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Impact of Stress on Academic Productivity; A Micro Study Focusing University Students of Pakistan

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ABSTRACT

This study investigated the impact of stress on the academic productivity of university students. For this purpose, a sample of 509 university students was taken from different provinces of Pakistan with different ethnicities and cultural backgrounds. The Principal Components Analysis technique was used to construct the variables. Using ordinary least squares (OLS), the study revealed that financial, social, and mental stress have a negative impact on the academic productivity of students, whereas educational stress in the form of quizzes, assignments, presentations and so and forth and, employment stress to secure a decent job after completion of a degree have a positive and significant impact on the academic outcome. The demographic variables indicate that students of rural areas are negatively affected by social stress, but the impact is insignificant, while students of public universities are experiencing a positive and significant effect of social stress on their academic performance. Moreover, male students experience more social stress and it has a negative impact on their studies. The provision of more scholarship and internship opportunities along with psychologist support from universities can be effective in reducing stress among students.

INTRODUCTION

Stress can be defined as a state of emotional, physical or psychological tension. It has become an inevitable factor of human life, and everyone, up to somehow affected by stress, but how they respond to it varies from person to person. Stress can be derived by some traumatic life experience or from daily life problems, such as financial problems, social problems, educational pressure, and work and personal relationships. Youth, especially university students, also seem to be affected by stress. After getting admission to a university, students enter a new phase of their lives where they are academically and emotionally charged. Thus,

main stressors affecting lives of university students are educational stress, financial stress, social stress, employment stress, and mental stress.

Educational stress, also known as academic stress, is a feeling of discomfort or anxiety caused by academic experiences (Arslan, 2017). These experiences include the burden of assignments, presentations, quizzes, and projects, as well as grading system, behavior of the faculty, standard of education, and learning environment of the university. Such factors can have both positive and negative impacts on students' lives. Financial stress is generally caused when parents are unable to fulfill the financial obligations of the children. In such circumstances, neither do the students have the facility to use advanced technology, like cell phones or laptops, which can help them in their studies, nor can they afford socializing with their friends. Such students have to do part-time jobs to support their financial needs and can't give proper time to their studies. (Heckman et al., 2014) explained that not having enough money to participate in different social activities and fear of higher student loans at graduation are two main financial stressors for these students. Students who are more optimistic about their financial situation in the future, and have more financial self-efficiency, are expected to have less financial stress. On the other hand, social stressors include pressure from parents to pursue a certain degree, social norms to score high, pressure to get good grades for self-esteem and family prestige and, class differences in the society. (Oramas et al., 2016) argued that more social support and self-efficiency can have a positive impact on the resilience of students. Employment stress is also a noticeable factor of stress among university students because they feel pressurized to secure good jobs after completing their degrees. Most students pursue certain degrees hoping to get quality job in the labor market. Their families also have high expectations in this regard. But increasing unemployment and the number of unemployed graduates cause discomfort and anxiety among students. (Chowdhury et al., 2022) highlighted that students of those departments which offer internship opportunities are less likely to have employment stress. Female students generally perceive less financial stress as compared to male students (Mishra, 2018). In societies like Pakistan, males are assumed to take care of the financial needs of their families, which ultimately cause stress. Another major stressor affecting the academic life of youth is mental stress. Mental stress is often caused by family problems, bullying and belittling from society, financial dependence on parents, daily long travel routes, rising inflation, and many other issues. (Albeg & Castro-Olivo, 2014) analyzed that students experiencing mental stress tend to show lower academic performance.

In developing countries like Pakistan, there is a high prevalence of stress. (Nisar et al., 2019) highlighted that about 20 million Pakistanis suffer from some variance of mental health issues and that low mental health awareness could be the main reason behind it. On January 21, 2022, The News published that around 40 percent of youth under age of 25 are suffering from various mental health issues. Furthermore, it was revealed that medical students are found to be dealing with severe mental health issues, mainly caused by stress and pressure that they face. In the past, there was widespread ignorance about the issue of stress in Pakistan. But, over time, awareness about the importance of mental health, and its impact on our daily lives, has helped make people conscious of it.

The main objective of the present study is to determine whether there is any impact of different stressors - like educational, financial, social, employment, and mental stress - on the academic productivity of youth or not. Moreover, the study also aims to analyze how this impact varies in different provinces in Pakistan and distinct demographic conditions.

In recent years, many studies have been conducted on this topic in Pakistan, but most of them discussed the impact of stress on people in general, and very few were specific to youth and their academic productivity. The present study is unique because it analyzes the effect of different stressors individually and their impact on youth productivity. Moreover, it also

studies the influences of stress in individual provinces, in regard to public and private universities, with respect to age and gender. Such research is valuable because it provides a clear picture of how stress can affect lives, specifically how youth and their academic productivity is affected by it.

The study is organized as follows; sections one and two consist of the Introduction and Literature Review. Section three explains the Methodology. Section four presents Results and Discussion. Section five concludes the study and gives recommendations, while references are presented in section six.

LITERATURE REVIEW

Several researchers have conducted multiple studies to pinpoint different stressors and their impacts on academic life and youth performance. In this section a, brief review of some of the relevant analyses is presented.

A study analyzing the experiences and factors affecting the educational progress of university-level international students living in Pakistan revealed that assessment criteria, the pressure of getting better grades, lack of presentation skills, and little understanding of student portal system were the main factors affecting the academic performance of these students. Moreover, language barriers caused difficulties in assignments, class notes, and report writing (Shah et al., 2020). A comparison of stress in two different assessment systems indicates that pass/fail evaluation system causes less stress in academic life of students in contrast with the GPA system. Students are happier with their academic performance in pass/fail system than in GPA system. An identical assessment system can help accelerate the academic performance of the students as well as reduce stress (Ali et al., 2015). A descriptive research to assess the level of stress among students in Eritea Institute of Technology indicates that lack of educational facilities, trust in the grading system, communication skills and educational competence of the teachers as well as long hours of study due to academic workload are the main contributors of stress among students (Yikealo et al., 2018). Jordanian university students are found to be complaining about the behavior of faculty and also about the grading system. Seemingly, psychological and physical mistreatment – such as regarding religion and external appearances such as physical mistreatments that are significant causes of stress among these students. Moreover, the low level of trust in the grading system is also a noticeable factor that may affect the healthy teaching and learning outcomes (Al-Hussain et al., 2008). To use technology-heightened learning applications, students need to acquire IT skills, which causes techno-stress among them. Techno-stress is a prominent obstacle in the context of academics, and it negatively affects the productivity of students. Female students are more stressed as compared to male students (Upadhyaya & Vrinda, 2021). There exists a significant relationship between academic productivity and the stress level of students. The burden of assignments, cramped classrooms, unfriendly relationships with other students, educational failure and so on cause stress among students, resulting in lower Grade Point Averages (Oduwaiye et al., 2017). Students with better academic performances were more stressed as compared to those with lower grades. Students with higher scores studied for extended periods to maintain their performance; consequently they were more stressed. On the other hand, students with lower grades did not stress themselves for higher grades as they thought that whatever the outcome, it would be according to their capacity (Banu et al., 2015).

Financial stress is found to be noticeable factor affecting the academic productivity of students. Qualitative research to examine the relationship between financial stress, and the well-being of college students, highlighted that financial pressure decreases academic productivity. Moreover, such students find it complex to have friendships with wealthier students, leading to loneliness (Moore et al., 2021). Student debt resulting from soaring educational costs is a serious issue, not solely for students and their guardians but also for the

US economy. Students experiencing financial stress are usually have to work longer hours to meet their financial needs resulting in lower grades (Bennett et al., 2015). Students who feel that working more hours is more beneficial than college, or those who can depend on their facilities to fulfill their needs, are expected to have less stress, these student sometimes leave college. On the other hand, students who can't rely on their families, and want to secure their future, are expected to have more financial stress and are likely to complete college (Britt et al., 2017). Since the introduction of the system of student tuition fees, university students of England are treated much like customers of the state. The responsibilities of paying tuition fee, and enrolling in science subjects, are linked with increased consumer orientation and lower academic performance (Bunce et al., 2017). A Study conducted to analyze forecasters of financial stress among college students indicates that students with no net worth, and those who have acquired student loan debt, suffer from economic pressure. In this regard, financial counseling exhibited a positive impact in regards to reducing stress (Britt et al., 2015). Demographic factors contributing to generalized anxiety disorder (GAD) and depression amongst Australian university students included irregular, regular, and continuous financial stress. Female students, who move from different areas to study in universities and experience financial stress, are more exposed to GAD (Farrer et al., 2016). Among many other stressors, worries about studies and financial situation were positively linked with stress and anxiety among university students of Germany students (Karing, 2021). Increased financial burden may influence students to drop out of school or reduce their coursework to do some paid work to meet their financial needs. There is a positive and significant relationship between financial stress and poor academic performance (Joo et al., 2008).

A difference in thinking exists between engineering graduates and employers. Employers give greater importance to creativity, decision-making skills, and ways of communication, whereas students focus more on their technical skills. This difference in thinking ultimately results in increasing number of unemployed engineering graduates and causes stress on students and their families (Rizwan et al., 2018). A Study surveying different university graduates from Bhutan and India - indicates that unemployment stress has a negative impact on the psychological condition of these graduates. Most students feel that their skills do not match the job requirements. Some think that experience requirement is a noticeable hurdle in getting jobs (Bhandari, 2018). Students tend to acquire higher education based on their goals, along with social and parental expectations. However higher education might not always prepare students with skills that help them to get jobs, leading to the unemployment of university graduates (Paper, 2006). Students of departments that offered internship opportunities to their graduates were less depressed than students of those that did not (Chowdhury et al., 2022). Male and female students of B.Ed in India have difficulty finding jobs after completing their training and the ones who were able to get job were mostly underemployed (Mishra, 2018). Youth in China is complaining about inadequate employment opportunities. Upcoming graduates are concerned about future employment. It is a significant cause of unease among them. However graduates are more likely to find job after a year of degree completion (Schucher , Günter, 2015). High school students from Turkey and Norway were asked to write an essay describing their future to check the future orientation of youth. The study reveals that both countries university consider a university education essential for future success. Most Turkish students were worried about failure and inability to live up to expectations of their families (Türken et al., 2016). Analysis of the impact of cultural values and parental expectations on career decision-making indicated that university students of China who live in mainland cities are facing difficulties in decision-making due to cultural obstacles. Moreover, expectations from parents have a significant influence on career decision making difficulties (Leung et al., 2011).

Data analysis for 540 senior semester students of different universities in Pakistan indicates that problems related to mental health have a negative impact on the academic productivity of students. Some students are capable of coping with their mental afflictions so their studies are less affected by stress, but some of them cannot cope up with stress, which results in low academic productivity and quitting of studies without completing degrees (Zada et al., 2021). Students suffering from mental health issues are unsatisfied with their grades even if they score high. Thus, low satisfaction was significantly related to the issue of mental health (Chaudary, 2016). Travel behavior has a significant relationship with academic performance of Clemson University students. Being late to class frequently due to transportation problems, carpooling, and travel distances have a negative impact on their educational productivity (Wu, 2014). The stress experienced by males in Asian families is more prominent than females as males are thought to be responsible for fulfilling the financial needs of their families. A survey performed on 300 Malaysian and Indian students indicates that students are found more depressed and suicidal as compared to Malaysians. Generally, male students with less religious beliefs, and lower family income, reported more academic stress (Khan et al., 2016).The over involvement of parents may harm the academic performance and well-being of college students. Helicopter parenting, and expectations to be perfect, lead to unstable goals for learning and ultimately result in lower academic performance (Schiffrin & Liss, 2017).The use of substances among university students is becoming a noticeable concern. A study reveals that usage of substances such as tobacco and alcohol has a significantly negative impact on the academic performance of Sub-Saharan countries (Mekonen et al., 2017). Literature review in context of academic bullying reveals that bullying leads to emotional, psychological, physical, and work-related damages to victim (Prevost & Hunt, 2018). University students experience cyber-bullying from both within and outside the university, but students primarily reported bullying from within the university. It was highlighted that the emotional and psychological impacts of cyber-bullying affected students' academic performance negatively (Faryadi, 2011).

A study analyzing career choices of MS-level students indicates that most of the students' families did not force them to make career decision. Some parents were worried when students made their decisions but after the decision was made they were relaxed (Asma Shahid Kazi & Abeeda Akhlaq, 2017). Social support and self-efficacy have a significantly positive impact on resilience among university students in Malaysia. Higher perceived social security and self-efficacy lower the probability of low resilience and vice versa (Oramas et al., 2016). There is a dynamic link between teacher and student motivation. Appreciation from the teachers plays a significantly positive role for students' academic performance (Ryan & Deci, 2020). A study surveying Franciscan university students indicates that prime determinants of their anxiety and depression among them are worries about finding a job after graduation, pressure to maintain good academic performance, and financial issues. These concerns cannot be eradicated, but programs tackling such problems can be helpful (Beiter et al., 2015). A study analyzing relationship between social support, and the quality of life of university students and its impacts on their self-esteem, indicates that students who have more social support have high self-esteem. Moreover, academic achievement is positively related to self-esteem and negatively to emotional exhaustion (Li et al., 2018). Parents and students have tremendously positive expectations about their futures, but teachers do not have positive expectations for all their students. Teachers' low expectations resulted in decreasing both self-belief and performance. Teachers having high expectations for students facilitated self-belief and achievement of the students (Rubie-Davies et al., 2010).

METHODOLOGY

This section provides the necessary details of the model and methodology, like the explanation of sampling techniques, research design, data collection, and data analysis.

Sampling

The study used primary data, consisting of a sample of 509 university students from different provinces of Pakistan, to analyze the impact of stress on the academic productivity of youth. For this purpose, a structured questionnaire was used to gather responses.

Three sampling techniques - Random Sampling technique, Convenience Sampling technique, and Snowball Sampling technique - were used to collect the responses. In random sampling, the selection of items entirely depends on chance and randomness. This technique is also known as "method of chance". It removes biasedness from the selection process. Convenience sampling involves samples based on convenience. It simply includes samples which happen to be most accessible to the researcher. It is an easy and inexpensive way to gather data. But in this technique, respondents are selected as a proxy without considering the accurate representation of the population. Such sampling is also known as accidental sampling. In the snowball sampling technique, researchers determine samples and ask the employed samples to refer them to others. It is also known as Network Sampling. Using this technique, the researcher can gather as much data as they want until there is enough to analyze and interpret data. This technique is used when the population is unknown.

Model

Y = f (educational stress, financial stress, employment stress, social stress, mental stress)

In econometric form, the above equation can be written as below:

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \beta_6 D_{1i} + \beta_7 D_{2i} + \varepsilon_i$$

i = 1, 2, 3, …, n

Y_i represents Academic productivity, X_{1i} educational stress, X_{2i} financial stress, X_{3i} employment stress, X_{4i} social stress and X_{5i} is mental stress, whereas D_{1i} is a control variable for Provincial dummies, D_{2i} is a control variable for demographic dummies i.e. regional, public/private, Gender & Age etc. and ε_i is the error term. Subscript $_{(i)}$ is used to refer the cross-sectional units i.e. respondents of this study.

Construction of variables

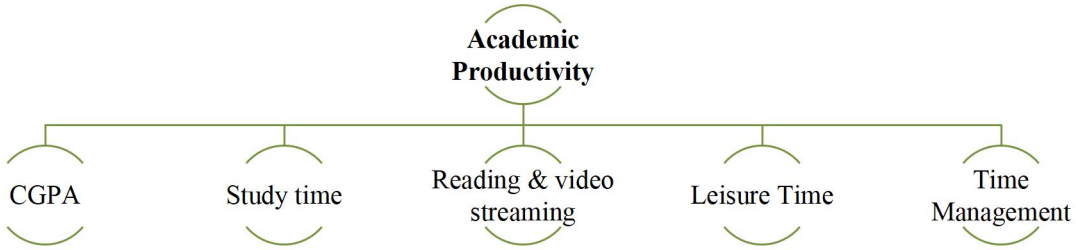
The study used the Principal Components Analysis technique to construct variables. The Principal Component Analysis technique is one of the oldest and most commonly used techniques. It proposes the simple idea of reducing the dimensionality of the data set, increasing the interpretability, and keeping as much statistical information as possible with minimum loss. For this purpose, new and uncorrelated variables are generated, which consecutively maximize variance. This technique helps solve the eigenvalue or eigenvector problem, and new variables are defined as by the data set available. Moreover, PCA is an adaptive data analysis technique (Jollife & Cadima, 2016). There are some other data analysis techniques as well, like Linear Discriminant Analysis (LDA), Exploratory Factor Analysis (EFA), and Truncated Singular Value Decomposition (SVD), among others. This study has chosen PCA among all the above because it can produce independent, uncorrelated features and reduces noise in the data and feature selection. It can improve performance at a low model accuracy cost.

Description of variables

Six different variables have been used to study the impact of distinct stressors on the academic productivity of youth. Academic Productivity is a dependent variable while all the other variables - educational stress, financial stress, employment stress, social stress, and mental stress - are treated as independent variables.

Academic Productivity

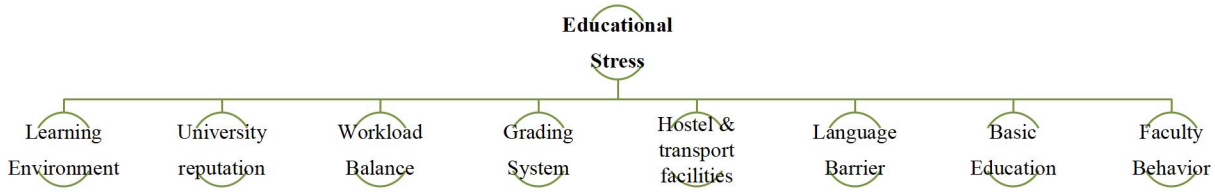
Academic productivity is about producing and promoting knowledge and it is considered as a multidimensional process (Karadağ, 2018). Thus, it is constructed by examining the information about GCPA of the students, time they allocate to their studies after university, time allocated for leisure activities and time allocated for reading and video streaming. Moreover, their concerns regarding time management to perform curricular and co-curricular



activities are also taken into account.

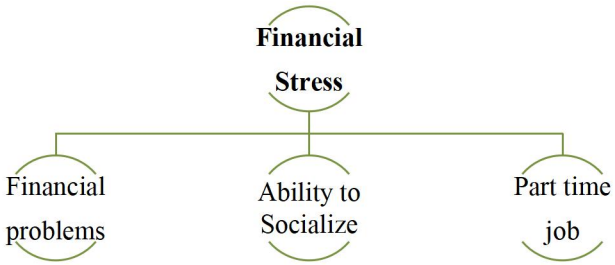
Educational Stress

Educational stress refers to a student's psychological condition usually caused by the excessive academic-related demands which surpass adaptive capabilities of students (Alsulami et al., 2018). In order to construct this variable, information related to environment, management, reputation, infrastructure, facilities and grading system of the university has been collected. Furthermore, their opinions about the effects of basic education, English as a medium of instruction and attitude of the faculty on their academic performance were also considered.



Financial Stress

Financial stress is usually referred to emotional tension or depression related to money. The study has constructed this variable by asking the students about financial condition of their families and financial dependency on parents. Data regarding possession of modern devices like smartphones and laptops, opportunities of socializing and need of part-time job to fulfill the educational expenses is also obtained.



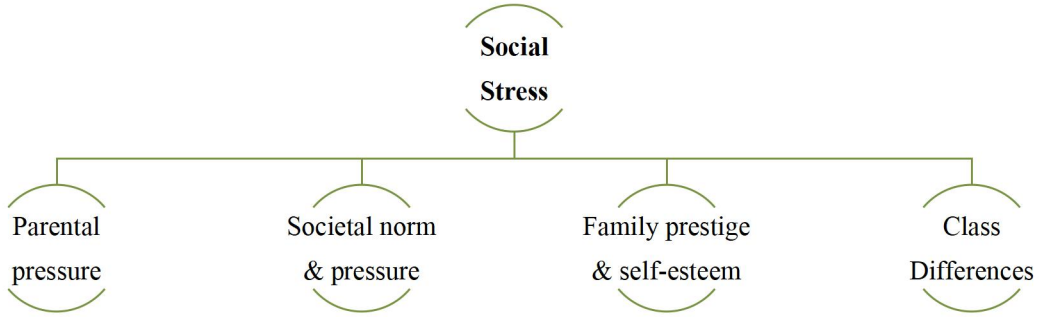
Employment Stress

Employment stress is a noticeable factor affecting the academic performance of the students, which is mainly caused by increasing unemployment and unemployed graduates (Chowdhury et al., 2022). Students shared their purpose of pursuing a certain degree. They also shared

facts concerning the job opportunities provided by universities, family and social support to implement a business idea and competition among relatives to secure a good job. In addition, hurdles like low academic performance and gender discrimination to secure a good job are also discussed.

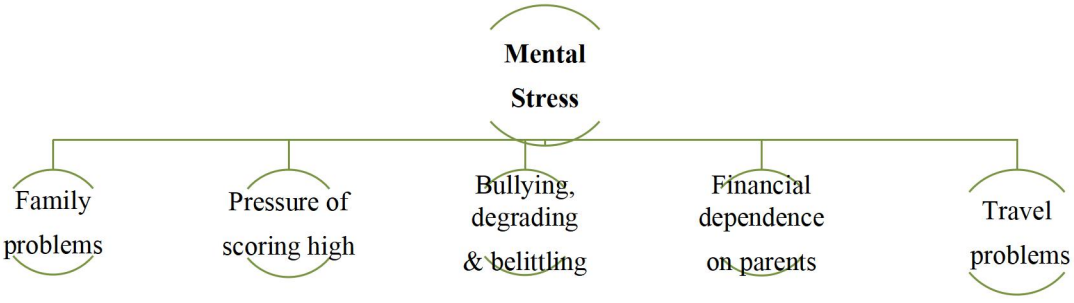
Social Stress

Social stress usually occurs due to mistreatment, bullying, negative feedback on performance, injustice, incivility, negative interactions and so and forth (Sauer et al., 2022). Thus, this variable has been constructed by asking students about the pressure they face by parents in order to pursue a certain field, pressure by the society to always score high and pressure of getting good grades for family prestige and self-esteem. Students also shared their concerns about class difference being a hurdle for their promising future.



Mental Stress

Mental stress is caused by someone's internal or external experiences which result in anxiety and sorrow (Sauer et al., 2022). Data for this variable has been gathered by questioning the students about effects of family problems on their ability to perform, pressure to score good to get married, financial dependence on parents and effects of daily long routes. Difficulties which they face due to bullying, degrading and belittling by the society are also discussed in this regard.



Ordinary Least Squares (OLS) is employed after construction of variables to estimate the econometric model to ensure that the sum of squared error terms is as small as possible so that the estimated model fits well to the data collected in this regard.

RESULTS AND DISCUSSION

The results obtained from numerous regressions are presented in three tables below:

Table-1 shows the impact of different variables on academic productivity with and without including provincial dummies.

Table-1: Estimation Results of Academic Productivity Models

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	Academic Productivity	Academic Productivity	Academic Productivity	Academic Productivity	Academic Productivity	Academic Productivity	Academic Productivity
Education Stress	0.103***	0.102***	0.103***	0.103***	0.103***	0.103***	0.104***
	(0.0351)	(0.0352)	(0.0352)	(0.0352)	(0.0351)	(0.0352)	(0.0351)
Financial Stress	-0.0858**	-0.0855**	-0.0859**	-0.0851**	-0.0847**	-0.0861**	-0.0871**
	(0.0398)	(0.0399)	(0.0399)	(0.0399)	(0.0399)	(0.0399)	(0.0398)
Employment Stress	0.111**	0.113**	0.111**	0.110**	0.111**	0.110**	0.112**
	(0.0439)	(0.0440)	(0.0439)	(0.0441)	(0.0439)	(0.0440)	(0.0439)
Social Stress	-0.0175	-0.0182	-0.0176	-0.0167	-0.0191	-0.0166	-0.0165
	(0.0460)	(0.0461)	(0.0461)	(0.0462)	(0.0461)	(0.0462)	(0.0461)
Mental Stress	-0.0878**	-0.0878**	-0.0877**	-0.0881**	-0.0855**	-0.0884**	-0.0903**
	(0.0403)	(0.0404)	(0.0405)	(0.0404)	(0.0405)	(0.0404)	(0.0404)
Punjab		-0.0409					
		(0.102)					
KPK			-0.00598				
			(0.134)				
Sindh				-0.0709			
				(0.213)			
Balochistan					0.161		
					(0.219)		
AJK						-0.0631	
						(0.190)	
GB							0.265
							(0.251)
Constant	1.27e-09	0.0247	0.000998	0.00418	-0.00887	0.00471	-0.0109
	(0.0497)	(0.0791)	(0.0546)	(0.0513)	(0.0512)	(0.0517)	(0.0508)

Observations	509	509	509	509	509	509	509
R-squared	0.057	0.057	0.057	0.057	0.058	0.057	0.059

This table presents the estimation results of the academic productivity model, with stresses as explanatory variables and provinces as control variables. Seven cross-sectional regressions are estimated by OLS to determine the impact of stress on academic productivity. Standard errors are shown in parenthesis. ***, ** and * represent significance levels at 1, 5, and 10%, respectively.

Results presented in the above table denote that all stressors, except social stress, are significant predictors of academic productivity of youth. In the first model, it has been shown that educational stress produces a statistically significant and positive result in terms of academic performance of the students. This supports the idea that appropriate level of educational burden in the form of assignments, quizzes, presentations, projects and so and forth can promote the learning outcomes. When students experience reasonable academic pressure, they learn to complete their tasks on time; it helps them to forge their individuality and personality and stimulates their progress and development. These finding are in line with (Banu et al., 2015), who argued that students who experience more academic stress to get good grades and study for longer hours tend to score high as compared to those with lower level of academic stress. On the contrary, (Shah et al., 2020) and (Oduwaiye et al., 2017) discussed academic stress as a hurdle to academic achievement.

As indicated by above results, financial stress hinders students' ability to succeed academically. This could be on account of a number of factors. Escalated tuition fees, inflation, decrease in real income and financial conditions of the family sometimes force students to do part-time jobs. Such students find less time for their studies as compared to financially wealthy students, which ultimately leads to lower academic performance. Students suffering from financial difficulties sometimes experience lack of concentration during class lectures, resulting in bad performance academically. Moreover, (Moore et al., 2021) argued that financially poor students find it complex to have friendships with wealthier students, leading to loneliness and lack of cooperation. The results are consistent with (Bennett et al., 2015), who also highlighted that students workings longer hours to meet financial needs tend to get lower grades.

An increase in employment stress significantly increases academic productivity as indicated by positive sign of the coefficients. Different factors may contribute to positive impact of employment stress. Students of this era realize the competition they have to face in the job market and give more weightage to employability. Thus they feel stressed and concerned about their future and choose those subject which can ultimately help them acquire a good job. Thus, they are more focused on securing good grades and acquiring skills. This passion leads them to perform better academically. However, these results are inconsistent with previous studies such as (Bhandari, 2018) and (Paper, 2006).

Above results reflect that social stress negatively influences the academic productivity of students. While making their career choice, students sometimes are influenced by other peers and media. In such situations, they might make a decision which later on puts them at unease. Lack of support from the society like family, friends and teachers might also result in demotivation. The study highlights that negative impact of social stress is not statistically significant, which can be due to the fact that families have become more understanding in today's modern age. They realize that students have their own interests and abilities and might not pressurize them to choose a specific career.

Academic performance and mental stress has a statistically negative and significant relationship, as represented by estimated results. This negative impact is a result of anxiety and depression caused by family problems, fear of failure, travel tiredness, financial issues

and any other form of social problems. These problems eventually lead to passive thinking by students, and their academic performance gets affected. Some students have the stamina to cope up with stress, but students who find it difficult to cope up with stress get mentally ill and show lower academic productivity as argued by (Zada et al., 2021). The results are constant with (Wu, 2014).

In the models, second to seventh from the above table, provincial dummies of Punjab, Khyber Pakhtun Khuwa, Sindh, Baluchistan, Gilgit Baltistan, and Azad Jammu Kashmir have been introduced. The regression results are consistent, with minor variations, even after including these variables. Academic performance of university students in Punjab, K.PK, Sindh and A.J.K is negatively affected by stress. People from different cultures and background are residing in these areas. Social diversity in these areas might lead to negative consequences of stress. On the other hand, students of Gilgit Baltistan and Baluchistan do not seem to be influenced by stress.

Table 2: Estimation Results of Academic Productivity Models with Interaction Term of Social Stress with Provinces

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	Academic Productivity	Academic Productivity	Academic Productivity	Academic Productivity	Academic Productivity	Academic Productivity	Academic Productivity
Education Stress	0.103***	0.0997***	0.0986***	0.103***	0.104***	0.103***	0.104***
	(0.0351)	(0.0350)	(0.0351)	(0.0352)	(0.0352)	(0.0352)	(0.0351)
Financial Stress	-0.0858**	-0.0809**	-0.0826**	-0.0852**	-0.0854**	-0.0864**	-0.0855**
	(0.0398)	(0.0398)	(0.0398)	(0.0400)	(0.0399)	(0.0399)	(0.0399)
Employment Stress	0.111**	0.108**	0.112**	0.110**	0.112**	0.111**	0.110**
	(0.0439)	(0.0439)	(0.0437)	(0.0442)	(0.0439)	(0.0442)	(0.0439)
Social Stress	-0.0175	-0.116*	0.0256	-0.0202	-0.0122	-0.0208	-0.00645
	(0.0460)	(0.0637)	(0.0497)	(0.0479)	(0.0472)	(0.0477)	(0.0471)
Mental Stress	-0.0878**	-0.0930**	-0.0924**	-0.0875**	-0.0866**	-0.0885**	-0.0880**
	(0.0403)	(0.0403)	(0.0403)	(0.0405)	(0.0405)	(0.0405)	(0.0405)
Punjab		-0.0414					
		(0.102)					
Pun*SocSt		0.178**					
		(0.0803)					
KPK			-0.00466				
			(0.134)				
KPK*SocSt			-0.241**				
			(0.106)				
Sindh				-0.0711			
				(0.213)			
Sindh*SocSt				0.0437			
				(0.155)			
Balochistan					0.172		
					(0.220)		
Bal*SocSt					-0.127		
					(0.178)		

AJK						-0.0664	
						(0.191)	
AJK*SocSt						0.0554	
						(0.156)	
GB							0.261
							(0.251)
GB*SocSt							-0.168
							(0.165)
Constant	1.27e-09	0.0266	0.000553	0.00415	-0.00882	0.00467	-0.0109
	(0.0497)	(0.0788)	(0.0543)	(0.0514)	(0.0512)	(0.0518)	(0.0508)
Observations	509	509	509	509	509	509	509
R-squared	0.057	0.066	0.066	0.057	0.059	0.057	0.061

This table presents the estimation results of academic productivity model with stresses as explanatory variables, provinces as control variables and interaction term of social stress & provinces. Seven cross sectional regressions are estimated by OLS to determine the impact of stress on youth productivity. Standard errors are shown in parenthesis. ***, ** and * represent significance level at the 1, 5 and 10% respectively.

Interaction terms have been included in the model to observe the combined effect of social stress and provincial dummies. Social stress seems to have a positively significant impact on academic performance of students belonging to Punjab. This can be due to the fact that social interaction with different people on daily basis, listening to their opinions, sense of competition and inspiration to achieve something in life can lead to better performance academically. Thus, moderate social stress seems beneficial for students in Punjab. Students of K.P.K are negatively affected by social stress. It might be due to social and cultural pressure they face while making their career choices. Moreover, pressure from their families and society to perform better might result in lower academic performance. In the case of Sindh and AJK, social stress has a positive impact on academic productivity, but the result is not significant. On the other hand, social pressure has an insignificant but negative impact on academic productivity in Baluchistan and Gilgit Baltistan.

Table 3: Results with Demographic Variables and Interaction Term of Gender and Age with Social Stress

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	Academic Productivity	Academic Productivity	Academic Productivity	Academic Productivity	Academic Productivity	Academic Productivity	Academic Productivity
Education Stress	0.103***	0.103***	0.108***	0.102***	0.101***	0.101***	0.107***
	(0.0351)	(0.0352)	(0.0351)	(0.0348)	(0.0351)	(0.0351)	(0.0348)
Financial Stress	-0.0858**	-0.0872**	-0.0866**	-0.0992**	-0.0934**	-0.0937**	-0.0948**
	(0.0398)	(0.0400)	(0.0397)	(0.0397)	(0.0402)	(0.0402)	(0.0397)
Emp Stress	0.111**	0.110**	0.107**	0.102**	0.120***	0.121***	0.104**
	(0.0439)	(0.0440)	(0.0438)	(0.0436)	(0.0442)	(0.0443)	(0.0435)
Social Stress	-0.0175	-0.0177	-0.0171	-0.0121	-0.0161	0.167	0.0618
	(0.0460)	(0.0461)	(0.0459)	(0.0457)	(0.0460)	(0.279)	(0.0638)
Mental Stress	-0.0878**	-0.0876**	-0.0791*	-0.0747*	-0.0926**	-0.0921**	-0.0778*
	(0.0403)	(0.0404)	(0.0405)	(0.0402)	(0.0405)	(0.0405)	(0.0402)

Region		-0.0402					
		(0.101)					
Public/Private			0.214**				
			(0.107)				
Gender				-0.326***			-0.325***
				(0.101)			(0.101)
Age					0.0190	0.0175	
					(0.0137)	(0.0139)	
Age*SocSt						-0.00841	
						(0.0126)	
Gen*SocSt							-0.132*
							(0.0797)
Constant	1.27e-09	0.0182	-0.144*	0.177**	-0.418	-0.388	0.184**
	(0.0497)	(0.0674)	(0.0871)	(0.0738)	(0.307)	(0.310)	(0.0738)
Observations	509	509	509	509	509	509	509
R-squared	0.057	0.057	0.064	0.076	0.060	0.061	0.081

This table presents the estimation results of academic productivity model with stresses as explanatory variables and demographic variables as control variables. Six cross sectional regressions are estimated by OLS to determine the impact of stress on youth productivity. Standard errors are shown in parenthesis. ***, ** and * represent significance level at the 1, 5 and 10% respectively.

Table 3 shows the impact of demographic variables on the academic productivity of youth. Results for the primary model are consistent with those in tables 1 and 2. Results of model 2 show that the impact of stress on the academic productivity of rural student is negative. Rural students have comparatively less access to many facilities as compared to urban students. They have limited access to technology and acquiring information becomes difficult to these students sometimes. Moreover, they face more cultural barrier than urban students. On the other hand, stress has a significant and positive impact on the academic productivity of public university students. Public university students are of middle class background mostly and believe that performing better can help them secure a good job. Thus pressure to perform better, results in better academic productivity for these students. Furthermore, public universities usually offer more subjects, giving students multiple options to choose their career. Regression results with a gender dummy indicate that male students have more stress than female students, consistent with (Khan et al., 2016). It has a negative impact on their academic productivity. The reason behind it is the pressure on male students to take care of the financial needs of their families after completing their studies. Some students have to do part-time jobs even during their studies because they have to support their families. This stress ultimately leads to lower academic performance. Age has no significant impact on stress, but interaction terms of age and social stress indicate that social pressure increases with age as older students start to develop a sense of responsibility and become more conscious about their career.

CONCLUSION AND RECOMMENDATIONS

Stress and depression have always been directly linked to mental and physical health and affect students' academic achievement. In Pakistan, about 84% university students are experiencing stress (Asif et al., 2020). The main objective of the present study was to analyze the effect of different stressors on the academic productivity of university students. For this purpose, a sample of 509 university students was taken from the provinces of Pakistan. The study revealed that financial, social, and mental stress has a negative impact on the academic productivity of students. Thus, students suffering from financial problems, social problems like family issues, pressure to maintain good grades and family prestige and mental problems – such as anxiety and depression are likely to have more stress and lower academic

productivity. Educational stress - like quizzes, assignments, presentations - and employment stress to secure a good job after completing a degree have a positive and significant impact on the academic outcome. Demographic variables indicate that students of rural areas are negatively affected by stress, but the impact is insignificant, whereas students of public universities are experiencing a positive and significant impact of stress on their academic performance. Moreover, male students experience more stress because they have pressure to take care of the financial needs of their families, affecting their studies negatively. Social stress increases with age and affects academic productivity negatively.

The results of this study are helpful in identifying the effects of different stressors on academic productivity of youth. Universities can play a vital role in reducing stress by providing scholarships and psychological support services to needy students that can help them deal with their emotional issues, anxiety, and depression. Students should choose the career according to their interests and capabilities. In this regard, career counseling centers in school can make students understand which career is suitable for them. Moreover, professional training and internship opportunities can be provided by universities to reduce the gap between industries and academia.

The results of study significantly contribute to the existing literature. However, there is room for expansion upon the information provided by this research. The study has a limitation of representing the data from university students of Pakistan. A holistic view from school and college students can give a deeper understanding of the students' perception of stress. Moreover, exploring more determinants of stress and a cross-country comparison of youth productivity will further evaluate the research.

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