



CODEN [USA]: IAJPB

ISSN: 2349-7750

**INDO AMERICAN JOURNAL OF  
PHARMACEUTICAL SCIENCES**<http://doi.org/10.5281/zenodo.2529792>Available online at: <http://www.iajps.com>

Research Article

**STRESS AND COPING STRATEGIES AMONG MEDICAL  
STUDENTS: A CROSS SECTIONAL STUDY**<sup>1</sup>Dr. Saman Chaudhry, <sup>2</sup>Dr. Shamaila Asad, <sup>3</sup>Dr. Mishal Sabir<sup>1</sup>Dr Saman Chaudhry. Akhtar Saeed Medical & Dental College, Lahore, <sup>2</sup>Dr Sahmaila Asad. Govt. Post Graduate Islamia College for Women, <sup>3</sup>Dr Mishal Sabir. Indus Hospital, Raiwand Road Lahore**Abstract:**

**Introduction:** Medical education is considered challenging as medical students have to confront diverse varieties of stress during all study years that affects their physical and psychological health and hinder coping abilities. The present study was aimed to examine stress and coping strategies of medical students studying in a private medical college. It was hypothesized that there is likely to be a relationship among stress and coping strategies and differences may exist in stress regarding gender and year of study.

**Methodology:** A sample of medical students N=200 was selected randomly from Akhtar Saeed Medical & Dental College Lahore. Age range of participants was 18 to 26 years (M=21). The Medical Students Stressor Questionnaire MSSQ-40 (Yusoff, Rahim, 2010) was used to assess Stress of medical students and The Brief Coping Orientation to Problems Experienced COPE-28 (Montel, Albertini, Desnuelle, Spitz, 2012) was used to assess Coping skills adopted by medical students. Pearson product moment correlation analysis was carried out to identify relationships among stress, coping strategy and demographics of medical students. T-Test and ANOVA was performed to explore the differences of study variables and demographics.

**Results:** The findings showed a positive relationship between stress and coping. Results revealed gender differences regarding stress and coping. A high stress level was found in female students as compared to male students. Academic stressor was found to be the most influencing factor whereas Avoidance coping was mostly used by medical students in Akhtar Saeed Medical and Dental College, Lahore. A higher stress rate was observed in 2<sup>nd</sup> year medical students among all study years.

**Conclusion:** It was concluded from the results that stress has a positive relationship with coping and differences were found regarding socio-demographics (gender, year of study).

**Keywords:** Medical Students, Stress, Coping strategies, Brief COPE, MSSQ

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Please cite this article in press Saman Chaudhry et al., *Stress and Coping Strategies Among Medical Students: A Cross Sectional Study.*, Indo Am. J. P. Sci, 2019; 06(01).

**INTRODUCTION:**

A cross-sectional research was initiated to study stressors and coping skills among medical students of a private medical college in Lahore. Medical Students are considered an important segment of our youth and according to Punjab government estimation medical students constitute 40% of our total population. This study focused to investigate relationship between stress, coping and socio-demographics. Stress is derived as an emotional disturbance that arises by stressors, which are considered as personal and environmental happenings to ascend stress (Lazarus & Folkman, 1984). McEwen (2007) defines Stress as a word that can be used to describe a person's experience that is challenging emotionally and physiologically. Stressor that mostly affects students may be acute, chronic or traumatic. This study is conducted to find relationship between stress and coping styles adopted by medical students and their socio-demographic factors. Post-secondary education is considered to create a highly stressful environment for students and a further addition to that already stressed environment is medical education and training. Stressors in life of a person are often regarded as negative events, sometime positive change in life can also generate these stressors, thus use of coping skills exceed to adjust with these problems. Freudian theory (1937) suggests that all human beings develop defense mechanisms to avoid or reduce psychological pain. Park and Adler (2003) reported that if coping strategy is used effectively and appropriately it would certainly help medical students in reducing their stress level. The students who participate in extracurricular activities have lower level of stress as compared to those who focus only on their studies.

This study links gender with stress and coping skills in medical students. Male students use more coping skills than female students. Medical training is considered as it is occupied with stress and it is perceived that students undergo excessive stress during different years of their training in academic and clinical rotations. The present study assesses which year is more challenging to students when they feel themselves unable to cope up. The presence of stress related various stressors in the life of a medical student always remained topic of discussion for researchers and research studies all over the world. In medical education these stressors mostly consists of too many assignments, unhealthy competitive learning among students and fear of failure regarding scholastic achievement (Lazarus & Folkman, 1984). The fight or flight concept in theory of stress is basically the body reaction to the fear that is caused by stress. This reaction is actually the automatic preparation of body to face the stress or avoid the

fear. In modern society Stress has become a trending topic of discussion (Anderson & Pulich, 2001) considered an important issue as every individual's perceives and interprets that the demands place on him can be harmful..If stress is intense and continues for a long time period, it can harm academic performance of student and impede his capability to remain fully involved in his academic life; hence the probability of unhelpful destructive behaviors in students arises. (Richlin-Klonsky & Hoe, 2003).

In 2015 a comparative study was conducted in Bangladesh among medical students of 2 Public and 6 Private medical-Colleges, it depicted that an overall prevalence of stress among student population was 54%, where 53% of male and 55% of female were suffering from stress. Academic stressor was found as most influencing stressor among medical students. In 2005 at University of Basrah the stress-prevalence and coping-strategies were identified among medical students. The study consisted of 300 students and a specific questionnaire that included socio-demographics (age, sex, residence and class), academic factors, coping strategies and delay years. The results of the study showed that 44.6% of the medical student's perception regarding stress, and the highest prevalence was among the first year followed by the third year then the fifth year medical students; the major reported stress factor was academic. The results concluded that female students perceive more stress, faced more stressors, and applied more coping strategies than male students. Studies on medical students in the Saudi Arabia and Malaysia have reported stress levels of 26%, 29.6% and 57% respectively. In an article (APA, 2011) it was identified through research that males are more likely to report being diagnosed with chronic physical illnesses as compared to females. This illness is often linked to high stress levels and unhealthy behaviors and living style of students indicating that when it comes to stress management skills there may be some noteworthy gender differences.

There is significant number of empirical researches in Pakistan that have investigated stress and coping skills among students in Medical Colleges and has revealed almost the same results regarding stressors and trend of using coping skills. In 2009 a Study was initiated in undergraduate medical students studying in CMH Medical College. The outcomes of this study underlined academic and psychosocial as the main stressors of concern. A cross sectional study was conducted at Pakistani Medical School to measure perceived stress and coping skills among medical students. The results showed that a significant majority almost greater than 90% think that they

experience stress at one time or another. 94% of male students reported to experience stress. In senior classes students of 4<sup>th</sup> year (95%) and final year (98%) students reported to feel more stressed. Female students reported more stress than male students. Academics and Exams related stressors were found to be most powerful sources of stress. If summarize almost all studies revealed that academic stressors mostly overlay and there is association between socio academic variable and stress as most of female suffering from stressful conditions, While coping strategies used by medical students to manage stress are emotion based as shown in international researches. In Pakistan trend of coping skills is low and should be enhanced.

### Objective of the Study:

The purpose of this study was to advance previous literature by identifying stressed medical students on earlier basis in order to avoid long-term effects of stress and coping skills. This research project tends to find differences among gender and study year regarding stress, and coping styles of medical students of a private medical college in Lahore. The finding of this study and Identification of specific stressors and coping strategies can prove to be a great help for medical student to understand and cope with underlying distress for achieving sound physical and psychological health. This study intends to investigate relationship and explore differences in study variables (stress and coping) and demographics (gender and year of study) among students of a private medical college in Lahore. The goal was to find out whether students' stress is predicted by gender and year of study. It is supposed to identify most influencing stressor and widely used coping among students.

### METHODOLOGY:

This was a quantitative, cross-sectional survey research design conducted to identify stress causing factors and coping skills used among medical students of Akhtar Saeed Medical College (ASMDC), a private medical college in Lahore. A sample of N=200 medical students (male & female) participants with age range of 18 years to 26 years with (Mean=21, SD=1.6) were selected by Random sampling technique from five study years of medical education. The sample was consisted of n<sup>2</sup> =50 Male and n<sup>2</sup> =50 Females. Bachelor of Medicine and Surgery (MBBS) regular and hostilities were included in the study while Bachelor of Dental Surgery (BDS), Doctor of Physical Therapy (DPT), foreigners and Students taking supplementary exam were not included in the study.

Medical Students Stressor Questionnaire MSSQ-40 (Yusuf, & Rahim, 2010) was used to identify six types of stressors among medical students, such as academic, Interpersonal, teaching and learning, social, drive/desire, and group activity stressors. The MSSQ is a self-report and self-scoring tool consisted of 40 items that probe students to rate the intensity of stress caused by each item described above on a scale of 0(causing no stress) to 5(causing extreme stress). Preliminary validation studies specify that the items are consistent and reliable with a high level internal consistency (Cronbach's alpha =.70). factor analysis showed that all items had construct validity and should be included in the survey.

A newly introduced French version of The Brief Coping Orientation to Problems Experienced COPE-28 (Sebastian, Albertini, Desnuelle & Spitz, 2012) was used on a sample of 200 medical students to assess coping strategies. The instrument consists of four coping scales that are more practical and easy to manage for statistical interpretation, scientific messages distribution and summary of findings. These coping scales are labeled as social support with 8 items, problem solving with 4 items, avoidance with 10 items and positive thinking with 6 items. The Brief COPE aimed for easiness of administration and to reduce time burden. Internal consistency was found satisfactory for all scales. Alpha for each item is .40 with standard item-internal consistency, except 2 items of the avoidance scale.

Permissions were taken from the Administration of Medical College. Data was collected by using self-administered tools from equal number of male and female medical students. Informed consent was obtained. In this study pretested and pre designed questionnaires were used. MSSQ included a list of sources of stress among medical students, whereas COPE-28 was administered to assess Student coping styles and a self-developed Socio-demographic questionnaire was comprised of college name, study year, age and gender, sector, motivation to study, and residency. Forms were filled in the class rooms anonymously from a total number of 40 students (20 male students and 20 female students), from each study year. Time taken to fill form was approximately 15-20 minutes. All questionnaires were used in English language. The purpose of study was explained to students before delivering questionnaire. Confidentiality was assured. It took almost 6 months to collect data completely due to the professional and final exams and summer vacations of the students.

**RESULTS:**

The analysis was composed of two parts, descriptive and analytical statistic. Descriptive statistics to identify mean, frequency and standard deviation was applied. Reliability of Medical student stress scale and Coping skills were calculated. The relationship

among variables was found with Pearson product moment correlation. T-test was run to explore differences of gender regarding stress and coping. The mean differences of study year were calculated by one way ANOVA.

**Table 1: Descriptive Statistics**

Variables	M	SD	f	% age
Age (18-26)	21	1.6		
Gender				
Male	-	-	100	50
Female	-	-	100	50
Year of study				
1 <sup>st</sup> year	-	-	40	20
2 <sup>nd</sup> year	-	-	40	20
3 <sup>rd</sup> year	-	-	40	20
4 <sup>th</sup> year	-	-	40	20
5 <sup>th</sup> year	-	-	40	20

**Table 2: Mean, Standard Deviation and Alpha's of Study Variables**

No	Scales	k	M	SD	R/ (min-max)	$\alpha$
1	Medical student stress Questionnaire (MSSQ)	40	100.18	25.57	1.5/1.88	.93
2	Coping Orientation to Problems Experienced (COPE)	28	49.81	9.74	1.07/1.87	.83

Reliability analysis was determined. Medical Student Stress Scale (MSSQ) was measured on a five-point Likert scale with values ranging from 0 to 4, and investigated the stress arising from six different role stressors showed that the Cronbach's alpha values of

the MSSQ scale is ( $\alpha = .93$ ), Coping Orientation to Problems Experienced COPE-28 was measured on four point Likert scale with ( $\alpha = .83$ ). These results indicates that the scales are reliable for this particular study.

**Table 3: Correlations among Demographics and Study Variables (N=200)**

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 Gender		.00	.11	.25**	.37**	.37**	.22**	.21**	.01	.18**	.09	-.04	-.07	.13
2 Year of study			-.12	-.04	-.08	-.08	-.05	-.17*	-.03	-.02	.09	.14*	.08	-.05
3 Academic Stress						.69**	.71**	.58**	.44**	.62**	.02	.05	-.13	-.03
4 Interpersonal							.66**	.64**	.45**	.50**	.04	.02	-.01	.04
5 Teaching & learning								.56**	.44**	.60**	.01	.04	.13	.04
6 Social Stress									.43**	.44**	.11	.05	.070	.15*
7 Drive & Desire										.40**	.04	.08	-.04	.04
8 Group activity											.08	.03	.03	.11
9 Problem solving												.50**	.40**	.55**

**Note:** \*. Correlation is significant at the 0.05 level. \*\*. Correlation is significant at the 0.01 level.

**Table 4: Differences regarding Stress and Coping Strategies by Gender (N=200)**

Variables	Group							95% CI for Mean Difference		Cohen's d
	Male		Female		t	df	sig	LL	UPL	
	M	SD	M	SD						
MSS	92.21	21.92	108.16	26.54	-4.63	198	.02	-22.73	9.16	0.7
CS	49.73	11.37	49.89	7.90	-0.11	198	.06	-2.88	2.56	0.1

**Note:** Medical student stress= (MSS), Coping strategies=CS

T-Test was carried out to identify the differences by gender regarding stress and coping among medical students studying in Akhtar Saeed Medical & Dental College. Results of the -independent samples t-test

indicated that student stress differs between males and females with  $t = -4.63$  (198),  $p < .02$ . On average female students tend to have higher Stress than male students.

**Table 5: Differences regarding Stress & Coping Strategies by Year of Study (N=200)**

(N=200)

Study Variables	Sum of Square	Mean Square	F (df)	sig
Medical student stress	8790.23	2197.55	3.6(4)	.01
Coping Strategies	254.33	63.58	0.7(4)	.62

*p* is significant at the .05

**Note:** Sample=(N), Degree of freedom=(df), Level of significance=(p), Mean difference of variance=(F)

A one-way between subjects ANOVA was conducted to explore the differences in study years regarding Stress and Coping Strategies. Medical students according to their study year were included from (1<sup>st</sup> year, 2<sup>nd</sup> year, 3<sup>rd</sup> year, 4<sup>th</sup> year and 5<sup>th</sup> year). The results indicated a statistically significant difference in study years regarding Stress  $F(4) = 3.53$ ,  $p = .001$ . No significant difference was found regarding Coping strategies.

Post hoc comparisons indicated that the mean score for Stress in 2<sup>nd</sup> year ( $M = 111.22$ ,  $SD = 26.68$ ) was significantly high than the 1<sup>st</sup> year ( $M = 95.50$ ,  $SD = 22.16$ ), 3<sup>rd</sup> year ( $M = 104.32$ ,  $SD = 24.06$ ), 4<sup>th</sup> year ( $M = 93.57$ ,  $SD = 27.89$ ) and 5<sup>th</sup> year ( $M = 96.30$ ,  $SD = 23.43$ ). Summing up all assessments, results suggested that stress really do have an effect on overall medical education years. 2<sup>nd</sup> year medical students have highest levels of stress, A significant moderate stress has been observed in 3<sup>rd</sup> year. Students of 1<sup>st</sup> year and final year almost have equal stress level. In 4<sup>th</sup> year relatively minor stress was noticed.

The results depicted that Social support ( $M = 15.76$ ) strategies and Avoidance coping ( $M = 15.71$ ) were used more often than others strategies for a variety of stressors, while some coping mechanisms seemed less likely to be used when experiencing stresses. Alcohol or drugs were hardly mentioned as a coping method. Mean differences regarding stress showed that Academic matters ( $M = 36$ ) are considered most influencing stressor among medical students from both sectors as compared to drive and desire, social relations, teachers related and group activity stressors.

#### DISCUSSION:

A negative correlation between stress and coping showed that decrease trend in adapting coping strategies can increase level of stress. Students are less inclined toward using coping strategies and trend of avoidance coping during stressful situations is common. Same findings were observed in a study conducted by Ana bassols (2015) on perception of coping among medical students studying at Federal University of Rio Grande do Sul, Brazil, where use of escape/avoidance copying showed a positive

association with stress. The overall low coping trend to overcome stress can be attributed to the lack of time and strict routine of medical studies that students feel themselves unable to get time. As in our stress questionnaire most of the students also mentioned that they find it difficult almost impossible to find time for themselves and family. Female students were found to be more stressed than male students comparatively. This could be because of their sensitivity towards their duties and responsibilities. They seem to take every task more seriously. The present study observed that level of stress decreased as the year of study progressed. Year-2<sup>nd</sup> medical students were found to be more stressed than other study years. Anova results indicated that stress gradually decreased in third year and final year. 1<sup>st</sup> year and 4<sup>th</sup> year student also reported a low level of stress. . In first year due to dislocation of environment many students perceive that it is almost impossible to complete education in time and properly. This can be attributed to the new time tables and study burdens introduced in Year-II. In fresh year they expected medical to be an ideal place of their dreams from the second year they started realizing their responsibilities so after understanding and coping with the situations stress level in 3<sup>rd</sup> year falls. In the present study, as the year of study increases, prevalence of stress was decreasing. The possible explanations could be due to gradual adjustment to the learning environment and usually low rates of failure in later years of the medical education. The highest prevalence of stress was observed in second year students. This was because 2<sup>nd</sup> year students started understanding and realizing core requirements of their study course and trying to come up with the expectations and standards of medical education. This finding is in agreement with results of study by Eva in 2008.

Academic factors were found as one of the most significant stressors in the students. These academic factors could be regarded as cause for the development of stress in students and could also determine the extremity of stress. The students from all five years of study reported academic stress more than other stress causing factors. The famous Researchers Behere (2011) and Abu-Ghazaleh (2016) has studied the significance of different academic factors which can increase stress. Hence, the results observed in the current study are in line with the conclusions of these researchers. Some strategies were used more often than others for a variety of stressors, while some coping mechanisms seemed less likely to be used when experiencing stress. Seeking support from others distracting by work and watching television, finding comfort in religion was

commonly used in different stressful situations. Earlier studies in Malaysia and Jordan reported similar findings. Alcohol or drugs were hardly mentioned as a coping method in this study, as alcohol is prohibited in Pakistan for religious reasons, and this is in line with the findings in study on stress of Malaysian medical students.

### CONCLUSION:

The Findings of present study verified that stress, and coping capabilities are interrelated if it comes to medical education. Academic Stress is more common in students. Female medical students have more stressor than male students. While both male and female students mostly using avoidance coping. Medical student faces more Stress with the increasing study years. Whereas 2<sup>nd</sup> year students are facing more stress as compared to 1<sup>st</sup>, 3<sup>rd</sup>, 4<sup>th</sup> and Final study years. The study will be beneficial for medical college's management as they could take steps to increase academic performance of students via student counseling services. Psychometric assessment will help students to get aware of their underlying stress factors. They would be able to decide whether to take student counseling services. Student Psychologists and medical colleges' administration should help students to overcome stress experienced by them.

### ACKNOWLEDGEMENTS:

"In the name of Allah, most Gracious, most Merciful "First and Foremost praise is to ALLAH, the Almighty, the greatest of all, on whom ultimately we depend for sustenance and guidance. We thank Almighty Allah the most Gracious and Benevolent, who has bestowed upon us all the determination and strength to complete the task. Our deepest appreciation to the Management of Akhtar Saeed Medical & Dental College, Chairman Dr Farooq Saeed Khan and Principal Prof Dr Hamid Javed Qureshi for their moral support and permission to involve their medical students in this study and enabled us to complete our project. Acknowledgement would be incomplete without mentioning the help and emotional support given by our Parents and Siblings. They were always there to encourage. May Allah Bless them always.

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