RESEARCH ARTICLE

Resilience, coping and Personal Factors of medical students at a Public University; Karachi, Pakistan

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Abstract

Objective: To assess resilience levels of medical students, identify factors associated with it, and explore association between coping styles and resilience level among medical students.

Method: The analytical, cross-sectional study was conducted at the Dow Medical College, Dow University of Health Sciences, Karachi, from February to June 2022, and comprised medical students regardless of gender and the academic year. Data was collected using self-administered socio-demographic form, Brief Resilience Scale and Brief Cope. Data was analysed using SPSS 28.

Results: Out the 301 participants, 197(65.4%) were females and 104(34.6%) were males. The overall mean age was 20.7±1.849 years. Of the total, 132(43.9%) students had low resilience, with males having better resilience compared to females ($p<0.001$). Higher resilience was seen in year 1 students compared to those of clinical years ($p=0.029$). There was a significant positive correlation between high resilience and problem-focussed coping, while a significant negative correlation was found between resilience and avoidant and emotionally focussed strategies ($p<0.05$). There was a significant negative correlation between resilience levels and age ($p<0.025$). There was a significant difference in resilience scores with respect to the last grade point average, sleep hours, and hours spent studying ($p<0.05$).

Conclusion: More than one-third medical students demonstrated low resilience, and the majority reported adopting emotion-focussed coping style.

Key Words: Resilience, psychological, adaptation, psychological, demography, sleep

(JPMA 74: S-14 (Supple-2); 2024) **DOI: https://doi.org/10.47391/JPMA-DUHS-S04**

Introduction

University life is considered to be the most challenging part of life as students have to adapt to a new learning environment and leave the high school behind.[1] Undergraduate medical students are more likely to experience stress and burnout due to multiple factors, like extensive course curriculum, living alone, heavy academic pressure, meeting deadlines, changing exam patterns, competitive assessments, building interpersonal relationships, making new social connections, and a continuous struggle to become an efficient medical practitioner.[2] Stress has serious effects on medical professionals and can lead to poor clinical and academic performance, marked by substance abuse, high suicide rates, psychological distress and decreased self-care.[3] Healthcare professionals, especially doctors, need to demonstrate adaptability, flexibility and endurance to handle the high levels of physical and psychological stress that they face in their personal and professional lives.[4] One systematic review reported that the overall prevalence of depressive symptoms among undergraduate medical students was 27.2%, while 11.1% students had suicidal ideation.[5] Therefore, the impact of stress on mental health of medical students is a significant issue that needs to be addressed.

The term 'resilience' is defined as the ability to bounce back from or overcome difficult situations and adversities of life, or to adjust easily to misfortune or change.[6] In other words, it is the ability to face challenges and cope with them, or an individual's positive response in difficult situations. The need for adaptation starts when an individual leaves the safety of a familiar environment and enters a new domain.[1] Resilience plays a pivotal role in adapting to the changes of university life, overcoming the hurdles and maintaining personal and professional relationships, as is the case with medical students. Therefore, it has been seen that students with high resilience perform much better than those with low resilience.[1,7] A study on 200 medical students reported significant predictive relationship between resilience and psychological wellbeing, and of resilience and emotional intelligence with psychological wellbeing of medical students.[4]

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Coping is the ability of an individual to deal with stressful events or difficulties in life, and coping styles refer to the cognitive and behavioural changes that develop in individuals in response to the stress they face.[8] It is the ability to balance one's emotional condition in the face of challenges in life, be they academic, professional or personal.[2] Three different types of coping strategies have been described: problem-focussed coping (PFC), emotion-focussed coping (EFC) and avoidant coping (AC). PFC refers to active focus on the difficult situation, while EFC refers to emotional reactions to control stress.[1] AC is a negative coping style in which students avoid the problems instead of facing it.[9] Medical students demonstrate a high level of burnout, which, in turn, may lead to inappropriate coping behaviours, such as alcohol and drug abuse, as well as disturbed mental health.[10]

It has been seen that positive coping mechanisms had a direct and negative impact on anxiety.[11] In addition, a study done on university students in Spain reported that total resilience score was positively associated with total coping strategies.[12] Similarly, a study conducted on undergraduate medical students in India showed a positive correlation between resilience and PFC.[2]

To the best of our knowledge, limited work has been done on resilience and coping mechanisms of medical students in Pakistan. The current study was planned to assess resilience levels of medical students, identify factors associated with it, and explore the association between coping styles and resilience level among medical students in a public-sector setting.

Subjects and Methods

The analytical, cross-sectional study was conducted at the Dow Medical College, Dow University of Health Sciences (DUHS), Karachi, from February to June 2022. After approval from the institutional ethics review board, the sample size was calculated using the Australian Bureau of Statistics calculator[13] based on the least proportion 10% and absolute precision 1 with 95% confidence interval (SI) and bound on error 5%.[2,4] The sample was raised using simple random sampling technique. Those included were medical students regardless of gender and the academic year. Students undergoing exams at the time of data-collection and those with special communication needs were excluded.

After taking informed consent from all the subjects, data was collected using a self-administered questionnaire that consisted of a section to explore demographic and academic data, while the other sections comprised the Brief Resilience Scale (BRS)[14] and the Brief Coping Orientation to Problems Experienced (COPE) scale.[15] The BRS consisted of 6 questions that were scored on a 5-point Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree. The total score ranged 6-30, which was divided by the total number of questions, and the value resilience was categorised as low (1-2.99), normal (3-4.30) and high (4.31-5.00).

Brief COPE measured the coping styles on three subscales of PFC, EFC and AC. The questionnaire had 28 items rated on a 4-point Likert scale, with responses ranging from 1 = 'I haven't been doing this at all' to 4 = 'I have been doing this a lot'. The total score was not calculated, and the 3 subscales were used separately to evaluate the coping style of the students. Data was analysed using SPSS 28. Data normality was assessed using the Shapiro-Wilk test. Data was expressed as frequencies and percentages or mean ± standard deviation, as appropriate. Pearson's correlation coefficient was used to assess the correlation between coping styles and resilience of students. To identify the relation of socio-demographic variables with resilience level, t-test was used to compare the groups. Analysis of Variance (ANOVA) with the Dunn-Bonferroni test as a post-hoc test was used for intergroup comparison. The relationship between resilience and other significant factors were explored with one-way ANOVA while keeping resilience category as the independent variable. $P<0.05$ was considered statistically significant.

Results

Of the 1,684 students on the campus, 301(17.87%) were enrolled; 197(65.4%) females and 104(34.6%) males. The overall mean age of the students was 20.7±1.849 years (range: 17-30 years). There were 67(22.3%) Year 1 students, 69(22.9%) Year 2, 63(20.9%) Year 3, 36(12.5%) Year 4 and 66(21.9%) Year 5. There were 287(95.3%) students who were single and 10(3.3%) were married. In terms of parental education, 194(64.5%) mothers and 243(80.7%) fathers of the participants had higher education or above. There were 251(83.4%) students living with their parents, 29(9.6%) lived in hostels, and the rest had other living arrangements. Students scoring >3 grade point average (GPA) were 198(65.8%), and 196(65.1%) reported their parents as their major social support system.

Of the total, 132(43.9%) students had low resilience. The level of resilience was significantly associated with gender, age, academic year, time spent pursuing hobbies, time spent studying, hours of daily sleep and last GPA achieved (Table 1).

There was a significant positive correlation between high resilience and PFC, while a significant negative correlation

Table-1: Mean scores of resilience and associated factors.

Variables	Low N	Normal N	High N	Mean Score	SD	ANOVA/t-test p-value
1st Year	23	38	6	3.21	.752	. 029
2nd Year	24	42	3	3.15	.769	
3rd Year	34	27	2	2.84	.701	
4th Year	15	18	3	3.08	.761	
5th Year	36	27	3	2.94	.718	
Age						
17-19 years	31	52	5	3.05	.742	r = - .120
2—22 years	78	762	10			(p =< .025)
23-25 years	22	24				
>25 years	1					
Gender						
Male	33	64	7	3.25	.665	< .001
Female	99	88	10	2.94	.75	
Status						
Married	4	5	1	2.96	.719	.939
Single	126	145	16	3.05	.747	
Divorce	2	2	0	2.78	.343	
Living arrangements						
Hostel	7	18	4	3.29	.759	.241
Living with parents	113	126	5	3.03	.740	
Living with relatives	5	5	1	3.22	.757	
Living alone	5	2	0	2.57	.543	
Education of Mothers						
Primary (class 1-5)	4	8	1	3.10	.668	.886
Secondary (Class 6-10)	14	16	3	3.17	.784	
Intermediate (class 1-12)	28	31	2	3.07	.675	
Higher education/postgraduate	86	97	11	3.01	.764	
Education of Fathers						
Primary (class 1-5)	2	2	1	3.13		.064
Secondary (Class 6-10)	3	7	3	3.55		
Intermediate (class 1-12)	19	18	3	3.07		
Higher education/postgraduate	108	125	10	3.01		
Hours spent in pursuing hobbies per day						
None	21	25	0	2.92	.688	P = .023
1-2 hours	65	89	8	3.11	.675	
>2 hours	46	38	9	3.00	.865	
Hours spent in sports per day						
None	65	71	6	2.98	.767	.288
1-2hour	59	73	9	3.11	.729	
>2hours	8	8	2	3.12	.612	
Hours spent studying per day						
None	12	10	1	2.75	.820	.002
1-2hours	66	58	6	2.93	.765	
>2hours	54	84	10	3.19	.679	
Hours of sleep daily						
<7hours	61	62	6	3.00	.699	.018
7-9hours	56	81	10	3.14	.764	
>9hours	15	9	1	2.7	.730	
Last GPA achieved						
<2	3	1	0	2.37	.614	.009
2-3	18	11	1	2.80	.709	
>3	88	101	9	3.03	.744	

ANOVA: Analysis of variance, SD: Standard deviation, GPA: Grade point average.

was found for resilience with AC and EFC (Table 2).

PFC was the most common coping strategy identified (Figure).

Discussion

The current study showed that 152(50.5%) medical students demonstrated normal resilience (3-4.30), but 132(43.9%) showed low resilience (1-2.99), and only 17(5.6%) showed high resilience (4.31-5). Therefore, strategies focussed on enhancing resilience need to be incorporated either in their curriculum or as part of clinical training.

The field of medicine is a noble profession and it demands a lot of hard work, critical thinking and crucial decision-making power. Hence, the individual has to be resilient to overcome all these hurdles to become confident and an expert in this field.[4]

Multiple factors effect resilience level. The current study showed that age, gender, academic year, last GPA, hours of sleep, hours of study and hours spent in leisure activities can influence the level of resilience. The study also noted a negative correlation between age and resilience, suggesting that younger students had better resilience than older students. It can be explained by the enthusiasm, excitement and commitment seen at the start of university life that wanes with the progression

Table-2: Correlation of resilience with coping style.

Variables	Low N	Normal N	High N	Mean Score	SD	ANOVA/t-test p-value
Problem Focus	132	152	17	1.61	.591	r = .191 p = .002
Emotional coping	119	140	16	1.61	.591	r= -.145 p=.012
Avoidant coping	132	152	17	2.35	.545	r= -.275 (P =.001)

ANOVA: Analysis of variance, SD: Standard deviation.

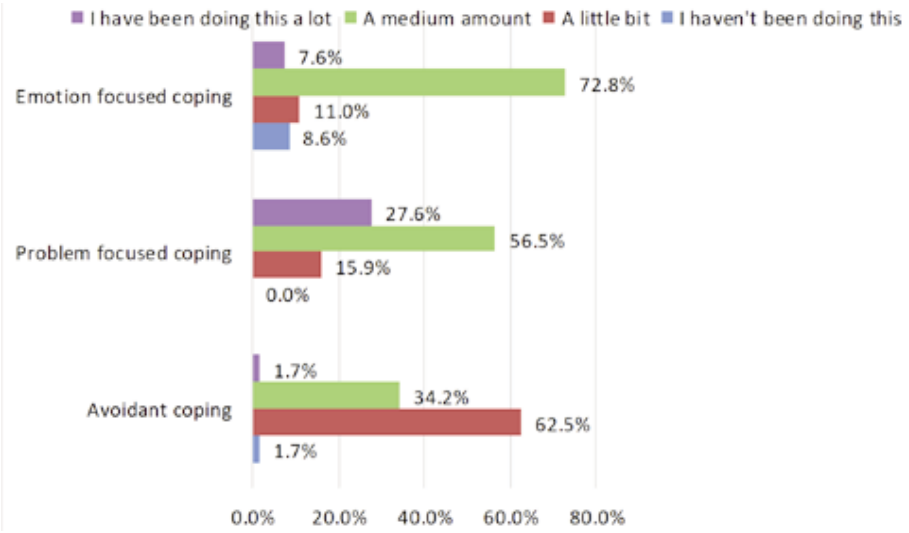

Figure: Frequency of coping styles.

of academic stress. It was also seen that male students demonstrated significantly high resilience compared to female students. This finding was consistent with a study from South Africa,[16] while a study done on adolescents in Pakistan reported significantly high resilience in females compared to males.[17] However, no significant gender difference was noted in studies conducted in India and South Korea.[2,18]

In the current study, 93(30.9%) students were spending more than a couple of hours in pursuing their hobbies, and only 18(6%) were engaged in any sports activity for >2 hours per day. The students who were spending more time in leisure activities showed higher resilience. The reason behind this could be that these types of activities help students in reducing their stress, thereby increasing psychological wellbeing. Another interesting finding of the study was that 129(42.9%) students were taking <7 hours of sleep a day and they had high resilience score. No significant association was found between sleep and resilience in a similar study even though an adult needs sound sleep of 7-9 hours a day.[2] However, this finding can be associated with different sleeping patterns that individuals tend to have.

The current study revealed that first year students had high resilience score, while lowest resilience was seen in third year students. It can be explained by the fact that the third year batch embarks on the clinical journey, which adds another layer of pressure to the existing academic burden. Similar results were reported by studies done in India and Indonesia.[2,19] In contrast, a South African study showed significantly higher resilience scores in clinical years compared to the pre-clinical years 1 and 2.[16]

Three different coping behaviours were explored in the study and it was seen that there was a significant positive correlation between resilience and PFC. Similar findings were reported by studies.[1,2,20] PFC is an active type of coping that involves focussing on the problem by critically examining the situation.[2]

Another significant finding was the negative correlation of resilience with AC and EFC mechanisms. AC is a negative coping style, which adversely affects the quality of life. It can have detrimental effects on mental health and life satisfaction, and, hence, it is associated with increased risk of anxiety and depression.[9] Thus, the role of medical schools in the development of coping behaviours to maintain the wellbeing of undergraduate students is crucial.[10]

The current study has limitations. Firstly, the students were not evenly distributed among the various academic years of the medical undergraduate programme. Second, the sample belonged to a single public-sector medical institution of Karachi. Finally, with a cross-sectional design, the study was not able to explore the causal relationship.

Conclusion

A significant proportion of medical students demonstrated low resilience and negative coping styles. These parameters indicate lesser adaptability to both change and stressful situations. Therefore, there is a need to make the concept of resilience and positive coping

styles a part of the undergraduate training programmes to equip the students with the ability to manage difficult situations.

Acknowledgement: We are grateful to Professor Saba Sohail, Principal, Dow Medical College, for facilitating the study.

Disclaimer: The text was presented as a Poster at the 1st International Conference on BioMedical Sciences: Bridging Basic and Translational Research, organised by the Institute of Biomedical Sciences, Dow University of Health Sciences (DUHS), Karachi.

Conflict of Interest: None.

Source of Funding: None.

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