

**ORl(JINAL AR ICU:**

COMPARISON OF STRESS PERCEPTION AND PSYCHIATRIC MORBIDITY AT A NIGERIAN MEDICAL SCHOOL.

**Li**

# YUSSUF ABDULLAH DASLIVA', ISSA BABA AWOYE'

'MB;BS, FMCPsych., Cert. Health Plan. & Mgt., Cert. Health Inform. Mgt., MPH, Dept. of Behavioural Sciences, College of Health Sciences, University of llorin. 'MB;BS, FWACP, MPH, Cert. Health Inform. Mgt., Dept. of Behavioural Sciences, College of Health Sciences, University of llorin.

Correspondence-: [muyadid@yahoo.com](mailto:muyadid@yahoo.com)

# ABSTRACT

**OBJECTIVES**

To compares the stressors, coping styles, and the correlatesfor developing psychological ill-health among medical students.

# STUDY DESIGN

: Across-sectionalanalytic study,

# PLACE&DURATION

The study took place at the University of llorin (Nigeria) medical school between March and April,2011.

# SUBJECT & METHODS

473 students (1st, 89; 4th, 200; 6th, 184) were recruited and screened with socio-demographic, sources of stress, and GHQ-12. Results were analyzed with SPSS version 18 at 5% significance level.

# RESULTS

323 [1st, 79 (88.8%); 4th, 143 (71.5%); and 6th,

101 (54.9%)] completed the questionnaires (Response Rate= 68.3%). 64 % participants were male, 98.7 % were single; and the highest proportion of Christians (60.4%). Initial level students had social kind of stressors while later levelshad academic kind of stressors.

# CONCLUSION

Although the studyshowed association between high perception of stress and psychological distress with academic levels, there was no association with risk for psychological morbidity. The evident high psychological distress should nonetheless necessitate pre-emptive psychologicalhealth promotionalmeasures.

# KEYWORDS

Stress, Psychiatric morbidity, Medical students.

# INTRODUCTION

Medical school has been recognized as having inherent stressors that could affect the psychologicalhealth of both pre-clinical and clinical students.''The summation of the problemsarising fromthe conglomeration of theirsocio-cultural environments, family settings, personalities, and support systems have been succinctly described as the 'vulnerable student syndrome'.' Psychological impairments often develop in the general population in the twenties which coincidentally are the years of medical training, This, perhaps, could result from exacerbation by life changes, such as relocation, new relationships, financial problems, new academic roles or demands'" Such problems could re-enforce the notion that the high physical and emotional demands of medical training might cause stress at levels which are hazardous to both physical and psychological wellbeing of students.' Aside from the immediate stressful factors that could precipitate morbidity in medical students (e.g., financial problems, workload, substance abuse, relationship difficulties, examinations), physicians' health impairment, and poor patient care are future concerns.'·'·" In a comparative study of different levels of academic years, mild to high stress levels were reported in the 3rd year students (73.5%), a finding that was attributed to the frequency of tests and examinations." Guthrie et al" reported a high rate of morbidity in 1st year and was attributed to the medical training, and Miller & Surtees" reported high levels of neurotic symptoms both atthebeginning of academic year and at follow-up 6 months later, while Firth"found a highmorbidity during the later years of medicaleducation,In a study by Stewart et al", anxiety and depression were reported in the 2nd year, Similarly, medical students were reported to have elevated scores on stress and depressed mood at the transition from basic to clinical training; and longitudinal studies have likewiseexamined at which stages of the course that stress and morbidity peaked."

Although many studies from many countrieshave focused on medical students"·" but very few have been done in Nigeria. This report compared 3 milestones of medical education (initial, middle, and exit), in order to ascertain theirdifferential perception of stress, and psychological morbidities.The finding perhaps, could mitigate the possible stress-related problems confronting medical students by elucidating the causes and managementswith the view to reducing stress levelsand morbidity.

# METHOD PARTICIPANTS

This study was a part of a larger longitudinal study of all medical students.For current

study 473 medical students were recruited from medical school, University of llorin (Nigeria). 89 students were from 1st year, 200 students were from 4th year, while 184 studentswere from 6th year),

# INSTRUMENTS

**General Health Questionnaire-12 (GHQ-12)**

The GHQ-12" is a screening instrument to use in general practice and community

settings.TheGHQ was scored using a cut-off point of 3 in accordance with previous studies."·20

## Sources of stress questionnaire

The 28-item source of stress questionnaire previously used by Sreeramareddy et al" was adapted with subtle adjustments to the contents (e.g., substituting 'cafeteria' for 'hostel' in item 1, and 'clinical rotation' for 'practical' in item 19). The questionnaires were pre-tested among 20 first year Laboratory Medical students for face/content validities. Potential stressors are listed and grouped into academic, psychosocial, and health-related. The frequency of occurrence of each was rated as 'never', 'rarely', 'sometimes', and 'always'; and scored using Likert scale as 1, 2, 3, and 4. To allow for inferential statistical calculation, the 4-way Likert responses were reduced to binomial responses of 'No' ('never'/'rarely') and 'Yes' ('often'/'always')."·"

## PROCEDURE

Approval of the University of llorin Teaching Hospital (UITH) ethical and Research Committee was obtained. It was a two-staged study, using structured, self-administered questionnaires, and conducted over 8 weeks period. The first stage was about having retrieved the students' class lists, each level was approached by a member of the research team during their lecture hours to explain the purpose of the study. They were assured of confidentiality of all information (personal or vital) provided or detected during the course of the study.They were also informed that participation was elective, would not confer anyadvantage or otherwise on both participants and non­ participants; and participants would be allowed to withdraw at any point. Verbal consents were obtained and the class representatives were assigned with the tasks of distributing and retrieving the questionnaires according to serial/matriculation numbers to enable appropriate matching atthe subsequent surveys.

Data were analysed using SPSS version 18, with level of significance set at 5%. Bivariate analysis was used for data with binomial distributions while Kruskal-Wallis Chi-square and ANOVA were derived.

**RESULTS**

Of the 473 students recruited, 323 (1st year, 79 (88.8%); 4th year, 143

(71.5%); and 6th year, 101 (54.9%)) completed our questionnaires giving an overall response rate of 68.3%. Most of the students were single 78 (98.7%), 139 (97.2%), and 90 (89.1%) in 1st, 4th, and 6th years, respectively. The majority of the students were Christians, 83 (58.0%) in the 4th year, and 66 (65.35%) in the 6th year) and 36 (45.6%) in the 1st year. In the 3 classes, the students' parents were living together 71 (89.9%), 124 (86.7%), and 86 (85.1%) in the 1st,4th, and6th years, respectively (see table 1).

Students were most bothered by stressors like'Being bothered about high expectations from parents' (1st year, 86.1%; 4th year, 82.5%; & 6th year 68.3%); and 'Being bothered about the expectation of becoming a doctor' (1st year, 65.8%; 4th year, 81.1%; and 6th year 72.3%); while some sources were common in the upper years of medical education (i.e., 4th year and 6th Year);'Being bothered about inadequate learning materials' (4th year, 72.7%; and 6th year,77.2%); and 'Being bothered about lack of time for recreation' (4th year, 69.2%; and 6th year 78.2%). However, none of these highly rated stressors could achieve statistically significant differences among three groups. The sources that differed significantly among three groups were 'Performance in the clinical posting', p=0.02; 'Too vast academic curriculum', p=0.01; 'Competing with friends', p=0.02; and 'Difficulty journeying home,p=0.002 (see table 2).

The mean (±sd) score on ghq-12 for 1st, 4th, and 6th years were 1.2±1.7 (range=?), 1.0±1.5 (range=9), and 1.4±2.2 (range=11),

respectively. Twelve (15%), 15 (10.5%), and 21 (20.8%) of the 1st, 4th, and 6th levels, respectively scored ;;;, 3 on the gqh-12, and thus were regarded as having psychiatric morbidity. However, the differences in morbidities across levels did not reach any levels of significance on ANOVA, p=0.9(see table 3).

When the ratings of stressperceptions and ghq-12 scoresof the three levels were further subjected to statistical analysis to determine the level of risk for psychological morbidity, none of the perceived stressors reached any level of significance (see table4).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **vartables** | **1st Level (N1=79)** | **4th level (N =143)**  **2** | **6th level (N =101)**  **3** | Total (N,=323) Total Cases  N,=48(14.9%) | **K-W x2 statistics** |
| **Cases n1=12 (15.2%** | **Cases n2=15 f10.5%l** | Cases n,=21 (20.8%) |
| **Age-group (years):**  15-18  19-22  23-26  >26 | 7 (58.3)  5 (41.7) | 9 (60.0)  5 (33.3)  1 (6.7) | 14 (66.7)  7 (33.3) | 7 (14.6)  14 (29.2)  19 (39.6)  8 (16.7) | x'=4.6, df=3, p=0.2. |
| **Gender:**  **Male**  **Female** | 6 (50.0)  6 (50.0) | 9 (60.0)  6 (40) | 16 (76.2)  5 (23.8) | 31 (64.6)  17 (35.4) | x'=2.5, df=3, p=0.5. |
| **Marital status:**  **Single**  **Married** | 12 (100) | 15 (100) | 17 (81.0)  4 (19.0) | 44 (91.7)  4 (8.3) | x'=2.2, df=3, p=0.5. |
| **Religion:**  **Christianity Islam** | 6 (50.0)  6 (50.0) | 8(53.3)  7 (46.7) | 15 (71.4)  6 (28.6) | 29 (60.4)  19 (39.6) | x'=3.8, df=3, p=0.3. |
| **Number of children in family:**  <2  3-5  >5 | 9 (75.0)  3 (25.0) | 8 (53.3)  7 (46.7) | 2 (9.5)  6 (28.6)  13 (61.9) | 2 (4.2)  23 (47.9)  23 (47.9) | x'=0.6, df=3, p=0.9. |
| **Parent's marital status:**  **Living together Separated** | 10 (83.3)  2 (16.7) | 14 (83.3)  1 (6.7) | 15 (71.4)  6 (28.6) | 39(81.2)  9 (18.8) | x'=2.9, df=3, p=0.4. |
| **Relatives being treated for psychological problems:**  Yes  No | 1 (8.3)  11 (91.71 | 1 (6.7)  14 (93.31 | 3 (14.3)  18 (85.7) | 5 (10.4)  43 189.6) | x'=0.7, df=3, p=0.9. |
| **Individual being treated for psychological problems:**  Yes No | 1 (8.3)  11 (91.7) | 15(100) | 1 (4.8)  20 (95.0) | 2 (4.2)  46 (95.8) | **x2=0.4, df=3, p=0.9** |



**Table 2:**

Sources of Stress among the students at the various levels

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sources of stress** | **1st Level**  (n1a79) | **Frequency of occurrence** | | | |
| 4th Level  (n2al43) | 6th Level  (n3a101) | Total  (n4a323) | **K-W**  ANOVA |
| Yes (Mean) | Yes (Mean) | Yes (Mean) | Total (Mean) |  |
| High expectation from parents | 86.1 | 82.S | 68.3 | 236.9 | 0.5 |
| Expectation of being a doctor | 65.8 | 81.1 | 72.3 | 219.2 | 0.3 |
| Political situation in the Country | 55.7 | 62.9 | 71.3 | 189.9 | 0.1 |
| Relationship with opposite sex | 46.8 | 60.1 | 79.2 | 186.1 | 0.1 |
| Feeling lonely | 44.3 | 11.2 | 54.S | 110.0 | 0.2 |
| Lack of special guidance from the College | 58.2 | 63.6 | 74.3 | 196.1 | 0.1 |
| Competing with friends | 51.8 | 35.0 | 43.6 | 130.4 | 0.02• |
| Worry about the future | 58.2 | 58.7 | 61.4 | 178.3 | 0.01• |
| Quality of food | 68.3 | 68.S | 58.4 | 195.2 | 0.1 |
| Non-availability of adequate learning  **materials** | 45.6 | 72.7 | 77.2 | 195.5 | 0.2 |
| Performance in the clinical posting | 35.5 | 44.8 | 72.3 | 152.6 | 0.02• |
| Lack of time for recreation | 43.1 | 69.2 | 78.2 | 190.5 | 0.1 |
| **Academic curriculum too vast** | 45.6 | 64.3 | 57.4 | 167.3 | 0.01\* |
| Living conditions in the hostel | 36.8 | 78.3 | 78.2 | 193.3 | 0.2 |
| Frequency of examination | 27.9 | 62.2 | 69.3 | 159.4 | 0.03\* |
| Sleep difficulties | 38.0 | 34.3 | 37.6 | 109.9 | 0.1 |
| Satisfaction with lecturers | 53.2 | 57.3 | 73.3 | 183.8 |  |
| **Lack of entertainment/recreation** | 29.1 | 69.2 | 67.3 | 165.6 | 0.04\* |
| Difficulties adjusting to roommates | 33.0 | 42.0 | 35.7 | 110.7 | 0.1 |
| Difficulties with accommodation | 21.5 | 55.2 | 50.S | 127.2 | 0.04\* |
| Financial instability in family | 15.2 | 31.S | 38.6 | 85.3 | 0.3 |
| **Illness affecting performance in** | 11.3 | 16.8 | 17.8 | 45.9 | 0.6 |
| **examinations**  Difficulties in reading textbooks | 11.4 | 25.9 | 24.8 | 62.1 | 0.5 |
| Inability to socialize with peers | 22.8 | 21.0 | 22.8 | 66.6 | 0.4 |
| Difficulty journeying home | 46.9 | 46.9 | 43.6 | 145.5 | 0.002•• |

**Table 3:**

Psychiatric Morbidity amongst the various levels on ANOVA

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Ghq-12 scores | **st**  **1 year** | **4th year** | **6th year** | p |
| Cases( 3) | 12 (15.2) | 15 (10.5) | 21 (20.8) |  |
| Non-cases (<3) | 67 (84.8) | 128 (89.5) | 80 {79.2) | 0.9 |
| Mean Ghq-12 scores (±sd) | 1.2 (1.7) | 1.0 (1.5) | 1.4 (2.2) |  |

**Table 4:**

Sources of stress and Psychiatric morbidity

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sources of stress** | **1st year Cases**  (n1a12) | **4th year Cases**  (n2a15) | **6th year Cases**  (n3a21) | Total Cases (n4a48) | **K-W x2 statistics** |
| **Bothered about frequency of examination:** | 7(58.3)  5(41.7) | 5(33.3)  10(66.7) | 8(38.1)  13(61.9) | 20(41.7)  28(58.3) | x'a3.9, dfa3, pa0.3. |
| Never/rarely (no) Sometimes/always(yes) |
| **Havingsleep Difficulties:** |  |  |  |  |  |
| Never/rarely (no) | 5(41.7) | 9(60.0) | 9(42.9) | 23(47.9) | x'a4.6, dfa3, |
| Sometimes /always (yes) | 7(58.3) | 6(40.0) | 12(57.1) | 25(52.1) | pa0.2. |
| **Havingany difficulties in reading textbooks:** |  |  |  |  | x a4.3, dfa3,  2  pa0.2. |
| **Never/rarely (no)** | 9(75.0) | 8(53.3) | 14(66.7) | 31(64.6) |
| **Sometimes/always (yes)** | 3(25.0) | 7(46.7) | 7(33.3) | 17(35.4) |
| **Difficulties adjusting to roommates:** | 10(83.3)  2(16.7) | 6(40.0)  9(60.0) | 16(76.2)  5(23.8) | 32(66.7)  16(33.3) | x'a2.S, dfa3, pa0.5. |
| Never/rarely (no) Sometimes/always(yes) |
| **Difficulties with accommodation away from home:** | 8(66.7)  4(33.3) | 5(33.3)  10(66.7) | 11(52.4)  10(47.6) | 24(50.0)  24(50.0) | x'a4.5, dfa3, pa0.2. |
| **Never/rarely (no) Sometimes/always (yes)** |
| **lack of time for reacreations:** |  |  |  |  |  |
| Never/rarely (no) | 8(66.7) | 5(33.3) | 2(9.5) | 15(31.2) | x'a3, dfa3, |
| Sometimes/always(yes) | 4(33.3) | 10(66.7) | 19(90.5) | 33(68.8) | pa0.4. |

**DISCUSSION** attributable to gradual adaptation to their environment and

**course.21,26 27**

**'**

The noticeable surge of stress level at the exit period was higher than the lower levels as evident by the reported number of stressors. The exit level was significantly more affected by academic and social issues (e.g., performance in the clinical posting, frequency of examination and worry about future. The middle level was significantly more affected by few academic and social issues (e.g., too vast curriculum and difficulties with accommodation); while the lowest level was significantly more affected by competition with friends. These findings contrasted with previous one" that reported more stress in the 1st year; but conformed with others. '"The heavy burden by the curriculum, the process of adjustment to new academic environment and the exit examinations at the final year were implicated. Abdulghani "reported decreasing stress level with increasing year of study until the final year when it surged up due to overloaded clinical schedules. These were however contrary to another study• that reported that extracurricular burden did not play any important role in stress in preclinical students because they were unmarried and did not have family responsibilities.



Different stressors appeared impacting on the students but those that were impacting highly on all levels, were more of social issues, a finding that might not be unconnected to the huge impact of social factors in all strata of the nation's population."Thisfurther confirmed previous report" that different stressors appeared to be at work at the 3 levels, with role conflicts and a seemingly growing degree of cynicism developing throughout the course of education. Whereas, at the transition to clinical training, students still found their studies to dominate their lives, while students in the final stages were not burdened by their studies, but were more critical of the education and less satisfied with the psychosocial climate. In this study, lower level students were more concerned about 'parental expectations', while the upper level students were more preoccupied with 'expectation of becoming a doctor'. It was obvious that while the preoccupations of the students in the 1st level remained more of social issues, those of the upper levels remained both social and academic issues. This conformed with the previous reports of psychosocial-; and academic-related issues as increased sources of stress."-" While this might not be unconnected to the differences in their level of maturity andcareer advancement, the possible tiltofthe upper levels' orientations towards that of budding doctors could be contributory. This concurred with previous studies that identified basic level students as being stressed by generalized stressors such as massive amount of materials to be mastered, problems of the transitions and financial distress while the clinical years had to do with the problems of patient care, dealing with medical personnel and financial responsibilities."·"

There were no significant relationship observed between the perceived stress and risk of psychological morbidity.

The present study also contrasted with the studies that reported increasing morbidity and stress level as the students progressed in their career; and a low rate of psychological distress in students enrolling intomedical school prior to the onset of classes, suggesting that it was the rigors of medical education itself that might play an important role in the increased prevalence of psychological disorders."·" However, this study confirmed previous ones that reported no significant differences in morbidity between levels,

# CONCLUSIONS

This study has presented empirical evidence regarding the psychological health of the participants.It indicated high prevalence of perceived stress in them that tends to be more with advancing levels. Thus, medical institutions need to address these issues that could aggravate psychological distress to forestall psychological ill­ health among students. Hence, Medical schools should increasingly be encouraged to take a proactive role in promoting physical and mental health amongst their students. Medical educators and those charged with the responsibilities of developing the medical curriculum ought to be more aware of the stresses inherent in medical education with the view to taking remedial actions for the prevention of both immediate and remote stress-related adverse consequences on their students' psychological health. Actionable programs on personal and stress management skills of the students, awareness of the lecturers on stress-inducing factors, and improvement inteacher-student relationships could be instituted.

# LIMITATIONS

Limitations to this study included: (i) being a cross-sectional design, the different subgroups may differ on factors not directly attributable to the stage of education; (ii) the small sample sizes in each level that necessitated converting the Linkert scale responses to Binomial responses of 'Yes' or 'No' could be could have somewhat limited adequate statistical inferences; (iii) the mono-centre naturecould limit generalisation of the findings.

**Declaration of interest:**

The research was funded by the Faculty of Clinical Sciences Research Grant and we declare that there were no conflicting interests in this research work.

# REFERENCES

1. Siddiqui FR, Sabih F, Danish KF, Bhatti MA. Stress: A cross sectional study at Islamic International Medical college (IIMC), Rawalpindi. Professional Med J,2009;16 (3):395-399.
2. Amir M & El Gilany AH. Self-reported depression and anxiety by studentsatan Egyptian medical school,JPPS, 201O;7 (2):71-78.
3. SidhuJK.Effect of stress on medical students. leJSME, 2007; 1 (1): 52-53.
4. Niemi PM & Vainiomaki PT.Medical students' academic distress, coping and achievement strategies during the preclinical years, Teaching and Learning in Medicine, 1999; 11,(3):125-134.
5. Chilova H & Natovova L. Stress coping strategy at undergrad students- Part I: Gender differences, J on Efficiency & Responsibility in Education &Science, 2012; 5 (3):135-147.
6. Lee J& Graham A.Students' perception of medical school stress

&theirevaluation of wellbeing-Med Edu,2001; 35:652-659.

1. Dahlin ME, Runeson B. Burnout and psychiatric morbidity among medical students entering clinical training: a three year prospective questionnaire and interview-based study. BMC Med Edu,2007, 7(6):1-8.
2. Omokhodion FO.Psychosocial problems of pre-clinical students in the University of Ibadan Medical School. Afr J Med Med Sci,

### 2003; 32 (2):135-8.



1. Omokhodion, FO, Gureje 0. Psychosocial problems of clinical students in the University of Ibadan Medical School. Afr J Med Med Sci, 2003; 32;(1):55-8.
2. Kate MS, Kulkarni UJ, Shetty YT, Deshmukh YA, Moghe W.

Acknowledging stress in undergraduate medical education and methods ofovercoming it, Current Research J of Soc Sci, 2010; 2 (5): 282-287-.

1. Saipanish R. Stress among medical students in a Thai medical school.Medical Teacher, 2003; 25(5):502-506.
2. Guthrie EA, Black D, Shaw CM, Hamilton F, Creed FH, Tomenson

B. Embarking upon a medical career: psychological morbidity in first year medical students.Med Edu, 1995; 29:337-341.

1. Miller PM, Surtees PG. Psychological symptoms and their course in first-year medical studentsas assessed by the Interval General Health Questionnaire (I-GHQ). Br J Psychiatry, 1991; 159: 199- 207.
2. Firth J. Levels and sources of stress in medical students. BMJ,

### 1986; 292;1177-1180.

1. Stewart SM, Betson C, Lam TH, Marhall lB, Lee PWH, Wong CM. Predicting stress in first year medical students: a longitudinal study. Med Edu,1997;31:163-168.
2. Singh G, Hankins M, Weinman JA. Does medical school cause

health anxiety and worry in medical students?Med Edu, 2004; 38:479-481.

1. Ko SM, Kua EH, Fones CSL. Stress and the undergraduates. Singapore MedicalJournal, 1999;40 (10):627-630.
2. Goldberg D. The detection of psychiatric illness by questionnaire.London:Oxford University Press; 1972.
3. Yussuf AD, Issa BA, Ajiboye PO, Buhari OIN. The correlates of stress, coping styles and psychiatric morbidity in the first year of medical education at a Nigerian University. Afr J Psychiatry, 2013;206-215.
4. Yussuf AD, Ajiboye PO, Issa BA, Buhari OIN. The prevalence and

risk factors for psychiatric disorders among youths in a borstal institution in Nigeria,J Pak Psych Soc, 2011;8 (1), 22-28.

1. Sreeramareddy CT, Shankar PR, Binu VS, Mukhopadhyay C, Ray B, Menezes RG. Psychological morbidity, sources of stress and coping strategies among undergraduate medical students of Nepal. BMCMedical Education, 2007; 2(7): 26.
2. Dahlin M,Joneborg N, Runeson B.Stress and depression among medical students: a cross- sectional study. Med Edu, 2005; 39: 594-604.
3. Abdulghani AH. Stress and depression among medical students: a cross-sectional study at a medical college in Saudi Arabia, Pak J Med Sci, 2008; 24 (1): 12-17.24. Shah M, Hasan S, Malik S, Sreeramareddy CT. Perceived stress, sources and severity of stress among medical undergraduates in a Pakistani medical school,BMC Med Education, 201O;10: (2), 2-8.
4. Liselotte ND, Thomas MR, Shanafelt TD. Systematic review of

depression, anxiety, and other indicators of psychological distress among US and Canadian medical students. Acad Med, 2006;81 (4):354-373.

1. Shaikh BT, Kahloon A, Kazmi M, Khalid H, Nawaz K, Khan N, et al. Students, stress and coping strategies: a case of Pakistani medical school.Educ Health (Abingdon), 2004; 17 (3):346-353.
2. Wolf TM. Stress, coping and health: enhancing well-being

during medical school.Med Edu, 1994; 28:8-17.