

## The mediating role of fatigue in the relationship between stress appraisal and psychopathological symptoms in University students

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**Objective:** To examine the mediating role of fatigue in relationship between stress appraisal and psychopathological symptoms in university students.

**Methodology:** The convenient sample of this study included 1000 full-time regular and self-support students (graduates=500 and undergraduates=500) from the University of Sargodha. Gender was given equal representation. Stress Appraisal Measure, Fatigue Severity Scale, and Four-Dimensional Symptom Questionnaire were used to assess stress appraisal, fatigue, and psychopathological symptoms, respectively. The data were analysed through SPSS version 26 and Process Macro 4.

**Results:** There was a significant correlation among variables in expected directions. Mediation analyses indicated the significant mediating role of fatigue in the relationship between psychopathological symptoms i.e. anxiety and depression.

**Conclusion:** Negative appraisal of academic stressors could create fatigue in university students, which could worsen their mental health. Faulty adaptation of stressors might arise somatic, cognitive, and emotional psychological conditions such as fatigue, anxiety, and depression. (Rawal Med J 202;46:140-143).

**Keywords:** Stress, psychopathological symptoms, anxiety.

### INTRODUCTION

Stress appraisal refers to the process by which the people evaluate and cope with a stressful event.<sup>1</sup> Stress is the body's physiological response to any demand made on it. At the institutional level, there are many stressors that the students may face including semester system, lecture halls, inadequate resources, and overcrowding.<sup>2,3</sup> The students at the university level face lot of new challenges, where they have to struggle with finances, workload, projects and assignments. Students perceive various situations which can affect their performance, activity level, and can create distress.<sup>4</sup> Based on the cognitive-behavioural model, present study proposes that fatigue and distress can result from cognitive appraisals of situations.<sup>5</sup> This model elucidates when they perceive the situation under control there will be less stress and when perceiving it as an uncontrollable threat or challenge it can create a high level of physical and mental stress in them.<sup>6</sup>

The high level of environmental stress can lead to fatigue. Fatigue is a lack of energy or inescapable type of tiredness, which is not exclusively

associated with exertion. The fatigue is reported to repeatedly occur in nonclinical populations such as community samples, healthy adults and students of university.<sup>7,8</sup> The student who believes that they have limited capacity to cope with their stress effectively are susceptible to adverse psychological outcomes including depression and anxiety.<sup>9</sup> University students complain of excessive fatigue due to academic pressure which can result in anxiety and depression.<sup>10</sup> Fatigue can negatively influence students' coping abilities in stressful situations.<sup>11</sup> Fatigue is strongly and positively associated with anxiety and depression. The student with much physical exertion at a day time complain of difficulty in staying or falling asleep at night.<sup>12</sup> The present study aimed to test the indirect effect of stress appraisal on depression and anxiety through fatigue among university students.

### METHODOLOGY

This study employed a survey design in which the sample of 1000 students was recruited through a convenient sampling from different departments of the University of Sargodha. The sample comprised

of an equal number of boys and girls studying in MSc and BS programs. The mean age of the participants was  $21.5 \pm 3.03$  (range 21-29) years.

The self-report measures Stress Appraisal Measure (comprised of 28 items rated on 5- point Likert scale ranged from 1 = not at all to 5 = extremely at all), Fatigue Severity Scale (comprised of 9 items rated on 7- point Likert scale ranged from 1 = strongly disagree to 7 = strongly agree), and Four-Dimensional Symptom Questionnaire (comprised of 50 items were rated on 5 point Likert scale ranged from 0 = no to 4 = very often) were used to measure the variables such as stress appraisal, fatigue, and psychopathological symptoms respectively.<sup>1-3</sup>

**Statistical Analysis:** Statistical analysis was performed using SPSS version 26 and Process macro.<sup>4</sup> The predicted relationships were tested through correlation and mediation analyses for testing the proposed model of the study. Model 4 was specified in the PROCESS macro for SPSS.

## RESULTS

Before assessing the relationships among the variables of the present study, the psychometric soundness of the instruments for measuring various construct was examined. For this purpose, descriptive statistics and internal consistency levels for all scales were determined. The low to moderate values of standard deviations of various scales provide a clue that the scale means were a good approximation of their corresponding parameters. The skewness values of all the scales were also within the acceptable range which suggested that the variable of the present study approximated normal curve in their distributions. Cronbach's alpha coefficients were computed as indices of internal consistency for the measurement of various variables of the present study. The alphas showed that all scales were highly reliable (Table 1).

**Table 1. Psychometric properties (N=1000).**

Variable	n	M	SD	$\alpha$	Range		Sk <sup>a</sup>	Ku <sup>b</sup>
					Actual	Potential		
SAM	28	79.3	14	.82	28-117	28-140	-.80	1.44
Anxiety	12	15	10	.90	0-45	0-48	.51	-.46
Depression	6	6.7	5.3	.83	0-24	0-24	.54	-.63
Fatigue	9	32.2	9.4	.84	9-63	9-54	-.10	.40

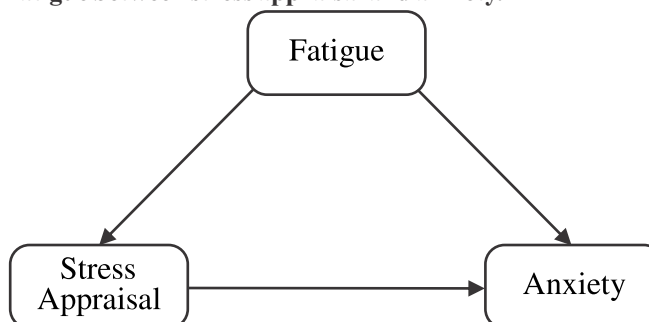
**Table 2. Zero Order Correlations among variables.**

Variables	2	3	4
1. Stress Appraisal	.41***	.37***	.42***
2. Anxiety	—	.80***	.33***
3. Depression	—	—	.28***
4. Fatigue	—	—	—

**Table 3. Mediating effect of fatigue in the relationship between stress appraisal and psychopathological symptoms (depression and anxiety).**

Direct effects					Indirect effect		
Outcome	Predictors	B	LL	UL	B	LL	UL
Depression	Stress Appraisal	.12***	.07	.16	.02*	.00	.05
	Fatigue	.08*	.01	.16			
Anxiety	Stress Appraisal	.28***	.20	.36			
	Fatigue	.25***	.15	.34	.05**	-.01	.10

**Fig. Schematic presentation of the meditating role of fatigue between stress appraisal and anxiety.**



$$B_c = .25***, B_c = .05*$$

There was a significant correlation between stress appraisal, fatigue, anxiety, and depression in a positive direction (Table 2). In the model of anxiety, stress appraisal predicted fatigue (mediator) in positive direction ( $B = .28$ ,  $t = 7.2$ ,  $p < .001$ ) and explained 17 % variance in it, which was statistically significant ( $R^2 = .17$ ,  $F=52$ ,  $p < .001$ ). Stress appraisal ( $B = .25$ ,  $t = 5.3$ ,  $p = .001$ ) and fatigue ( $B = .21$ ,  $t = 3.0$ ,  $p < .01$ ) predicted anxiety (dependent variable) in positive direction and both explained 20 % variance in it, which was statistically significant ( $R^2 = .20$ ,  $F=30$ ,  $p < .001$ ) (Table 3). The statistical diagram of mediation is presented in Figure 2 along with path coefficients.

## DISCUSSION

The results of this study revealed a significant positive correlation among variables of the present

study i.e stress appraisal, fatigue, anxiety, and depression. University students have to keep balance among multiple factors such as family, peer group, and the workplace. This type of stress in students is strongly associated with fatigue and it is a common complaint of students due to stress appraisal. Such type of mental stress cause physiological changes in their body which can result in chronic fatigue.<sup>13</sup>

Depression and anxiety among university students can project a negative influence on their mental and physical health, which can result in psychological illness. The various stressors such as highly competent peers, academic burden, hindrances in approaching desired goal, the transition from college to university level play an essential role in negatively influencing the psychological health of students. These increasing numbers of stressors may deteriorate the mental health of students and result in anxiety and depression.<sup>14</sup>

Fatigue is a physiological process commonly experienced by the normal population especially students due to their hectic routine. It is a complicated symptom associated with many psychological, physiological, and pathological problems.<sup>15</sup> People with long-lasting fatigue mostly become depressed. The potential cause of this positive relation is stress. Stress influences the level of dopamine and serotonin in the body which are important body fluids that play an important part in regulating energy and mood. This can result in body inflammation, which further can lead to fatigue and insomnia.<sup>16</sup>

Stress is good if it motivates but it can be bad and wears down a person's energy causing fatigue.<sup>16</sup> The present study variables were selected on the basis of empirical theoretical background but more extensive work is required to elaborate different aspects regarding difficulties faced by university students. In this study, self-reported measures were used which can introduce common method variance resulting in inflated relationships. Finally, the sample of the present study was drawn from a non-clinical adult population which is not representative of the clinically psychiatric people. Furthermore, the age range of sample was limited. Therefore, the significant next step in this meadow of investigation

would be to replicate and encompass the present research using nonstudent samples and other age groups.

## CONCLUSION

Negative appraisal of academic stressors could create fatigue in university students, which could worsen their mental health. The faulty adaptation of stressors might arise somatic, cognitive, and emotional psychological conditions such as fatigue, anxiety, and depression.

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