Quality of sleep and psychological morbidity among paramedical and medical students in Southwest Nigeria

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Abstract

Objective: The objective of this study was to compare the quality of sleep and psychological morbidity between medical students and paramedical students.

Methods: A cross sectional survey of one hundred and eighty-six students of the College of Medicine, Olabisi Onabanjo University, Ogun State, Nigeria, were surveyed using socio-demographic questionnaires, Pittsburgh Sleep Questionnaire and General Health questionnaire.

Results: The mean ages among paramedical students was 20.63±1.6 and medical students was 22.80±2.93 respectively. Medical Students had a higher percentage of those who had poor sleep quality (86.7% , 5, n=85) than the paramedical students (38.6%, n=34) and higher mean scores on General Health Questionnaire, M(SD) = 8.75(5.01) than the Paramedical group, M(SD) = 6.53(2.97) respectively.

Conclusion: The findings in our study showed that medical students had poorer sleep quality and higher psychological morbidity in comparison to paramedical students, efforts should be made to reduce academic stress and improving sleep quality.

Keywords: Sleep, Psychological Morbidity, Medical Students, Paramedical Students, Medical Education

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Qualité du sommeil et psychologie morbide chez les étudiants en médecine et dans le secteur du paramédical dans le sud-ouest du Nigéria.

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Résumé

Objectif: l'objectif de cette étude était de comparer la qualité du sommeil et de psychologie morbide entre les étudiants en médecine et les étudiants en paramédical.

Méthods: une enquête transversale a été réalisée sur cent quatre-vingt-six étudiants de la Faculté de médecine de l'Université Olabisi Obananjo, dans l'Etat d'Ogun au Nigéria. Ils ont été interrogés par le biais de questionnaires socio-démographiques, d'un questionnaire de sommeil de type « Pittsburgh » et d'un questionnaire sur la santé générale.

Résultats: l'âge moyen chez les étudiants en paramédical s'élevait à 20,63 ans (+ ou – 1,6), quand celui des étudiants en médecine atteignait 22,8 ans (+ ou – 2,93). Les étudiants en médecine ont montré une plus forte tendance à avoir une mauvaise qualité de sommeil (86,7% d'entre eux, 5, n=85) que ceux étant en paramédical (38,6%, n=34), et ont obtenu des résultats plus élevés en moyenne sur les questionnaires de santé générale : M(SD)= 8.75 (5.01) contre M (SD)= 6,53 (2,97) pour le groupe paramédical.

Conclusion: les résultats de notre étude ont montré que les étudiants en médecine avaient une plus mauvaise qualité de sommeil et une plus forte psychologie morbide que ceux étudiant en paramédical. Des efforts doivent être entrepris pour réduire le stress lié aux études et améliorer la qualité de sommeil.

Mots-clés: sommeil, psychologie morbide, étudiants en médecine, étudiants en paramédical, éducation en médecine.

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INTRODUCTION

Sleep problems are common among college students (1). The academic workload, tight deadlines and social engagements all contribute to irregular sleep patterns. A number of studies have reported various range of sleep difficulties among college students such as, sleep deprivations, frequent, narcolepsy, and other primary sleep disorders (2) These problems fans across the totality of metrics on which sleep is measured in both the quality (in terms of restorative function) and quantity of sleep (duration).

Previous studies among a group of college students in the southern part of US reported a prevalence of 73% of college students with some form of sleep difficulty (2). In a large multi-college study, 27% described their sleep quality as poor, 36% reported obtaining less than 7 hours of sleep per night, and 43% reported that it takes >30 minutes to fall asleep at least once per week. 62% of participants met cut-off criteria for poor sleep, though rates differed between females (64%) and males (57%) (3). In another survey, it was similarly reported that close to 70% of college students in US colleges had inadequate sleep (4). Similar results have been reported in other parts of the world among university students (5) .In Nigeria, similar results have been reported. In a recent survey, 50.1% of the undergraduates surveyed reported various forms of sleep difficulties in one Nigerian university (6).

Multiple factors have been postulated for the high prevalence of sleep difficulties among college students. These ranged from deliberate curtailment of sleep due to the demands of academic workload, social factor and environmental factors such as noisy and uncomfortable residence within universities (4). Additionally, the chronological change accompanying adolescent physiology may also have some impact (7). Further, a myth common among college students is that they always can make up for deliberate sleep deprivation at other times (1).

The consequences of sleep difficulties are quite obvious. Sleep difficulties impairs academic performance, learning and social adjustment (1,2). Long term consequences create difficult psychological and mental health disorders such as depression, anxiety and personality disorders.

A frequently studied group among college students are medical students, who are known to have a high degree of academic and clinical workload (8). The nature of their program creates time constraints which may affect their sleep patterns (8). In a review of studies among medical students across different regions of the world, reported prevalence of sleep problems ranged from 1%-90% of medical students (8). The review also reported significant differences in sleep patterns with higher sleep problems among medical compared to those in law and social sciences (6).

In previous research in Nigeria, medical students have typically been studied in relation to sleep problems due to the belief that the rigorous nature of their academic workload may affect their sleep quality. Previous research has shown a high prevalence of sleep problems among these group of students (9,10). However, a major deficit is the lack of comparative survey across similar backgrounds within the medical field.

This study therefore aims to address this deficit and explore differences in sleep pattern across similar disciplines. Our study compared sleep quality among medical students and paramedical students within a southwest university in Nigeria.

MATERIALS AND METHODS

The cross sectional study was conducted at the College of Medicine , Olabisi Onabanjo University, Sagamu, Ogun State, Nigeria. First year and second year students were excluded. The first year students were excluded because they were not officially part of the faculties, and second year students because they were new to the rigors of academic environment of the Faculty. The Faculty of Basic Medical Sciences consists of the departments of Anatomy, Biochemistry, Physiology, Pharmacology and Pathology. Apart from the medical students (preclinical), the faculty of basic medical sciences harbor paramedical students in the fields of biochemistry, anatomy, physiology, and pharmacology.

Procedure

In order to reduce the effect of examination stress on sleep pattern and psychological well-being, the survey was conducted far outside the examination period. To allow for a sizable representation, the survey was done during the mandatory lectures that cuts across the various departments in the basic medical sciences ; however, for the medical students (which exams are not semester based) each class (preclinical and clinical)that was selected were very away from their examination period. Trained

volunteers were used to conduct the questionnaire based survey. Brief introduction and purpose of the study were done. Voluntary participation and consent were obtained from the students after taking permission from the lecturer in-charge of the class. The study protocol was approved by the appropriate authority saddled with the responsibility.

Instruments

Socio-demographic Questionnaire
A socio-demographic questionnaire was purposely designed capturing relevant socio-demographic details. It included socio-demographic variables such as age, sex, religion, marital status, department.

The Pittsburgh Sleep, Quality Index (PSQI)
The PSQI is a self-rated instrument that has been variously used in the assessment of sleep quality. It is a 24- item questionnaire that generates seven component scores, ranging from subscale scores 0 to 3: sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medications and daytime dysfunction.. The global score ranges from 0 to 21(11). The seven component scores each ranging from 0 to 3 (0 score equals better and 3 is worst) and one global sleep quality score. The global score of 5 or more designates poor sleep quality while score of less than 5 is considered good sleep quality (11). The PSQI has been validated for use in Nigeria (12). The 7 components that make up the scores, were designed to measure some specific area in the assesment of sleep. Component 1 measures subjective sleep quality, Component 2 measures sleep latency, Component 3 measures sleep duration, Component 4 measures habitual sleep efficiency, Component 5, measures sleep disturbances, Component 6 measures use of sleep medication, and Component 7 meeasures daytime dysfunction.

General Health Questionnaire -12
General Health Questionnaire (GHQ) was used in the assessment of psychological distress. It is an easy to use 12-item screening tool. The GHQ -12 was scored using the binary scoring system with a cut –off of 3 and above denoting psychological distress. The GHQ has been variously validated in Nigeria (13).

Data analysis
The data were analyzed using the Statistical Package for Social Sciences version 2010.

Frequencies, means and other descriptive analysis were used to present the socio-demographic information. Bivariate analyses were used to compare sleep quality across groups. Analysis of Variances were used to explore mean differences in sleep quality. P-values were put as p<0.05.

RESULTS
A total of 240 questionnaires was distributed, out of which 195 were returned, but 186 were suitable for analysis, giving a response rate of 77.5%. For the paramedical students, a total of 88 students were recruited, while for the medical students a total of 98 students were recruited, made up of 48 students from the preclinical and 50 from the clinical students.

Socio-demographic Characteristics and Comparisons of demographics across Paramedical and Medical Participants
The ages ranged between 18- 26 among the paramedical students, while among the medical students the ages ranged between 19 and 30. Majority of the students in both groups were never married, 93.2% (n=82), among the paramedical students, 95.9% (n=94) among the medical students respectively. The largest ethnic group were Yoruba's making up 88.6%, (n=78) among the paramedical group and 94.9% (n= 93) among medical students. Table 1 also shows comparison of demographics involving age, gender, PSQI and GHQ across both para medical and medical Students. There were significant differences in ages, sex, Global PSQI score and sleep quality respectively at p=0.00. Mean ages and distribution of the scores on the Pittsburgh Sleep Questionnaire (PSQI) and General Health Questionnaire (GHQ) are as shown in Table 1. As observed, Medical Students had a higher percentage of those who had poor sleep quality (86.7% 5, n=85) compared to those in the paramedical group (38.6%, n=34), respectively. They also had higher mean scores on General Health Questionnaire, M(SD) = 8.75(5.01) than the Paramedical group, M(SD) = 6.53(2.97) respectively .

Comparison of psychological morbidity and sleep quality across demographics of paramedical and medical students
As shown in Tables 2 and 3, there were no significant differences across age, sex, marital status and ethnic groups in both groups.

Sleep components and relationship with GHQ scores

Table 4 showed correlations between the components of the PSQI with the total GHQ scores among Medical group and Paramedical Group. Significant correlation were observed with Total GHQ scores with sleep quality, sleep latency, sleep disturbances, use of sleep medication, daytime dysfunction. While among paramedical group, sleep quality, use of sleep medication and daytime dysfunction with GHQ scores.

Comparison of demographic across Clinical and preclinical medical Students

Table 5 showed that the significant differences were only observed across age with clinical student having higher mean age 24.92(3.90) than those in non clinical 22.77(2.92).

DISCUSSION

Our study compared the pattern of sleep and psychological morbidity among paramedical and medical students. We observed that there was a high rate of poor sleep quality among the various groups. Among paramedical students, 34.6% of the participants reported poor sleep quality as measured on the Pittsburgh Sleep Questionnaire index compared to almost 84.6% among medical group. Generally, college students are at risk of having poor sleep habits. The rates are much higher than the rate reported by a similar study in a Midwest and Southwest region of Nigeria among medical students (9,10). In both studies rates ranged from 32.5% to 36.6% were reported among medical students (9,10) . Differences in our study may be due to the peculiar characteristics within the college environment in which majority of the students live outside the university campus, and the nature of the sample size, i.e both clinical and non clinical students that were included in the study.

A major reason for the poorer quality of sleep among medical students is probably the nature of academic workload, attitudes, knowledge of sleep (9,10). Notably, in comparison to other paramedical students, the rigorous nature of medical studies and not just the volume bears a higher toll on medical students compared to their mates at similar levels in the tertiary system. The demands are much higher, and more strenuous. In order to keep up with the demands expected of them, many strive to sacrifice healthy sleep habits for poor sleeping habits.

Our study replicates similar studies on sleep patterns among tertiary students (5). Our study had higher prevalence of poor quality sleep than what was reported in a similar study among college students (25% of study sample) in US and Saudi Arabia (3,8). Also, results from our study is similar to what was reported in India when medical students were compared to paramedical students (15).

In our Study, there were no significant differences across socio-demographic characteristics in regards to sleep quality. Although females were in majority in both groups, our results mirror similar findings in Nigeria (9,10). Our study showed higher level of psychological morbidity among medical students compared to paramedical students. Previous research in similar setting has reported similar psychological morbidity among medical students and possible areas of stress which included academic workload, length of stay, having no one to talk to (16). In other climes, the level of stress of the academic workload have been a source of sleep difficulties among medical students (17). Comparatively our result suggests that medical students have higher level of psychological morbidity than paramedical students. Further as noted, the sleep quality among medical students strongly correlated with psychological morbidity. This indicates that the high psychological morbidity was related to the poor quality of sleep.

Interestingly, from our findings, we observed five areas that were significantly correlated with psychological morbidity among medical students, these included sleep quality, sleep latency, habitual sleep disturbances , use of sleep medications and daytime dysfunction, in comparison to three areas among paramedical group, which were sleep quality, use of sleep medication, daytime dysfunction.

Our study also pioneered differences across non-clinical and clinical student within our region. The findings showed that there were not significant differences across socio-demographic characteristics, in relation to their quality of sleep and psychological morbidity. The observations probably highlights a characteristic peculiarity that spans the length of medical training. Obviously, the need to reassess the curriculum and revisit the nature of the ever increasing work-load, length of stay and counseling programs is necessary in order to help reduce sleep problem and psychological morbidity among medical and paramedical students.

CONCLUSION

The study showed that medical student have poor sleep and higher psychological morbidity than the paramedical students. It is imperative that tutors need to engage students on the need for adequate rest and avoid frequent late–nights deadlines, sleep educational programs, encouragement of naps (4).

Limitation: A major limitation of our study is the localization to the study setting and the non-inclusion of other students from different institutions.

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Conflict of interest: The authors declare no conflicts of interest.

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Table 1. Socio-demographic Characteristics of participants

Variables	Paramedical	Medical	test statistics	p
Age range (Mean)	17-26(20.63±1.6)	19-30(22.80±2.93)	t= 7.78	0.00
Gender				
Female	75(85.2%)	54 (55.1%)		
Male	13(14.80%)	44(44.9%)	x^2 = 14.79	0.00
Ethnic group				
Yorubas	78(88.6%)	93(94.9%)		
Ibos	5(5.7%)	5(5.1%)	F= 0.20	0.00
Others	5(5.7%)	0		
Marital Status				
Single	82(93.2%)	94(95.9%)		
Married	6(6.8%)	4(4.1%)	x^2 =0.65	0.48
Separated/widowed/divorced	0	0		
Global PSQI Score	4 .33(2.83)	7.01(2.64)	t= 6.13	0.00
PSQI				
Good sleep quality	54(61.4%).	15(15.4%)		
Poor sleep quality	34(38.6%)	83(84.6%)	X^2= 34.54	0.00
GHQ mean score	6.53(2.97)	8.75(5.01)	t =4.07	000
No Morbidity	14(15.9%)	12(12.2%)	X^2= 0.47	0.52
Positive Morbidity	74(84.1%)	86(87.8%)		

Table 2. Comparison of Psychological Morbidity across Medical and Paramedical demographics

Demographics	Medical GHQ				Paramedical GHQ			
	2	3	Test Statistics	p	2	3	test statistics	p
Age	20.60	20.65	t=-0.02	0.98	23.75	24.60	t=-0.78	0.44
Sex								
Male	2(4.5%)	42 (95.5%)	X^2=0.8	0.80	3(15.4%)	9(84.6%)		
Female	3(5.6%)	51(94.4%)			11 (14.5%)	65(85.5%)	X^2= 0.93	0.34
Marital Status								
Single								
Married	5 (5.3%)	89(94.7%)	X^2 =0.24	0.62	6(7.3%)	76(92.7%)		
		4(100%)			1(20.0%)	5(80.0%)	X^2=0 54	0.46
Ethnic group								
Yorubas	5 (5.4%)	88(94.6%)	X^2=0.24	0.63	6 (7.7%)	72 (92.3%)		
Ibos	0	4(100%)			0	5(100%)		
Others					0	5(100%)	$X^2$0.93	0.62

Table 3: Comparison of Sleep Quality among Medical and Paramedical demographics

Demographics	Medical PSQ				Paramedical PSQ			
	<5	5	Test	p	<5	5	test	p
Age	21.02	20.31	t=1.64	0.11	23.53	26.40	t=-2.78	0.00*
Sex								
Male	3(6.8%)	41 (93.2%)	x^2= 1.90	0.22	6(46.2%)	7(53.8%)		
Female	12(22.2%)	42(77.3%)			48 (64.0%)	27(36.0%)	x^2= 1.37	0.24
Marital Status					53(65.0%)	29(35.0%)		
Single	14(14.9%)	80 (85.1%)	x^2= 0.25	0.52	1(20.0%)	5 (80.0%)	x^2=1.31	0.24
Married	1(25.0%)	3(75.0%)						
Ethnic group					47 (60.0%)	31(40.0%)	x^2= 0.93	0.62
Yorubas	15 (16.0%)	78(84.0%)	x^2= 0.79	0.37	4(80.0%)	1(100%)		
Ibos	0	5(100%)			3 (75.0%)	1(25.0%)		
Others								

Table 4. Correlations between components of PSQI and Total GHQ scores

Variables	Paramedical Total GHQ (r)	Medical Total GHQ
1. Subjective Sleep Quality	0.27* (p=0.00)	0.55 *(p=0.00)
2. Sleep Latency	0.07	0.43*(p=0.00)
3. Sleep duration	-0.02	0.09
4. Habitual Sleep Efficiency	0.05	0.11
5. Sleep disturbances	0.13	0.35*(p=0.00)
6. Use of Sleeping Medication	0.27*(p=0.00)	0.39*(p=0.00)
7. Daytime Dysfunction	0.30*(p=0.00)	0.53*(p=0.00)
8. Total PSQI scores	0.53*(p=0.00)	0.23

*P<0.05

Table 5:　Comparison of demographics across Clinical and Preclinical medical students

Variables	Clinical	Preclinical	Test statistics
Age	24.92(3.90)	22.77(2.92)	t=2.95　p=0.00
Sex			
Male	22(45.8%)	22(44.0%)	
Female	26(54.2%)	28(56.0%)	x^2= 0.33, p=0.86
Marital Status			
Single	45(93.7%)	49(98.0%)	
Married	3(6.3%)	1(2.0%)	x^2 =1.09, x^2 =0.30
Ethnic Group			
Yoruba	46(95.8%)	47(94.0%)	
Others	2(4,2%)	3(6.0%)	x^2 = 0.17, 0.68
GHQ			
GHQ 2	4(8.3%)	1(2.0%)	
GHQ 3	44(91.7%)	49(98.0%)	X^2 =1.97, 0.16
PSQ			
PSQ<5	9 (18.7%)	6(12.0%)	
PSQ 5	39 (81.3%)	44(88.0%)	X^2 =0.90, 0.34