

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

YUSSUF ABDULLAH DASLIVA¹, ISSA BABA AWOYE²

¹MB;BS, FMCPsych., Cert. Health Plan. & Mgt., Cert. Health Inform. Mgt., MPH, Dept. of Behavioural Sciences, College of Health Sciences, University of Ilorin.

²MB;BS, FWACP, MPH, Cert. Health Inform. Mgt., Dept. of Behavioural Sciences, College of Health Sciences, University of Ilorin.

Correspondence-: muyadid@yahoo.com

ABSTRACT

OBJECTIVES

To compare the stressors, coping styles, and the correlates for developing psychological ill-health among medical students.

STUDY DESIGN

: A cross-sectional analytic study.

PLACE & DURATION

The study took place at the University of Ilorin (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 levels had academic kind of stressors.

CONCLUSION

Although the study showed 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 psychological health promotional measures.

KEYWORDS

Stress, Psychiatric morbidity, Medical students.

INTRODUCTION

Medical school has been recognized as having inherent stressors that could affect the psychological health of both pre-clinical and clinical students.^{1,2} The summation of the problems arising from the conglomeration of their socio-cultural environments, family settings, personalities, and support systems have been succinctly described as the 'vulnerable student syndrome'.³ 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.^{4,5} 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.⁶ 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.^{1,7-10} 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.¹¹ Guthrie et al¹² reported a high rate of morbidity in 1st year and was attributed to the medical training, and Miller & Surtees¹³ reported high levels of neurotic symptoms both at the beginning of academic year and at follow-up 6 months later, while Firth¹⁴ found a high morbidity during the later years of medical education. In a study by Stewart et al¹⁵, 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 likewise examined at which stages of the course that stress and morbidity peaked.¹⁶

Although many studies from many countries have focused on medical students^{12,17} but very few have been done in Nigeria. This report compared 3 milestones of medical education (initial, middle, and exit), in order to ascertain their differential perception of stress, and psychological morbidities. The finding perhaps, could mitigate the possible stress-related problems confronting medical students by elucidating the causes and managements with the view to reducing stress levels and 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 Ilorin (Nigeria). 89 students were from 1st year, 200 students were from 4th year, while 184 students were from 6th year.

INSTRUMENTS

General Health Questionnaire-12 (GHQ-12)

The GHQ-12¹⁸ is a screening instrument to use in general practice and community

settings. The GHQ was scored using a cut-off point of 3 in accordance with previous studies.¹⁸⁻²⁰

Sources of stress questionnaire

The 28-item source of stress questionnaire previously used by Sreeramareddy et al²¹ 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').^{19,21}

PROCEDURE

Approval of the University of Ilorin Teaching Hospital (UIH) 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 any advantage 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 at the 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, and 6th 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 (\pm sd) score on ghq-12 for 1st, 4th, and 6th years were 1.2 ± 1.7 (range=7), 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 ghq-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 stress perceptions and ghq-12 scores of 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 table 4).

Variables	1 st Level (N ₁ =79) Cases n ₁ =12 (15.2%)	4 th Level (N ₂ =143) Cases n ₂ =15 (10.5%)	6 th Level (N ₃ =101) Cases n ₃ =21 (20.8%)	Total (N ₄ =323) Total Cases N ₄ =48(14.9%)	K-W χ^2 statistics
Age-group (years):					
15-18	7 (58.3)	-	-	7 (14.6)	$\chi^2=4.6$, df=3, $p=0.2$.
19-22	5 (41.7)	9 (60.0)	-	14 (29.2)	
23-26	-	5 (33.3)	14 (66.7)	19 (39.6)	
>26	-	1 (6.7)	7 (33.3)	8 (16.7)	
Gender:					
Male	6 (50.0)	9 (60.0)	16 (76.2)	31 (64.6)	$\chi^2=2.5$, df=3, $p=0.5$.
Female	6 (50.0)	6 (40)	5 (23.8)	17 (35.4)	
Marital status:					
Single	12 (100)	15 (100)	17 (81.0)	44 (91.7)	$\chi^2=2.2$, df=3, $p=0.5$.
Married	-	-	4 (19.0)	4 (8.3)	
Religion:					
Christianity	6 (50.0)	8 (53.3)	15 (71.4)	29 (60.4)	$\chi^2=3.8$, df=3, $p=0.3$.
Islam	6 (50.0)	7 (46.7)	6 (28.6)	19 (39.6)	
Number of children in family:					
≤ 2	-	-	2 (9.5)	2 (4.2)	$\chi^2=0.6$, df=3, $p=0.9$.
3-5	9 (75.0)	8 (53.3)	6 (28.6)	23 (47.9)	
>5	3 (25.0)	7 (46.7)	13 (61.9)	23 (47.9)	
Parent's marital status:					
Living together	10 (83.3)	14 (83.3)	15 (71.4)	39 (81.2)	$\chi^2=2.9$, df=3, $p=0.4$.
Separated	2 (16.7)	1 (6.7)	6 (28.6)	9 (18.8)	
Relatives being treated for psychological problems:					
Yes	1 (8.3)	1 (6.7)	3 (14.3)	5 (10.4)	$\chi^2=0.7$, df=3, $p=0.9$.
No	11 (91.7)	14 (93.3)	18 (85.7)	43 (89.6)	
Individual being treated for psychological problems:					
Yes	1 (8.3)	-	1 (4.8)	2 (4.2)	$\chi^2=0.4$, df=3, $p=0.9$.
No	11 (91.7)	15 (100)	20 (95.0)	46 (95.8)	

Table 2:
Sources of Stress among the students at the various levels

Sources of stress	Frequency of occurrence				
	1 st Level (n ₁ =79)	4 th Level (n ₂ =143)	6 th Level (n ₃ =101)	Total (n ₄ =323)	K-W ANOVA
	Yes (Mean)	Yes (Mean)	Yes (Mean)	Total (Mean)	
High expectation from parents	86.1	82.5	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	54.5	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	68.5	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	50.5	127.2	0.04*
Financial instability in family	15.2	31.5	38.6	85.3	0.3
Illness affecting performance in examinations	11.3	16.8	17.8	45.9	0.6
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	1 st year	4 th year	6 th 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	1 st year Cases (n ₁ =12)	4 th year Cases (n ₂ =15)	6 th year Cases (n ₃ =21)	Total Cases (n ₄ =48)	K-W χ^2 statistics
Bothered about frequency of examination: Never/rarely (no) Sometimes/always (yes)	7(58.3) 5(41.7)	5(33.3) 10(66.7)	8(38.1) 13(61.9)	20(41.7) 28(58.3)	$\chi^2=3.9$, df=3, p=0.3.
Having sleep Difficulties: Never/rarely (no) Sometimes /always (yes)	5(41.7) 7(58.3)	9(60.0) 6(40.0)	9(42.9) 12(57.1)	23(47.9) 25(52.1)	$\chi^2=4.6$, df=3, p=0.2.
Having any difficulties in reading textbooks: Never/rarely (no) Sometimes/always (yes)	9(75.0) 3(25.0)	8(53.3) 7(46.7)	14(66.7) 7(33.3)	31(64.6) 17(35.4)	$\chi^2=4.3$, df=3, p=0.2.
Difficulties adjusting to roommates: Never/rarely (no) Sometimes/always (yes)	10(83.3) 2(16.7)	6(40.0) 9(60.0)	16(76.2) 5(23.8)	32(66.7) 16(33.3)	$\chi^2=2.5$, df=3, p=0.5.
Difficulties with accommodation away from home: Never/rarely (no) Sometimes/always (yes)	8(66.7) 4(33.3)	5(33.3) 10(66.7)	11(52.4) 10(47.6)	24(50.0) 24(50.0)	$\chi^2=4.5$, df=3, p=0.2.
lack of time for recreations: Never/rarely (no) Sometimes/always (yes)	8(66.7) 4(33.3)	5(33.3) 10(66.7)	2(9.5) 19(90.5)	15(31.2) 33(68.8)	$\chi^2=3$, df=3, p=0.4.

DISCUSSION

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 one²² that reported more stress in the 1st year; but conformed with others.^{1,23} The heavy burden by the curriculum, the process of adjustment to new academic environment and the exit examinations at the final year were implicated. Abdulghani²³ 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 study⁴ 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.¹⁹ This further confirmed previous report²² 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.^{23,24} While this might not be unconnected to the differences in their level of maturity and career advancement, the possible tilt of the 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.^{12,19}

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 into medical 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.^{21,25} However, this study confirmed previous ones that reported no significant differences in morbidity between levels,

attributable to gradual adaptation to their environment and course.^{21,26,27}

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 in teacher-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 somewhat limited adequate statistical inferences; (iii) the mono-centre nature could limit generalisation of the findings.

Declaration of interest:

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