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 measured 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

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 students3.

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 judgment4. 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”5,6.

In all-purpose, investigators have proposed that mindfulness endorses mental and physical well-being7-10. 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 symptoms11,12. 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 decreases11,12.

Resilience has been defined as capacity to recover from difficulty and as a productive personality charac-
teristic that improves individual adaptation and controls the adverse effects of stress\(^{13}\). Resilient individuals have a tendency to marked adaptive behaviors, particularly in the zone of morale, social working and physical well-being\(^{14}\). Furthermore, resilient person has a tendency to be optimistic in every situation even within stress\(^{15}\). Hence, it can be supposed that resilience can work to stimulate soothing at deeper, easygoing, however, yet more effective level\(^{16}\).

“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 place\(^{17}\).

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 support\(^{18}\). Similarly, past studies’ results have connected educational stress to bunking off, adverse results of sickness and performance decline\(^{19}\). On the other hand mindfulness and resilience have been found to reduce or neutralize stressors among students\(^{5,16,20-26}\). 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\(^{22-27}\). 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’. Ahem et al\(^{31}\) 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 al\(^{32}\) 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 used\(^{33}\). 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 al\(^{34}\) 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 (\(=.70\)).

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 min-
utes 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 cor-
relation was performed to see the relationship among
mindfulness, resilience and stress.

Hierarchical multiple regression analysis was util-
ized 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 ho-
moscedasticity. 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 (gen-
der, 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 edu-
cation 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 charac-
teristics 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 sig-
nificant. 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 pre-
dictors 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 hypo-
thesis declaring inverse association among mindfulness
and stress. This displays that student having higher lev-
el of mindfulness experienced lower level of stress. This
finding was in line with the former research findings re-
respecting the association between mindfulness and per-
ceived stress. Tanzin33 argued that promoting mindful-
ness 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 de-
scribed in other earlier researches.13,20,22,34, Gustafson et
al33 explored that mindfulness has a significant negative
association with perceived stress as well as burnout.
Similarly, McGillivray et al31 suggested that university
students who scored high on mindfulness, significantly
scored low on psychological distress. Several research-
es concentrated on the association among mindfulness
and stress in different countries also supported the ex-
isting study results. These countries incorporated Aus-
tralia, America and Canada.7,12,26,36. 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 associa-
tion 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 al33 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 al34 investigated the negative
relationship between perceived stress and resilience38.

Negative association among resilience and stress is
also reported in other previous researches.11,14,22,38,39
Findings of the current study are also supported by the
studies conducted in other countries regarding the as-
sociation between resilience and stress. These countries
included Australia, Iran, India and United Kingdom.4,11,13,
22,25,27,39. Studies using different sample like college stu-
dents, personnel of emergency social services, athletes,
nursing students and social work students also support-
ed 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 resil-
ience. University students scored high on mindfulness
scale also scored high on resilience scale. Consequently,
<table>
<thead>
<tr>
<th>Variables</th>
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<tr>
<td>Above 50000</td>
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<td>34.3</td>
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<td>Extended</td>
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<td>63.4</td>
</tr>
<tr>
<td>More than 5</td>
<td>143</td>
<td>36.6</td>
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</table>
ability to cope with stressful situations improves and the stress level decreases\textsuperscript{10,41}. The findings of the research by Keye et al\textsuperscript{11} revealed significant positive relationship between mindfulness and resilience. Similarly, Jobs\textsuperscript{42} 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 stress\textsuperscript{39}. These researchers proposed that mindfulness could decrease the negative consequences of stress. Stress decreasing effects of mindfulness have been described by other investigators\textsuperscript{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\textsuperscript{28,38}. Thus, mindfulness is the strongest predictor of stress\textsuperscript{29,27,37,39}.

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 al\textsuperscript{19}. 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. Similarly, Khand et al\textsuperscript{44} observed the age as significant predictor of academic stress\textsuperscript{44}. In another study, Trueman et al\textsuperscript{45} revealed that older 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 conduct 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\textsuperscript{46,67}. Calvarese\textsuperscript{48} reported gender as significant predictor of stress. Similarly, Matud\textsuperscript{69} investigated that gender is the strongest predictor of stress\textsuperscript{69}.

### 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 has 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.

REFERENCES

21. Kermani NG, Mahani NBZ. Relationship between psychological hardness, their resiliency and hope

22. Neelarambam K. Trait Mindfulness as a Mediator of Resilience, Depressive Symptoms, and Trauma Symptoms. Georgia State Univ; 2015. Available at: https://scholarworks.gsu.edu/cgi/viewcontent.cgi?referer=https://www.google.com/httpsredir=1&article=1111&context=cps_diss


35. Tanzini E. Health, Wellbeing, and Academic Achievement among Urban College Students. Depart Psychol City Coll New York; 2015. Available at: https://academicworks.cuny.edu/cc_etds_theses/371/


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.