

## Sleep quality and psychological morbidity among physicians in southwest Nigeria

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### Abstract

**Objectives:** The role of the physician has increasingly become more expansive, and demanding. These demanding schedules have played a heavy toll on sleep patterns and increased psychological stress. The objective of the study was to assess sleep quality and psychological morbidity among Physicians.

**Method:** A cross-sectional survey of 95 voluntary consenting physicians from different specialties during a 2-day conference. We administered Pittsburgh Sleep Quality Index, and General Health Questionnaire-12.

**Results;** About 13.6% (n=13 out of 95) had a score above 2 on General Health Questionnaire-12, indicating psychological morbidity. Those who reported poor sleep quality (>5) made up 36.8% (n=35) of the respondents, There were positive significant correlation between hours spent on call and total scores on GHQ at  $r=0.230$ ,  $p=0.03$ . Only subjective sleep quality (component 1) was significantly correlated with total GHQ scores at  $p=0.001$

**Conclusion:** The findings in our study showed a relationship between sleep quality (component 1) psychological morbidity. We observed that long work schedules was the only factor associated with psychological morbidity and sleep quality. It is imperative for work-time stress management to be instituted among physicians.

Keywords: Sleep quality, psychological morbidity, physicians, work schedules, Nigeria,

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## Qualité du sommeil et morbidité psychologique chez les médecins du sud-ouest du Nigeria

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### Resume

**Objectifs:** Le rôle du médecin est devenu de plus en plus vaste et exigeant. Ces horaires exigeants ont eu de lourdes conséquences sur les habitudes de sommeil et augmenté le stress psychologique. L'objectif de l'étude était d'évaluer la qualité du sommeil et la morbidité psychologique chez les médecins.

**Méthode:** Une enquête transversale de 95 médecins consentants volontaires de différentes spécialités au cours d'une conférence de deux jours. Nous avons administré l'indice de qualité du sommeil de Pittsburgh et le questionnaire d'état de santé général n° 12.

**Résultats;** Environ 13,6% (n = 13 sur 95) avaient un score supérieur à 2 au Questionnaire sur la santé générale 12, indiquant une morbidité psychologique. Ceux qui ont déclaré une mauvaise qualité de sommeil (> 5) représentaient 36,8% (n = 35) des répondants. Il y avait une corrélation significative positive entre les heures passées en garde et les scores totaux au GHQ à  $r = 0,230$ ,  $p = 0,03$ . Seule la qualité subjective du sommeil (composante 1) était significativement corrélée avec les scores GHQ totaux à  $p = 0,001$ .

**Conclusion:** Les résultats de notre étude ont montré une relation entre la morbidité psychologique de la qualité du sommeil (composante 1). Nous avons observé que les horaires de travail longs étaient le seul facteur associé à la morbidité psychologique et à la qualité du sommeil. Il est impératif que les médecins gèrent le stress lié au temps de travail.

**Mots-clés:** qualité du sommeil, morbidité psychologique, médecins, horaires de travail, Nigéria,

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## INTRODUCTION

'By medicine life may be prolonged, yet death will seize the doctor too.' (1). This often quoted 17<sup>th</sup> century statement highlights the important role physicians play in prolonging life but also their own subjectivity to human weaknesses, stress diseases and death.

Undoubtedly, the role of the physician has increasingly become more expansive, and demanding, in pace with progress and innovations in medicine. The 21<sup>st</sup> century physician has become burdened with higher number of patients, demanding work schedules, fear of litigation, keeping abreast of medical innovations and personal responsibilities.

These demanding roles and efforts to fulfill them exert significant psychological distress and sleep deprivation on the physician. Several studies have reported on the high level of burnout syndromes, depression and its relation to faulty medical decisions (2-4). Reasonably, the physicians' well-being impact on the patients' wellbeing.

An often reported consequence that is associated with faulty medical decisions are sleep deprivations. (2,5). Sleep deprivations and disorders are a silently growing epidemic among physicians especially those in traditional working time schedules (5). Poor sleep quality have been reported from studies from almost all the regions of the world, indicating similar nature of medical duties worldwide (2-5), High rate of psychological distress have been reported among several cadre of physicians (5,6).

In many countries, Nigeria inclusive, traditional working schedules, long working hours and on-call duties are still very much in practice. Previous studies have documented high rates of poor sleep quality among doctors in Nigeria [6].

However, there is a significant dearth of information on the factors that contribute to poor sleep quality, and its relationship with psychological distress among physicians.

The aim of the study was to assess the quality of sleep among physicians, the factors associated with poor sleep quality and its relationship with psychological distress.

## MATERIALS AND METHODS

### Study Design

The study was a descriptive cross sectional survey of physicians who attended a 2 day training conference in Olabisi Onabanjo University Teaching Hospital from June 15-16, 2017. Confidentiality was assured and

participation was voluntary. Informed consent was also obtained. Ethical approval was taken from the appropriate authority. The investigators were used to distribute the questionnaire during session breaks after due consent from the facilitators. Socio-demographic characteristics such as age, gender, marital status, specialty, work schedules, years of practice. The subjects were administered Pittsburg Sleep Quality Index and General Health Questionnaire. All the subjects attending the conference were administered the questionnaires.

### Instruments

**Pittsburg Sleep Quality Index:** The Pittsburg Sleep Quality Index (PSQI) was used to assess sleep quality. It was designed by Researchers at the University of Pittsburgh. It was designed as a self-report questionnaire (7). It measures quality of sleep over a month's duration. There are nineteen items. These items are computed to generate 7 components. The seven "component" scores: are subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medication, and daytime dysfunction. The sum of scores for these seven components yields one global score. The global score ranges from 0 -21 (10). A score of > 5 was diagnostic of poor sleep quality. The seven component scores range from 0 to 3.(graded from good to worst). 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 measures daytime dysfunction. The PSQI has been validated in Nigeria (8).

**The General Health Questionnaire-12:** The GHQ has been widely used to assess psychological distress. (9). The 12 item GHQ is a simple screening tool that has been validated for use in Nigeria (10). The GHQ-12 consists of 12 questions. The binary scoring method was used i.e. (0-0-1-1) to sum up the points to a total score ranging between 0 and 12, with a higher score indicating poorer mental health (9).

### Data Analysis

The data were analyzed using Statistical Package for Social Sciences version 21. Descriptive analysis such as frequencies, percentages, mean, mode were used to present socio-demographic and other clinical findings.

Bivariate analyses were used for comparison of sleep quality among respondents and across groups. Analysis of Variances were used to explore mean differences in sleep quality. P-values were put as  $p < 0.05$ .

## RESULTS

### Socio-Demographic Characteristics of Respondents

Out of the 113 questionnaires that were distributed 95 were completely filled and suitable for analysis. (84.1%, response rate). The age ranged from 25-56, Mean age was 32.8 SD=6.8. Majority were males 74.7% (n=71), females made up 25.3% of the respondents (n=24) More three-quarters were Yoruba. (85%, n=81) Resident Doctors constituted 67.3% (n=64) of the studied population, and other medical practitioners made up 32.7% (n=31). As shown in Table 1, a larger percentage of the respondents were in surgical specialties.

### Psychological Morbidity using GHQ

The total score on the GHQ ranged from 0- 5. About 13.6% (n=13 out of 95) had a score above 2, indicating psychological morbidity. There were no correlations between age and total scores on GHQ at  $r = -0.177$ , and  $p = 0.17$ , there were no significant association between gender and psychological morbidity as measured on the GHQ, 15% of males (n= 14) had a score above 2, compared to 12% of females (n=11) who had a score above 2,  $\chi^2 = 0.11$ ,  $df = 1$ ,  $p = 0.74$ . Differences along marital status were not significant between married and single, at  $\chi^2 = 1.03$   $df = 1$ ,  $p = 0.31$ . However, there were significant positive correlations between hours spent on call and total scores on GHQ at  $r = 0.230$ ,  $p = 0.03$ . No significant differences in the mean score across specialties using one way-Analysis of Variance is as shown in Table 2. There was no correlation between total scores on GHQ and PSQI Pearson's (r) = 0.20,  $p = 0.12$ .

### Sleep Quality as Measured on the PSQI

The scores on PSQI ranged from 1-10. The mean score was 4.51 SD=2.31. Those who reported poor sleep quality (>5) made up 36.8% (n=35) of the respondents. Gender differences were significant with more percentage of females 63.0% (n= 17 out of 27) reporting poor sleep quality compared to 26.4% of males (n=68).  $\chi^2 = 9.18$ , at  $p = 0.002$ . Correlations were significant between hours on call and sleep quality at  $r = -0.283$  at  $p = 0.04$ . There were no significant differences across marital status using one-way

ANOVA at  $p = 0.54$ ,  $F = 2.04$ . Correlations between age and global PSQI was not significant at  $r = -0.231$  at  $p = 0.70$ . The frequency distribution of the various components are as shown in Table 2. There were no significant mean differences in Total PSQI scores across specialties using one -way ANOVA as shown in Table 2. There was significant differences between mean score on PSQI between males and female respondents, females M(SD) = 5.81,(2.75) males M(SD)=4.00,(1.90)  $F = 7.90$ ,  $P = 0.001$ . As shown in Table 3, Component 3, (Sleep duration) had the highest mean M=1.09 SD=0.70 (table 3) while only component 1(sleep quality) was significant correlated with total GHQ scores at  $p = 0.001$  as shown in Table 4.

## DISCUSSION

Our study assessed sleep quality and psychological distress among physicians in a tertiary institution in southwest institution in Nigeria. We found that about 13% of our study population reported psychological distress. Our findings were lower than reported findings in other countries especially among General Practitioners (10). Our findings mirrored what has been reported among Nigerian physicians. (11,12). Medical doctors have higher rate of psychological morbidity than what obtains in the general population (13). The nature of work -related problems puts a heavy toll on physicians. The long hours, the demands and the nature of the work have been noted to have a high psychological toxicity on physicians (10,11).

Interestingly, our findings showed significant relations between psychological morbidity and hours at work and sleep quality (Component1). Hours at work and sleep quality were significant factors that was related to higher scores on the GHQ. Similar findings have been reported by earlier research (11,14). In our study factors such as age, gender or type of specialty did not affect psychological morbidity as often reported in previous research (11).

Poor sleep quality was reported by more than a third of respondents. The rate is lower than what reported by a similar study in Nigeria were poor sleepers (15). It is obvious that long hours at work is a major factor affecting sleep quality and may be location dependent, or in relation to the unique doctor-patient load in each institution. Long working hours may also be related to the paucity of doctors within the country. Poor sleep quality has been reported to be quite common among medical doctors because of the nature of

their work and can be lead to poor work performance, burnout among physicians (15,4,16).

Gender difference was also a factor that was associated with sleep quality, our study seemed to suggest that females tended to be poorer sleepers than the males. Similar finding have been reported in previous studies (17). Although with did not explore the extent of the association, it may be that apart from the long hours, domestic requirements may also be a factor affecting female physicians.

It is noteworthy that sleep duration (Component3), had the highest mean score, indicating that there was generally a poor sleep duration among doctors. Expectedly, medical doctors are often called on at odd hours in line of duty.

Although our study did not show a significant correlation between general sleep problems and psychological morbidity however, subjective sleep quality (component 1) was linked with psychological morbidity. Our study showed that out of all the factors we explored, only a factor threads through which is long working hours, linking poor sleep and psychological morbidity

It is imperative that efforts must be taken to enshrine work-stress management for doctors especially on long call hours. The need to recruit more doctors can also be a measure in reducing psychological morbidity and improving sleep quality. Long working hours have been documented to have health effects on all categories of health workers (4). Further, physicians must have regular check on their health and seek appropriate stress-relieving strategies.

The major limitation of our study is the small sample size and low representation of some specialties.

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**Conflict of Interest:** The authors declare no conflict of interest.

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**Table 1: Socio-demographic characteristics of Respondents(N=95)**

Variables	frequency	Percentage
<b>Ages</b>		
25-35	66	69.5
35-45	26	27.4
46-56	3	3.1
<b>Gender</b>		
Males	71	74.7
Females	24	25.3
<b>Specialities</b>		
Surgery	34	35.9
Internal Medicine	21	22.1
Pediatrics	2	2.1
Obs and Gyn	21	22.1
Family Medicine/	6	6.3
Dental Surgery	2	2.1
General	2	2.1
<b>Public Health</b>	7	7.3

**Table 2: Hours spent on call and Specialities and association with Psychological Morbidity and Quality of Sleep**

Variables	GHQ	TEST STATISTICS	PSQI	Test Statistics
<b>Hours spent on call</b>		r=0.230*		r=0.283*
<b>Specialities</b>		F=0.82		F=0.87
Surgery	0.67		4.86	
Int,Medicine	1.35		5.10	
Paediatrics	0.00		4.00	
Obs andGyn	0.58		4.88	
Public Health	0.86		4.22	
Dental Surgery	0.00		4.00	
General Practice	0.40		3.14	

\*Significant p<0.05

**Table 3: Components of PSQI**

Component	Mean (SD)
Sleep quality	0.55(9.57)
Sleep latency	1.01(1.31)
Sleep Duration	1.09(0.70)
Habitual Sleep Efficiency	0.45(0.81)
Sleep Disturbances	0.91(0.56)
Sleep Medication	0.05(0.65)
Daytime Dysfunction	0.50(0.65)

**Table 4: Component of PSQI and GHQ**

Component	Total GHQ
Sleep quality	r=0.37*
Sleep latency	r+0.12
Sleep Duration	r= - 0.18
Habitual Sleep Efficiency	r=-0.18
Sleep Disturbances	r-0.09
Sleep Medication	r=-13
Daytime Dysfunction	r= 0.25
Total PSQI	r=0.20

\*Significant correlations at p<0.05