

IMPACT OF LEARNING ENVIRONMENT ON PROCRASTINATION AMONG YOUNG ADULTS: MEDIATING ROLE OF ANXIETY AND RESILIENCE

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ABSTRACT

In this study, university students' procrastination, anxiety, learning environment, and resilience were investigated. Purposive sampling was used to choose 400 college students, ages 17 to 28 years, for the cross-section correlational research design study. Standardized tools including the Generalized Anxiety Disorder Scale (GAD-7), Learning Environment Scale (LES), General Procrastination Scale (GPS), and Brief Resilience Scale (BRS) were used to collect the data. Resilience and procrastination were found to be favorably and adversely correlated. Both anxiety and procrastination showed a positive correlation with learning environments. The results also showed anxiety and resilience significantly mediated the association between several domains of learning environment and procrastination to impact students' academic performance.

I. INTRODUCTION

Higher education is widely acknowledged as a crucial step in the transition from childhood to adulthood and as a transforming and developmental stage in the human lifetime (Arnett, 2000). During this time, people are supposed to develop psychological maturity, emotional control, autonomy, and adaptive life skills in addition to advanced academic knowledge and professional skills (Chickering & Reisser, 1993). Academic coursework, tests, deadlines, interpersonal interactions, financial obligations, and job preparation are just a few of the numerous, frequently contradictory demands that university students must manage (Robotham, 2008). In addition to offering opportunities for both academic growth and personal development, this stage exposes students to high levels of stress and anxiety (Beiter et al., 2015). Mental health problems among college students around the world have significantly increased over the last several decades (O'Reilly et al., 2019). Academic disengagement, emotional dysregulation, anxiety, and stress-related issues have become common in different learning settings (Stallman, 2010). These include generalized anxiety disorder as one of the many psychological problems which are commonly cited. The symptoms associated with generalized anxiety include continuous worrying, tension, concentration difficulties, and bodily complaints that make day-to-day activities challenging (Bamber & Schneider, 2016). This psychological problem is known to negatively impact the motivation, academic success, mental well-being, and quality of life of students, according to Pascoe et al. (2020). Therefore, one of the main goals of contemporary psychology and educational research is to comprehend the psychological processes that lead to anxiety in academic environments (Richardson et al., 2012).

In university communities around the world, general procrastination is a common and maladaptive behavioral tendency, along with anxiety (Steel, 2007). Despite being aware of the possible negative outcomes, procrastination is the deliberate and needless postponement of work (Klingsieck, 2013). Psychological research views procrastination as a complex self-regulatory failure founded in emotional pain, fear of failure, low self-efficacy, and anxiety, even though it is sometimes mistaken for simple bad time management or laziness (Sirois & Pichel, 2013). Thus, procrastination and anxiety often tend to be related to each other in a reciprocal manner (Rice et al., 2012). On the other hand, unlike the maladaptive psychological mechanisms, resilience has been found to be a critical feature which enables people to react positively to stress, difficulties, and academic challenges (Luthar et al., 2000). Resilience is not simply about the lack of psychological distress but rather an active process involving healing, perseverance, and development in spite of the adverse situation (Masten, 2001). Resilient students are likely to retain their motivation and apply effective coping techniques in case of academic problems (Cassidy, 2015). Resilience has been identified as a crucial variable that helps in reducing the negative influence of anxiety and the possibility of developing inappropriate behaviors such as chronic general procrastination (Kotze & Kleynhans, 2013). Resilience can therefore be viewed as a very useful psychological method that guarantees good mental and academic performance.

The learning environment is a crucial contextual element that influences students' experiences, behaviors, and mental health outcomes in addition to personal psychological processes (Ford, 1995). Instructional quality, teacher support, academic expectations clarity, resource accessibility, peer connections, and the overall institutional atmosphere are just a few of the many aspects that make up the learning environment (Moos, 1979). By encouraging participation, motivation, resilience, and adaptive coping, a good and encouraging learning environment can reduce anxiety and academic avoidance (Dorman et al., 2006). On the other hand, an unsupportive, competitive, or high-pressure learning atmosphere can enhance feelings of powerlessness, worsen psychological distress, and encourage maladaptive behaviors such as general procrastination (Ames, 1992). It is important to use an ecological and systems approach to the issue of mental health since there is an interaction between environmental factors and personal psychological characteristics (Bronfenbrenner, 1979). Under environmental circumstances, such psychological concepts as anxiety, general procrastination, and resilience have a dynamic connection with each other (Zimmerman, 2013). People who lack resilience may have difficulties with coping with academic stress; therefore, they will experience high levels of anxiety and will resort to avoidance techniques such as procrastination (Husking et al., 2011). Depending on the degree of support provided by the educational environment, such feedback loops can be disrupted or reinforced (Walker & Greene, 2009).

This study is based on psychological theories that complement each other, providing a conceptual framework that allows for understanding relationships between vital factors. The basis for the theory of procrastination is the Self-Regulation Theory that suggests that emotional regulation and failure to overcome avoidance tendencies lead to delay behaviors (Steel, 2007). Based on the resilience theory, kids who are resilient have a better ability to cope with stress and build appropriate coping mechanisms (Connor & Davidson, 2003). Based on Bronfenbrenner's (1979) Ecological Systems Theory, the learning environment is considered one of the broader environments that influence stress exposure and the availability of available resources. In Ford's (1995) model, the Ecological System Theory of Bronfenbrenner becomes directly operational in the learning environment in this study. In Ford's approach, the broad environmental factors are made operational in terms of immediate institutional resources and psychosocial climate of the university. These theoretical concepts suggest the development of an integrated model whereby anxiety and resilience are mediators between the learning environment and procrastination.

II. LITERATURE REVIEW

As these constructs have great significance for student welfare and academic achievements, all these terms have drawn considerable attention in psychological and educational studies. Procrastination in general is viewed as a failure of self-regulation associated with emotional avoidance. This is the volitional delay of tasks despite knowing the adverse effects (Steel, 2007). Procrastination is highly related to students' affective states, not a matter of time management. For instance, procrastination was found to be a predictor of anxiety in college students, and the emotional responses to procrastination were controlled by resilience and social support (Li et al., 2024). In a similar vein, Sirois and Pichel (2013) contended that delaying increases stress and anxiety but serves as a short-

term mood control tactic. Findings of the research done in Pakistan and in other societies having same educational and cultural background as in Pakistan corroborate many results highlighted in the international literature along with some cultural and social dimensions. There is no doubt that university students have academic stress and procrastination due to increased educational pressures and demands. These students find themselves plagued by concerns over their performances, stress over their grades, and fears of failing. This is an added pressure that these students face, but it is what causes them to procrastinate with their assignments, thus creating anxiety for them due to the approaching deadline (Ashraf et al., 2023). Procrastination both causes and follows from stress and worry, according to numerous worldwide research. Longitudinal and cross-sectional research indicates that students who put off academic projects typically experience higher anxiety levels, depending on their coping strategies and available psychological resources (Steel, 2007). One short-term emotional control strategy that causes long-term psychological suffering is procrastination, According to Sirois and Pichel (2013).

Due to their significant impact on students' academic achievement and psychological well-being, resilience, anxiety, and procrastination are frequently studied in psychological and educational research. Resilience is one of the most important protective mechanisms that help people recover from stress and be able to function adaptively even under stressful conditions, according to Connor & Davidson (2003). Although there is a considerable body of research dedicated to these aspects, we know very little about the way these variables work together as an integral system. Previous research was mainly concerned with the relationship between anxiety and resilience. Nevertheless, the intricacy and dynamic interaction of psychological and environmental elements that together influence students' academic behavior are not fully captured by these studies. Academic stress is not caused by a single factor, but rather, it is the result of the interaction of individual characteristics, coping mechanisms, and environmental conditions. When looking into these factors independently, a holistic view of students' behavior and well-being cannot be attained. The fact that the learning environment is not fully examined as a complex variable through standardized tools such as the Ford Learning Environment Scale also constitutes an important research gap. According to international literature, children's motivation, emotional well-being, and coping mechanisms have a lot to do with the classroom environment, peer relations, teacher support, and institutional organization (Ford, 1995). But the learning environment in Pakistan is not always given proper attention or studied through non-standardized techniques, reducing its comparability and validity. This gap is overcome using the Ford Learning Environment Scale in current research.

Significance of Study

The current study's goal is to create a comprehensive knowledge of the psychological elements that affect college students' general functioning, academic behaviors, and mental health. In particular, the study looks at anxiety, general procrastination, and resilience with a focus on how these factors interact in the context of higher education (Cassidy, 2015). According to Luthar et al. (2000), the main goal of this research is to examine resilience as a psychological resource that provides protection. The study aims to provide light on how resilient students successfully manage stress and maintain academic engagement by investigating the relationships between resilience, anxiety, and general procrastination (Sagona & De Caroli, 2014). The study also examines procrastination as a maladaptive behavioral reaction associated with stress and anxiety (Steel, 2007). By incorporating environmental factors, the study takes an ecological perspective that recognizes the interaction between personal characteristics and contextual contexts in affecting student results (Bronfenbrenner, 1979). It is expected to produce a theoretical understanding that will provide a holistic framework for the relationships between anxiety, resilience, and general procrastination in higher learning institutions. Empirically, the purpose of the research is to produce information that can help in the creation of viable treatments that can be sustained. Practically, the findings should influence the way universities formulate their policies, mental wellness programs, and methods of instruction such that they can improve the psychological wellbeing of students. Practically, the research provides information that can help in developing interventions and counseling programs.

Objectives

1. The need to examine the relationships between university students' perception of learning environment, procrastination, anxiety and resilience.
2. The need to determine how procrastination and learning environment are mediated by resilience and anxiety.

Hypotheses

- H1: There is a significant negative correlation between anxiety and resilience among college students.
- H2: There is a significant positive correlation between academic procrastination and anxiety among college students.
- H3: There is a significant inverse correlation between academic procrastination and resilience among college students.
- H4: There is a significant positive correlation between the learning environment and resilience.
- H5: There is a mediating effect of anxiety and resilience in the relationship between the learning environment and procrastination.

III. METHOD

The current study's objective was to look at the connections between psychological factors and academic measures in college students, such as anxiety, general procrastination, learning environments, and resilience. Because they often deal with emotional challenges, academic stress, and time management shifts, university students are seen to be among the ideal subjects for psychological study (Regehr et al., 2013; Beiter et al., 2015). Therefore, the current study aims to comprehend how learning settings, anxiety, and resilience affect students' psychological outcomes and how these relate to their procrastinating behaviors. The study was conducted using quantitative cross-sectional correlational research design. This type of research design is commonly used in psychology research when it is required to observe and measure the relationship between two or more variables without carrying out any treatments (Creswell & Creswell, 2018; Field, 2018).

Participants

College students (N = 400) from various universities made up the sample. A balance was achieved about gender participation and varied reactions in that males and females participated. The participants belonged to the period known as emerging adulthood. This is a stage of life where there is identification testing, academic stress, and mood swings (Arnett, 2000). They were between the ages of 17 and 26 years. When researching anxiety and academic behaviors, this age group is especially pertinent. To increase the findings' generalizability, students from various academic programs and disciplines were included. According to Stallman (2010), university students were chosen due to their regular exposure to academic stress, workload pressure, performance review, and uncertainty about their future careers. The method of purposive sample has been used in this study. As suggested by Etika et al. (2016), purposive sampling involves choosing subjects based on their availability, accessibility, and willingness to participate. Due to its usefulness, cost-effectiveness, and easy application, this sampling method has been used in psychological and educational research very often. Through purposive sampling, the researcher was able to collect information from quite a good number of students of different educational institutions within a short period of time for this study. The participants were selected for the study on the grounds that they were either undergraduates or postgraduates; belonged to the age group of 17 to 28 years; were willing to participate on a voluntary basis; had the capability to understand the questions of the questionnaire; were active university students at present; and had answered all the questions of the questionnaire without missing anything.

Instruments

A self-constructed demographic sheet was used to collect background information including age, gender, education level, and academic program. The following three standardized scales were used. **[I]** Generalized Anxiety Disorder Scale (GAD-7): The anxiety disorder was assessed with the aid of GAD-7, which was developed by Spitzer et al. (2006). It is a 7-item scale that is used in assessing symptoms of generalized anxiety. The scale is very popular among students due to its high validity, reliability, and simplicity. The higher the score on the scale is, the more anxiety the participant experiences and his/her psychological state is disturb. **[II]** Brief Resilience Scale (BRS): Resilience was assessed with the help of the Brief Resilience Scale that was developed by Smith et al. (2008). It is designed to measure the resilience of individuals who can cope with stress. Resilience is operationally defined in this study as students' reported ability to bounce back from stress and carry on with their daily activities from stressful conditions or failures. Higher scores give greater resilience and improved recovery of stress. **[III]** General Procrastination Scale (GPS): General Procrastination Scale is used to assess procrastinating behavior and was

created by Lay (1986). This scale measures the tendency to procrastinate from chores and tasks. The scale is designed to measure an individual's propensity to delay or postpone tasks despite expecting negative consequences. **[IV] Learning Environment Scale (LES):** The learning environment was evaluated using an evaluation tool that assesses classroom climate, teacher encouragement, peer interactions, and institutional environment (Ford, 1995). The Ford Learning Environment Scale is used for the measurement of learning environment; high scores indicate an encouraging learning environment, while low scores indicate an unfriendly learning environment.

Procedure

A pilot study was conducted prior to main data collection to evaluate clarity, comprehension, and suitability of research instruments especially for LES. Based on pilot feedback, minor language modifications were made to improve understanding of LES. The content validity for adaptation of LES was done by three PhD experts in psychology. After receiving official permission from the appropriate authorities, data collection was carried out in main study. The study's goals and purpose were explained to the participants. Prior to participation, informed consent was acquired. Participants were guaranteed anonymity and secrecy, and participation was entirely voluntary. University students were given questionnaires, and to guarantee accurate answers, explicit instructions were given. There was no compulsion on participants to provide truthful answers. Following completion, the surveys were gathered and their completeness verified. To guarantee the quality of the data, incomplete forms were eliminated. The statistical data analysis was carried out using SPSS-27 version and AMOS-27. Descriptive statistics were used to summarize data. Cronbach's alpha assessed reliability of scales. Spearman correlation was used to examine relationships among variables. Structure equation model was used to predict moderating role of anxiety and resilience between learning environment and procrastination. All analyses were conducted at a significance level of $p < .05$. Ethics were thoroughly adhered to in this research study, considering that all ethical guidelines such as informed consent, confidentiality, anonymity, voluntary participation, and no psychological/physical harm were met.

IV. RESULTS

The study's overall results show significant and methodical connections between university students' procrastination, anxiety, learning environment, and resilience. The findings show that a variety of environmental factors and personal conditions (anxiety and resilience) have an impact on students' procrastination.

Table I: Descriptive Statistics

Variables	No. of Items	Range	Cronbach's α
Generalized Anxiety Disorder	7	1-20	0.85
Brief Resilience Scale	6	6-30	0.85
General Procrastination Scale	20	24-96	0.96
Learning Environment Scale	36	51-124	0.93

The results presented in Table 1 indicated that the scales demonstrated a good level of internal consistency as Cronbach's alpha ranged 0.85 to 0.96.

Table II: Pearson Correlation Matrix for Anxiety, Resilience, Procrastination, and Learning Environment

Scales/Subscales	M	SD	2	3	4	5	6	7	8
1. Anxiety	9.89	5.43	-.88**	-.83**	-.85**	-.84**	-.30**	-.59**	.89**
2. Resilience	19.75	6.69	-	.85**	.84**	.84**	.30**	.59**	-.89**
3. Engagement	21.14	5.69		-	.89**	.90**	.37**	.65**	-.91**
4. Student teacher relationship	19.07	5.74			-	.90**	.32**	.65**	-.92**
5. Opportunity to understand	18.87	5.49				-	.39**	.65**	-.92**
6. Socio-emotional climate	12.44	1.55					-	.31**	-.31**
7. Teacher's Attitude	22.71	2.90						-	-.64**

8. Procrastination	54.00	20.53							-
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Note. N = 400; **p< 0.01

Table 2 showed that Anxiety (M=9.89, SD = 5.43) had a strong positive correlation ($r = .89, p < .01$) with Procrastination (M=54.00, SD = 20.53) and a strong negative correlation ($r = -.88, p < .01$) with Resilience (M=19.75, SD = 6.69). Conversely, Resilience was strongly and negatively associated with Procrastination ($r = -.89, p < .01$). Furthermore, all subscales of the Learning Environment showed significant inverse relationships with Procrastination. The strongest negative correlations with Procrastination were observed in Student-Teacher Relationship ($r = -.92, p < .01$), Opportunity to Understand ($r = -.92, p < .01$), and Engagement ($r = -.91, p < .01$). Teacher's Attitude ($r = -.64, p < .01$) and Socio-Emotional Climate ($r = -.31, p < .01$) also displayed significant negative associations with Procrastination.

Figure 1: Structure Equation Model for Anxiety and Resilience as Mediators between Perceived Learning Environment and Procrastination among University Students

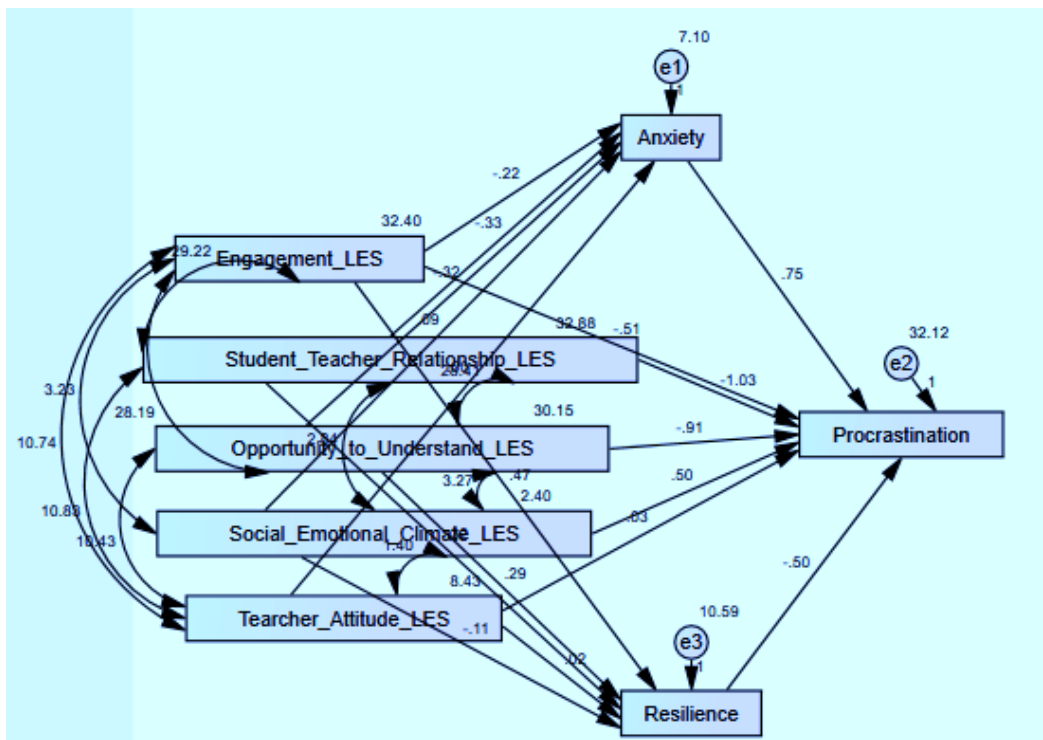


Figure 1 showed that anxiety ($\beta = .75, p < .001$) and resilience ($\beta = -.50, p < .001$) significantly mediated between the domains of learning environment and procrastination. Path analysis revealed that anxiety and resilience fully mediate the relationship of engagement, student-teacher interaction, and opportunity to understand with procrastination. A partial mediation of anxiety and resilience is observed for socio-emotional climate and teacher's attitude with procrastination among students.

V. DISCUSSION

The present study was conducted to examine the relationships among anxiety, resilience, academic procrastination, and learning environment, among university students. For H1, empirical evidence showed a significant negative association between resilience and anxiety ($r = -.88, p < .01$) meaning that resilient students have low levels of anxiety; thus, H1 was supported. The discovery of a strong negative association between resilience and anxiety (H1) provides evidence on the fact that psychological hardness is one of the most important emotional buffers. Higher resilience individuals manage their emotions more effectively, which prevents the transformation of task anxiety to the one that becomes paralyzing. An increase in the level of anxiety in students was associated with low resilience levels, implying that anxiety hinders recovery capabilities of an individual when

faced with tough situations. A resilient child manages their emotions effectively and positively handles tough situations in classroom environment without any psychological stress. This outcome confirms the findings of existing literature that resilience plays an important role in the protection against anxiety amongst college students (Connor & Davidson, 2003; Smith et al., 2008). These results are in line with other research findings of Trigueros et al. (2020) and Sirois and Pychyl (2013) highlighting the role of resilience and emotion regulation in alleviation of affective distress in colleges

It was found that a statistically significant positive correlation existed between anxiety and academic procrastination (H2); $r = .89$, $p < .01$, implying that more anxiety is related to more procrastination. It is more probable that the students who had higher levels of anxiety were prone to procrastinate on their academic tasks. More likely, students having higher level of anxiety tended to postpone their academic assignments and duties. Procrastination driven by anxiety could develop based on fear of failure, perfectionistic concerns, self-doubts or even avoidance of academic challenges. Even though the postponement of academic activities provides a quick way to relieve one's emotional tension, as the deadlines come closer there is more stress and anxiety. In fact, this result is corroborated by the results of the previous studies, which demonstrated the strong association between procrastination and stress/anxiety/academic maladjustment (Steel, 2007; Tice & Baumeister, 1997). Additionally, the existence of a significant positive relationship between anxiety and academic procrastination (H2) indicates the role of emotional dysregulation in task performance. High anxiety usually translates into fear of failure/perfectionism, resulting in avoidance of academic tasks as a temporary mood repair strategy (Sirois, 2014). As seen from the results of testing H3, there is a statistically significant negative correlation ($r = -.89$, $p < .01$) between procrastination in academics and resilience; it means that if a person is resilient, he or she cannot procrastinate. It was fewer cases of procrastination amongst students with high levels of resilience because these people are usually associated with self-discipline, perseverance, emotional stability, and problem solving. This implies that such students cope with academic assignments more efficiently than other students. The positive effect of resilience on academic adaptation and reduction in procrastination behavior was observed in previous studies of college students (Deniz et al., 2009; Strunk et al., 2013). However, the negative correlation between procrastination and resilience (H3) highlights the importance of self-control among resilient individuals that helps maintain goal-oriented behavior even in challenging academic situations (Kim & Seo, 2015).

Learning environment factors and resilience, namely the factors of Engagement ($r = .85$, $p < .01$) and Student-Teacher Relationship ($r = .84$, $p < .01$) were positively correlated in H4 as a conducive academic environment facilitates resilience of students and H4 is supported. There is a great positive correlation between resilience and learning environment factors (H4), stressing the need for contextual assistance. High resilience was demonstrated by those students whose learning environment was perceived as being encouraging, motivating and supportive. Collaboration, criticism, emotional support and academic engagement is possible due to the pleasant learning environment; thus, students can handle stress and bounce back from failures. It has been found that a supportive learning environment facilitates the academic achievements, resilience and psychological wellbeing of students. Supportive student teacher relationship, understanding of concepts and classroom engagement create a conducive environment that leads to psychological self-confidence (Fraser, 2015; Dorman, 2002). With the provision of encouraging socio-emotional atmosphere in academic institutions, confidence in own abilities of students grows (Bandura, 1997). H5 highlighted anxiety and resilience as mediators between domains of learning environment and procrastination. The results of structure equation model confirmed the H5. Several studies reported the role of anxiety and resilience as mediators in youth (Koçak, Aslan, & Bezirkan, 2025; Peng, Hadier, Zhang, Hamdani, & Hamdani, 2026). The students who constantly have anxiety problems will find it hard to control their feelings, concentrate on something, and cope with stress at an academic level. This means that anxiety hinders the mental ability of the students to cope with failures and procrastinate. The students who were known to procrastinate about academic obligations had a much lower level of resilience in comparison with those who were managing their academic obligations efficiently. Procrastination will be responsible for the development of high levels of stress and reduced academic self-confidence, as well as lack of effective coping strategies, thus producing a low level of resilience among students.

Limitations and Suggestions

It is important to note that there are several limitations to the current study, despite the fact that the study was able to provide relevant insights into the academic and psychological functioning of university students. For one, the study made use of a purposive sampling procedure, which limits the ability of generalization of the findings to other subjects. This is because the sample used may not necessarily represent all university students in different universities or different age groups due to the fact that the participants are accessible and willing. Therefore, the findings may not be generalized to school students, working adults, or non-academic populations. Second, the study employed a cross-sectional research design in which data were collected at a single point in time. Therefore, causal relationships among resilience, learning environment, anxiety, and procrastination could not be firmly established. The second limitation is the use of self-report questionnaires. The participant might answer based on perception or social desirability; thus, it may affect the validity of answers. Also, the emotional condition of the participants while answering the survey may influence their answers. In addition, the study used only certain psychological and environmental factors. Other important factors that might affect university students' anxiety and procrastination include personality factors, family situation, socioeconomic status, academic load, self-esteem, depression, and social support. It is recommended for further research to examine the relationship among resilience, coping strategies, anxiety, and procrastination. For a more thorough knowledge of students' mental health, researchers may also incorporate other psychological factors such as motivation, depression, self-esteem, emotional intelligence, and social support. Furthermore, to increase the generalizability of results, future research should incorporate larger and more varied samples from various Pakistani provinces and universities.

Recommendations

A few recommendations are put forward for educational institutions, mental health professionals, and future academics from the conclusions of the research. Educational institutions need to ensure that an enabling environment is created within the institutions to ensure that students feel valued, motivated, and encouraged in their studies. The engagement of the students in their studies may increase, while at the same time, anxiety among the students can be minimized through positive interactions between teachers and students, balanced academic processes, and positive classroom environments. In order to assist students, cope with anxiety and emotional issues, counseling centers should be established in universities.

VI. CONCLUSION

This research looked at the relationship between procrastination, anxiety, coping mechanisms, learning environment, and resilience among university students. The findings of this research revealed that the environmental conditions and resilience of the students determine their psychological well-being and performance academically. The results revealed that the factors of procrastination and learning environment at university were mediated by resilience and anxiety.

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