

Defensive Pessimism and Academic Performance in University Students: Mediating Role of Study EffortsRimsha Majeed¹, Momna Saba^{2*}, Fatima Javaid²**Abstract**

This study investigates the relationships between defensive pessimism, academic performance with mediating role of study efforts among university students in Southern Punjab, Pakistan. It was hypothesized that defensive pessimism has a relationship with study efforts and academic performance and study efforts is likely to mediate the relationship between defensive pessimism and academic performance. A correlational research design was employed, and a sample of 285 undergraduate, graduate, and postgraduate students was selected. Data was collected through standardized scales, including the Defensive Pessimism Questionnaire (DPQ), Academic Performance Scale (APS) and Motivated Strategies for Learning Questionnaire (MSLQ). Pearson product moment correlation and process macro through SPSS were used for data analysis. Results revealed that defensive pessimism significantly correlate with study efforts and academic performance. Moreover, study efforts partially mediated the relationship between defensive pessimism and study efforts. Findings highlight the importance of study efforts in academic performance and suggest that defensive pessimism, though counterintuitive, can positively contribute to academic performance when mediated through study efforts.

Keywords: Academic Performance, Defensive Pessimism, Study Efforts, University Students

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¹MPhil Scholar, Department of Psychology,
University of Southern Punjab, Multan,
Pakistan.

²Lecturer, Department of Psychology,
University of Southern Punjab, Multan,
Pakistan.

***Corresponding Author Email:**

momnasaba@gmail.com

Introduction

The concept of behavior, as well as psychological influences on academic success, is increasingly gaining relevance in the contemporary school-going setting. Various factors that influence academic performance, which is a key measure of student success, include defensive pessimism has been one of the strategies that has attracted attention as a cognitive strategy that

people use to manage their worry and achieve their goals (Atta et al., 2024). Having low expectations and envisioning potential challenges are some of the characteristics of defensive pessimism. Study efforts, which are characterized by regular attendance in learning activities, are essential in bridging the achievement gap between academic performance and motivation. Research shows that defensive pessimists often use studying more to decrease the perceived risks and overcome the expected difficulties, so the study efforts might be a mediator between academic performance and defensive pessimism (Gibbons, 2024).

Sarteshnizi et al. (2023) state that defensive pessimism is a cognitive strategy where individuals expect little and pre-emptively prepare themselves in terms of potential problems recent research found that defensive pessimism is a proactive coping ecology that allows individuals to focus their concern on positive planning instead of

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merely having a negative perspective (Atta et al., 2024). This trick is particularly effective among students who have problems with learning, as the psychological preparation can help to improve concentration and performance of tasks.

The degree to which a student has met their learning objectives in a specific time frame is known as academic performance, and it is frequently demonstrated by observable results like grades, test scores, and completed assignments. Since academic achievement is a direct determinant of professional achievement and socioeconomic mobility, it has become a prominent topic of research in the sphere of education during the past decade. One of the most significant yet understudied cognitive strategies is a type of strategic worry that influences academic preparation and performance and is known as defensive pessimism. It helps students to overcome their academic stress by reducing their expectations and contemplating the potential outcomes of failure (Adil et al., 2021).

Study efforts include aspects of learning like time management, active engagement in academic tasks, and resilience through hardships. Huang et al. (2022) Identifying studying efforts as one of the primary indicators of academic motivation. Research has repeatedly demonstrated the effect of study attempts on academic outcomes and is often an intermediate or moderating variable in academic achievement prediction models. Hayat et al. (2024) were the first to emphasise the significance of effort in studies and relate effort management to better academic performance in their motivating paradigm.

Abood et al. (2025) carried out a study to examine the relationship between defensive pessimism and academic involvement of nursing students. The theory would hold that the levels of stress would mediate the relationship between academic engagement and defensive pessimism. A sample of 400

students of nursing students was selected with the help of a stratified random sampling strategy. Data was collected with the help of standardized instruments like the Academic Engagement Scale (AES) and the Defensive Pessimism Questionnaire (DPQ). The results indicated that defensive pessimism indirectly enhanced academic engagement when the students were encouraged to exert greater effort when faced with pressure.

On the same note, Ma and Hu (2025) examined the influence of defensive pessimism on academic motivation and continuity among university students. The researchers hypothesized that defensive pessimism to be better than academic perseverance as a buffer to anxiety due to failure. The research was conducted on 300 undergraduate students with different academic backgrounds. Some of the tools included the Academic Motivation Scale (AMS) and the Defensive Pessimism Scale (DPS). Since defensive pessimism was an act of coping to prepare students to meet challenges, the outcome demonstrated that it was a positive predictor of academic motivation.

Liu et al. (2025) examined the study effort and academic performance role. It discloses that the behavioral time management strategies, including the establishment of specific study objectives and the allocation of adequate time to studying activities, improve education. The paper highlights the need to have purposeful and continued study over time, particularly on complicated academic activities. Time management skills also have a great deal of interaction with the study effort; students who manage their time well in their studies are better academically. Time management training can therefore boost study and improve performance in school.

Another research by Zeidan and Prentice (2022) examined the role of defensive pessimism in the context of online learning, which has become more popular following

COVID-19. The researchers assumed that defensive pessimism enhances academic engagement in the virtual setting and coping with uncertainty. Data on 350 online course students at a university were analyzed in terms of academic engagement and defensive pessimism scores. The results indicated that defensive pessimistic students were more involved, well prepared, and excelled academically in web-based courses. The paper focused on the importance of defensive pessimism in adapting to new educational challenges and facilitating performance in new learning styles.

Similarly, Panah and Latifi (2025) studied the relationship between perfectionism and defensive pessimism that forecast academic success. The theory states that defensive pessimism can be a moderator that can eliminate the negative impact of perfectionism and enhance academic results. A study involving 300 college students completed questionnaires which measured academic performance, perfectionist tendencies and defensive pessimism. The results indicated that despite perfectionistic impulses, defensive pessimistic pupils had better academic performance. As the study results show, the negative effects of perfectionism could be reduced with the help of defensive pessimism that transforms perfectionism into a positive source of motivation.

In line with this, Lei and Lei (2022) longitudinal research evaluates the effectiveness of defensive pessimism on academic performance in the long term, with the study targeting competitive academic environments. The investigation had a hypothesis that defensive pessimism would lead to increased resilience and steady academic pursuits. A group of 500 high school students was followed over two years and the utilization of defensive pessimism was measured by a scale and academic performance by GPA tracking. The findings

indicated that students who used defensive pessimism always had better GPAs and better strategies of managing stress. The paper highlighted the advantages of defensive pessimism in the long term of encouraging persistence and academic success.

Although there is evidence that study efforts have an impact on academic success (Pereira et al., 2024), little is known about how they mediate the relationship between defensive pessimism and academic performance. This study fills that knowledge vacuum and seeks to determine if intense study efforts mitigate the drawbacks of defensive pessimism or increase its positive aspects. By investigating if and how study efforts affect the impact of defensive pessimism on academic performance, this study will close this gap. The results could direct psychological treatments and academic counselling for students with anxiety-driven thought patterns. The goals of current research are to determine the relationship between defensive pessimism, study efforts and academic performance and to find out how study efforts mediate the relationship between defensive pessimism.

H1: Defensive pessimism is likely to have a relationship with academic performance and Study efforts

H2: Study efforts will mediate the relationship between defensive pessimism and academic performance.

Method

Research Design

A correlational cross-sectional research approach is used in this study to investigate the connections between defensive pessimism, study efforts and academic performance in study participants.

Participants

A sample of 285 students was selected from Southern Punjab's public and private universities using the rule of thumb proposed by Hair and colleagues (No. of items*5) (Schwinger et al., 2022) ($57*5=285$).

Convenient sampling was used to choose the participants. The study included both male and female students. The only people who were deemed eligible to participate were those who were presently enrolled in

graduate, undergraduate and postgraduate degree programs without any specific age restriction. People with any physical or psychological disability, hostilities and working persons were omitted.

Table 1

Demographic Characteristics of the Sample (N = 285)

Variable	f	%	M	SD
Age (years)			24.39	3.57
Gender				
Male	154	54.0		
Female	131	46.0		
Birth order				
1st Born	86	30.2		
Mid Born	122	42.8		
Last Born	70	24.6		
Only Child	7	2.5		
Education				
Undergraduate	75	26.3		
Graduate	118	41.4		
Postgraduate	92	32.3		

Measures

Defensive Pessimism Questionnaire

Participants' defensive pessimism was measured using the Defensive Pessimism Scale (DPQ-R) (Norem, 2001). This scale, which measures the propensity to anticipate unfavorable events and the ensuing preparedness techniques, has five items with ratings on a seven-point scale. It has a .79 reliability rating. An illustration of a scale object is "I usually prefer the worst".

Motivated Strategies for Learning Questionnaire

Participants' time and effort were assessed using the Motivated Strategies for Learning. This scale, which focuses on topics like study habits, time management, and motivation, has 44 items with ratings on a 7-point Likert scale ranging from not at all true to very true for me. It has a .87 reliability rating. An illustration of a scale object is "I outline the chapters in my book to help me study".

Academic Performance Scale

The academic performance scale was used to measure academic achievement. The eight items on the Academic Performance Scale (Abbasian & Nematollahi, 2024) have a 5-point Likert scale. This will give a numerical assessment of the academic performance of the participants. It has a .87 reliability rating. An illustration of a scale object is "I want to get good grades in every subject".

Procedure

Initially, the authors were contacted by email to obtain permission to use the scales. Following the author's consent, the chairperson of the Institute of Applied Psychology, Institute of Southern Punjab, Multan, granted additional approval for data gathering. The inclusion and exclusion criteria were explained by the researcher. With the consent of authorities, a sample was drawn from Multan's public and private universities. Participants were asked to complete the Defensive Pessimism Scale, the

Study Efforts Scale, and provide information about their academic success as part of an individual survey questionnaire used to gather data. Participants were given an explanation of the research’s goal assuring them of the privacy of their personal information builds rapport and elicit their genuine responses. They were guaranteed that the information they provided would only be utilized for study purpose. The Demographic Information Sheets (DIS), Defensive Pessimism Scale, Motivated Strategies for Learning Questionnaire (MSLQ), and Academic Performance Scale were administered after each participant had signed a consent form granting permission to participate in the study. Participants

completed questionnaires and demographic forms under the researcher's supervision. The ethical right to withdraw was granted to each participant. The participants were thanked for their participation.

Results

The present study aimed to investigate the mediating role of study efforts between defensive pessimism and academic achievement. The Reliability Statistics results show a Cronbach’s alpha of .78 for defensive pessimism questionnaire, .77 for motivated strategies for learning questionnaire and .76 for academic performance scale. This indicates that the scales are reliable to be used in the study.

Table 2

Descriptives and Cronbach’s Alpha of Study Variables (N= 285)

Scales	α	<i>M</i>	<i>SD</i>
Defensive pessimism questionnaire	.78	.83	14.82
Motivated strategies for learning questionnaire	.77	.82	9.66
Academic performance scale	.76	.75	11.55

Note: α = Cronbach alpha

Table 3

Pearson Product Moment Correlation between Defensive Pessimism, Academic Performance and Study Efforts (N=285)

Variables	<i>M</i>	<i>SD</i>	Defensive Pessimism	Study Efforts	Academic Performance
Defensive Pessimism	.83	14.82	-	.42**	.78**
Study Efforts	.82	9.66		-	.48**
Academic Performance	.75	11.55			-

** $p < .01$

The current study conducted Pearson product moment correlation of 285 participants. The findings indicate that all the three variables have statistically significant positive relationships with each other, though at different level. The initial correlation studied is defensive pessimism and study efforts with a Pearson correlation coefficient of $r = .42$ (p

$< .01$). This is a moderate positive correlation, which means that greater amounts of effort spent on studying correlate with greater academic results. The relationship between defensive pessimism and academic performance is especially significant as the correlation coefficient of $r = .78$ ($p < .01$). This implies that the positive relationship between

these two is very strong and that students who exhibit greater defensive pessimism also have greater academic performance. Study efforts and academic performance are

moderately positively correlated with $r = .48$, ($p < .01$). This is an indication that higher defensive pessimists are also likely to work harder in their studies.

Table 4

Mediation Analysis for Defensive Pessimism, Study Efforts, and Academic Performance (N = 285)

	Model 1		Model 2		Indirect effect	
	B	p	B	p	B	p
DP → SE	3.98	<.001			-	
DP → SE	-	-	.41	<.001	-	
SE → AP	.18	<.001	.18	<.001	-	
DP → AP	.77	<.001			-	
DP → AP			.69	<.001	-	
Indirect Effect (DP → SE → AP)	-	-	-	-	.07	
Indirect Effect (DP → SE → AP)	-	-	.07	<.001		

Note: DP = Defensive Pessimism; SE = Study Efforts; AP = Academic Performance.

B = Standardized regression coefficient; p = significance value.

Defensive Pessimism significantly predicted Study Effort ($\beta = 3.98, p < .001$). Study Effort in turn significantly predicted Academic Performance ($\beta = .01, p < .001$). Defensive Pessimism also had a direct effect on Academic Performance ($\beta = .66, p < .001$). The bootstrapped indirect effect of Defensive Pessimism on Academic Performance through Study Effort was significant, indicating partial mediation. The mediation analysis is a significant statistical method that is utilised to describe how an independent variable affects a dependent variable via a third variable referred to as the mediator. Defensive Pessimism was given as the

independent variable (IV), Academic Performance as the dependent variable (DV), and Study Effort as the mediator (M). The main aim was to determine whether Study Effort mediate the association between Defensive Pessimism and Academic Performance partially or wholly, hence giving information on the processes of the association. AMOS structural equation modelling (SEM) was used to carry out the analysis using maximum likelihood estimation plus bootstrapping, which is considered a formidable method of testing mediation.

Discussion

The findings in favour of the first hypothesis proved that defensive pessimism has a very strong relationship with academic performance and study efforts (Atta et al., 2024). This can be correlated with the theoretical content of defensive pessimism as postulated by Norem and Cantor (1986), who opined that the defensive pessimism strategy required some people to set low expectations and expect failure, which in turn pushed them to adopt preparative behaviour as a response,

like working more and rehearsing (Safitri et al., 2024). Defensive pessimism in this study was positively associated with academic performance, implying that when students utilise their anxiety in organised aspects, they could turn their possible, maladaptive thought patterns into academic benefits. The positive interaction between defensive pessimism and efforts to study highlights the importance of cognitive strategies in the process of targeting emotional regulation to performance outcomes. Defensive pessimists

among students seem to resort to compensating behaviours, including putting more hours into study, checking again, and preparing tasks, which, on the other hand, positively affect the performance of students. This observation is consistent with previous empirical research (Schwinger et al., 2022) that reported the paradox of the advantages of pessimistic cognitive styles in combination with disciplined effort.

The second hypothesis was that the relationship between defensive pessimism and academic performance would be mediated by study efforts. The mediation analysis resulted in providing significant partial mediation, and this has crucial implications in the interpretation of the interaction between these variables (Talsma et al., 2021). Defensive pessimism directly affected academic performance, but another indirect pathway through studies was also found. This indicates that although defensive pessimism determines the academic performance among students, some of this association is described by the number of efforts that students put into their work. Academically successful students might also have defensive pessimism, though they depend on study efforts as a potential compensatory measure, which reinforces the positive effects of this attitude (Tan & Prihadi, 2022). This finding is consistent with the integrative models of achievement motivation, which postulate that cognitive (belief of success or failure) and behavioral (effort, persistence) strategies have a combined influence on the performance outcomes (Tekin et al., 2023).

The research results will make some contributions to the theoretical literature with the proven positive mediation between defensive pessimism and academic performance, relationship by the study, empirical evidence on the adaptive roles of defensive pessimism is presented in defensive pessimism theory. The findings are

consistent with those of expectancy-value and achievement goal theories that focus on the interaction of cognitive expectations, effort and performance outcomes as in motivation theories.

The lack of gender differences implies that defensive pessimism and its connection with academic performance can be generalised with different student groups, and it is a strong construct that is independent of the contexts. The research has several practical implications in the field of higher education for educators, counsellors, and policy makers. Teachers need to understand that defensive pessimism is not necessarily maladaptive. Students who expect to fail can build their thoughts and expectations on this to motivate their study and preparation efforts (Safitri et al., 2024).

Given that study efforts mediate the relationship between defensive pessimism and academic performance, interventions should prioritise the cultivation of effective study habits. Universities can provide workshops on time management, active learning techniques, and exam preparation strategies to help students maximise their efforts in constructive ways. Although individual counsellors ought to know that defensive pessimism may be present with good grades. Students who come with negative perceptions should not simply be put into the at-risk category (Talsma et al., 2021), but rather their coping style, assessed by how well it spurs them to work hard.

Curriculum designers and policymakers ought to incorporate the contribution of psychological constructs like defensive pessimism in influencing student achievement (Tan & Prihadi, 2022). Psychological skill-building modules like the resilience training and study skills programs should be embedded into the curriculum, and these modules may contribute to better academic performance of learners with different motivational styles. Because of the

absence of gender differences, the interventions should be designed inclusively, with the emphasis placed on the personality and cognitive styles, but not on the demographic categories (Tekin et al., 2023). This makes the support programs fair and reachable to every student, irrespective of gender.

Conclusion

This paper has analysed the interaction between defensive pessimism and academic performance as well as study efforts with specific emphasis on mediation and gender variation. The results indicate that defensive pessimism has a positive relationship with academic performance and study efforts and these study efforts partially mediate the relationship between defensive pessimism and academic performance. To the contrary, no gender differences were observed (Tosun & Çetin, 2025).

Limitations and Suggestions

The type of research design used in the study is cross-sectional research design and it does not allow the research investigator to form causal relationships between defensive pessimism, study efforts and academic performance. A longitudinal study would be more appropriate in the event of studying how these variables interact with time and in establishing the direction of their influences. Moreover, the sampling technique of convenience sampling reduces the sample representativeness since only the participants of the University of Southern Punjab were recruited. This limitation limits the applicability of the results to large groups of students. The use of self reporting questionnaires also presents the chances of social desirability/response bias because the respondents might have been giving more socially acceptable than accurate answers. Moreover, such important variables as personality traits, socioeconomic background, and mental health conditions were not controlled, which could affect

defensive pessimism, the study behavior, and academic results. Lack of qualitative data also restricted the possibility of a detailed treatment of the subjective experiences and coping strategies of students.

The future research studies must include more mediating or moderating variables, including self-efficacy, resilience, and test anxiety. It is advisable to use longitudinal designs to monitor the students through the semesters or even through the years. Cross cultural studies would also be useful in establishing whether these relationships are applicable in varied learning settings.

Implications

Curriculum designers and policymakers ought to incorporate the contribution of psychological constructs like defensive pessimism in influencing student achievement (Tan & Prihadi, 2022). Psychological skill-building modules like the resilience training and study skills programs should be embedded into the curriculum, and these modules may contribute to better academic performance of learners with different motivational styles. Because of the absence of gender differences, the interventions should be designed inclusively, with the emphasis placed on the personality and cognitive styles, but not on the demographic categories (Tekin et al., 2023). This makes the support programs fair and reachable to every student, irrespective of gender.

Ethics Statement

All the ethical standards of APA were met. Informed consent was taken in written form from all the respondents to participate in this study.

Contribution of Authors

Rimsha Majeed: Conceptualization, Investigation, Methodology, Data Curation, Formal Analysis, Writing – Original Draft
 Momna Saba: Methodology, Supervision, Writing - Reviewing & Editing

Fatima Javaid: Methodology, Writing - Reviewing & Editing

Conflict of Interest

There is no conflict of interest declared by the authors.

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Data Availability Statement

The datasets of the current study are not available publicly due to ethical reasons but are available from the corresponding author [M.S.] upon the reasonable request.

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