ORIGINAL ARTICLE

EXPLORING COPING STRATEGIES FOR STRESS MANAGEMENT AMONG UNDERGRADUATE MEDICAL STUDENTS

Ayesha Tariq[1], Nabia Tariq[1] Kiran Jabeen[2], Sajida Naseem[2]
[1]Shifa International Hospital Islamabad, [2]Shifa College of Medicine Islamabad-Pakistan

Background: College is the time where most mental health disorders are triggered. Due to an extremely strenuous curriculum, medical students are prone to develop high levels of stress. Teaching students stress management skills can be crucial for their mental and physical well being. Objectives of the study were to measure perceived stress level among undergraduate medical students of Year 5 using PSS Scale, and to explore if students find stress management activities helpful in reducing stress. **Methods:** It was a quasi experimental study.5th year medical students were asked to take part in a full day workshop regarding stress management. During the day they were introduced to different stress management activities. Stress levels were measured using PSS before the workshop and 1 month after the workshop. **Results:** On the PSS 1, 17.9% participants scored in the low stress category, 61.1% participants scored in the moderate stress category and 21.1% scored in the high stress category. On the PSS 2, 11.6% participants scored in the low Stress category, 76.8% participants scored in the moderate stress category and 11.6% scored in the high stress category. Pre and post intervention PSS stress results were statistically significant, $p< 0.05$. **Conclusion:** Majority of the final year students had moderate stress. Training undergraduate medical students in integrated stress relieving activities can help lower their perceived stress.

Keywords: Medical Students; Stress; Coping strategies

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INTRODUCTION

Medical Schools present students with one of the most challenging and demanding curriculum instigating continuous stress for those who chose the field. Having multitude of adverse effects on the personal and professional lives of medical students, stress is becoming extremely common.[1] A recent meta-analysis revealed that prevalence of depression in medical students was 27.2% and that of suicidal ideation was 11.1%.[2] Research has linked increased dropout rates from medical school and poor academic performance to increasing levels of distress.[3] Furthermore, distress and depression in physicians has been correlated with a decrease in quality of patient care due to increased medical errors and reduced empathy.[4]

Past studies on Pakistani Medical students revealed very low empathy, demanding educationists and policymakers to review the curriculum in undergraduate medical education for enhancing empathy for effective doctor-patient communication and health outcomes.[5,6]

The inability to cope with stress and emotional deregulation can compromise a physician's ability to deliver good quality medical care with compassion.[7] Over the last several years much research has been done to help medical students manage their stress levels. This includes giving them psycho-education regarding mental health[8], emphasising the role of social support[9] and meditation.[10]

Psycho-education has been known to reduce symptom severity in hopelessness, anxiety, depression, risk of substance abuse and suicidal ideation[8]. One study with 236 first year pharmacy graduates showed that psycho-education significantly improved students grades and decreased lack of motivation, test anxiety and psychological distress.[11] Another study with 1958 medical students revealed psycho-education program to be a significantly effective mode of therapy for decreasing the occurrence of depressive symptoms.[12]

Social support has proven to be an important tool in managing stress. Social support has been evidenced to help manage uncertainty, provide individuals an increased sense of control over their life experiences[9], and helps them towards their goals[13]. In the medical field support from colleagues has been linked the lowered job stress[14], and improved health[15]. It also works as a preventative against possible suicidal ideations[15], common mental disorders and psychiatric symptoms[16].

Meditation has established to be therapeutically beneficial in reducing stress, depression and anxiety.[8] Moreover, meditation has also shown to increase compassion and empathy in

medical professionals.[17,18] A study assessing effects of an 8-week meditation program on physical therapy students showed a significant decline in blood pressure and perceived stress.[19] Research done with medical student shows similar results. A study done with 3rd and 4th year medical students studying the effects of yoga and meditation also revealed a significant improvement in happiness, self-confidence, personal satisfaction and positivity along with a significant reduction in stress leve.l[20] The literature suggests that even though medical students are at the higher risk for developing mental health problems and psychiatric symptoms, alternative form of therapy can be significantly effective in reducing these symptoms and improving quality of life. Little research has been done to explore the effect these alternative methods have on medical students in Pakistan. This study was conducted to: measure the prevalence of stress in final year medical students in a private medical college in Pakistan, and observe the effect of a combination of three different coping strategies (psycho-education, strengthening social support and
meditation) on stress levels

MATERIAL AND METHODS

A cross-sectional study was conducted at Shifa College of Medicine, Islamabad, Pakistan from September 2018 to August 2019. Year 5 undergraduate students attending the Obstetrics and Gynaecology clerkship who were present on the day of workshop in their clerkship were enrolled in the study after taking informed consent.

Ethical approval was taken from the Shifa International Hospital Institutional Review Board and Ethics Committee. Students took part in a full day workshop on stress management. In the first step, students were asked to complete the Perceived Stress Scale (PSS) questionnaire.

The PSS consists of 10 questions with responses taken on a five-point Likert scale (0=never, 1=almost never, 2=sometimes, 3=often, 4=very often). Scores on the PSS range from 0–40. Scores ranging from 0–13 indicate low stress, 14–26 indicate moderate stress and scores from 27–40 indicate high stress.[21]

After filling the questionnaire, students were given a 15-minute interactive presentation regarding psycho-education regarding Mental health, particularly focusing on stress.This was followed by different activities. For first activity participants were divided into 4 groups for a team building exercise designed to strengthen social support. The participants took part in a 90-minute scavenger hunt around the hospital and college. During this time they kept sharing their activity through the mobile data. The second activity was 7-minutes of guided meditation focusing on calming the mind. The last activity spanning 30-minutes consisted of small group discussion regarding sources of stress and coping strategies used by each participant. This concluded the day workshop. One month after the workshop students were asked to fill up the PSS again to analyse any changes in scores from one-time intervention.

Data was entered and analysed using SPSS 20. Frequencies and percentages were calculated and t-tests were performed to see any significant difference among groups. p-value <0.05 was kept statistically significant.

RESULTS

Of the 100 students in the Year 5, 95 participants took part in the study. 49.5% of participants were Female while 48.4 % participants were Male and 2.1% identified in the other category. 15.8% participants had a history of psychiatric illness; among these 4.2% had anxiety, 8.4 % had depression whereas 3.2% did not specify the psychiatric illness. Out of the 95 participants 16.8% were taking prescription medicine for mental illness whereas 15.8% were using recreational drugs.

As seen in Table 1, on the PSS mean scores before the intervention (PSS 1) were 20.46±6.76 which is classified in the moderate category. PSS scores taken one month after the intervention (PSS 2) were 20.17±5.81. The paired samples t-test showed no statistical significance difference between stress scores before and after the intervention p>0.05.

Table-1 shows, Mean PSS 1 for females was 21.57±7.23 while it was 19.06±6.04 for males. On PSS 2 mean stress scores for females was 20.61±5.70 and, mean test scores for males were 19.53 ±5.84. An Independent Samples t-test showed no significant difference between genders post and pre intervention, p>0.05.

On the PSS 1, 17.9% participants scored in the low stress category, 61.1% participants scored in the moderate stress category and 21.1% scored in the high stress category. 17.4% females scored in the low stress category, 58.7% scored in the moderate stress category and 23.9% were in the high stress category. Amongst the males, 19.1% scored in the low stress category, 65.9% scored in the moderate stress category and 14.9% scored in the high stress category. Chi-square test showed no significant difference of proportions between genders, p>0.05.

On the PSS 2, 11.6% participants scored in the low Stress category, 76.8% participants scored in the moderate stress category and 11.6% scored in the high stress category. 4.3% females scored in the low stress category, 80.4% scored in the moderate stress

category and 15.2% were in the high stress category. Amongst the males, 19.1% scored in the low stress category 74.5% scored in the moderate Stress category and 6.4% scored in the high stress category. Chi-square test showed no significant difference of proportions between genders, $p>0.05$.

When the pre and post intervention PSS stress categories (Low, Moderate and High) were compared among all participants using Chi-square test, results were statistically significant, $p<0.05$. Statistical significance was also seen among females when pre and post intervention PSS Stress categories were compared using Chi-square test, $p<0.05$. However, no statistical significance was seen among males in the pre and post intervention PSS stress categories, $p>0.05$. This is presented in Table-2.

In Table-2 there's a significant decrease in overall percentage of students reporting in the High Stress category from 21.1–11.6 %. A decreasing trend can also be seen in males from 14.9% being in the High stress category in PSS 1 which dropped to 6.4%. Amongst females a significant decrease was also seen from High stress category 23.9% in PSS 1–15.2% in PSS 2. Among male participants the percentage of students in the Low stress category was same for PSS1 and PSS2, 19.1%. However, 17.4% of females reported in the Low stress category on PSS1 as compared to 4.3% on PSS2.

As seen in Table-2, more females than males reported in the High Stress category. On PSS 1 23.9% females reported to be in High Stress as compared to 14.9% males. Similarly on PSS 2 15.2 % females reported in the High Stress category as compared to only 6.4% males.

Table-1: Paired Sample T-Tests Pre and Post Intervention.

	Mean	SD	*p*-value
PSS 1	20.46	6.76	> 0.05
PSS 2	20.17	5.81	
Males PSS 1	19.06	6.04	> 0.05
Females PSS 1	21.57	1.06	
Males PSS 2	19.53	5.84	> 0.05
Females PSS 2	20.67	0.84	

Table- 2: Cross-tabulation showing the pre and post intervention PSS Categories

		PSS 1 (%)	PSS 2 (%)	*p*-value
All Participants	Low Stress	17.9	11.6	< 0.05
(N = 95)	Moderate Stress	61.1	76.8	
	High Stress	21.1	11.6	
Males	Low Stress	19.1	19.1	> 0.05
(N = 47)	Moderate Stress	65.9	74.5	
	High Stress	14.9	6.4	
Females	Low Stress	17.4	4.3	< 0.05
(N = 46)	Moderate Stress	58.7	80.4	
	High Stress	23.9	15.2	

DISCUSSION

Perceived Stress was studied in final year students with the specific aim to explore whether interventions designed to reduce stress had any significant effect on the students. Our study found that an alarming 82% of students were experiencing Moderate to High Stress. This is consistent with previous meta-analysis that found perceived to stress vary between 20.9–90%.[22] Studies reporting low percentages of stress have mostly been conducted in first- or second-year students. A study conducted in a private medical college in Pakistan found 30.84% of 1st and 2nd year student to be stressed as compared to 82% students in their final year. Similarly, research at Agha Khan Medical College found 95% of 4th year students and 98% of 5th year students to be the most stressed.[23] This means that perceived stress levels continue to increase throughout medical school years.

More participants in our study scored in the Moderate Stress category post intervention than compared to High Stress category which strongly favours the role of stress relieving activities during medical school. This is consistent with previous research where stress reducing interventions including psycho-education[11,12], meditation[16] and social support[24] building activities have been known to significantly decrease stress levels. A clinical trial with 1181 medical students found psycho-education to have a significant decrease on symptom severity of depression and anxiety. However, the study found reduction in symptom severity at 6 months of trip but no significant effect at 3 months.[25]

This contradicts our study where we found reduction in stress after 1 month after one time workshop. A possible reason for this can be that our study uses a combined intervention approach that is, different interventions were used along with psycho-education.

Furthermore, studies suggest that meditation-based interventions reduce stress and increase forgiveness among undergraduate students.[26] As with psycho-education studies,

research exploring the role of meditation on stress levels also supports intervention to be effective after 6 weeks[16] to 8 weeks[2] of intervention. Our study found reducing symptoms after a one time workshop possibly due to a combined intervention approach.

This study revealed a significant difference between stress categories, pre and post intervention for females but not for males. More females scored in the Moderate Stress category post intervention than compared to Low Stress and High Stress category. There was a significant increase in stress from Low stress category to Moderate stress amongst females. This finding is also supported by Madhyastha that female students experience more academic performance related stress and more difficulties related to curriculum burden, assessments, peer affluences and apprehension regarding poor performance.[27] However, Cohen has reported that there was no significant difference in stress using PSS between male and female students. In addition, private life may conflict with professional life and this may cause stress. Limitations were that we lacked sufficient information, which could assist us in carrying out further analysis about this.

CONCLUSION

The study found an alarmingly high majority of 5th year medical students to have moderate to high stress. Females scored higher levels of stress than male students. There was a significant decrease in stress levels one month after introducing the students to stress management activities including psycho-education, meditation and team building activities. These findings support the fact that training undergraduate medical students in integrated stress relieving activities can help them lower and manage their stress.

Recommendations

There is an urgent need to incorporate stress management activities in the Medical School curriculum because psycho-education, mindfulness based stress reduction programmes and good social support are associated with high levels of satisfaction in particular when delivered on an optional basis. Such programs merit further study as potential health-promotion tools for college populations.

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AUTHORS' CONTRIBUTION

AT: Conceptualizing and administering questionnaire, writ up. NT: Organizing workshop and writeup of discussion. KJ: Facilitating workshop, data collection, data entry. SN: Statistical analysis.

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Address for Correspondence:

Ayesha Tariq, House 623, street 95, Sector I-8/4, Islamabad-Pakistan
Cell: +92 323 559 1446
Email: ayesha.tariq@shifa.com.pk