

(RESEARCH ARTICLE)



Stress and coping strategies among under graduate medical students in Gezira University, Sudan

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Abstract

Background: Students during years of learning in university are exposed to many stressors mainly academic, financial, health and social.

Materials and Methods: It was a descriptive cross sectional study conducted among 310 under graduate medical students of the Faculty of Medicine University of Gezira from March to November 2020, aiming to assess stress and coping strategies among under graduated medical students. The data was collected using self administered questionnaire and perceived stress scale (PSS) of ten items, and analyzed by SPSS version 20, chi square tests were used to assess relationship between variables.

Results: The results revealed the following, (72.9%) have moderate stress, (16.1%) have severe stress. The most common type of stress was academic one (80%). (8.4%) of the student perceived academic, health, social and financial stressors. The most common academic stressors was unclear assignments (19.4%), the most common coping strategies was sleeping (32.9%).

Statically, analysis had revealed a significant association between the type of enrollment to the faculty and perceived stress (Chi-Square Test =24.036, p-value =0.02) and between perceived stress and the Cumulative Grade Point Average CGPA (Chi-Square Test 1580.2, p value=0.00).

Conclusion: A substantial number of medical students experience moderate level of stress, academic stressors was the most common stressors among under graduate medical students in this study which may have negative impact on student wellbeing and performance results also emphasis the need for further studies, particularly in the form of longitudinal follow-up.

Keywords: Stress; Types of stressors; Coping strategies; Perceived stress scale; Undergraduate medical students

1. Introduction

Stress is a type of psychological trauma which result from lack of adequate coping mechanism when facing life stressors, this coping mechanisms differ from one individual to another which may be affected by many factors. Stressors are major risk factors to psychological problems e.g. depression, generalized anxiety disorders and substance abuse"(1)."

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Effect of the stressors on over wellbeing of individuals as follows; lead to limbic activation, which in turn leads to autonomic and neuro-endocrine activity, physiological responses, including activation of the hypothalamic–pituitary axis“(2).”.

Globally, Only a few studies have assessed the perceptions of stress and coping strategies among medical students“(3).”.

In Sudan as follows ; continuous academic demand, physical fitness, and psychological factors are the most commonly perceived stressors among medical students, factors like academic constraint, age, sex, and marital status can increase the severity of stress and hence affecting academic performance among medical students , majority (88.1%) of medical students perceived stress , although female perceived stress more than male but no significant statistical difference in academic achievement between students with and without perceived stress“(4).”.

In faculty of medicine, University of Gezira, there is no published data which reflect the situation but there was study which reflected the pattern of mental disorders among undergraduate medical students as follows ; depression (42%), dissociative (23%), Schizophrenia (13%), Mania (6.5%), Epilepsy (9%), Anxiety (3%), Headache (2.5%)“(5).”.

Al-Dubai study in Malaysia state that financial stressors account for (68.6%) as source of stress and academic one (64.6%). Of the respondents (46.3%) reported having some or too much stress, whereas(47.6%) reported a little bit of stress, (6.1%) reported no stress, so overall stress prevalence among student was 93.9%. Regarding coping strategies , alcohol and substance abuse account 2.7% , and males were involved in alcohol consumption or substance abuse more than females did“(3).”.

Also Amily and Marbelle state that 75% Of the students perceived a moderate stress ; 12% a high level of stress , and 13% in a low stress. The most common coping mechanism among respondents with stress included talking to family and friends, leisure activities, and exercising. Less desirable coping strategies were drinking alcohol, smoking, and illegal drugs abuse“(6).”.

Furthermore, across-sectional survey study in the College of Medicine, King Saud Bin Abdul Aziz University for Health Science, the researchers state that over 82%of the respondents had academic stress, 38.7% had financial stressors and 56% had social stress , female students perceived more stress than males but they employ more coping strategies as well .Regarding coping strategies ,30% of the students used alcohol and illegal drugs, 94.2% praying ,82% hanging with friends“(7).”.

Mohsin shah state that among undergraduate medical students of Lahore Medical College, overall mean perceived stress was 30.84% , most common stressors were related to academic and psychological issues ,also the researcher come out with very important result that there was a negative but insignificant correlation between perceived stress and students academic performance“(8).”.

Furthermore, Zohair Gamil Gazzaz and others reported that over all stress among a mong undergraduate medical students in Medical College in Rabigh in the Kingdom of Saudi Arabia was 59.2% ,there was correlation between stress and academic performance ($P < .05$),also no significant difference in mean PSS was found among different demographic variables and groups of stressors. The most common stressor was academic one. among undergraduate medical students in Medical College in Rabigh in the Kingdom of Saudi Arabia“(9).”.

MA Elzubier in a systematic review of studies reporting on stress and coping strategies among undergraduate Arab medical students, the reviewer state that Arab medical students had a high prevalence of perceived stress, depression and anxiety, with levels of perceived psychological stress as high as those reported in the international literature for medical students of other regions .The most common stressors are academic one with direct relation to the curricula ,no association between stress and academic performance“(10).”.

Furthermore, the most common used strategies to cope with stress as stated in a cross-sectional, questionnaire-based survey which was carried out among the undergraduate medical students of Manipal College of Medical Sciences were positive reframing, planning, acceptance, active coping, self-distraction and emotional support. The researchers reported alcohol/drug was a least used coping strategy by the respondents“(11).”.

2. Material and methods

A descriptive cross-sectional and analytic study was carried out in Faculty of Medicine, University of Gezira from March to November 2020 aiming to study stress, coping strategies among under graduated medical students. The Faculty of Medicine was established 42 years ago, graduated 36 batches. It is a community oriented medical school based on block courses and credit hours. There is 10 semesters with the three final ones termed as clerkship period. Total numbers of the students were 1436. Number of students is approximately similar distributed into 5 batches.

Sample size was determined according to the Steven Thompson formula to be 398, hence sample size exceeded 5% of the population so Cochran correction formula was used to calculate the final sample size which equal 310. Sample technique was cluster in batches and then systematic random sampling. Each batch took 62 questionnaires and the first participant was selected randomly from the student list and then systematically each fourth student. Data was collected through direct interviewing with students using structured questionnaire and perceived stress scale. The questionnaire included socio demographic data, type of stressors, academic performance (cumulative grade point average CGPA), and coping strategies.

2.1. Perceived stress scale

Is a classic stress assessment instrument. The tool, which was originally developed in 1983, remains a popular choice for helping us understand how different situations affect our feelings and our perceived stress. The questions in this scale concerned about feelings and thoughts during the last month. In each case, the respondent will be asked to indicate how often he/she felt or thought a certain way. Although some of the questions are similar, there are differences between them and each one should be interpreted as a separate question. The best approach is to answer fairly quickly. That is, don't try to count up the number of times you felt a particular way; rather indicate the alternative that seems like a reasonable estimate.

The PSS was interpreted as following: 0-13=mild stress; 14-26=moderate stress; 27-40=severe stress.

After checking for completeness and consistencies, data were coded and entered into computer analyzed using SPSS version 20 and then transferred into figures and tables. With confidence level 95% and p-value of less than 0.05 to be significance the tests were done. Before data collection, a pilot's study of 50 participants had been done to establish content and face validity.

3. Results

The survey data were initially analyzed using frequency tables and descriptive statistics. Regarding socio demographic characteristics Of the 310 participants, 55.5% age between 17- 22 years. 59% of the participants were females. 98.7% were single .76.8% from urban area. Chi square test was done to assess association between stress and socio demographic characteristics which revealed no association between age and stress (Chi-Square Test =113.54, p-value =0.875), also no association between stress and gender (Chi-Square Test =12.704 , p-value =0.391) and stress with residence (Chi-Square Test =13.365 , p-value=0.343). 79% of the student enrolled to the faculty through general pathway.

Statistical analysis had revealed significant association between the type of enrollment to the faculty and perceived stress (Chi-Square Test =24.036, p-value =0.02). Academic stressors were the most common stressors perceived by the students (80%). Social stressors (40%), financial (35%), health (23%). About one -tenth perceived four types of the stressors as illustrated in table 2. Unclear assignments are the most common type of academic stressors 19.4% that students faced during studying. Among using strategies to cope with stress, 32.9% of the respondents used sleeping, 3.9% used tobacco, alcohol and drugs. According to the rules and laws of the Faculty of Medicine , student grade as following Poor that means CGPA less than 2.00 , from 2.00-2.5 grade as fair , from 2.6-3.00 grade as good , from 3.1-3.5 grade very good and finally more than 3.5 as Excellence. 25% of the students had excellent performance on the other hand 6.1% had poor one. There was strong statistical association between perceived stress and the CGPA (Chi-Square Test = 1580.2, p value=0.00). 72.9% of the students suffered from moderate level of stress

Table 1 Socio demographic characteristic of under graduate medical students

Variable	Frequency	Percent
Age in years		
17-21	172	55.5
22-27	138	44.5
Gender		
Male	127	41.0
Female	183	59.0
Social status		
Single	306	98.7
Married	3	1.0
Divorce	1	.3
Residence		
Urban area	238	76.8
Rural area	72	23.2

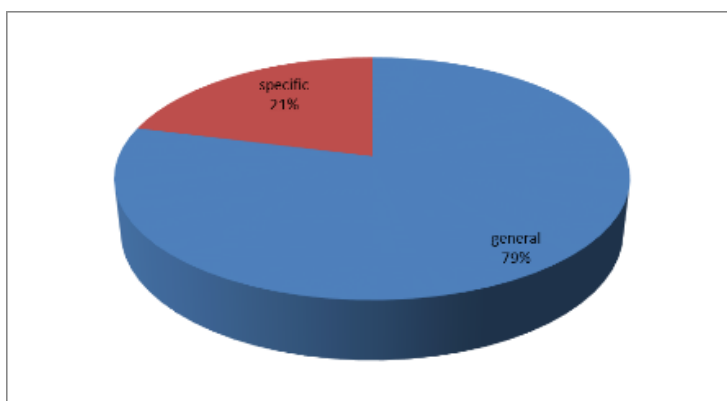


Figure 1 Type of enrolment to the Faculty of Medicine

Table 2 Type of perceived stressors by under graduate students

Type	Frequency	Percent
Academic	105	33.9
Social	27	8.7
Financial	22	7.1
Health	5	1.6
Academic –social	43	13.9
Academic-financial	42	13.5
Academic –health	15	4.8
Financial social	6	1.9
Social l-health	1	.3

Financial-health	1	.3
Academic -financial-health	4	1.3
Academic -social-health	13	4.2
Academic-financial-social-health	26	8.4
Total	310	100.0

Table 3 Type of academic stressors perceived by under graduate students

Type	Frequency	Percent
Excessive homework	30	9.7
Unclear assignments	60	19.4
Lack of time management skills	41	13.2
Uncomfortable classroom	27	8.4
Weekly tests and assignments	22	7.1
The pressure to have good grades	38	12.3
The pressure to have a lower grade	31	13.0
Others	54	17.4
Total	310	100.0

Table 4 Coping strategies of under graduate medical students when facing stress

	Frequency	Percent
Music	74	23.9
Sleeping	102	32.9
Prayer	54	17.4
Regular exercise	1	.3
Tobacco	8	2.6
Hangingout with friends	19	6.1
Going into isolation	11	3.5
Watching comedies and cartoons	13	4.2
Counselling	3	1.0
Other	21	6.8
Drugs	3	1.0
Alcohol	1	.3
Total	310	100.0

Table 5 Cumulative grade point average (CGPA) of the under graduate students

	Frequency	Percent
Poor	19	6.1
Fair	40	12.9
Good	65	21.0
Very good	106	34.2
Excellence	80	25.8
Total	310	100.0

Table 6 Perceived stress scale analysis

	Never	Almost never	Sometimes	Fairly often	Very often	
In the last month, how often have you been upset because of something that happened unexpectedly	13.9	12.9	40.3	15.2	17.7	100
In the last month, how often have you felt that you were unable to control the important things in your life	9	14.2	32.9	24.5	19.4	100
In the last month, how often have you felt nervous and stressed	6.5	7.7	32.6	22.9	30.3	100
In the last month, how often have you felt confident about your ability to handle your personal problems	4.5	12.6	35.5	27.4	20.0	100
In the last month, how often have you felt that things were going your way	9.7	17.7	44.8	18.8	9.0	100
In the last month, how often have you found that you could not cope with all the things that you had to do	6.5	13.9	50.3	20.3	9.0	100
In the last month, how often have you been able to control irritations in your life	5.8	15.8	38	23.8	16.6	100
In the last month, how often have you felt that you were on top of things	10.0	18.7	41.0	19.7	10.6	100
In the last month, how often have you been angered because of things that happened that were outside of your control	19.3	5.2	17.1	39.0	19.4	100
In the last month, how often have you felt difficulties were piling up so high that you could not overcome them	8.7	17.6	36.8	19.8	17.1	100

Table 7 The interpretation of perceived stress scale conducted among under graduate medical student

Score	Interpretation	Frequency	Percentage
0-13	Mild stress	34	11
14-26	Moderate stress	226	72.9
27-40	Severe stress	50	16.1
Total		310	100

As illustrated in above table, 72.9% of the students perceived a moderate level of stress.

4. Discussion

This a descriptive cross sectional study conducted among under graduated medical students at faculty of medicine aiming to explore stress and associated factors and coping strategies undertaken by students when facing stressors .According to socio demographic characteristic of the respondents their age groups range between 17-27 years old, the research erhypotheses that socio demographic characteristics influences the perceived stress and the results state that there is no association between stress ,age, gender and residence.

With interpretation of PSS “(11%).” of the respondents have mild stress,” (72.9%) .” have moderate stress, “(16.1%).” have severe stress, that means (89%)have significant stress this result similar to Amily and Marbelle study in community colleges in southern Illinois, the researcher state that of the students, 75% were in a moderate stress category; 12% in a high stress category, and 13% in a low stress category “(6).”

In comparison with previous studies locally and globally medical student perceived significant level of stress as in this study similarly to Omdurman Islamic university, Malaysia ,southern Illinois, Jeddah Kingdom of Saudi Arabia “(3, 4, 6, 9).” In contradiction with Pakistan (30%) and Pokhara (20.9%) studies where student perceived low level of stress “(8, 11).” Academic stressors are the most common type perceived by students similar to previous studies conducted in Omdurman University and Pokhara contradiction to Malaysian study which reflect the financial issues the most common one “(3, 4, 11).”

The researcher in Omdurman Islamic university reported that factors like academic constraint, age, sex, and marital status can increase the severity of stress and hence academic performance among medical students, contradiction to this study which reflect that age and gender have no effect on stress, but state strong correlation between academic stressors and respondents academic performance (p value=0.00), same correlation was stated in by Zohair Gamil Gazzaz in previous Jeddah study (p-value< 0.05) “(9).”

The most common used coping strategy in facing stress among respondents is sleeping (32.9 %) , only 1% of the respondents use counseling as coping strategies this reflect poor utilization of academic counseling unit in the Faculty of Medicine, substance abuse (tobacco, smoking, alcohol) 3.9% . In comparison, substance abuse is low among respondents similar to Malaysian study (2.7%) ,southern Illinois ,Pokhara but in contradiction to King Saud Bin Abdul Aziz University with high prevalence (30%) “(3, 6, 9, 11).” Hanging with friends had been among common using strategies in previous studies “(6, 7).”

Abbreviation

CGPA: Cumulative Grade Point Average

PSS: Perceived Stress Scale

SPSS: Statistical Package of Social Sciences

5. Conclusion

A substantial number of medical students experience moderate level of stress. Academic stressors is the most common stressors among under graduated medical students in this study followed by financial, social and health which may have negative impact on student wellbeing and performance. Some respondents perceived all four types of stressors which may be very danger indicators need proper management. Only 6.1% of the students have poor academic performance

(CGPA less than 2) here reflect positive impact of stress on students. Identification of the source of stress among students and methods students use to deal with it will help lecturers, career-counseling centers, and university administrators monitor and control these factors in order to reduce stress experienced by students. Students when facing stress use different coping strategies, here the most common is sleeping. The findings of this study indicate a need for stress management programmes in all medical colleges.

Compliance with ethical standards

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Statement of ethical approval

Confidentiality was maintained throughout the stages of the research.

Statement of informed consent

Written consents from the authority of the Faculty of Medicine, Research Ethical Committee, students who should fill the questionnaire had been obtained.

Availability of Data and Materials

All relevant data and methodological details pertaining to this study are available to any interested researchers upon reasonable request to corresponding author

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