perfectionism, or workload that might play a role in increasing time management and anxiety levels among students.

Limitations

The study is limited in its scope due to its cross-sectional design which limits the generalizability of the study results. The study results recommend a longitudinal design. A limited number of scholars were taken as the population of the study limits the possibility of generalizability of the results. Low number of females is also a limitation of this study. Results concerning the variables of the study may vary if data is collected from other areas or universities across the country or region. The results of the study are contradictory with existing literature showing the possibility of several other factors like religion, personality, attitude, and environment, which affect the performance of employees, are not considered in this study.

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