MINDFULNESS AND RESILIENCE AS PREDICTORS OF STRESS AMONG UNIVERSITY STUDENTS

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ABSTRACT

Objective: To investigate the relationship of mindfulness and resilience as predictors of stress among university students.

Methodology: Using a cross-sectional survey research design, a stratified random sample of 391(191 male and 200 female) university students from University of Gujrat, Pakistan, participated in current study. Mindfulness was measured through five facet mindfulness questionnaire short form. Resilience was measures by using Connor Davidson resilience scale. Perceived stress scale was used to measure stress level of the participants. Data were analyzed using SPSS version 20.

Results: There was significant positive relationship between mindfulness and resilience (r = .24, p < .001); significant negative relationship between mindfulness and perceived stress (r = -.49, p < .001); and resilience and perceived stress (r = -.12, p < .05). Hierarchical multiple regression analysis revealed that demographics, mindfulness and resilience overall accounted for 26% variance on perceived stress.

Conclusion: Mindfulness and resilience were statistically significant predictors of stress among university students. Gender and age were also significant predictors of stress.

Key Words: Mindfulness, Resilience, Stress, University students

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INTRODUCTION

The years of attendance at university can be challenging and the environment may put the students in demanding social as well as academic circumstances. Literature on stress and its associated factors suggest that university students experience higher level of stress as compared to their counterparts who are not attending university¹. A sum of burdens apparently encompass educational stress like time management, course requirements, financial issues, interaction with teachers, social activities, adjustment issues and lack of social support². Individuals experiencing stress reduce their stress level by using external and internal resources3. When resources are related to his/her personality they are called internal resources like mindfulness, resilience, hardiness and optimism. When these resources are outside the individual then they are called external resources. Such personality resources have buffering effect to reduce stress among students4.

Mindfulness initiated from the Buddhist tradition and is often denoted to as an ability, skill or procedure which encompasses giving attention to the current moment with intentionality and lacking judgment⁵. This word has correspondingly been well-defined as "moment-by-moment awareness" and as "a state of psychological freedom that occurs when attention remains quiet and limber, without attachment to any particular point of view"⁶⁷.

In all-purpose, investigators have proposed that mindfulness endorses mental and physical well-being⁸⁻¹⁰. Some studies has explored the benefits of trait mindfulness and investigate that mindfulness has a strong association with other personality factors like resilience as well as has a predictive relationship with stress symptoms^{9,11}. By adjusting your mind only on the present, individuals can learn not to take a wrong turn in regret or remorse over the past or fears regarding the future. Removing such thoughts might assist you in reducing anxiety and agree to take things as they are. Mindfulness explains to control your mind so that your mind doesn't control you. In this way, your ability to cope with stressful situations improves and your stress level decreases^{11,12}.

Resilience has been defined as capacity to recover from difficulty and as a productive personality characteristic that improves individual adaptation and controls the adverse effects of stress¹³. Resilient individuals have a tendency to marked adaptive behaviors, particularly in the zone of morale, social working and physical well-being¹⁴. Furthermore, resilient person has a tendency to be optimistic in every situation even within stress¹⁵. Hence, it can be supposed that resilience can work to stimulate soothing at deeper, easygoing, however, yet more effective level¹⁶.

"Stress is perceived discrepancy between internal and external demands of the individual and his/her perceived ability to handle the situation". The person's personal assessment of the situation and potential hazard are vital constituents in this practice. The person attempts to react to the peripheral hazard by using coping resources. This procedure is affected through the environment plus the degree of burdens; characteristics of the person; the societal support accessible to the individual; and the restraints underneath which the coping practice takes place¹⁷.

Investigators have exposed abundant educational stressors that students usually come across. These educational stressors include personal aims, social acts, adjustment issues and lack of social support¹⁸. Similarly, past studies' results have connected educational stress to bunking off, adverse results of sickness and performance decline¹⁹. On the other hand mindfulness and resilience have been found to reduce or neutralize stressors among students^{4, 14, 20-26}. The current study explored the relationship of mindfulness and resilience as independent variables and stress as dependent variable among university students. By increasing the level of mindfulness and resilience of university students would help them to reduce their stress level. Following were the study hypotheses: 1). university students scoring high on mindfulness would score low on perceived stress; 2). university students scoring high on resilience would score low on perceived stress; 3). university students scoring high on mindfulness would score high on resilience; and 4). mindfulness and resilience would predict perceived stress among university students.

METHODOLOGY

This study was completed during the period of September, 2015 to November, 2016. Cross sectional survey research design was used in the current study. A stratified random sample of 391 university students was recruited from three main strata (faculty of social science, engineering, health and medicine) of University of Gujrat, Pakistan. Desired sample size was determined by using the formula of 'n = N/1 + N (0.05)2' to know how many respondents should participate in the study. Each main stratum was divided into sub-strata based on years spent in the university. Each member of the population was identified as a member of one of the strata.

After that, for each stratum, a number was assigned to each member from zero to the required number. In the final step random-number table was used to select the appropriate number of subjects from each of the strata. Following inclusion criteria was used: age range of the participants was 18-25 years; and only BS students were included in the study. Masters, M.Phil. and PhD students were excluded from the study. The study researchers developed demographic information form to get information about participants' gender, age, region of residence, residence in hostel or home, department, semester/year, parental education, family monthly income, family system and number of siblings.

Urdu version of five facet mindfulness questionnaire short form (FFMQ-SF) by Baer (2003) was used to measure mindfulness^{8,27}. FFMQ-SF consists of 24 items on 5-points rating scale ranging from 'never or very rarely true =1' to 'very often or always true =5'. FFMQ has good internal consistency with Cronbach's alpha (.93)²⁸. For current research internal consistency was (=.75).

Urdu version of Connor-Davidson resilience scale (CD-RISC) by Connor & Davidson (2003) was used to measure participants' resilience^{29,30}. It consists of 25 items rated on 5-points rating scale ranging from 'not true at all =0' to 'true nearly all the time =4'. Ahern et al³¹ stated that the scale has good internal consistency with Cronbach's alpha of (.89). For current research Cronbach's alpha for CD-RISC was (.90).

Perceived stress scale (PSS) was developed by Cohen et al³² to measures persons' perception of daily life stress. PSS is a self-report measure consisting of 10 items. For current research Urdu version of PSS was used³³. Each item of the scale was assessed on 5-points rating scale extending from 'never =0' to 'very often =4'. Item 4, 5, 7 and 8 are positive worded items, hence they were reverse coded. Orucu et al³⁴ calculated good reliability coefficient for PSS with a Cronbach Alpha value (.84). For the present study, the calculated Cronbach Alpha value was also found good (=0.70).

Essential research ethics were followed throughout data collection. First, written consent to use the measures was gained from corresponding authors of scales. Second, official permission was obtained from registrar, University of Gujrat, Pakistan for data collection from students. Third, a printed contract to take part in the study was filled out from participants. Fourth, they were also assured that their participation in the study is voluntary. Fifth, participants were completely permissible to leave research at any point of time. Sixth, they were also guaranteed that information taken from them will be reserved confidential and will not be used for any purpose except research. Seventh, aim of the research project was also instructed to them. Finally, instructions transcribed on the questionnaire booklet were read to

the students and they were stimulated to enquire any questions related to questionnaire. Average time to complete the booklet of questionnaire was 15-20 minutes approximately.

Data were analyzed using Statistical Package for Social Sciences (SPSS version 20). Descriptive analysis was used to explore the percentages and frequencies of demographic variables. Pearson product-moment correlation was performed to see the relationship among mindfulness, resilience and stress.

Hierarchical multiple regression analysis was utilized to explore the predictive relation of stress with mindfulness and resilience. Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity, absence of collinearity and homoscedasticity. The categorical variables were dummy coded using code 0 and 1. The hierarchical multiple regression analysis was performed in two steps to determine the relationship of demographic variables (gender, age, father's education, mother's education and monthly family income), mindfulness and resilience as predictors and stress as outcome variable. In the first Model gender, age, father's education, mother's education and monthly family income were entered. In the second Model, mindfulness and resilience were entered as the independent variables.

RESULTS

Out of 391 university students,191 were males and 200 were females. Among these, 182 participants were social science students, 106 were engineering students and 103 were medical students. Demographic characteristics are shown in Table 1.

Table 2 showed that all variables were significantly correlated with each other in expected directions. There was significant negative relationship between stress and mindfulness as well as stress and resilience. Moreover, significant positive relationship between mindfulness and resilience was found.

Table 3 showed the results of regression analyses. Model 1 which included demographic variables was significant. The demographic variables accounted for 4% of the variance in stress scores. The model 2 including mindfulness and resilience which jointly accounted for 22 % of variance in stress scores. Overall demographics, mindfulness and resilience explained 26% variability in stress and mindfulness turned out to be the strongest predictor of stress. These results indicated that gender, age and mindfulness were statistically significant predictors of stress among university students. Age and mindfulness correlated negatively with stress whereas being female gender correlated positively with stress of university students.

DISCUSSION

The findings of current study supported the hypothesis declaring inverse association among mindfulness and stress. This displays that student having higher level of mindfulness experienced lower level of stress. This finding was in line with the former research findings regarding the association between mindfulness and perceived stress. Tanzini³⁵ argued that promoting mindfulness as intervention in students may be useful to reduce the effects of stress. Similarly, Palmer et al³⁶ reported significant negative relationship between mindfulness and perceived stress. This inverse relationship among mindfulness and perceived stress has also been described in other earlier researches^{4,11,20,22,24}. Gustafson et al²⁰ explored that mindfulness has a significant negative association with perceived stress as well as burnout. Similarly, McGillivary et al⁴ suggested that university students who scored high on mindfulness, significantly scored low on psychological distress. Several researches concentrated on the association among mindfulness and stress in different countries also supported the existing study results. These countries incorporated Australia, America and Canada^{7,13,26,36}. Respondents to these studies were also students. Findings of these studies also explored significant negative relationship between mindfulness and perceived stress.

Findings of present study showed significant negative relationship between resilience and stress. This finding confirms the hypothesis describing negative association between resilience and stress. This finding revealed that university students who are resilient experience lower level of stress. The present finding is consistent with previous researches. Sahi et al¹³ investigated the significant negative association between resilience and stress. Similarly, Mathur et al³⁷ reported that resilience is significantly negatively correlated with perceived stress. In another study, Shilpa et al³⁸ investigated the negative relationship between perceived stress and resilience³⁸.

Negative association among resilience and stress is also reported in other previous researches^{4,11,14,22,38,39}. Findings of the current study are also supported by the studies conducted in other countries regarding the association between resilience and stress. These countries included Australia, Iran, India and United Kingdom^{4,11,13}, ^{22,25,37-39}. Studies using different sample like college students, personnel of emergency social services, athletes, nursing students and social work students also supported the findings of current study stating the significant inverse relationship between resilience and stress^{13,14,21}, ^{22,26,39}. Furthermore, our results suggested significant positive relationship between mindfulness and resilience. University students scored high on mindfulness scale also scored high on resilience scale. Consequently,

Table 1: Demographic characteristics of the sample (n=391)

Variables		Frequency	Percentage
Caralan	Male	200	51.2
Gender	Female	191	48.8
	18-21 (Younger)	253	64.7
Age	22-25 (Older)	138	35.3
5	Urban	253	64.7
Region of Residence	Rural	200 191 253 138 253 138 253 138 150 241 182 106 103 24 24 24 30 25 27 26 26 26 36 36 35 35 103 95 93 95 88 20 149 242 216 175 142	35.3
	Hostel	150	38.4
Residence	Home	241	61.6
	182	46.5	
	Engineering	106	27.1
	Medical	103	26.3
	Economics	24	6.1
	Education	24	6.1
	History	30	7.7
	International Relations	25	6.4
	Political Science	27	6.9
Department	Psychology	26	6.6
·	Sociology	26	6.6
	Chemical Engineering	36	9.2
	Electrical Engineering	35	9.0
	Mechanical Engineering	35	9.0
	MBBS	103	26
	1st	95	24.3
1st	2nd	93	23.8
	3rd	95	24.3
	4th	191 253 138 253 138 253 138 150 241 182 106 103 24 24 24 30 25 27 26 26 26 36 36 35 35 103 95 93 95 88 20 149 242 216 175	22.5
	5th	20	5.1
	Matric or Below Matric	149	38.1
Fathers Education	Above Matric	150 241 182 106 103 24 24 24 24 30 25 27 26 26 26 36 35 35 103 95 93 95 88 20 149 242 216 175 142 249 231 134 26 248	61.9
	Matric or Below Matric	216	55.2
Mothers Education	Above Matric	175	44.8
	Below 50000	142	36.3
Monthly Family Income	onthly Family Income		63.7
	Above 50000 249		59.1
Family System	Joint	134	34.3
	Extended	26	6.6
	Less than 5	248	63.4
No. of Siblings	More than 5	143	36.6

Table 2 Inter-correlation among mindfulness, resilience and stress (n=391)

Vari	ables	M	SD	1	2	3
1.	Stress	19.76	5.53	-	49***	12*
2.	Mindfulness	71.57	9.11		-	.24***
3.	Resilience	64.59	16.59			-

Note: ***p <.001, *p <.05

Table 3: Stress prediction among the university students from mindfulness and resilience (n=391)

Steps and Predictor Variables	ΔR^2	SEB	β
Step 1			
Control variables	.04*		
Gender		.57	.12*
Age		.59	11*
Father's Education		.64	10
Mother's Education		.64	.05
Monthly Family Income		.60	05
Mindfulness		.03	48***
Step 2	.22***		
Resilience		.02	.01
Total R ²	.26***		

Note: *p <.05, ***p <.001

ability to cope with stressful situations improves and the stress level decreases^{40,41}. The findings of the research by Keye et al¹¹ revealed significant positive relationship between mindfulness and resilience. Similarly, Jobs⁴² showed that mindfulness boosts resilience among university students in stress.

Mindfulness significantly predicted the stress among university students. Our findings indicated that demographics, mindfulness and resilience overall accounted for 26% variance in stress among university students. These are consistent with past research findings indicating mindfulness as significant predictor of perceived stress³⁵. These researchers proposed that mindfulness could decrease the negative consequences of stress. Stress decreasing effects of mindfulness have been described by other investigators^{22,36}. Being mindful helps the individual in reducing their stress by increasing their resilience. The effect of mindfulness on stress has been studied by several researchers. Results of all these researches revealed that individual having higher mindfulness level were more adjusted to perceived stress as compared to individual having lower level of mindfulness^{28,38}. Thus, mindfulness is the strongest predictor of stress^{23,27,37,39}.

Gender and age were also significant predictors of stress. Age correlated negatively with perceived stress among university students. These findings are consistent with previous research findings by Rosiek et al43. They reported that students near the end of their education cope better with academic pressure and perceived low level of stress as compared to students starting their universities. Similary, Khan et al44 observed the age as significant predictor of academic stress⁴⁴. In another study, Trueman et al⁴⁵ revealed that younger students feel more adjustment difficulties. The older students described improved time managing abilities as compared to younger students, because they have cultured and accustomed themselves with fruitful time managing conducts which in turn leads to less academic stress and anxiety. It was further reported in regression results that being female gender correlated positively with stress of university students. Females have poor adjustment to stressful life events and perceive greater level of stress as compared to males^{46,47}. Calvarese⁴⁸ reported gender as significant predictor of stress. Similarly, Matud⁴⁹ investigated that gender is the strongest predictor of stress⁴⁹.

LIMITATIONS

There are some limitations of the study. First, the current results have restricted generalizability for the reason that research sample comprised university students merely from University of Gujrat. A representative probability sample of university students from all over Pakistan is suggested for such a research so that the

results may have maximum external validity. Second, there is a possibility that contributor's self-presentational concerns have influenced their answers. Finally, forced-choice questions used in this research might leave not adequate chance for discrepancy in choices.

CONCLUSION

Mindfulness and resilience were statistically significant predictors of stress among university students. Gender and age were also significant predictors of stress.

IMPLICATIONS

Overall, the present study has several implications. First, it added to the body of literature on mindfulness, resilience and perceived stress related to university students. Second, the present research highlighted the importance of mindfulness and resilience in students' life because their life is full of stressors. Third, the current study have applied implications in the sense that training of university students can help to enhance their mindfulness and resilience in order to deal with stress. Finally, a key implication of this research is that administration of universities must be aware of the practicality of the research for the management of operational atmosphere of university students. Matters regarding stress of university students need to be spoken quickly. Enduring, unaddressed matters of student life stress are expected to increase physical and psycho-social problems for university students.

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CONTRIBUTORS

STZ conceived the idea, planned the study and drafted the manuscript. SR helped acquisition of data, did statistical analysis and critically revised the manuscript. All authors contributed significantly to the submitted manuscript.