Research Article

ASSESSMENT OF STRESS AMONG SECOND YEAR STUDENTS AT MICHAEL CHILUFYA SATA SCHOOL OF MEDICINE

Evans Muyeng[*]
[*]**Department of Public Health, Copperbelt University School of Medicine, Ndola, Zambia.**

Abstract

Introduction: **Being in medical school has always been considered to be an extremely stressful academic journey. Excessive stress causes physical and mental health problems. Persistent stress can impair students' academic achievement and personal or professional development. The aim of this study is to explore the levels of stress among medical students by determining the prevalence and other factors associated with it. Considering the fact that it is impossible to eliminate stress from medical training, the other goal of the study is to figure out student friendly strategies which can be used to alleviate the high stress levels. The prevalence of stress among the second year medical students will be calculated.** ***Methods:*** **A cross-sectional study design will be used, utilizing a validated questionnaire, the 'Medical Student Stressor Questionnaire (MSSQ)', to evaluate stress levels and stressors. School and ethical committee clearance is to be obtained prior to the study. Data will be analysed using SPSS version 12. 201 medical students will be administered with the questionnaires.** ***ASEAN Journal of Psychiatry, Vol. 23(1) January, 2021; 1-9.***

Keywords: Medicine, Stress, Impair Students

Introduction

Tertiary medical training has always been regarded as being highly stressful, Aktekin et al. states that medical students are affected by different problems or life events which influence psychological distress [1]. Medical school can be a time of significant psychological distress for physicians-in training. Studies have suggested that the practice of medicine entails certain risks to the mental health of both qualified physicians' and students alike. Stress is regarded as the "Perception of threat, with resulting anxiety, discomfort, emotional tension, and difficulty in adjustment". It is not just a stimulus or a response but rather, it is a process by which we perceive and cope with environmental threats and challenges [2].

Personal and environmental events that cause stress are referred to as stressors. In other words, stress includes the emotional disturbances or changes caused by stressors. Linn et al. have suggested that some stress in medical school training is needed for learning. Stress that facilitates learning is called eustress and stress that suppresses learning is called distress, the latter produces negative results which according to Abouserie can even ensue into the underperformance of the students [3]. Depending upon their cultural backgrounds, personal traits, experience and coping skills, medical students may perceive the same stressors differently. There have been links suggested between the training of medical students and later problems of mental health. Comparing the stress between the general population and the medical students in the United States, it was reported that the students particularly had high levels of psychiatric distress, with 15%-20% of the students meeting the criteria for a diagnosis of psychiatric illness [4]. Guhtrie et al. found that the morbidity of stress in the 1st year students was as high and similar to that of 4th

year students, during his study. Stress among medical students should be acknowledged and attempts made to alleviate it. If second (first year of medical training) students do have very high levels of stress, it is necessary to know which parts of their training are causes, so that both the authority's actions and the student's abilities towards reducing of the stress levels may be improved [5]. Thus, the main focus of this study will be the second year medical student students of Michael Chilufya Sata (MCS) School of Medicine (SoM), at the Copperbelt University (CBU).

Statement of the Problem

Medical school environment has been recognized as a stressful one with negative effects on the academic performance, physical, and psychological well beings of the students [6]. They could be presented with failure to cope in anxious situations, test or performance anxiety, social phobia, and sometimes severe forms of depression and panic disorders. Stress decreases attention, reduces concentration, impinges on decision making, and reduces students' abilities to establish good relationships with patients. As a consequence, students have feelings of inadequacy and dissatisfaction with clinical practice in the future.

This may affect the lives of patients and the health of a community. Moreover, stress has also been linked to medical student suicide, drug abuse, and alcohol use. According to Inam et al. higher levels of stress had been reported in 1st year medical students in Karachi, Pakistan. Another study from the United Kingdom by Alim et al. showed more than one third of first year students had poor mental health when measured with the General Health Questionnaire 12, which assesses anxiety and depression. The inability to cope successfully with the enormous stress of medical education may lead to a series of consequences at both a personal and professional level. One may anticipate medical school to be a time of personal growth, fulfilment, and well-being despite its challenges. This research proposal, therefore, poses the question, "Why do the second year medical students experience high levels stress?"

Literature Review

Stress, usually a precursor to anxiety and anxiety is usually a precursor to depression, can reduce the efficiency of healthy individuals. Alkot says, stress represents a normal, necessary and unavoidable life phenomenon which can generate temporary discomfort as well as long-term consequences. Medical education is intended to prepare graduates for a personally rewarding and socially meaningful career promoting health and caring for the sick. But they are confronted with significant stressors. During the first year, reasons are mainly related to academic and emotional factors while in subsequent years, patient care and physical factors are more remarkable [7-10].

Prevalence

In a prevalence of stress among medical student's study by Alkot. It was found that, the majority of students have stress (87.4%), which varies from mild to moderate (63.8% against 23.6%). It can be seen that they principally are alarming levels of stress among students which is basically at all times. It was from the same study the prevalence of the most common sources of stress were indicated as psychological (32.3%), social (8.5%), financial (4.9%) and medical (3.6%) problems [11].

While the academic, social and emotional adjustment levels among students varies between moderate to high (78.6%, 21.4%), (26.8%, 73.2%) and (77.8%, 22.2%) respectively. Sherina found the prevalence of psychological stress in female and male students compared, to be (42.2%) (41.4%), respectively. Indicating that the stress was slightly higher among the females to the males, which emphasizes on the point of consideration of the gender of the students in doing the study [12,13].

Abdulghani et al. also found from his study that there is a difference in the prevalence of stress experienced by male and female students, the findings where that in the prevalence was 57% and 75.7% in males and females, respectively. Thus as the study will be done, it will among other things for focus on gender, one of the strata that will be used in the sampling procedure of the study. There are a number of studies that have

been done before which suggest that great stress occurs during the last years of training, but for Abdulghani et al. he found that stress levels decrease significantly as the year of study increases except for the final year. He discovered that the prevalence of stress was the highest among the 1st students followed by the 2nd year, 3rd year, and 4th year (43.2%), and then the 5th year students with results of 78.7%, 70.8%, 68%, 43.2% and 48.3%, respectively. There was a high a notable relation between the study year and the stress levels. Therefore, much attention is to be given to the fact that the first year students experience stress. With that been case, it should be accepted that there is a tremendous amount of stress that is experienced by the student's right from inception [14].

Factors

Alkot in a study on the prevalence of stress among medical students, found that psychological, social, financial, medical, academic, social and emotional problems, as the most common factors.

There are a lot more of other factors of stress that were not reported on in that study. Below are some of factors that have been identified by different researchers:

Fear of failure

The fear of failure can be a precursor of tremendous amount of stress for medical students, some work that suggests that actual crises of identity, instances where a student's actions do not match who they are, can offer opportunities for positive professional identity by demonstrating both need and opportunity to change have been done. Students seem to been raised in a culture where assessment is more or less like punitive examinations whose major purpose and plan is to pass or fail candidates.

It is such kinds of mentalities that shape and make them fear assessment. You therefore, will find out that in medical school students try to find out what and how the assessments are and then prepare strategically for the assessments instead of studying so they can be adequately trained and become good professionals.

Psychological/ social

Lui et al detected that social and personal problems such as conflicts with classmates or exam pressure were associated with anxiety and stress. In the findings as of the case found by Lui et al., it usually would be very disturbing psychologically if a student is in an environment in which he or she is not free. Studies show that for students to be able to cop well with school they should be in a mental supporting/encouraging environment the opposite resulting in psychological destabilization which directly leads to stress. There is therefore, a strong connection between sociality and the psychological state of a student's mind. Some suggestions have been made that psychological distress among students may adversely influence their academic performance, contribute to academic dishonesty, and play a role in alcohol and substance abuse.

Examination and examination results

A study done by Abouserie had a sample of 675 (202 males and 473 females) second year undergraduate students. The results 5 indicated that examination and examination results were the greatest causes of stress in students, seconded by studying for exams, too much to do and then the of information amount to learn. When students are approaching exams, they generally engage more into long hours of study which has been reported to be a stressful experience by a number of studies. As for the exam results, in most studies students report to not being satisfied with their results and that ensues in the worrying about the future results in that what they put in doesn't reflect in what they get from the exams. Donmez et al pointed out that worry about the future results and educational constraints were the major problems and these correlated with stress.

Academic/workload and gender

A study which involved 140 2nd year medical Chinese students in Hong Kong was conducted, the medical students were compared with 138 students that were surveyed before beginning their 1st year of medical school and then with 74 non-medical university students in their second year. One of the facts been looked at was the difference in workload among all the three classes of the

students that were involved in the study. In the 2nd year students, distress as reflected in their scores on anxiety and depression self-report scales was high, and these students reported greater utilization of health professional services as compared to the other two groups. Looking at what results were obtained from the study, the 2nd year students had concerns related to the medical school environment and curriculum which is practically workload Reflecting on the results that were obtained, it showed that there was significant differences between females and males students in both academic and life stress, with female students been more stressed than males.

Student personalities

According to Dyrbye in two studies which involved the identification of the personalities of students, of which a student can either be an introvert or an extrovert, it was suggestive that medical students have more symptoms of depression than the general population and age-matched peers at the time of matriculation. The student personalities identified were the basic two which are introvert and extrovert. Both of them have their own effects on the students. Introverts will have problems with their social lives with results in stress. For extroverts, they will experience stress in that they will feel and think there's is much work to do in limited time.

Time management

Time is a paramount factor in education. In a field ass medicine, in which there is a vast wealth of information to be gathered, time and its management becomes 6 quit a challenge to the students. If not managed amicably it can be a potential source of insurmountable stress.

Finances

Unfortunately, increasing cost of education is among the many factors of stress for every student, medical or not. Even though not all the students sponsor themselves, it is a concern of every student to have all their financial needs met so as to wholly concentrate on their studies. The financial stressors range from wishing that the student is fully registered with the institution, having adequate food for sufficient nutrition to having proper accommodation, to mention but a few. And with the shifting and unstable global economic status, it is becoming even more difficult to meet the said needs. The medical curriculum is not simple and the stress of trying to comprehend the complex material can become overwhelming.

Ravindranath et al. reported that medical students are exposed to numerous stressors. To relieve the stress, students take up different activities such as reading of magazines or books, praying/spiritual activities, meditation, listening to music/playing musical instruments, sleeping long hours, going for shopping or window shopping, watching movies at cinemas or home, smoking cigarettes or marijuana, drinking alcohol in clubs and sex.

Unfortunately, studies that have been done postulate that the current educational process may have an inadvertent negative effect on student's mental health, with a high frequency of depression, anxiety, and stress among medical students [15].

Objectives

To determine the prevalence and determinants of stress among second students at MCS school of medicine.

Specific objectives

- To determine the association between gender and stress.
- To determine the relation between age and stress.
- To establish the sources and patterns of stress.
- To determine the factors that is major stressors.

Statement of hypotheses

- There is no relationship between gender and stress.
- There is no relation between age and stress.
- There are no stress patterns.
- There are no factors that are major stressors.

Rationale and Justification

Ideally, medical education has been reported to be one of the most stressful academic curricula worldwide, negatively affecting the physical and mental health of medical students. According to the WHO (World Health Organization), it was estimated that mental diseases, including depression, anxiety and stress, would be the second leading cause of disability by the year 2020 which evokes the issue of importance of identifying students who are more vulnerable to mental illnesses.

It can be noted that students of the medical school are enrolled on a ground that they scored good grades [16]. However, upon getting or qualifying to the medical school the performance of majority is barely of the same calibre as before admission. Because of that, students are capable of engaging in different activities (*i.e.* academic dishonesty) for their academic survival, and as a result of the insurmountable pressure some resolve to things like substance abuse, alcohol, drugs and sexual activities. It is therefore hoped that this study will help determine the common factors tagged with the stress and suggest the definite solutions that can be provided to the students so as to help them in dealing the stress. Early detection, identification and necessary interventions targeting the alleviation of modifiable stressors might result in a less stressful academic life for students, which in turn could enhance their academic performance and skill development as medical graduates.

It is important to identify the prevalence, and risk factors of stress among medical students, which 8 not only affect their health, but also their academic achievements at different points of time in their study period. Furthermore, this research will not only be helpful to students only but the ripple effects of it extend to the nation and world at large. Training of healthy doctors is the prerequisite to having a health thriving society the world over (Table 1) [17,18].

Measurements

Table 1. Table of measurements.

Type of variable	Variable	Scale of measurement
Dependent	Prevalence of stress	Nominal scale
Independent variables	Age	Interval scale
	Sex	Nominal scale
	Academic Related Stressors (ARS)	Ordinal scale
	Intrapersonal and Interpersonal Related Stressors (IRS)	Ordinal scale
	Teaching and Learning-Related Stressors (TLRS)	Ordinal scale
	Social related stressors (SRS)	Ordinal scale
	Drive and Desire Related Stressors (DRS)	Ordinal scale
	Group Activities Related Stressors (GARS)	Ordinal scale

Academic Related Stressors (ARS): Refer to any scholastic, university, college, educational or student events that cause stress on students.

Interpersonal and Intrapersonal Related Stressors (IRS): Refer to any form of relationships between and within individuals that cause stress.

Teaching and Learning Related Stressors (TLRS): Refer to any events related to teaching or learning that causes stress.

Social Related Stressors (SRS): Refer to any form of community and societal relationships that cause stress.

Drive and Desire Related Stressors (DRS): Refer to any form of internal or external forces that influence one's attitude, emotion, thought and behaviour which subsequently cause stress.

Group Activities Related Stressors (GARS): Refer to any group events and interactions that cause stress. It generally relates to participation in group discussions, group presentations and others expectations to do well.

Conceptual/Theoretical Frameworks

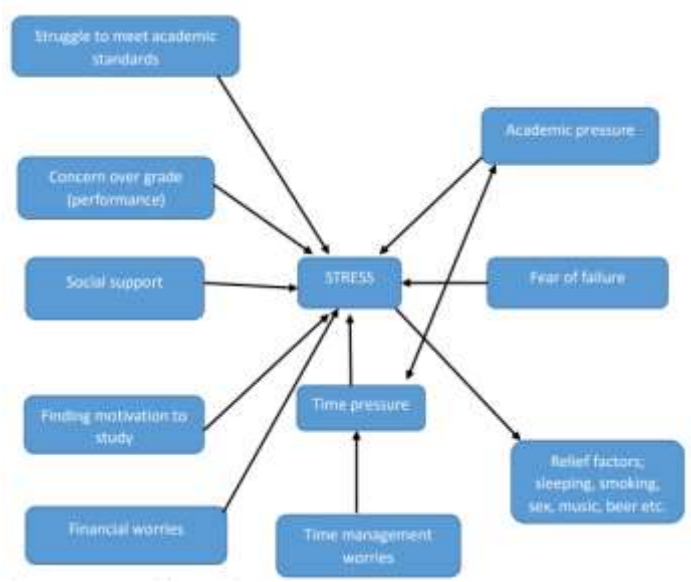

Figure 1. Conceptual framework.

The Figure 1 shows the different factors of stress among students are, and what it might lead to if stress is generated, increased or overwhelming in the students. It also shows the ways of reliving stress which students use (defence mechanisms).

Methodology

Study site

The Copperbelt University School of Medicine micheal chilufya sata campus.

Target population

Second year medical students of the Copper belt University School of medicine.

Study design

A cross-sectional study will be used.

Sample size

Since there is no estimate of the prevalence, a pilot study will be done to determine it. With the current number of registered 2nd year students been taken to be somewhere 350 by the end of the 2019/20 Academic year. The formulas below will be used to calculate the sample size:

$$n = \frac{z^2 PQ}{d^2}$$

Where: n=minimum sample size; z (level of confidence measure at 95% confidence level)=1.96; P is the estimate of the prevalence; Q=100–P; d(margin error)=5%.

Level of confidence measure (Z) 1.96 (at 95% confidence level)	Level of confidence measure (Z) 1.96 (at 95% confidence level)
Margin of error (e2) 5%	Margin of error (e2) 5%
Baseline level of the indications (P) 50% (as no estimates)	Baseline level of the indications (P) 50% (as no estimates)

Taking P to 50% n was calculated to be 384. Adjusted for a finite population using the formula below;

$$Sample\ size = \frac{n}{1 + n / population}$$

The sample size was calculated to be 183.

Then a 10% of non-respondents are assumed, and the actual sample size was calculated to be 201 which will be stratified by sex/gender.

Sampling procedure

A stratified random sampling method will be used to do the sample to select the participants, with the strata being sex. The sample size will be proportionally allocated to the male and female which are the strata [19].

Inclusion and exclusion criteria

Students that are in their second year of the medical training will be considered. Students in other years of study will be excluded.

Data collection and management

Data will be collected from MCS campus through self-administration of questionnaires to the randomly selected students. The questionnaires will be edited for completeness and consistence checks. Further editing of the questionnaires will be done during data analysis using frequencies.

Discussion

The data analysis will be conducted using SPSS software, version 20. Associations will be determined using the Chi-squared test. Meanwhile means will be compared using the student test. The level of statistical significance will be set at 5%. The data obtained from the self-administered questionnaires will initially be organized categorically by tabulating it using frequency and distributions. The quantitative data will be analysed and presented into tables, graphs and charts [20].

Ethical consideration

Ethical approval will be sought from the Tropical Disease Research Centre (TDRC) ethics committee. The ethical principles will be respected, Autonomy will apply as on participant will be forced against their wish, and Confidentiality as none of the information given in the study will be disclosed in any report of the study.

Consent will also be sought from all participants with adequate information about the study availed to them before engaging them therein. Confidentiality and anonymity concerning the participants will be highly observed.

Conclusion

The study will be conducted among the students of a single medical school. More accurate results could be obtained *via* multicentre studies involving other medical schools to obtain more accurate results.

References

1. Aktekin M, Karaman T, SenolYY, Erdem S, Erengin H, Akaydin M, et al. Anxiety, depression and stressful life events among medical students; a prospective study in Antalya, Turkey. Medial Education 2001; 35: 12-17. [Cross ref], [Goggle Scholar], [Pubmed].
2. Abouserie R. Sources and levels of stress in relation to locus of control and self-esteem in university students. Educational Psychology. 1994; 14: 323-330. [Cross ref], [Goggle Scholar],
3. Abdulghani HM, Alkanhal AA, Mahmoud ES, Gominda G. Stress and its effects on medical students: A cross-sectional study at a college of medicine in Saudi Arabia. Journal of Health, Population, and Nutrition. 2011; 29: 516-22. [Cross ref], [Goggle Scholar], [Pubmed].
4. Alkot M. Prevalence of stress among medical students. International Journal of Growth and Development. 2021; 4:8. [Cross ref], [Goggle Scholar].
5. Dyrbye LN. Systematic review of depression, anxiety, and other indicators of psychological distress among US and Canadian medical students, well-being

of student academic medicine. Academic Medicine. 2006; 81: 4. [Cross ref], [Goggle Scholar], [Pubmed].

6. Flack WF, Daubman ML, Caron JA, Asadorian NR, Aureli SN, Gigliotti N, et al. Risk factors and consequences of unwanted sex among university students: Hooking Up, alcohol, and stress response. Journal of Interpersonal Violence. 2007; 22: 139-157. [Cross ref], [Goggle Scholar], [Pubmed].
7. Guthrie EA, Black D, Shaw CM, Hamilton J, Creed FH, Tomeason B, et al. Embarking upon a medical career: Psychological morbidity in first year medical students. Medical Education. 1995; 29: 337-41. [Cross ref], [Goggle Scholar], [Pubmed].
8. Jain A, Bansal R. Stress among medical and dental students: A global issue. IOSR Journal of Dental and Medical Sciences (JDMS) 2012:5: 5-7. [Cross ref], [Goggle Scholar].
9. Lui XC, Oda S, Peng X, Asaik K. Life events and anxiety in Chinese medical students. Social Psychiatry and Psychiatric Epidemiology. 1997; 32: 63-7. [Cross ref], [Goggle Scholar], [Pubmed].
10. Murphy RJ, Gray SA, Sterling G, Reeves K, DuCette J. A comparative study of professional student stress. Journal of Dental Education. 2009; 73: 328-337. [Cross ref], [Goggle Scholar], [Pubmed].
11. Muula AS, Kazembe LN, Rudatsikira E, Siziya S. Suicidal ideation and associated factors among in-school adolescents in Zambia. Tanzania Health Research Bulletin. 2007; 9: 202-06. [Cross ref], [Goggle Scholar], [Pubmed].
12. Ovuga E, Boardman J, Wasserman D. Undergraduate student mental health at Makerere University, Uganda. World Psychiatry. 2006. 5: 51. [Cross ref], [Goggle Scholar], [Pubmed].
13. Rudatsikira E, Muula AS, Siziya S, Twa-twa J. Suicidal ideation and associated factors among school-going adolescents in rural Uganda. BMC Psychiatry. 2007; 7: 67. [Cross ref], [Goggle Scholar], [Pubmed].
14. Ravindranath D. Stress in the medical profession: An evaluation of Pre-medical students, Medical students, and Doctors. 2017; 1:1. [Cross ref], [Goggle Scholar].
15. Schuwirth LWT, Vleuten C. Medical education: Challenges for educationalists. BMJ. 2006; 333: 544-546. [Cross ref], [Goggle Scholar].
16. Sharma B, Wavare R. Academic stress due to depression among medical and para-medical students in an Indian medical college: Health initiatives cross sectional study. Hospital for Special Surgery. 2013; 3: 29-38. [Cross ref], [Goggle Scholar]
17. Shauna L. Effects of mindfulness-based stress reduction on medical and premedical students. Journal of Behavioural Medicine. 1998; 21: 581-599. [Cross ref], [Goggle Scholar], [Pubmed].
18. Sherina MS, Rampal L, Kaneson N. Psychological stress among undergraduate medical students. International Medical Journal Malaysia. 2004; 59: 207-211. [Cross ref], [Goggle Scholar], [Pubmed].
19. Stewart SM, Betson C, Wong CM, Lee PHW, Lam TH. Stress and vulnerability in medical students. 1995; 29: 119-127. [Cross ref], [Goggle Scholar], [Pubmed].
20. Stewart SM, Lam TH, Marshall IB. Predicting stress in first year medical students: A longitudinal study. Medical Education. 1997; 31: 163-168. [Cross ref], [Goggle Scholar], [Pubmed].

Coreesponding author: Evans Muyeng, Department of Public Health, Copperbelt University School of Medicine, Zambia.

Email: muyengaevans@gmail.com

Received: 06 January 2022, Manuscript No. ajopy-22-51899; **Editor assigned:** 10 January 2022, PreQC No. ajopy-22-51899(PQ); **Reviewed:** 18 January 2022, QC No. ajopy-22-51899; **Revised:** 25 January 2022, Manuscript No. ajopy-22-51899(R); **Published:** 04 February 2022, DOI: 10.54615/2231-7805.47316.