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STRESS AND ITS RELATED FACTORS AMONG STUDENTS OF KHAWAJA MUHAMMAD SAFDAR MEDICAL COLLEGE

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Abstract:

Introduction: *Stress is the body's reaction towards changes that require physical, mental and physiological adjustment. When it sustains for longer periods of time, leads to have detrimental effects on the physical and mental well-being of the individual. Globally presence of stress is highly variable with a prevalence rate of 52.4% - 79% and around 79% in Pakistan. Medical studies have always been stressful and demanding. This increased academic demand along with inter-personal relationships and financial problems have been associated with highly stressed states among medical students which ultimately leads to adverse effects on mental health and causes impaired cognitive functioning of medical students.****Objectives:*** *The objectives were to find out prevalence of stress and its severity among medical college students and to identify the factors related to it.****Methodology:*** *A descriptive cross sectional questionnaire based study was conducted in period from 1st May to 1st June 2017 in Khawaja Muhammad Safdar Medical College,Pakistan. 220 students were selected randomly and data was collected on Kessler (k10) questionnaire covering all variables. Data was entered and analyze on SPSS 20.0. Qualitative variables like stress frequency and percentages were used and quantitative variables like age were expressed in mean and standard deviation. Chi-square tests were used as a test of association. P-value ≤ 0.05 was taken as significant.****Result:*** *Mean age of students was 21 years ± 1.749SD, median being 21 years. 103(46.8%) were males and 117(53.2%) were females. Overall prevalence of stress was 176/220(80%). Socio-demographic profile included 49(90.7%) below age 20yrs, 127(76.5%) ≥ 20yrs had stress. Out of 176/220(80%) stressed students, 98(83.8%) were females and 78(75.7%) were males. 37(94.9%) day scholars and 13(76.8%) were hostellites who were having stress. 89(100%) had income <100,000/month in which 67(75.31%) were stressed. 131(100%) had income ≥ 100,000/month, in which 109(83.2%) were stressed. Out of 117(100%) non clinical year students, 91(88.3%) had stress. Out of 103(100%) clinical year students, 85(72.6%) were stressed. Frequency of stress was categorized as mild 71(32.3%), moderate 59(26.8%) and severe 46(20.9%).A significant association was found between age of student and stress. Age group of students <20 years 49(90.7%) were more stressed. Similarly stress was more prevalent among day scholar students 37(94.9%). Significant association of stress with students of non-clinical classes 91(88.3%) was found.*

Monthly household income had no association with prevalence of stress though significant association was found between stress and financial factors.Most common factors related to stress were interpersonal relationships and financial. No significant association was found between personal habits of students and stress.

Conclusion: *Stress is high in students of <20 years of age. Day scholars had more stress and so did the students of non-clinical classes. Interpersonal relationship and financial factors were associated with high stress levels. Personal habits, Academic and Environmental factors had insignificant association with stress. Preventive mental health services, therefore, could be made an integral part of routine clinical services for medical students, especially during the initial academic years, to prevent such occurrence. Introduction of stress management education into the curriculum can prove to be useful in combating this problem. Regular study habits and adequate preparation can also help students to avoid stress.*

Keywords: *Stress, factors, medical students.*

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INTRODUCTION:

Stress is the body's reaction towards changes that require physical, mental, and physiological adjustment.(1) Stress is anything that poses a challenge or a threat to our well-being. It has been defined as a process in which environmental demands exceeds the adaptive capacity of an organism resulting in physiological and biological changes that may put persons at risk for disease.(2)

Stress and depression have always been consistently linked with detrimental effects on mental and physical well-being of a person. Any level of stress, if not treated, can lead to sleeping disorders, burn out, and drop out.(3) Chronic exposure of stress can lead to serious health problems like loss of appetite, aging, impaired immune system, and GIT problems.(1) Stress has been found to correlate with depression and anxiety. Untreated depression and anxiety are likely to be related to student's suicidal behavior, poor scholastic performance, and withdrawal from their medical course.(4) These symptoms are also reflected through the following research statistics. Disability adjusted life years for mental and neurological disorders comes out to be 141.5 million years for low and middle income countries. It is found that stress is one of the fore bearing factors for them.(5)

Assessment of stress in the general population is difficult but a range can be calculated. Worldwide among developing countries, Nigeria is on top while Pakistan is on 7th position according to Bloomberg scale which quantifies stress on the basis of seven variables. Among developed countries, Norway is at the last position. Global prevalence of stress is highly variable. It ranges from 52.45% to 79%, and being around 79% in Pakistan.(1,6)

In the general population stress is caused by unemployment, income quality, corruption perception, urban air pollution, and decreased life expectancy. However the younger population has been found to be more vulnerable to stress of higher professional education due to the competitive environment. The mental health of university students is an area of increasing worldwide concern as this population has been shown to be particularly prone to depression, anxiety, and stress; due to factors that include academic pressures, obstacles to their goals, environmental changes, and life challenges.(4)

Such an observation is backed by a study in three British Universities, whose prevalence of stress turned out to be 31.2% .However, it is documented that the majority of medical students from universities in Mumbai, India and in Karachi, Pakistan had faced a higher prevalence stress during their study period.(1)

Medical students have been found to experience higher levels of depression and anxiety than the general population because medical education is stressful and demanding. An overwhelming burden of studies leaves only a measly amount of time for the students to enjoy and recreate.(3) First year in medical college brings a dramatic change of environment, which challenges their belief that they are capable of dealing with anything in their life, and the realization dawns upon them that they can't complete their syllabus. As the students proceed from non-clinical to their clinical courses, they learn to approach and handle patients.(1) And when they enter into the practical life, other stress factors like social and environmental problems, which may affect their academic performance leading to substance abuse, can come to play important role. (1)

Various factors causing stress in medical students have been identified among them are academic demands, interpersonal relationships, and financial problems.(1)

A study conducted among medical students of King Saud University, Saudi Arabia revealed a high prevalence of 57%. Comparing prevalence of stress in medical and non- medical students, shows that medical students are far ahead in this regard. Canadian and American studies suggest high prevalence of depression, anxiety, and psychological stress among medical students than in the general population.(3)

Stress is inevitable in life. It is even more common in medical students .This can be attributed to their demanding studies along with other factors such as environmental, interpersonal and financial. An optimal level of stress has been associated with enhanced learning but high level of stress has been found to have detrimental effects; not only physical but also mental health, leading to impaired cognition, learning, memory loss, and fragile relationships resulting in failure at the end.

The Kessler 10 psychological scale (K10), developed by Kessler and colleagues is used widely in population based epidemiologic studies to measure current (within 1 month) distress.(7) The World Health survey conducted by WHO used it as a clinical outcome.(7)

This instrument consists of 10 questions. The five possible responses range from ―none of time‖ to ―all of time‖ and were scored from 1 to 5 respectively. A score was derived from the responses, greater than or equal to 20/50 on K10 shows stress,

20-24/50 on K10 shows mild stress, 25-29/50 shows moderate while above that shows severe stress.(8-11) K10 is a moderately reliable instrument whose reliability and validity was checked by around 2000 collaborative health and well-being surveys. The ending Kappa and weighted Kappa scores range from 0.42 to 0.74.

Keeping the above knowledge in mind, the following cross-sectional **study** was taken up by the students of 4th year MBBS at KMSMC to study stress, its severity, and factors related to it. It would bridge the gap in presenting a true picture of mental health and its issues especially among adolescents and future health care providers, which is already a neglected topic in the local set up and can, therefore, play an important role in formulating recommendations about methods to reduce stress.

Literature Review

Stress is body's reaction towards changes that requires physical, mental, physiological adjustments.(1) Stress and depression have always been consistently linked detrimental effects on mental and physical well-being of a person.(3) High level of stress affects cognitive functioning of students. Stress is a state of mental and emotional strain or tension resulting from adverse or demanding circumstances.

It manifests in a number of factors which include anxiousness, tension, annoyance, irritation, short temper, agitation, inability to relax, crying spells, and relationship conflicts. Excess of stress can cause health problems resulting the reduction of students self- esteem and affecting their academic performance.(3) Any level of stress, if not treated results in sleeping disorders, burn out and drop out from work .(3) Chronic exposure to stress leads to serious health problems like loss of appetite, impaired immune system and aging.(1)

Disability adjusted life years (DALYs) for mental and neurological disorders comes out to be 141.5 million years for low and middle income countries. It is found that stress is one of the forbearing factors.(11)

Bloomberg's uses seven equally weighed variables; homicide rates, GDP per capita, income inequality, corruption, perception, unemployment, urban air pollution and life expectancy. Countries are allotted points for each variable based on their relative position in category's ranking the country with least stressful measures for each variable received zero points while the country with highest stress level received hundred points. All other countries were scored on percentile basis depending upon their position between two extremes.

In developing countries, Nigeria is on the top while Pakistan is on seventh position with 52.7 score. In developed countries, Norway occupies last position with 5.4.0 score. The prevalence of stress in Pakistan's general population is within the range of 52.4-79%, though, a single figure cannot be quoted.(6)

Unipolar depressive disorder is ranked top amongst mental disorders with DALY (Disability adjusted life years) of 55.5 million in low income countries and 10.0 million in high income countries. DALY for post-traumatic stress disorder are 0.5 million and 3.0 million for high and low income countries respectively. (5)

Stress is multifactorial. It can be caused by a number of factors these factors include inexistence of social security, starvation, religious extremism, diminished income, social catastrophe, scarce basic essentials. Stress is also related to gender, race, ethnicity, age, marital status and social economic differences. Stress has found to be more prevalent among females because of being more emotional and less among male. Old people are supposed to be less stressed as compared to young generation. A cross sectional study was conducted among school going female adolescents of age 10-16 years in Nawabshah city by Yasmin Parpio at Agha khan university Karachi, Pakistan to find out the prevalence and identify factors associated with stress among female adolescents in 2013. The scale used was perceived stress scale 2013. According to this study almost every second adolescent female (58%) had reported stress symptoms. Adolescent age is considered as a stage of stress and strain. In this study females are more vulnerable to stress and the major risk factors are father's employment, number of rooms and parental quarrels and the prevalence of stress was 58% among female adolescents in Nawabshah city.(13)

Adolescent times are turbulent and such time also shapes the future career of the student. Stress is increasing day by day in current life style and it has been shown that youth admitted to various institutes, tends to have stress in any of its form. A study was conducted in Karachi, Pakistan in January 2014 by Arif Ali to find out the prevalence of anxiety and their associated risk factors among engineering students.(12) A cross sectional study was conducted through a self-administered questionnaire. Total 557 students were enrolled. Anxiety and depression was assessed through using AKU-ADS, the Aga Khan

University Anxiety and Depression scale.(14) It has been developed from a list of complaints collected by a retrospective file review of symptoms mentioned in Urdu by patients of anxiety and depression coming to the Community Health Centre of Aga Khan University. The mean age of students was 20 years. Majority of students (309) were male. A greater prevalence of anxiety and depression 73.8% was found among medical students.(14)

Medical education is extremely stressful and demanding. Overburden of studies leaves only a bit of time to relax. For most students first year of college brings a lot of stress because of change in environment, challenging course to complete and competitive environment. As a students proceed to second and third year, they are faced with preclinical course which also adds to their stress.(1) When they move from preclinical course to clinical studies, they learn how to handle problem.(1)

Medical students from all over the world are at high risk of facing psychological stress, mental disorders and decreased life satisfaction. On comparing the prevalence of stress among medical and non-medical students, literature shows that medical students are far ahead in this regard.(3) American and Canadian studies also suggests a high level of stress and psychological stress among medical students than in general population.(3)

A cross sectional study was conducted among students of King Saud University, Rayadh at Saudia Arabia by Hamza, Abdul Aziz, Ibrahim , Gominda to find out stress and its effects on medical students in 2011. The scale used was K-10 scale. According to this study, the prevalence of stress was 63% and prevalence of severe stress was 25%. Purpose of the study was to find out the possible association between level of stress and gender, academic years, academic grades, regularity of course, attendance and presence of perceived physical problems. For most of the students first three years of college brings a lot of stress because of challenging course to complete and competitiveness. When they proceed to clinical years, they learn how to handle problems.(1)

A study was conducted by Leta Melaku, Andualem, Mossie alemayehu, Hegash in 2015 at Jimma University, Mumbai to find out stress among medical students and its association with substance abuse and academic performance.(1) A cross sectional study was conducted on 329 medical students using stratified sampling technique. The objective of study was to find prevalence and severity of stress due to academic performance. It was found that prevalence of stress among the students was 52.4 %.(1) There was no such association between gender and highest prevalence was present in 1st year medical students. It was found that main source of stress was academics which was at its peak in the first three years of study. Most common source of stress was parental high expectations. Other sources overall, such as too much crowded halls and dissatisfaction with class lectures also exaggerated stress among medical students. Various other issues were faced like mental health, insomnia, depression and anxiety. Lack of concentration in study, poor result in studies, bullying by teachers and race to excel in life aggravated the situation of medical students which severely effects the mental and physical health. This stress tempted the students to cheat on exam and lack of concentration increased. Incidence of committing mistakes increased and stubborn behaviour was aggravated.(1)

It has been reported that a significant percentage of medical students suffering from anxiety disorder because stress has a strong relationship to emotional and behavioural problems. Feeling of disappointment academically are most prevalent in those students who have poor academic performance.(1) Sources of stress among medical students included academic pressure, interpersonal relationships and financial responsibilities and when these factors sustain for a long time, they lead to chronic stressful conditions which has a detrimental effect on medical students.(1) These are not without emotional disorders as well. The major emotional disorders that have been observed include the inability to feel reasonably happy, loss of sleep, over-worry, feeling unhappy and depressed. Inability to make decision, inability to play useful part in things and believing oneself to be worthless. Jagmohni Kaur Sidhu international Medical University, Kualalampur, Malaysia conducted a cross-sectional study in 2007 to find out stress among medical students.(15) According to ethnicity that were Chinese, Malay, and Indian students, both male and female students were considered in this study. Effects of stress in form of academic, financial and social aspects were seen. Total 95 medical students were taken among Chinese students, 29 were male, and 25 were female. Among the Indian students, 5 were male and 4 were female. Among the Malaysian students, 4 were male and 13 were female. It was found that medical students face more stress during clinical years as they find themselves unable to apply what they knew enough for examination. Malay students reported significantly less financial stress as compared to Indian and Chinese students.(3) Chinese students reported significantly less academic stress than other students.(3) Overload of information and

environment presenting multiple hurdles are important sources of stress among medical students.

Exact cause of most mental illnesses is not known. But many are caused by combination of biological, psychological and environmental factors. Biological factors include injury to certain areas of brain, genetics, infections and prenatal damage (Loss of oxygen to the brain.) Psychological factors includes psychological trauma and neglect. Environmental factors include dysfunctional family life, death or divorce, changing in job or school and substance abuse.

Kessler10 psychological distress scale developed by Kessler and colleagues is generally used.(7) This instrument is used to measure current distress during 1 month stress. The 2000

Collaborative Health and Well-being Survey was used to test reliability of the K10.
The ending kappa and weighted kappa scores ranged from 0.42 to 0.74, indicating that the K10 is a moderately reliable instrument . Although supplementary research on the clinical cut-off times and scoring are needed to determine psychological distress, the K10 is a brief, simple, and reliable instrument to detect mental health conditions in the population.(8-11) The following study used Kessler scale and information related to achievements and sources of stress were also included.

Most of the students of study sample had stress according to K10 scale. Out of 220 students, 176 (80%) were having stress and 44 (20%) were free of stress. Further, the severity of stress was also measured according to K10 scale, which showed that out of these 220 students 71(32.3%) had mild stress, 59(26.8%) had moderate stress and 46(20.9%) had severe stress.

Keeping the above knowledge in mind, the present study was taken up to find out the prevalence of stress and its related factors among students .

Government medical college intake only top 3500 students. It's generally perceived that medical education is stressful. Stress among future practitioner can have negative effect on cognitive functioning and learning in the medical school. This can lead to reduced decision making ability, quick responses and competency which are much needed trades in practical work. The following cross sectional study was undertaken to serve as a lack of literature on students stress in local scenario. The following study would serve to contemplate future researches which would help students and future doctors at large. The study would also bridge the gap of knowledge regarding reasons of stress (8- among the medical youth. The identification of potential associates would be helpful in formulating stress management strategies in future.

OBJECTIVES

1. To Study the prevalence of stress and its severity among medical college students.
2. To identify the factors related to it.

OPERATIONAL DEFINITION:-

STRESS:

As on questionnaire score above 19/50 were considered to have stress.

Severity:

- Mild stress: scoring 20-24 in K10 questionnaire
- Moderate stress: those scoring 25-29
- Severe stress: those scoring 30-50

STUDENTS:

Medical students enrolled in KMSMC from 1st year to Final year, both male and female.

FACTORS:

1. Socio-demographic profile.
2. Personal habits including smoking, exercise and religious practices.
3. Academic: Related to study including course overload, evaluation system, competition and academic grades.
4. Interpersonal relationships: including connections with family, teachers, and friends.
5. Environment: lack of facilities like continuous electricity, clean washrooms.

METHODOLOGY:

Study design: It was a Descriptive Cross sectional study

Study population: The study was conducted on medical students of Khawaja Muhammad Safdar Sialkot, a tertiary care teaching hospital having 500 beds. The college has a total of 500 students. The study population included all the students from 1st year to Final year.

Study Duration: 1 month (From 1stMay-1stJune 2017)

Sample Size: Sample size was calculated using WHO sample size calculator with the formula n=Z21-α/2P(1-P)N/d2(N-1)+Z21-α/2P(1-P)

P=63.7%16
d=0.05
N=500

Z21-α=95%

The sample size was calculated to be 208 which was rounded off to 220.

Sampling Technique: Simple Random Sampling. The students were selected randomly by using lottery method. Those refusing were skipped and next roll number was included.

- **Inclusion Criteria**: All students of KMSMC willing to participate in the study were included.
- **Exclusion Criteria**: Those students of KMSMC not willing to participate in the study.

DATA COLLECTION:-

Data Collection Tool:

- Kessler 10 questionnaire to measure stress having a total score of 50 was used.
- A Self-reporting closed ended questionnaire was formulated to assess factors related to it.

Data Collection Procedure: The Questionnaire was distributed among the students of each class in the study population according to sampling technique. Procedure and purpose of study was explained and each student was given 30 minutes to fill the questionnaire which was then collected. Everyday 15 study subjects were interviewed. Weekends were excluded.

Data Analysis: Data was entered, cleaned and analyzed using the SPSS software (version 20). The outcome variable—stress—was categorized dichotomously as stress (no/yes). Descriptive statistics (mean, standard deviation, and percentages) were used for summarizing the study and outcome variables. For qualitative variable like stress, frequency and percentages were used and quantitative variable like age were expressed in mean and standard deviation. Associations and relationships were expressed with Chi square test for qualitative variables while P value of ≤0.05 was taken as statistically significant.

Ethical Consideration: Appropriate authorities permission was taken and data was collected from students after informed consent. Strict confidentiality was maintained.

Variables:-

- **Socio-demographic profile**

Age:-
Gender
Residence
Income
Years of study

- **Personal habits**

Smoking
Exercise
Religious practices

- **Stress and its severity**
- **Factors**

Academic factors
Interpersonal relationships
Financial factors
Environmental factors

Tables and Results
(Relationships)

Table NO. 1

Frequency distribution of students according to Socio-demographic profile: (n=220)

Characteristics	Frequency	Percentage (%)
Age		
<20	54	24.5
>20	166	75.5
Total	220	100.0
Mean: 21.05years	**Median**: 21.00years	**SD** ±1.749
Gender		
Female	117	53.2
Male	103	46.8
Total	220	100.0
Residence		
Hostellite/Boarding	181	76.8
Day scholar	39	23.2
Total	220	100.0
Income <100,000/month		
Yes	89	40.5
No	131	59.5
Total	220	100.0
Years of Study		
1st Year	58	26.4
2nd Year	47	21.3
3rd year	34	15.5
4th Year	48	21.8
Final Year	33	15
Total	220	100.0

Table No. 2
Frequency distribution of students according to their Personal Habits: (n=220)

Characteristics	Frequency	Percentage %
Smoking		
Yes	10	4.5
No	210	95.5
Total	220	100
Exercise		
Yes	73	33.2
No	147	66.8
Total	220	100
Religious Practice		
Yes	137	62.3
No	83	37.7
Total	220	100

Table No. 3
Frequency distribution of students according to Stress and its Severity: (n=220)

Characteristics	Frequency	Percentage (%)
Stress1		
Yes	176	80
No	44	20
Total	220	100.0
Severity of Stress		
Mild2	71	32.3
Moderate3	59	26.8
Severe4	46	20.9
Total	176	80.0

1. Stress: ≥20/50 on Kessler Scale
2. Mild: 20-24/50 on Kessler Scale
3. Moderate: 25-29/50 on Kessler Scale
4. Severe: Above 29 on Kessler Scale

Table No. 4
Frequency distribution of students according to factors related to stress: (n=220)

Factors		Frequency	Percentage %
Academic factor			
Yes		163	74.1
No		57	25.9
Total		220	100.0
Environmental Factors			
Yes		158	71.8
No		62	28.2
Total		220	100.0
Interpersonal Relationships			
Yes		86	39.1
No		134	60.9
Total		220	100.0
Financial factor			
Yes		63	28.6
No		157	71.4
Total		220	100.0

Table No. 5
Relationship of stress with socio-demographic profile of students: (n=220)

Characteristics	Stress		Total	P Value
	frequency %			
	Yes	No		
Age				
<20	49(90.7%)	5(9.3%)1	54(100%)	
≥20	127(76.5%)	39(23.5%)	166(100%)	0.030*
Total	176(80%)	44(20%)	220(100%)	
Gender				
Female	98(83.8%)	19(16.2%)	117(100%)	0.137
Male	78(75.7%)	25(24.3%)	103(100%)	
Total	176(80%)	44(20%)	220(100%)	
Residence				
Day Scholars	37(94.9%)	2(5.1%)2	39(100%)	0.008*
Hostellite/Boarders	139(76.8%)	42(23.2%)	181(100%)	
Total	176(80%)	44(20%)	220(100%)	
Income				
<100,000/month	67(75.3%)	22(24.7%)	89(100%)	0.149
≥100,000/month	109(83.2%)	22(16.8%)	131(100%)	
Total	176(80%)	44(20%)	220(100%)	
Years of study				
Non-Clinical	91(88.3%)	12(11.7%)	117(100%)	0.004*
Clinical	85(72.6%)	32(27.4%)	103(100%)	
Total	176(80%)	44(20%)	220(100%)	

Note: 1,2Fisher's Exact test was used.
*P value ≤ 0.05 taken as significant.

Table No. 6
Relationship of stress with personal habits of students: (n=220)

Characteristics	Stress Frequency		Total	P value
	(%)			
	Yes	No		
Smoking				
Yes	7(4%)	3(6.8%)1	10(4.5%)	0.423
No	169(96%)	41(93.2%)	210(95.5%)	
Total	176(100%)	44(100%)	220(100%)	
Exercise				
Yes	61(34.7%)	12(27.3%)	73(33.2%)	0.352
No	115(65.3%)	32(72.7%)	147(66.8%)	
Total	176(100%)	44(100%)	220(100%)	
Religious Practice				
Yes	109(61.9%)	28(63.6%)	137(62.3%)	0.835
No	67(38.1%)	16(36.4%)	83(37.7%)	
Total	176(100%)	44(100%)	220(100%)	
Note:				

1 Fisher's Exact test was used for this variable.

P value ≤0.05 taken significant.

Table No. 7
Relationship of stress with its related factors: (n=220)

Factors	Stress Frequency %		Total	P value
	Yes	No		
Academic factor				
No	43(75.4%)	14(24.6%)	57(100%)	0.317
Yes	133(81.6%)	30(18.4%)	163(100%)	
Total	176(80%)	44(20%)	220(100%)	
Environmental Factors				
No	45(72.6%)	17(27.4%)	62(100%)	0.085
Yes	131(82.9%)	27(17.1%)	158(100%)	
Total	176(80%)	44(20%)	220(100%)	
Interpersonal Relationships				
No	100(74.6%)	34(25.4%)	134(100%)	0.015*
Yes	76(88.4%)	10(11.6%)	86(100%)	
Total	176(80%)	44(20%)	220(100%)	
Financial factor				
No	120(76.4%)	37(23.6%)	157(100%)	0.037*
Yes	56(88.9%)	7(11.1%)	63(100%)	
Total	176(80%)	44(20%)	220(100%)	

*P value ≤0.05 taken as significant.

RESULTS:

Frequency distribution of students according to Socio-demographic profile

Age:-

The mean age of students was 21 years with standard deviation 1.749, median being 21 and range 17 to 27 years. 54(24.5%) out of 220 were less than 20 years and 166(75.5%) were equal to and greater than 20 years.

Gender:-

Study consisted of 220 MBBS students, of which 103(46.8%) were males and 117 (53.2%) were of females.

Residence:-

Most of the students lived in hostel. Out of 220 students 39(23.2%) were days scholars and the rest of

students were boarders, that were 181(76.8) in number.

Income:-
The students having household income ≥100,000/month were 131(59.5%) in number. While students with household income below <100,000/month were 89(40.5%).

Academic years:-
Among these 220 students, 58(26.4%) were studying in First Professional part-I MBBS, 47(21.3%) were studying in First Professional part-II MBBS, 34(15.5%) were studying in Second Professional MBBS, 48(21.8%) were studying in Third Professional MBBS and 33(15.0%) were studying in Final Professional MBBS.

117(53.2%) out of 220 were students of clinical classes and 103(46.85%) students were of non-clinical classes.
(As shown in Table No. 1)

Frequency distribution of students according to their Personal Habits
Personal habits considered in the study were smoking, exercise and religious practices. 10(4.5%) out of 220 students were smokers. 73(33.2%) students out of 220, performed different physical exercises and 137(62.3%) students out of 220 offered religious practices regularly.
(As shown in Table No. 2)

Frequency distribution of students according to Stress and its Severity
Most of the students of study sample had stress according to K10 scale. Out of 220 students 176(80%) were having stress and 44(20%) were free of stress. Further, the severity of stress was also measured according to scores of K10 scale, which showed that out of these 220 students 71(32.3%) students had mild stress (K10 score of 20-24), 59(26.8%) had moderate stress (K10 score of 25-29 and 46(20.9%) had severe stress (K10 score of >29).

(As shown in Table No. 3)
Frequency distribution of students according to factors related to stress
Factors considered to affect the stress level among students were academics, environment, interpersonal relationships, and finance. Stress due to academics was reported in 163(74.1%) students out of 220. 158 (71.8%) rated environment as stressful factor. 86(39.1%) were stressful due to interpersonal relationships. And 63(28.6%) reported financial factors to be stressful for them.
(As shown in Table No. 4)

Relationship of stress with socio-demographic profile of students
Age:-
A significant association was found between age and stress .The age group of students having age <20 years, had more stress. 49(90.7%) out of 176 were stressed having age <20 years while those not having stress, were 5(9.3%) in number. 127(76.5%) out of 176 students having age ≥20 years were stressed and 39(23.5%) students in this group didn't have stress. P value of 0.03 which is significant.

Gender:-
Out of 176 students, 98(83.8%) were females having stress .While 78(75.7%) were males having stress. 19(16.2%) were not having stress and 25(24.3%) were not having stress. P value of 0.137 which is insignificant.

Type of Residence:-
139(76.8%) students out of 176 having stress were boarders and 37(94.9%) were day scholars. 42(23.2%) of boarders and 2(5.1%) of day scholars were not having stress. P value 0.008 which is significant.

Household monthly income:-
Out of 176 students 67(75.3%) had monthly household income <100,000/month were stressed while 109(83.2%) had income ≥100,000/month were stressed. 22(24.7%) having income <100,000/month were not stressed and 22(16.8%) having income ≥100,000/month were not stressed. P value 0.149 which is insignificant.

Years of Study:-
Those having stress, were mostly part of the non-clinical years of study. Out of 176 students having stress 91(88.3%) were students of non-clinical years of study. And out of 176 students having stress 85(72.6%) were in clinical years. 12(11.7%) of non-clinical years were not stressed and 32(27.4%) of clinical years were not stressed. P value of 0.004 which is significant. (As shown in table No. 5).

Relationship of stress with personal habits of students
Smoking:-
Out of 176 students having stress, 10(4.5%) were smokers. Among them 7(4%) had stress and 3(6%) didn't have it. P value 0.423 which is insignificant.

Exercise:-
Out of 176 students having stress, 61(65.3%) did regular physical exercise and 115(65.3%) didn't do

physical exercise. Results show that prevalence of stress was greater in the students who didn't do regular physical exercise. P value o.352 which is insignificant.

Religious Practices:-
Out of 176 students those having stress, 109(61.9%) students performed religious practices regularly while 67(38.1%) students did not. P value 0.835 which is insignificant.

(As shown in table No. 6)

Relationship of stress with its related factors
Academic factor:-
Out of 176 students, 133(81.6%) had stress with related academic factor while 43(75.4%) were stressed without any academic factor. 30(18.4%) were not stressed but had academic factor and 14(24%) had no stress and no factor. P value 0.317 which is insignificant.

Environmental factors:-
Out of 176 students, 131(82.9%) had stress with related environmental factors while 45(72.6%) were stressed without environmental factors. 27(17.1%) were not stressed but had environmental factors and 17(27.4%) had no stress and no factor. P value 0.085 which is insignificant.

Interpersonal Relationships:-
Out of 176 students, 76(88.4%) had stress with related relationship factor while 100(74.6%) were stressed without any relationship factor. 10(11.6%) were not stressed but had relationship factor and 34(25.4%) had no stress and no factor. P value 0.015 which is significant.

Financial Factors:-
Out of 176 students, 56(88.9%) had stress with related financial factor while 120(76.4%) were stressed without any financial factor. 7(11.1%) were not stressed but had financial factor and 37(23.6%) had no stress and no factor. P value 0.037 which is significant.
(As shown in Table No. 7)

DISCUSSION:
Stress is body's reaction towards changes that require physical, mental and physiological adjustment. Stress and depression have always been consistently linked to have detrimental effects on mental and physical well-being of a person. The present study is a cross sectional questionnaire based study. The objective of this study is to find out the prevalence of stress and factors related to it. Kessler 10 scale to measure stress, having a total score of 50, was used and a Self-reporting closed ended questionnaire was formulated to assess factors related to it. A sample of 220 students from first year M.B.B.S to final year M.B.B.S was selected by simple random sampling technique. 176/220 (80%) of students had stress on K10 scale and 44/220 (20%) were free of stress. According to K10 scale those scoring more than 19/50 were considered stressed. The severity of stress was categorized as mild stress: (score 20-24, on k-10 scale), moderate stress: (score25-29 on k-10 scale), severe stress: (score 30-50). Results showed that out of 176 students having stress, 71 had mild stress, 59 had moderate and 46 had severe stress.

According to socio-demographic profile in our study, 54 (24.5%) out of 220 students were of age < 20 years and 166 (75.5%) had age ≥ 20 years. 103 out of 220 students were males whereas 117 out of 220 were females. 39 students were day scholars and rest of the students (181 out of 220) were boarders. Out of 220 students, 58 were studying in first professional part 1, whereas 47 were studying in first professional part 2, 34 in 2nd professional, 48 in 3rd professional, and 33 in final professional.

Personal habits considered in this study were smoking, exercise and religious practices. 10 (45%) out of 220 students were smokers, 73 (33.2%) students out of 220 performed different physical exercises actively and 137 (62.3%) out of 220 performed religious practices regularly.

Three different studies in three different British universities showed that the prevalence of stress was 31.2%, and it was 41.9% in another Malaysian medical school and 61.4% in a Thai medical school. A similar study was carried out on engineering students in Karachi Pakistan to assess the prevalence of stress among non-medical students that showed stress of 73.8%. The present study on the students of Khawaja Muhammad Safdar Medical College showed that 80% of students were having stress, indicating that prevalence of stress among medical students was higher than non-medical students.

In the present study, prevalence of stress was more in students of age group <20years than age group ≥20 years (p value was 0.030). It showed that the prevalence of stress was more in students less than 20 years of age. 94.9% of day scholars and 76.8% of boarders were having stress with p value of 0.008 which is significant. The reason of higher stress levels among day scholars might be due to personal or domestic problems as they have to manage their studies along with family issues. In the present study, students of non-clinical years showed to be more

stressful 88.3% (p value being 0.004). This showed that the students of non-clinical years having age < 20 years and being day scholars were more stressed. A similar result was showed by a Saudi Arabian university that prevalence of stress was 67.8% and it was more in preclinical years. According to this study prevalence of stress among medical students was highest among first year students which was 78.7% followed by second year students 70%, 68% in 3rd year, 43.2% in 4th year and 43.3% in final year. Similarly a study conducted by Leta Melaku, showed more prevalence of stress among students of non-clinical years. As the years of study increases, the prevalence of stress decreases. It can be due to the gradual adjustments and adaptation of students to the environment of a medical college.

Regarding factors related to stress among the students, it was found that in 176 students having stress, 88.9% of students had stress due to financial factors (p value was 0.037). It was shown that financial and interpersonal relations had significant association with stress. A study carried out in public sector university of Lahore showed same results. It's worth noting here that students are mostly dependent on their parents for finances. Weak economic policies contribute to heavy burden and stress to students who are dependent on their parents. 88.4% out of 176 students had stress with related interpersonal relationships and 74.6% were stressed without any relationship factor (p value was 0.015 which is significant).

However, the present study showed that personal habits like smoking, exercise and religious practices had no relation with stress. Factors considered to effect the stress level among students in present study were academic, environment (like lack of facilities i.e continuous electricity, clean washrooms), interpersonal relationship and financial problems with percentages 74.1%, 71.8%, 39.1%, 28.6% respectively but, the association of interpersonal relationships and financial factors with stress was significant.

This showed that stress among students was mostly related to age and it is because of adolescent phase of life in which students are more susceptible to mental health issues and it needs to be addressed properly.

This study used a standard and reliable k-10 scale to measure stress level with its ended kappa and weighted kappa score ranged from 0.42-0.74 indicating that it is moderately reliable instrument and can therefore be used in general population. Although it has standardized the assessment of stress to some extent but, supplementary research on the clinical cut off times and the scoring are needed to determine psychological distress and to detect mental health in a population. No such study had been conducted ever among students of Khawaja Muhammad Safdar Medical College. However, present study is not without limitations as well.

Due to limitation of time and resources, many factors were not considered in this study. Only medical students were taken as respondent into consideration due to convenience. A self-reported questionnaire was administered which might not present a clear picture of stress among students. Factors assessed were not cross checked or observed, adding the elements of bias that can lead to over dilution of various factors under study, a better study design with larger sample size can be taken up for all health care providers to give the better understanding of prevalence among students and doctors as well.

CONCLUSION AND RECOMMENDATIONS:

Stress is the body's reaction towards changes that requires physical, mental and physiological adjustments. When it sustains for longer periods of time, leads to have detrimental effects on the physical and mental well-being of individual. A descriptive cross-sectional questionnaire based study was conducted on 220 medical students of Khawaja Muhammad Safdar Medical College, Sialkot, to study the prevalence of stress, its severity and related factors among students. The socio-demographic profile, factors, frequency and their association with stress was taken into account.

80% of the students from sample of 220 had stress. Younger students with age <20yrs, in non-clinical years of graduation and being day scholars had significant association with stress (p value ≤0.05). It was more in female students as compared to male students but the association of gender with stress was statistically insignificant. Socio-demographic factors like income was not associated with stress. Personal habits like smoking, exercise and religious practices were found to have no relationship with stress. Related factors that were considered in the study were academic, environmental, financial and interpersonal relationships. It was found that financial and interpersonal relationships had strong association with stress (p value ≤ 0.05).

Increased stress levels have detrimental effects on physical and mental health of medical students. Preventive mental health services therefore, could be an integral part of routine clinical services for medical students, especially, during the initial academic years to prevent such occurrence.

Various strategies such as introduction of stress management education into curriculum and student counseling sessions can be used as mechanisms to handle stress. Introduction of financial loan programs and more extra-curricular activities can further help reduce stress among students.

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