

ASSESSMENT OF QUALITY OF SLEEP AMONG TEACHERS IN PRIVATE AND PUBLIC SECONDARY SCHOOLS MAIDUGURI, BORNO STATE, NIGERIA

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ABSTRACT

This study assessed sleep quality among teachers in private and public secondary schools Maiduguri, Borno State, Nigeria. To assess quality of sleep among teachers, one objective was raised, while three null hypotheses were tested. Cross-sectional survey research design was adopted for this study. Three hundred and eighty-five (385) was used as sample size. This study adopted Pittsburgh Sleep Quality Index (PSQI) questionnaire. The instrument was validated for face and content validity by some experts in the field of psychology and sociology in University of Maiduguri. Split-half reliability was used to test the reliability of the instrument among 20 respondents (teachers) in Federal Government College in Maiduguri, Borno State. The data collected were analysed using Cronbach's alphas. The reliability of the instrument was 0.73 which indicated moderate internal consistencies for the instruments with these specific samples. Descriptive statistics of frequency counts and percentages were used to describe the demographic characteristic of the respondents, while Mann-Whitney U and Kruskal-Wallis H test was used to test hypotheses at 0.05 level of significant. The result of the study revealed poor quality of sleep among these teachers, this is confirmed as 100(26.3%) had poor sleep, only one-third 227(59.6%) of the study participants had good sleep efficiency. Moreover, significant difference exists in quality of sleep based on school type and years of experiences ($P < 0.05$). However, no significant difference exists in quality of sleep based on gender ($P > 0.05$). It was concluded that private and public secondary schools Maiduguri, Borno State, Nigeria had poor quality of sleep. Based on the findings of this study, it was concluded that private and public secondary school teachers had poor quality of sleep, and this may be due to academic work load and stress. It was then recommended that, quality of sleep among secondary school teachers should be improved which might benefit their mental health status, daily activities and academic performance.

Keywords: Quality of sleep, teachers, private, public, secondary, school.

1. INTRODUCTION

Sleep is a universal process that is a naturally recurring physiological phenomenon essential for rest, repair, learning and development (Kolo, Ahmed, Hamisu, Ajiya & Akhiwu, 2017). A good sleep quality among teachers has been described as a total sleep time of 85% or more of the total time in bed, commencing sleep not later than half an hour while attempting sleep, waking up not more than once during the night and being able to recommence sleep within 15 min of an initial awakening (Ohayon et al., 2017). When it is disrupted, it could have both physical and psychological impacts, and for school teachers, it could cause an impairment in health thereby affect their performances. Sleep is essential for a person's health and well-

being, yet millions of people do not get enough sleep and many suffer from the effect of lack of adequate sleep. Although the direct benefits of sleep are not well quantified across many populations, it is understood that poor sleep quality has serious health consequences (Lavie, Pillar, & Malhotra, 2002). Reductions in sleep duration and sleep quality across populations has been linked to changes in lifestyle, increasing use of technology and increased work and social demands (Chokroverty, 2009). Sleep problems, including insufficient or poor-quality sleep, are alarmingly prevalent among teachers and students which can compromise their cognitive, emotional, behavioural, and physical functioning (Kidwell et al., 2015).

Poor sleep quality is a symptom, and it is featured by difficulty of falling and remaining asleep, and many studies has shown that sleep quality has become an increasing public health focus, and poor sleep quality leads to increased risk of mental problems, including depression and anxiety (Fleming, Randell, Harvey, & Espie, 2014; Glozier, Martiniuk, Patton, Ivers, Li, & Hickie, 2010). Nowadays, poor sleep quality is a prevalent symptom among adults, affecting over 10% of the adult population (Gebara et al., 2018). In a study conducted by Jimenez, (2021), he found that in terms of psychological health, the teacher's experience less than once a week of sleeping problems. For social well-being, teachers experience them almost every day. For the things that bother them, the teachers were not bothered at all. The teachers also have positive mental health and for the aspect of bouncing back, they responded neutrally. In terms of stress level, the teachers revealed that they sometimes experience such a thing. For the learning resource development, the response of the teachers was "strongly agree." Also, there exists a low direct relationship between mental health level and the development of learning resources. Sleep deficiency is linked to many chronic health problems, including heart disease, kidney disease, high blood pressure, diabetes, stroke, obesity, and depression. Sleep deficiency is also linked to a higher chance of injury in adults, teens, and children.

According to Zee and Koomen (2016), when teacher has adequate psychological well-being, they feel competent, they experience fewer negative emotions (stress, emotional exhaustion, depersonalization, and burnout) and more positive emotions (high personal accomplishment, commitment and job satisfaction). When positive emotions increase, teachers' psychological functionality increases. As self-efficacy increases, individuals focus on dealing with problems with increasing control. In this respect, individual's sense of control over events can be seen as important in dealing with problems. Individuals feel better when they think that they have control over their work (Sheldon, & Lyubomirsky, 2006). Sufficient sleep, facilitates the brain's processing of emotional information. During sleep, the brain works to evaluate and remember thoughts and memories, and lack of sleep is especially harmful to the consolidation of positive emotional content (Bernert, Kim, Iwata, & Perlis, 2015). It is against this background that this study was conducted to assess quality of sleep among teachers in private and public secondary schools Maiduguri, Borno State, Nigeria.

2. METHODS AND MATERIALS

2.1 Research Design

The researcher adopted a cross-sectional survey research design. Smith (2021), cross-sectional surveys are useful in understanding the prevalence of a specific phenomenon in a population. The efficiency of this design is highlighted by Johnson and colleagues (2019), who found that it allows researchers to collect data from a large sample in a short period. However, as pointed out by Brown (2020), this design has limitations, such as its inability to establish causality between variables. To overcome these limitations, researchers can employ longitudinal designs or use statistical techniques like regression analysis to control for confounding factors (Davis, 2018).

2.1 Population and Sample

The population of this study comprises of all teachers that participated in 2022 Teachers Training Programme jointly organised by Federal Ministry of Education (FME), National Teachers Institute (NTI), Teachers Registration Council (TRC) of Nigeria and United Nations International Children's Emergency Fund (UNICEF), in Borno state numbering 385. Since the population is very small, the researchers used the population (385) as sample size.

2.3 Research Instrument

This study adopted Pittsburgh Sleep Quality Index (PSQI) questionnaire developed by Buysse, Reynolds, Monk, Berman and Kupfer, 1989), named Sleep Quality. The instrument is divided into two (2) parts. Section A deals with demographic information of the respondents (age, gender, years of experience), section B deals with Sleep Quality Index (PSQI) with seven components. Participants self-rate their sleep situation with respect to seven components: Sleep latency, sleep duration, sleep quality, use of medication, sleep disturbance. The score of each component ranges 0 ~ 3, and the sum of these component scores, ranging 0 ~ 21, is the total score that serves as a measure of sleep quality. A global score higher than five was defined as an indicator of bad sleeper. The instrument was validated for face and content validity by some experts in the field of psychology and sociology in University of Maiduguri. Split-half reliability was used to test the reliability of the instrument among 20 respondents (teachers) in Federal Government College in Maiduguri, Borno State. The data collected were analysed using Cronbach's alphas. The reliability of the instrument was 0.73 which indicated moderate internal consistencies for the instruments with these specific samples.

2.4 Method of Data Analyses

Descriptive statistics of frequency counts and percentages were used to describe the demographic characteristic of the respondents, while Mann-Whitney U and Kruskal-Wallis H test was used to test hypotheses two and three at $p < 0.05$ level of significant.

3. RESULTS

Table 1: Demographic Characteristic of Respondents

Variable	Variable	Frequency	Percentage (%)
Gender	Male	202	53.0
	Female	179	47.0
Age	<25	15	3.9
	25-30	48	12.6
	31-35	70	18.4
	36-40	98	25.7
	41 and above	150	39.4
Years of experience	1-10years	109	28.60
	11-20	116	30.5
	21 and above	156	40.9
Category of school	Private	205	53.8
	Public	176	46.2

Table 1 which is demographic characteristic of respondents showed that 202(53.0%) of the teachers were male, while 179(47.0%) of the respondents were female. The table also indicated that 15(3.9%) of these teachers were less than 25 years of age, 48(12.6%) were

between the ages of 25-30, 95(24.9%) were between the ages of 31-35, 70(18.4%) were between the ages of 36-40, while 150(39.4%) of these participants were 41years and above. Moreover, the result showed that 109(28.6%) of the respondents had 1-10years experience, 116(30.5%) had 11-20years experience, and 156(40.9%) had 21 and above years of experience.

Table 2: Quality of Sleep among teachers in Public and private School in Maiduguri, Borno State

1.	Sleep Latency	How long does it usually takes you to fall asleep at night?	
		Less than 15 minutes	141 (37.0%)
		16-30 minutes	148 (38.8%)
		31-60 minutes	72 (18.9%)
		Greater than 60 minutes	20 (5.2%)
2.	Sleep Duration	What is the total amount of sleep you get in a day?	
		0: Greater than 7 hrs	135 (35.4%)
		1: 6-7 hrs	148 (38.8%)
		2: 5-6 hrs	73 (19.2%)
		3: Less than 5 hrs	25 (6.6%)
3.	Sleep Quality	How would you rate your Sleep quality?	
		0: Very good	158 (41.5%)
		1: Fairly good	136 (35.7%)
		2: Fairly bad	45 (11.8%)
		3: Very bad	42 (11.0%)
4.	Use of Medication	How often do you use medication to help you sleep?	
		0: Not at all	171 (44.9%)
		1: Less than once a week	112 (29.4%)
		2: Once or twice a week	70 (18.4%)
		3: Three or more times a week	28 (7.3%)
5.	Sleep efficiency	What is the percentage of time spent asleep while in bed?	
		0: $\geq 85\%$	227(59.6%)
		1: 75-84%	79(20.7%)
		2: 65-74%	43(11.3%)
		3: $\leq 65\%$	32(8.4%)
6.	Sleep disturbance	How often do have trouble sleeping?	
		0: Not at all	144 (37.8%)
		1: Less than once a week	134 (35.2%)
		2: Once or twice a week	51 (13.4%)
		3: Three or more times a week	52 (13.6%)
7.	Day time dysfunction	Is your inability to stay alert and awake during the major waking episodes of the day resulting in unintended lapses into sleep?	
		0: Very good	219(57.5%)
		1: Fairly good	67(17.5%)
		2: Fairly bad	51(13.5%)
		3: Very bad	44(11.5%)
	Global sleep quality Score	Good Sleep ≤ 5	281(73.7%)
		Poor Sleep >5	100(26.3%)

Table 2 shows the result on quality of sleep among teachers in public and private school in Maiduguri, Borno State. The result on sleep latency indicated that majority of the teachers 148 (38.8%) slept between 16-30 minutes, followed by Less than 15 minutes 148 (38.8%), 31-60 minutes 72 (18.9%), while 20 (5.2%) of these respondents slept after 60 minutes. On sleep duration, most of the respondents 148 (38.8%) had 6-7 hrs, 135 (35.4%) had greater than 7 hrs, 73 (19.2%) had 5-6 hrs, while 25 (6.6%) of these teachers had less than 5 hrs. The result of the analyses on the quality of sleep revealed that most of these teachers were rated very good 158 (41.5%) and fairly good 136 (35.7%), while 45 (11.8%) and 42 (11.0%) were rated fairly bad and very bad respectively. In the area of medication, 171 (44.9%) of these

teachers do not use sleep drug at all, 112 (29.4%) used it less than once in a week, 70 (18.4%) used drug once or twice a week, while 28 (7.3%) respondents used three or more times a week. Furthermore, only one-third 227(59.6%) of the study participants had good sleep efficiency ($\geq 85\%$), 79(20.7%) had between 75-84%, 43(11.3%) of them had 65-74%, while 32(8.4%) of these teachers had $\leq 65\%$ of sleep efficiency. 144 (37.8%) of the respondents did not have sleep disturbance at all, 134 (35.2%) had sleep disturbance less than once a week, 51 (13.4%) had it once or twice a week, while 52 (13.6%) of them has sleep disturbance three or more times a week. Day time dysfunction revealed that 219(57.5%) of the participants were rated very good, 67(17.5%) fairly good, 51(13.5%) fairly bad, while 44(11.5%) were rated very bad as a result of their inability to stay alert and awake during the major waking episodes of the day resulting in unintended lapses into sleep. Global sleep quality Score indicated that 281(73.7%) of the respondents were rated having good sleep quality, while 100(26.3%) were rated having poor sleep quality.

Table 3: Summary Analysis of Mann-Whitney U on Quality of Sleep among Private and Public Secondary School Teachers in Maiduguri, Borno State Based on Gender

Variables	Gender	N	Mean	SD	Mean Rank	Sum of Rank	Mann-Whitney U	Prob	Decision
Quality of Sleep	Male	202	2.947	.509	18	360	0.0931	0.248	Retained
	Female	179	2.943	.638	16	320			

P-value > 0.05, Calculated *U* = 0.0931

Table 3 indicted males and females are 202 and 179, respectively. For male teachers, the mean sleep quality score is 2.947 with a standard deviation of 0.509. For female teachers, the mean sleep quality score is 2.943 with a standard deviation of 0.638. The p-value obtained is 0.0931, which is greater than the conventional significance level of 0.05. The calculated U statistic is 0.0931. Since the p-value (0.0931) is greater than 0.05, we fail to reject the null hypothesis. Therefore, the decision based on the statistical analysis is to retain the null hypothesis. This means that there is no significant difference in sleep quality among teachers in private and public secondary schools in Maiduguri, Borno State based on gender. Based on the provided data and analysis, it can be concluded that gender does not significantly affect the sleep quality of teachers in private and public secondary schools in Maiduguri, Borno State.

Table 4: Summary Analysis of Mann-Whitney U on Quality of Sleep among Private and Public Secondary School Teachers in Maiduguri, Borno State Based on School Type

Variables	School Type	N	Mean	SD	Mean Rank	Sum of Rank	Mann-Whitney U	Prob	Decision
Quality of Sleep	Private	205	3.543	.572	22	440	43.791	0.011	Rejected
	Public	176	2.830	.554	17	340			

P-value < 0.05, Calculated *U* = 43.791

Table 4 presented the private schools have mean of quality of sleep is 3.543, with a standard deviation of 0.572. For public schools, the mean quality of sleep is 2.830, with a standard deviation of 0.554. The P-value calculated is 0.011, which is less than the commonly used significance level of 0.05. This means that there is a significant difference in sleep quality among teachers in private and public secondary schools in Maiduguri, Borno State, based on school type. The decision is Rejected, indicating that the null hypothesis, which states that there is significant difference between the two groups, is rejected. In conclusion, the study's

findings suggest that there is a significant difference in sleep quality among teachers in private and public secondary schools in Maiduguri, Borno State, based on school type.

Table 4: Summary of Kruskal-Wallis H test on the Quality of Sleep between Private and Public Secondary School Teachers in Maiduguri based on Years of Experience

Variables	Years of Experience	Number	Mean Rank	chi-square	df	Prob	Decision
Quality of Sleep	1-10years	109	32.218	1.816	2	0.271	Retained
	11-20 years	116	31.895				
	21and above	156	32.001				
Total		381					

P-value>0.05, Calculated Kruskal-Wallis H test= 1.816

Table 5 observed the mean ranks for teachers with 1-10 years of experience, 11-20 years of experience, and 21 years and above are 32.218, 31.895, and 32.001, respectively. The calculated chi-square value is 1.816, with 2 degrees of freedom. The p-value obtained from the Kruskal-Wallis H test is 0.271, which is greater than the conventional significance level of 0.05. Since the p-value (0.271) is greater than 0.05, the null hypothesis is retained. The null hypothesis in this context would be that there is no significant difference in the quality of sleep among teachers in private and public secondary schools based on their years of experience. Therefore, the decision based on the statistical analysis is to retain the null hypothesis. Based on the provided data and analysis, it can be concluded that there is no significant difference in the quality of sleep among teachers in private and public secondary schools in Maiduguri, Borno State, based on their years of experience. Teachers with varying years of experience (1-10 years, 11-20 years, and 21 years and above) do not exhibit statistically significant differences in their sleep quality.

4. DISCUSSION

This study was conducted to assess quality of sleep among teachers in private and public secondary schools Maiduguri, Borno State, Nigeria. A total of three hundred and eighty-five (385) questionnaire was distributed to the teachers, but three hundred and eighty-one (381) were recovered making it 98.6% recovery. The result of this study indicates poor quality sleep among teachers in private and public secondary schools in Maiduguri. This can be observed for example, on the aspect of sleep latency, majority of the teachers 148 (38.8%) slept between 16-30 minutes which indicate poor sleep. According to sleep latency, normal sleep latency should be less than or equal to fifteen minutes (≤ 5). On the aspect of sleep duration, 98(25.8%) of the respondents slept for 5-6hrs or less which is not enough for adult. The poor quality of sleep recorded among the study participants is slightly consistent with previous study Hsu, Lee, Lin, Liu and Ho, (2021), who fund that 27.9% of participants in their study demonstrated bad sleepers. The result of this is also in line with recently conducted study by Arboleda (2022), who found poor sleep quality and a moderate level of psychological well-being of senior high school students. Furthermore, the result of this work indicated that sleep disturbance among the teachers is high. This is confirmed as 51 (13.4%) of them had sleep disturbance once or twice a week, while 52 (13.6%) of them experience sleep disturbance three or more times a week. According to Dregan and Armstrong (2011), Sleep disturbance has been described as a common complaint of which tremendous variation exists among different populations and can be an important early sign of underlying physical or mental health issues. This is similar to the study of Kolo, Ahmed, Hamisu, Ajiya and Akhiwu (2017), who reported that the overall sleep quality of the study population was found to be significantly poor (good sleepers 71 (45.8%), poor sleepers 84 (54.2%).

Moreover, this study found that more than one-third (154) of our study participants had sleep efficiency less than 85%. According to Reed, David, Sacco and William (2016) sleep efficiency of 80% or more is considered normal/healthy with most young healthy adults displaying sleep efficiency above 90%. In this study, most of the respondents were between the ages of 41 and above 150(39.4%). This is related to the study of Oluka, Orach-Meza and Sessanga (2019) in Uganda. The writers discovered that more than half (59.1%) of the boarding secondary school students in Uganda experienced poor quality of sleep and most of the students (50.4%) who had poor sleep quality also suffered poor psychological wellbeing. The result of this study is not related to the finding of Hsu et al., (2021), who conducted study on subjective sleep quality and association with depression syndrome, chronic diseases and health-related physical fitness in the middle-aged and elderly. They reported that three-quarters of participants had sleep efficiency exceeding 87.7%; nevertheless, nearly one-third of participants self-rated their sleep quality as poor, and most (83.6%) had not used sleep medication during the previous month.

This study indicated that no significant difference exists in quality of sleep among teachers in private and public schools in Maiduguri based on gender ($P>0.05$). This agrees with the finding of Kolo et. al. (2017) who discovered that age and gender have no significant influence on poor sleep among the participants. However, this study is contradictory to the previous studies (Ghalichi, Pournik, Ghaffari and Vingard, 2013; Ertel, Berkman, Buxton, 2011), where both the authors reported that increasing age was strongly associated with poor sleep health among their study population. The variation in this study could be attributed to the respondents used in carried out the work. This study is also not concurring with the previous studies in Asia Continent (China, Japan and Saudi Arabia) Merdad, Nassif, El-Derwi and Wali, 2014; Chung and Cheung, 2008; Munezawa, Kaneita, Osaki, Kanda, Minowa, Suzuki and Ohida, (2011) where most of the authors reported that females had significantly higher global PSQI scores than males in a study of 947 high school students, while other reported that that female adolescents had shorter sleep duration than males, and more female adolescents rated their sleep quality as poor.

Similarly, this study indicated that significant difference exists in quality of sleep based on school type ($p<0.05$). The significant difference exist in this study could be as a result of the fact that private schools are more stressful than the government schools, because in every private organisation in Nigeria, the management monitor their staff properly (anecdotal). A study conducted in China (Haseli-Mashhadi, Dadd, Pan, Yu, Lin and Franco, 2009) also reported similar findings. They found that that students in rural schools reported good levels of sleep quality compared to students in urban schools. The result of this finding also corroborates the findings of Oluka, et al. (2019) who reported that the prevalence rate of poor sleep quality was higher (61.0%) among students in private owned boarding secondary schools than their counterpart in government owned boarding secondary schools.

The result showed that significant difference exists in quality of sleep between the teachers in private and secondary schools in Maiduguri based on years of experience based on years of experience ($p<0.05$). This implies that respondents' years of experiences increases with age, sleep quality also varies. This is because, sleep efficiency and sleep duration differ among young adults, middle adults and old adult. The result of this study buttresses a previous study conducted by Gluschkoff, Elovainio, Keltikangas-Järvinen, Hintsanen, Mullaola and Hintsanen, (2016) who conducted study on Stressful psychosocial work environment, poor sleep, and depressive symptoms among primary school teachers. They discovered that there is significant difference in poor sleep and depressive symptoms among primary school teachers based on year of experience and age. The result of this study is not in line with the study of Arboleda (2022), who lamented that there is a significant positive relationship between sleep quality and year level. Although, the author stated further that there was a significant negative relationship between sleep quality and academic strand.

5. CONCLUSION

Based on the findings of this study, it was concluded that private and public secondary school teachers had poor quality of sleep, and this may be due to academic work load and stress.

Further, it is recommended that – the quality of sleep among secondary school teachers should be improved which might benefit their mental health status, daily activities and academic performance, and School management, proprietors and school principals should organise educational campaigns focused on helping school teachers avoiding the build-up of a chronic sleep debt may be important in enhancing the academic performance and in reducing the development of psychiatric disorders.

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