Original Article

Prevalence of Stress and Coping Strategies among Undergraduate Medical Students at Ridgeway Campus of The University of Zambia

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ABSTRACT

Background: Stress is the way in which the body reacts to uncomfortable situations. The University Of Zambia School of Medicine (UNZASoM) is the first medical school in Zambia established in 1965 and is located at the Ridgeway Campus. Students at the campus face a number of challenges, including inadequate accommodation, struggling to pay university fees, demanding learning load and alcohol and substance abuse.

Methods: The study was a quantitative cross-sectional design. Third to seventh year medical students were recruited using simple random sampling. The data collection instrument was a self-administered questionnaire.

Results: The overall findings showed that 71.2% of all the respondents experienced some levels of stress, and the highest prevalence was among the third year students. Prevalence of stress among students who took alcohol was lower (43.3%) than among those who did not (61.1%). Academic pressure (93.94%), financial problems (68.94%) and lecturers' attitudes (72.72%) were the three most important sources of stress while attending church services (61.36%), watching movies (77.27%) and taking a walk (58.33%) were the three most common coping strategies.

Conclusion: The prevalence of moderate to severe stress was 53.03% which was very high. Students in this category qualify for further clinical assessment and appropriate treatment. However, most of these students were not offered help in form of therapy.

Students should be encouraged to employ more of the physically active coping mechanisms and encouraged to seek help from the university counseling services. The government should endeavor to include more students on government sponsorship programs and build more accommodation facilities on campus.

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INTRODUCTION

Stress results when an individual is unable to cope with perceived past, present or future situations.[1] The University of Zambia School Of Medicine is the first medical school in Zambia established in 1965, located at the University Teaching Hospital (UTH) and the Ridgeway Campus within the greater city of Lusaka. The Campus accommodates three more schools under UNZA. Despite increase in the number of students, infrastructural development has not kept pace. Hence, one of the biggest challenges among medical students is inadequate accommodation. The impact is worse on clinical students who are required to be in the UTH at awkward hours, even at night. Most students come from low income families and so are unable to afford

alternative accommodation outside Ridgeway campus.

The Bachelor of Medicine and Bachelor of Surgery (MB ChB) curriculum at UNZASoM is designed to produce competent graduate doctors who value life-long learning, ready to undertake specialist training programmes, and provide quality patient care and leadership in medical research.[2] However, this is bombarded with facts. Hence, there may be unintended negative consequences with respect to the students' health.

It is a well-recognized phenomenon that medical school is stressful because of many psychological changes in students.[3] Students face social, emotional, physical and family problems.[4] Studies have classified the sources of stress into three main areas: academic, social and financial problems.[5] It has also been postulated that burnout in newly graduated doctors and older physicians has its origins in medical school.[6] Frequent exposure to environmental stress may result into stress-like symptoms which can affect the well-being of health professionals and health care provided.[7]

Coping strategies are behavioral and psychological efforts that are used to tolerate stressful events. They are classified into avoidant and active.[8] Active coping' means exerting efforts to remove the stressor; 'acceptance' means accepting the occurrence of a stressful event while 'planning' consists of thinking about how to confront the stressor and planning one's coping efforts. 'Positive reframing' means making the best of the situation by seeing it in a more positive way; 'denial' is rejecting the reality of the stressful event while 'behavioral disengagement' means withdrawing efforts from the attempt to attain the goal with which the stressor is interfering.[9] Students in a study adopted active coping strategies (positive reframing, planning, acceptance, and active coping) rather than avoidant strategies (denial, alcohol/drug use and behavioral disengagement).In three British medical universities the prevalence was 31.2%, and it was 41.9% in a Malaysian school and 61.4% in a Thai

medical school.[3]

High levels of stress impair students' general well-being and ability to learn. This ultimately affects health care provision in Zambia in future. At the time of the study the authors did not find any published work on prevalence of stress among medical students at UNZA-SoM. Hence, it was necessary to carry out such a study and to observe any possible correlations between stress and the following variables: age, gender, academic year, presence of physical problems, government or self-sponsorship, and substance use.

The objective of this study was to determine the prevalence of stress, associated factors and coping mechanisms among medical students at UNZA-SoM, Ridgeway campus.

METHODS

The study site was UNZA-SoM, Ridgeway Campus in Lusaka, Zambia. The study was a quantitative cross-sectional study design and the target population was all medical students at the named institution from third (3rd) to seventh (7th) years of study. All nonmedical students at the institution were excluded.

The sample size was calculated as 132 students and this was proportionately distributed according to the class size in every year, which gave 33 students from third year class, 28 students from the fourth year, 27 from the fifth year, 23 from the sixth year, and 21 from the seventh year class. A self-administered questionnaire was given to each of the picked students. Kessler 10 stress assessment system designed to measure anxiety and depression experienced in the most recent 4 week period through a 10-item questionnaire was the main part of the questionnaire (www.hcp.med.harvard. edu/ncs/K6-K10/index.html).

Ethics approval was obtained from the Ethics Committee School of Medicine, University of Zambia. Approval also obtained from the University of Zambia, Dean of students, Ridgeway Campus.

Consent was obtained from participants. A pre-test was carried out at UNZA-SoM among nonmedical students to test the data collection tool.

Data entry and analysis was done using STATA14 and Microsoft Excel. Kessler 10 was used. Numbers attached to the students 10 responses were added up and the total score was scored on the Kessler Psychological Distress Scale (K10). Scores ranged from 10 to 50 categorised as follows; 20 or below-low level of stress; 20-24 – mild level of stress; 25-29 – moderate level of stress; and 30 and above – severe level of stress. From this initial analysis, proportions were determined that were then used to study the relationships and/or influences of the individual variables on the levels of stress exhibited and then tabulated. Associations were analysed using Chi square test.

RESULTS

One hundred and thirty-two students from third to seventh year of study participated in this study. The prevalence of stress of all categories was 71.21% and of severe stress was 20.45%.

Table1: Characteristics of study participant

Study Variable	Number	Percentage
Gender		
Male	86	65
Female	46	35
Study Year	Number	Percentage
3rd year	32	24
4th year	29	22
5th year	27	21
6th year	23	17
7th year	21	16
Age group	Number	Percentage
20-25	86	65
26-30	32	24
30-35	11	9
36-40	3	2
Accommodated on Campus	Number	Percentage
Yes	68	52
No	64	48
GRZ Sponsorship	Number	Percentage
Yes	96	73
No	36	27
Alcohol Intake	Number	Percentage
Yes	60	55
No	72	45

Table 2: Stress levels and various characteristics of respondentss

Characteristic	Not stressed	Stressed	Total	P value
Gender				
Male	43 (42.57%)	43 (32.58%)	86 (65.15%)	0.263
Female	11 (8.33%)	35 (26.52%)	46 (34.85%)	
Year of study				
3rd	3 (2.27%)	29 (21.97%)	32 (24.24%)	0.001
4th	9 (6.82%)	20 (15.15%)	29 (21.97%)	
5th	11 (8.33%)	16 (12.12%)	27 (20.45%)	
6th	21 (15.91%)	2 (1.52%)	23 (17.43%)	
7th	12 (9.09%)	9 (6.82%)	21 (22.73%)	
Accommodation status				
Accommodated	46 (34.85%)	22 (16.67%)	68 (51.52%)	0.001
Not accommodated	17 (12.88%)	47 (35.61%)	64 (48.49%)	
GRZ sponsorship				
Sponsored	46 (34.85%)	50 (37.88%)	96 (72.73%)	0.72
Not sponsored	16 (12.12%)	20 (15.15%)	36 (27.27%)	
Alcohol intake				
No alcohol intake	34 (25.76%)	26 (19.70%)	60 (45.45%)	0,042
Alcohol intake	28 (21.21%)	44 (33.33%)	72 (54.55%)	
Age group				
21-25	26 (19.70%)	60 (45.45%)	86 (65.15%)	0.001
26-30	24 (18.18%)	8 (6.06%)	32 (24.24%)	
31-35	6 (4.55%)	5 (3.79%)	11 (8.33%)	
36-40	2 (1.52%)	1 (0.76%)	3 (2.27%)	

The proportion of female students (76.09%) who were stressed was higher than male students (50.0%).The prevalence of stress (K10 score of 20 and above) was highest among the third-year students (90.6%) followed by fourth year class with 72.0%, 60.0% for fifth, 8.0% for sixth and 40.5% for seventh. This was statistically significant. The prevalence of stress was noted to be higher in those students who were not accommodated on campus (73.0%) compared to those who were (33.8%). This was also statistically significant. Among those who were GRZ-sponsored, prevalence of stress was lower (52.1%) than those who were not (55.6%). This was not statistically significant. Prevalence of stress among students who did not take alcohol was lower (43.3%) than among those who did (61.1%). There was no association between alcohol intake and stress levels. Prevalence of stress was highest (70.0%) among 20-25 age group, 25.0% among 26-30 and 45.5% among 31-35. This was statistically significant.

Figure 1: Different categories of stress levels
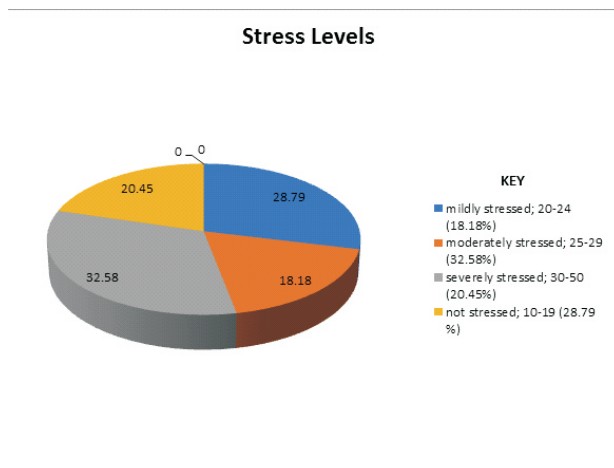
The moderately stressed category scored the highest value (32.58%), followed by those not stressed (28.79%), then the severely stressed (20.45%).Those mildly stressed were 18.18%.

Table 3: Reported sources of stress amongst medical students

Potential stressors	Frequency	Percent
Academic Pressure	124	93.94 %
Financial Worries	91	68.94 %
Social Activities	50	37.88 %
Lecturer's Attitudes	96	72.73 %
Noise in Study Rooms	42	31.82 %
Preparing meals	66	50.00 %
Sleeping Difficulties	68	51.52 %
Staying off-campus	39	29.55 %
Competition with Fellow Students	49	37.12%

Fields are Boolean. Denominator = 132

The three most common sources of stress were academic pressure (95.94%), lecturers' attitudes (72.73%) and financial worries (68.94%).

Table 4: Coping mechanisms and frequency of utilization

Coping Mechanisms	Frequency	Percent
Chatting with Friends	55	47.67
Attending Church Services	81	61.36
Watching Movies	102	77.27
Visiting Family	55	41.67
Taking a Walk	77	58.33
Watching Soccer	63	47.73
Jogging	54	40.90
Active Sport	34	25.76
Drinking Alcohol	49	37.12

Most commonly used coping mechanisms were watching movies (77.27%), attending church services (61.36%) and visiting family (41.67%).

DISCUSSION

Prevalence of stress among medical students is essential because it predicts academic outcome as well as healthcare services provided. The overall prevalence of stress in the present study was 71.2%. This was lower than that obtained from a South African study (78%).[6]In another study done in Bangladesh, the overall prevalence of stress was 54%.[10] This was lower .These variations might be attributed to differing academic atmosphere and stress assessment tools.

The prevalence of stress in female participants was higher (76.1%) in the present study than that obtained from among the male participants (50.0%). A similar finding was obtained in a South African study.[6] However, a study conducted in Egypt reported no gender differences for stress.[11] The finding that the prevalence of stress is highest among the third year students (90.6 %) was, perhaps, the most predictable discovery of the present study (p value- 0.001,and was significant to conclude the finding). Third year is quite bulky and records a high number of repeating students. The prevalence of stress was lowest among the sixth year students. However, final year medical students were significantly stressed than other years in a certain study.[12] High values were recorded in the younger and older groups while the intermediate group

recorded low values, due to the fact that the younger group has a large number of third and fourth who have a higher prevalence of stress.68.9% of respondents ticked financial problems as a source of stress. A study done in Scotland showed that students with financial burdens and accumulated debt during their studies performed less well in their examinations than other students.[13] Accommodation challenges also contributed significantly to the overall burden of stress as evidenced by the higher prevalence (73.4%) in those who are not accommodated compared to those who were (33.8%).The p value was 0.001 and was significant. Accommodation away from home was found to be an important determinant of stress in a study done in India.[14] Students who took alcohol were more likely to be stressed (43.3%) than those who did not (61.1%). A study from East Africa indicated that alcohol drinkers were 1.93 times more likely to have stress than nondrinkers.[15]

In this study, attending church services, watching movies and taking a walk were identified as being the top three coping mechanisms. Malaysian students adopted regular exercise, praying, counselling, watching movies, practising meditation, and soft music as common coping strategies.[16] Previous studies recommended student support systems, wellness, counseling and preventive mental health services, stress management programmes and training workshops.[17] In one university in the USA, a stress reduction course was offered to second year medical students.[18] An important premise on which the value of the current study partly stood was that high levels of stress (Kessler 10 score >20) have negative effects on academic performance. In future, it would be interesting to conduct a study designed to determine the effect of stress on academic performance.

Students should be encouraged to employ more of the physically active coping mechanisms and seek help from the University Counseling services. The government should endeavor to include more students on government sponsorship program, and to build more accommodation facilities on campus. The faculty should consider reviewing teaching styles in order to try and make them more comprehensive.

CONCLUSION

The prevalence of stress of all categories was determined by the present study to be at 71.2% while that of severe stress was 20.5%. The top three most important stressors identified were, in order of magnitude, academic pressure, lecturers' attitudes and financial problems. As coping mechanisms, attending church services, watching movies and taking a walk were identified as being the top three. Prevalence of moderate to severe stress was 53.0%, which is very high. Students in this category qualify for further clinical assessment and appropriate treatment.

ACKNOWLEDGEMENTS

LIST OF ABBREVIATIONS

MBChB :   Bachelor of general medicine and bachelor of surgery
RW   : Ridgeway
SoM   : School of Medicine
UNZA   : University of Zambia
UTH   : University Teaching Hospital

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