DEVELOPMENT AND VALIDATION OF SCALE ON ACADEMIC STRESSORS IN COLLEGE STUDENTS: A FACTOR ANALYTICAL APPROACH

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ABSTRACT

Objective: To find out the experience and expression of academic stressors in college students and to develop a reliable and valid measure.

Methodology: A sample of 244 college students with age range 15-20 (M = 17.38, SD = 1.22) were selected through the convenient sampling technique. Both boys and girls living in intact families, having no physical or psychological disorder studying in different government and private institutes of city Lahore were included in the study. A three-step model (item generation, expert validation, and pilot study) was used to develop the scale.

Results: Descriptive statistics revealed n=97(39%) 1st year and 147 (61%) 2nd year students with highest number living in nuclear family system (n=150(61%). Exploratory factor analysis using Principal Component factor analysis revealed two factors: sustaining performance and psychosocial stressors. The value of Kaiser-Meyer-Olkin was .87 and the Bartlett test was 929.90 with p=0.000. Student Problem Checklist was used to establish the concurrent validity of the scale and was found to be r=.92. The internal consistency was 0.92 (p<0.001) and the test-retest reliability of ASS was r=.67 (p<0.001). Girls experienced more academic stressor (M=35.53,SD=19.43, p<0.001) as compared to boys (M=31.72,SD=13.45)

Conclusion: The Academic Stressor Scale is an indigenous scale with established psychometrics that provides a depiction of academic stressors faced by Students in Pakistani culture.

Keywords: Academic Stressors; Mental Health Issues; College Students.

INTRODUCTION

College is an energizing time, full of new challenges that force students to expand their horizons. While some of these encounters can be exciting, others can leave students feeling tense. A lot of undergrads are under pressure when they go to class and have difficulty managing pressure in academic success and personal success in school.[1] Stress is an unavoidable aspect of existence. It's our fight-or-flight reaction to obstacles we encounter on the planet. The body is affected by this natural reaction that helps people cope with problems more effectively, such as increased pulse and blood flow. Although it manifests that everyone, in their way regardless of age, sexual orientation, or circumstance, experiences anxiety at some point in their lives.[2] Stress isn't just a physical reaction; it can also influence feelings, behavior, and other aspects of one's life and comprehension. Similarly to how everyone is concerned with different items, everyone interacts with their possessions in various forms. [3] Certain stress symptoms may be misdiagnosed as several different illnesses because they have there manifestation that way e.g often stress is misunderstood as physical tensions. Migraine, stomaches, headaches including jaw pain, chest pain, shakiness, damp or sweat-soaked hands, tinnitus), tinnitus, rapid heartbeat, windedness, stomachaches, torments, queasiness, shakiness, damp or sweat-soaked hands). [4] At the point when understudies go to school on the web or face to face, no doubt during their time at school, they will be exposed to new stressors. [5] Situational stress is experienced by undergraduates when they are in an upsetting or disturbing circumstance that they can't control. Unlike time-related and anticipated stress, this type of stress strikes without warning and with little to no warning. Indeed, he might not have foreseen the circumstance by any means. For undergraduates, this kind of stress can emerge in various conditions. It may be as simple as missing their words during an introduction, or as serious as a call about a family emergency. This type of stress can occur in a variety of situations from getting a horrible score on a task to contending with a companion to almost hitting a vehicle before you are out

and about. [6] Prevalence studies shows that in Pakistan almost high levels of stress is reported in 20.83% students while 7.5% students had low levels of stress.[7] Experience pressure results in the understudy feeling restless about observing certain individuals, either alone or in a gathering. They may not appreciate investing energy with them or experience issues speaking with them. Whatever the explanation, there is something in particular about this individual or gathering that makes him restless.[8]

College studies revealed meeting academic worry with the greatest origins of academic pressure initiating from captivating and reading for tests, position competitiveness, and the enormous amount of substance to ace in a modest quantity of time. Findings revealed college studies see syllabus burden to be great in the first year and that the impression load relates to testing pressure. [9] In the struggle to sustain one's service, such contradictions can be distressing, and they can lead to powerless scholastic execution. Helpless scholastic execution often results in negative feedback about the student's performance, resulting in pressure, tension, and misery. This is supported by the fact that students from low socioeconomic backgrounds were found to be more concerned about fulfilling parental desires. Furthermore, students were more sensitive to critical remarks from those in their lives, such as teachers and guardians.[10]

Male students faced an unfavorable atmosphere due to societal expectations that they should be dominant even in academic results. Nonetheless, it was discovered that students' scholarly interests and execution were linked to higher levels of scholastic strain. The environment includes students' work such as the social setting and demands from their peers, which contributes to their levels of scholarly anxiety.[11] Stress may also cause changes in people's habits, such as nail gnawing, side wringing, teeth clenching, and heavy breathing when people are focused, they can experience cold hands and feet, stomach butterflies, and an increased heartbeat, which are all considered basic physiological effects of pressure and can be linked to a feeling of tension. The majority of the time, physical and mental responses to stretching occur simultaneously, particularly when stressors become more intense.[12] Many college students face different types of academic stressors that can lead to many mental health problems.

Furthermore, a few research studies have found a strong connection between sadness and poor college grades. Detachment in daily life, helpless academic execution, and a lack of passion for learning are all exacerbated by gloom, uneasiness, and tension.[13] The rationale of the present study is to highlight the manifestation of reasons for academic stress by developing a scale as per in the context of Pakistani culture because, in a collectivistic culture, students have more burden of social expectations or have more social pressure. Due to this, they may have different reasons for academic stress as compared to individualistic cultures. This study was conducted to check the academic stress of college students in Pakistani culture. Usually, we measure stress by using DASS therefore, we need a problem-specific tool to measure the academic stressors of college students in Pakistani culture. Another indigenous scale Student Problem Checklist (SPCL) [14] also measure students' mental health issues but it is generic and does not measure the academic stressors faced by Pakistani college students. While having stress not only affects students' physical health as well as their mental health. The college population has been chosen because it is the most neglected and people have focused on the school and university population in Pakistan.

METHODOLOGY

A correlational (cross-sectional) design was employed in the study. The main purpose of the study was to develop and validate the scale, Academic Student stressors.

The Convenience sampling was used in the study. The N was determined on the basis of rule of thumb between 5-10 participants against each item (1:7 for the current study.[15] Moreover the research was carried out during COVID-19 pandemic therefore, it was the best suitable method at that time.

In this research study, the sample inclusion consisted of N=244; (n=97) boys and (n=147) girls living in intact families. All the participants were selected from government and private colleges in Lahore. Participants were selected within the age range of 15-20. Usually students above 16 are found in colleges but there were some students who we found of 15 age because they have done early schooling.

The sample excluded participants other than college students, who were married or had any disability or illness and were living with single parents were also excluded.

The following assessment measures were used for data collection for this study:

Literature was studied to find out the socio-demographic characteristics of participants and it was found that age, gender, study year, father education, mother education, and family system (joint/nuclear) were relevant to the current study.

In this study, an indigenous scale was developed by the different phases of the scale development including phenomenology exploration, expert validation, pilot study, and then main study:

This phase aimed to generate the items from the college students. The participants were approached from different Government and Private Colleges in Lahore. At first, per-

mission was taken from the principal of the institute. The interviews were taken by one in one setting with the intermediate students. About 25-30 participants were selected by using a convenience sampling technique for conducting the interview. On the initial level, after building rapport with the participants, in-depth semi-structured interviews were conducted and their responses were recorded and transformed into phases. The phenomenology definition was that "One has observed different children who are stressed by academics , what do you think are the reasons they are feeling this burden?" was asked from the participants to explore the phenomenology. The items that overlapped with the other items were not included. There were total 34 items that were generated from the participants' responses. Afterwards, the scale was arranged from 0 to 3 with each item (0 = Never, 1 = Sometimes, 2 = Most Often, 3 = Always).

This phase aimed to witness the face validity of the items. For the validation, the experts were approached who had at least 3 years of experience in the field of adult counseling. At first, the rationale and nature of the scale were explained to them and after taking permission scale was given to them for validation to see the validity that whether these items are showing the academic stressors of college students or not. The scale was given to the seven clinical psychologists. They had to rate each item up to 0-3 on a rating scale. The items with 0 scores were discarded from the scale. The feedback was taken from all of them when the scales were taken back. They had given different responses for different items. So after the discussion, the vaguest and repeated items were excluded from the scale and 30 items were remaining.

In the third phase, the items were tested for their user friendliness, and easy comprehension for participants. For this purpose, 30 participants were selected for the pilot study of the scale. A sample ranged between 30-100 can be chosen for pilot study phase.[16] Participants were selected with the help of convenient sampling. Before giving scale, they were asked for permission and afterward scale was administered. Before asking about the items, they were instructed to ask if they find any difficulty in understanding any statement or even word. The participants found items understandable as they were giving feedback at the end.. The participants took 20-25 minutes to complete the protocol.

In this phase, the psychometric properties were found. Before administrating, the participants have debriefed regarding the purpose of the research and also their participation.

The procedure is the basic element of every research pattern. Firstly the Department Graduate Committee approved the project for its ethical concerns. Permission was also taken from authorities. The protocol including demographic variables with an academic stressors scale, and student problem checklist was given to the students. The participants were approached during their college hours. The participants were given necessary explanations were provided to the respondents to make the questionnaire easy and understandable. All the students took 15 to 20 minutes to complete the scales. After the completion of the data collection, the results were analyzed using descriptive and inferential statistics. Descriptive analyses was used to reveal personal and social demographics of the participants and inferential statistics was used to find out the fator structure, and to establish psychometric studies of scale.

RESULTS

In the following section, the mean, standard deviation, frequencies, and percentages of demographic variables of the sample (N=244) participated in the current study have been described. The current study was conducted on the Government and Private College students of Lahore. Demographic variables which were used in the study to define the characteristics included age, gender, study year, father education, mother education, and family system (See Table 1)

The mean age of participants was found to be 17.38 (SD=1.12). Table 1 shows that more participants 148(61%) belonged -to age range 15-17 as compared to those with age range 8-20(N=96,SD39%). More female participants N=147,% h=60 were included in the study. More participants were found to be living in nuclear family system (N=150,Frequency =60%.) there were more students from first year than from second year (N= 132, frequency =54.10%), Similarly more students were found whose father were educated i.e had bachelors degree or more (N= 129, frequency= 52.90%) and less students were whose mothers carried bachelors degree (N= 124, Frequency = 49.20 %)

Principal Component Factor Analysis with Varimax Rotation and Scree Plot was used to explore the factor structure of ASS. The basic assumption to use Varimax rotation was to maximize the interpretability, simplification, and maximize variance of factors. By using these tests, the data adequacy was used to find whether the data is capable of doing the proposed analysis. The data adequacy was found up to .89. Scree plot is used to find the best possible factor solution of a scale. The Scree plot revealed a two-factor solution (See figure 1) After item analysis, 30 items were retained. Items were retained based on factor loading greater or equal to .40.

Item analysis was also carried out while computing item-total correlation on 30 items of ASS. The table has also shown a high inter-item correlation ranging from .61-.93($p<0.001$). The factor loadings of 30 items along with item analysis are given in table 2. A descriptive label was assigned

Table 1: Frequencies and Percentages of Demographic Characteristics of Participants (N=244)

Demographic Variables		n	%
Age	Late Adolescence (15-17)	148	60.60
	Early Adulthood (18-20)	96	39.30
Gender	Male	97	39.80
	Female	147	60.20
Study Year	First Year	132	54.10
	Second Year & Above	112	45.90
Father Education	Below & Intermediate	115	47.10
	Bachelors & Above	129	52.90
Mother Education	Below & Matriculation	124	50.80
	Intermediate & Above	120	49.20
Family System	Joint	94	38.50
	Nuclear	150	61.50

Table 2: Results from a Factor Analysis of Academic Stressor Scale (ASS)

ASS item			Factor loadings	
			1	2
Factor 1 Sustaining Performance	2.	Facing difficulty with the fee submission.	.49	.19
	9.	Lack of teacher's attention.	.51	.27
	11.	Lack of confidence due to failure.	.42	.15
	13.	teacher remains realizing of inferiority.	.64	.17
	14.	Parents exhibiting their opinion regarding subjects.	.57	.13
	15.	Achieving lowest grades even doing constant hard work.	.40	.15
	19.	Focusing more to earn in future than seeking education.	.50	.27
	20.	Lack of facilities given by the institute.	.48	.21
	23.	Lack of the awareness about benefits of education in family.	.50	.18
	25.	Unable to concentrate on studies due to health issues.	.45	.26
	27.	Unable to concentrate due to lack of learning conducive environment in home.	.69	.13
	28.	Unable to discuss own problems.	.51	.38
	30.	No proper guidelines given after getting admission to college.	.63	.19
	31.	Facing difficulty in understanding in course after coming from Urdu medium to English medium.	.69	.11
	32.	Facing difficulty to solve paper due to invigilators' strictness.	.47	.21
	33.	No proper guidelines for selecting subjects.	.65	.28
Factor 2 Psychosocial Stressors	1.	Being stressed to maintain academic performance.	-.17	.55
	3.	Taunting by relatives in achieving low grades.	.47	.40
	4.	High level of parental expectations about grades from their child.	.25	.68
	5.	Siblings' comparison on education by parents.	.12	.58
	6.	Unable to understand course due to rout learning.	.37	.52
	7.	Parents compare their children with relatives' children.	.22	.61
	12.	In the maintenance of status among relatives; parents pressurize their child to get higher grades.	.29	.46
	16.	Teacher giving work even neglecting the individual differences.	.25	.40
	17.	Lack of sleep.	.14	.68
	18.	Teacher perceiving child's problems as lame excuses.	.24	.46
	21.	Focusing on bookish knowledge except creative learning.	.25	.49
	22.	Wastage of time due to friends.	.22	.44
	26.	Feeling anxious to complete the lengthy course on time.	.16	.54
	34.	Parents keep acknowledging their children about spoiling their future without achieving higher grades.	.26	.44

Note. N = 244. The extraction method was principal components with varimax rotation. Factor loadings above .30 are boldfaced.

Table 3: Descriptive Statistics and Correlations for Scores on Two Factors of Academic Stressors Scale and Academic Stressors Scale Total

Subscales	N	M	SD	1	2	3
1. Sustaining Performance	244	16.43	9.23	--	--	--
2. Psychosocial Stressors	244	16.80	8.34	.69***	--	--
3. Academic Stressors Scale Total	244	33.23	16.16	.93***	.91***	--

Note. M = Mean, SD = Standard Deviation, df = 100, correlation coefficients above .32 are significant at ***p < 0.001

Table 4: Descriptive Statistics and Correlations for the Scores of Factors of Academic Stressors Scale, Academic Stressors Scale Total, Factors of Student Problem Checklist, and Student Problem Checklist Total

Variables	N	M	SD	1	2	3	4	5	6	7	8
1. ASS F1	244	16.43	9.23	--	--	--	--	--	--	--	--
2. ASS F2	244	16.80	8.34	.69***	--	--	--	--	--	--	--
3. ASS Total	244	33.23	16.16	.93***	.91***	--	--	--	--	--	--
4. SPCL F1	244	16.93	9.99	.63***	.57***	.65***	--	--	--	--	--
5. SPCL F2	244	13.37	7.63	.65***	.59***	.68***	.82***	--	--	--	--
6. SPCL F3	244	8.82	4.99	.62***	.63***	.68***	.81***	.75***	--	--	--
7. SPCL F4	244	10.14	5.58	.62***	.60***	.66***	.82***	.80***	.79***	--	--
8. SPCL Total	244	49.21	26.09	.68***	.64***	.72***	.95***	.92***	.89***	.91***	--

Note. ASS F1 = Sustaining Performance, ASS F2 = Psychosocial Stressors, ASS Total = Academic Stressors Scale Total, SPCL F1 = Sense of Being Dysfunctional, SPCL F2 = Loss of Confidence, SPCL F3 = Lack of Self-Regulation, SPCL F4 = Anxiety Proneness, SPCL Total = Student Problem Checklist Total, M = Mean, SD = Standard Deviation, df = 100, correlation coefficients above .32 are significant at ***p < 0.001

Table 5: Prevalence Rate of Academic Stressors in Pakistan (N=244)

Factor	Mild Category		Moderate Level		Severe Level		Very Severe	
	f	%	f	%	F	%	f	%
ASSF1	129	52.90	72	29.50	31	12.70	12	4.90
ASSF2	114	46.70	88	36.10	38	15.60	4	1.60
ASS Total	136	55.70	64	26.20	34	13.90	10	4.10

Note. ASSF1 = Sustaining Performance, ASSF2 = Psychosocial Stressors, ASS Total = Academic Stressors Scale Total, f = Frequency, % = Percentage

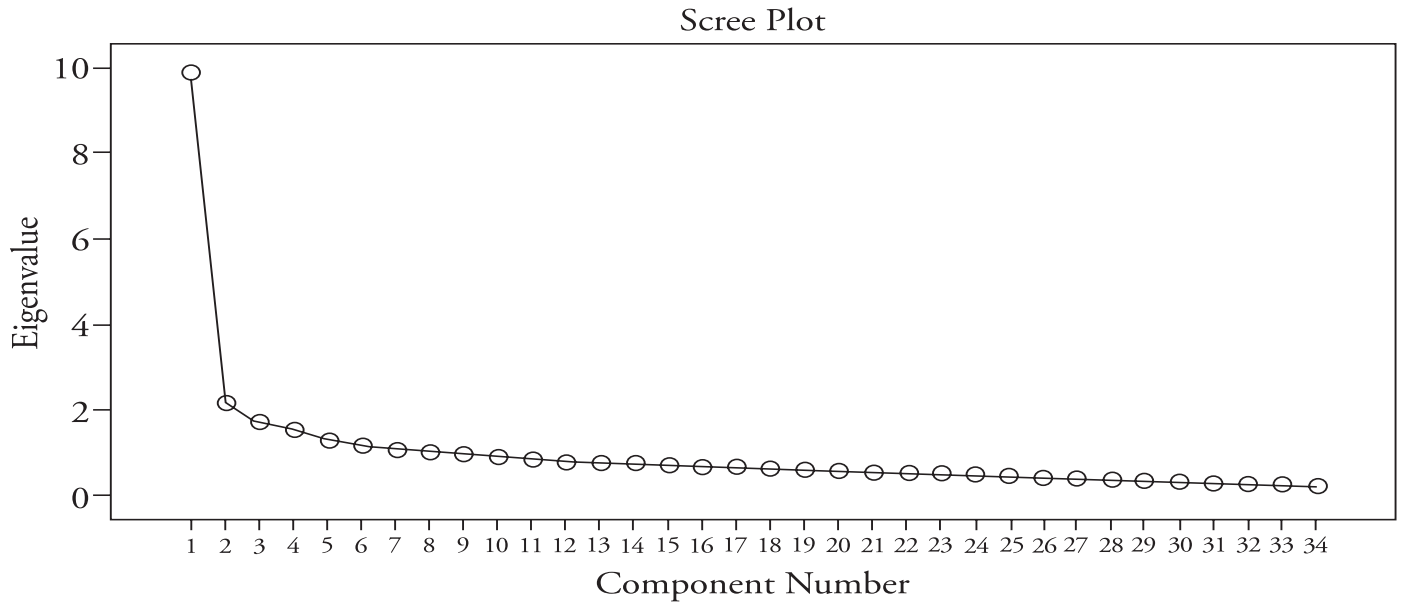

Figure 1: Scree plot Showing Extraction of Factors of Academic Stressors Scale
The scree plot shows the two-factor solution as the best fit model for Academic Stressors Scale for College Students.

to each factor based on the common theme that emerged from the items.

The first factor consists of 16 items denoted to achieving the lowest grades even doing constant hard work, unable to concentrate on studies due to health issues, unable to concentrate due to lack of learning conducive environment in home/hostel, unable to discuss own problems, no proper guidelines given after getting admission to college, facing difficulty in understanding in the course after coming from Urdu medium to English medium and no proper guidelines for selecting subjects.

The second factor consists of 14 items that denote taunting by relatives in achieving low grades, siblings' comparison on education by parents, parents compare their children with relatives' children, in the maintenance of status among relatives; parents pressurize their child to get higher grades, teacher giving work even neglecting the individual differences, teacher perceiving child's problems as lame excuses, wastage of time due to friends, and parents keep acknowledging their children about spoiling their future without achieving higher grades.

The internal consistency was found by checking the score of Cronbach's alpha (cut of score 0.70) and the scale scored 0.92 which means that the scale is internally consistent.

The test-retest reliability of ASS was established (n=17) with one week's interval. The ASS was found to have high test-retest reliability of r=.67 ($p<0.001$). it means that this academic stressors scale is a reliable measure to find out the stressors faced by students.

Table 4 shows a high positive correlation between all the factors of the academic stressors scale and the student problem checklist. It also depicts that academic stressors have a significant positive highly correlation (r= .91**, $p<0.001$) with mental health issues which means that college students experiencing a different types of academic stressors in Pakistani culture may have mental health issues as well.

Table 5 shows that academic stressors scale total lies greater in mild category as compared to sustaining performance and psychosocial stressors. Psychosocial stressors lie greater in both moderate level and severe level as compared to sustaining performance and academic stressors scale total. Whereas, psychosocial stressors lie less in the very severe range as compared to sustain performance and academic stressors. All these comparisons depend upon the frequency they have.

DISCUSSION

In this study a scale on academic stressors experienced by College students was developed and validated because according to student surveys conducted by the American College Health Association (ACHA) in 2018 and 2019, about 60% of respondents reported "overwhelming" anxiety, while 40% reported depression that made it difficult to function.[17] According to a 2019 report from Pennsylvania State University, demand for on-campus mental health services grew by 30-40% during a period when enrollment only increased by 5%. These mental health services were required because of the various stressors faced by the College students. [18] Though some scales are present in Western culture but they lack certain element which influences mental health in our culture. Students living in different cultures has different problems. East and West may have myriad differences based on culture and education. These differences include the behavior and attitude of people. Eastern people are more traditional than western people. That's why a scale was needed to ensure the assessment of these stressors.[19]

The Exploratory factor analysis revealed two Sub factors one is Sustaining performance and other is psychosocial stressors. The first factor named sustaining performance consisted of 16 items denoted to achieving the lowest grades even doing constant hard work, unable to concentrate on studies due to health issues, unable to concentrate due to lack of learning conducive environment in home/hostel, focusing more to earn rather than need of education , lack of confidence, unable to discuss own problems, no proper guidelines given after getting admission to college, facing difficulty in understanding in a course after coming from Urdu medium to English medium and no proper guidelines for selecting subjects. Focusing more on future, lack of teacher's attention and items related to such content. The themes followed by the stressor experienced by college students are multifactorial and can ascribe different contributing factors.[20] According to a study conducted by [21] revealed a significant relationship between health and academic achievement students who have poor health reports poor academic performance than the students who are healthy. Another study suggests that students sustaining high level of attention shows less stress in academic performance than the students who maintain low level of attention.[22] Also studies shows that student feels a decline in self-efficacy, confidence and performance when they are shifted from their comfort zone and natal language to other, experiencing a cultural shock. These findings fits in with the item that was generated in our study about facing difficulties moving from Urdu to English medium.[23] Hence sustain performance takes a toll on mental health of a student which literature supports that's why the generated factor and items falling under it have strong literature base.

The second factor named psychosocial stressors consists of 14 items that denote taunting by relatives in achieving low grades, siblings' comparison on education

by parents, parents compare their children with relatives' children, in the maintenance of status among relatives; parents pressurize their child to get higher grades, teacher giving work even neglecting the individual differences, teacher perceiving child's problems as lame excuses, wastage of time due to friends, and parents keep acknowledging their children about spoiling their future without achieving higher grades. Researches suggests that College students are prone to innovative academic stressors, such as an extensive academic course load, substantial studying, time management, classroom competition, financial concerns, familial pressures, and adapting to a new environment.[24] In other words, students' excessive stressors from competitive peer pressures, their parents' expectation, and/or instructors' critical comments on their performance negatively influence their motivation in acquiring knowledge and mastering academic tasks. [25] In Pakistani culture a profound value is given to family and expectations of other. As per the items generated in this subscale gives a glimpse of the stressors which arrives from giving that value and being cautious of fulfilling other people expectation hence complying with the social norms. This originated subscale was one of the key findings of this study as this created a difference between our indigenous tool and the scales in west. [23]

This indigenous scale (ASS) relates with the stress theories in a way that it has different types of psychosocial antecedents to cause emotional responses leading to the fight or flight reactions done by college students. [25]Already available scale Academic stress scales by Sheu et al [26]lacks the item related to familial and cultural context which are they key to our scales that's why it was difficult to administer those scale while in Pakistan because they don't encounter all the aspects and hence certain important information could have been failed to make in to new researches. Hence This scale provides with cultural relevance of Pakistan as Pakistan has a collectivistic culture and family of students also affect their performance and hence increases the academic stressors. So this scale will provide us with the beneficial amount of statements which will be helpful in eliciting the academic stressors in college students

CONCLUSIONS

The college students were experiencing a certain proportion of academic stressors and mental health issues that would have a later impact on their routine functioning or mental health in their adulthood. As the research was conducted during Covid-19 time period hence diversity in data was not available this research can be extended to collect more data and see whether the rural or urban population has similar issues or how does they differ. All over the world, research related to the college population is done constantly but in Pakistan, the college population is the most neglected population for research related to mental health factors found in them. As college population is considered a normal population that would have no issues in them in Pakistani culture. Hence the developed scale will help in understanding the academic stressors in Pakistani population.

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Author's Contribution

AJ conceived the idea and performed the data analysis and write up of the manuscript. MK and AS designed the study, collected the data and helped in write up of the manuscript. All authors made substantial intellectual contributions to the study.

Conflict of Interest

Authors declared no conflict of interest

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Data Sharing Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.