

# **Impacts of Stress, Sleep Disorders and Anxiety on Senior Secondary School Students' Mental Health in Sokoto State, Nigeria**

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## **ABSTRACT**

The main focus of this study was to obtain a deeper insight into the impacts of stress, sleep disorders and anxiety on mental health of senior secondary school students. The study employed the descriptive survey research design. The population was all public senior secondary schools in Sokoto State, Nigeria. Through purposive sampling, a sample size of 300 students was drawn for the study (through strategic random sampling and simple random sampling among the schools in the State). The instrument for the study was an adopted version of the Pittsburgh Sleep Quality Index (PSQI) which is predominantly used for studies of this nature where, it is considered the standard questionnaire used in measuring sleep quality and disorder. The instrument addresses questions regarding sleep quality regarding duration and fragmentation in addition to susceptibility to health problems. Validation of the instrument was confirmed, while its reliability was determined by employing Cronbach-alpha reliability, where it was found to be  $r = 0.78$ . This signifies that the instrument has both reliability and content validity to withstand the study. Findings from this study, among others, show that the students' predominant sleep hours are from 2 a.m. to 4 a.m., while the least was from 10 p.m. to 12 a.m. Similarly, normal sleepers experience lower stress levels than poor sleepers who experience higher stress levels in their sleep and sleep disorders produced significant impact on the students. Far reaching recommendations were made based on the findings of the study.

**Keywords:** Anxiety, Mental Health, Sleep Disorders, Stress

## **INTRODUCTION**

Stress is a complex interaction between individuals and their environment that can impact their general well-being (Saleh, Camart & Romo, 2017). Senior secondary school students experience predictable, stressful life events during their school years which lead to sleep disorders and further endanger their mental health wellbeing. Most students may not realize that sleep disorder is also a stressor in addition to their daily life stress, and altogether could have negative impacts on their physical and mental health (Saleh, Camart & Romo, 2017; Lee, Wuert, Rogers & Chen, 2013), Stress is thus, detrimental to good health and sleep habits of students where increased stress levels and psychological problems are associated with poor quality sleep

Sleep has many important effects on the human body such as memory retention, where it plays a role in stabilizing perceived information and facilitating generalized knowledge (Ahrberg, Dresler, Niedermaier,

Steiger & Genzel, 2012). People who get enough and quality sleep have more energy, better cognitive function, healthier immune systems, and improved memory and perform effectively throughout the day because they are in a better mood (Carskadon, 2011). They are better able to acquire and connect new information with current knowledge. This explains why sleep is key to good health, as body cells turn over more quickly when there is proper sleep, thus making sleep the best way to look and feel refreshed. During sleep, the brain also clears unnecessary information and the space between brain cells expands thus, allowing it to flush out waste that accumulates while one is awake (Iunes, Moura, Carvalho, Nogueira, Silva, Souza, Miranda & Chaves (2017). When good sleep is not properly practiced, it results in negative health.

Leaving sleep later on weekends shifts a person's body sleep schedule, making it even harder to get proper sleep the following week (Milojevic & Lukowski, 2016). It should be noted that quality of sleep is as important as its quantity. The choices made during the day, such as what is consumed, the activities/stress levels and sleep environment, all combine to impact on the quality of sleep gained at night (Huamaní & de Castro, 2014). Therefore, people who get enough quality sleep have more energy, better cognitive function, healthier immune systems, and improved memory performance throughout the day.

Sleep quality is defined as "the degree to which restful sleep is maintained during the night, where a healthy normal individual feels refreshed upon waking up throughout the day", (Ahrberg, Dresler, Niedermaier, Steige & Genzel, 2012). All students experience stress, but the tremendous amount of knowledge they require to obtain in a short time period induces stress leading eventually to poor sleep quality and late nocturnal sleep associated with daytime sleepiness. This prompts poor sleep quality and ultimately, influences academic performance (Modayfer, Aamer, Abdullellah & Olayan, 2016). Physical and psychological health is also compromised with poor sleep quality and the percentage of these disorders increases with the severity of the condition.

Lee and Hsu (2012) have discovered that sleep disorders are more prevalent among American females compared to males, and these sleep problems negatively affect their daytime functioning, physical and psychological well-being. Lee, Wuert, Rogers and Yu-Ping (2013) also found that women are more vulnerable to the effects of sleep disorders than men because of their physio-psycho-social differences.

Sleep disorder is defined as sleep deprivation resulting from inadequate total sleep time or sleep disruption resulting from fragmented sleep during the night, which leads to adverse mental health. Sleep disorders can cause daytime sleepiness, which can lead to poor performance in school. Sleep disorders also increase the risk of developing depression (Ramsawh, Stein, Belik & Jacobi, 2009).

Barclay, Eley, Maughan, Rowe and Gregory (2011) have indicated that sleep problems are associated with poorer mental health outcomes from childhood to adulthood. Understanding relations between sleep and mental health in senior secondary school students can be important due to the potential to intervene and improve their mental health outcomes before they become chronic.

Anxiety is a condition of emotional state characterized by feelings of tension that vary in intensity over time and personal disposition to react to situations perceived as threatening (Iunes, Moura, Carvalho, Nogueira, Silva, Souza, Miranda & Chaves (2017). According to Ramsawh, Stein, Belik and Jacobi (2009) anxiety usually occurs when an anticipated event is expected to make demands for which a person is unprepared and therefore lacks the necessary coping shock absorbers to withstand it. They also assert that when anxiety is experienced regularly, it leads to anxiety disorder, which is one of the most common consequences of sleep disorder.

The strength of this study therefore, was to investigate the impacts of stress, sleep disorders and anxiety on senior secondary school students' mental health. Specifically, it was designed to answer the following research questions:

1. What are the sleep disorders among senior secondary school students?
2. What are the relationships of stress, sleep disorders and anxiety on senior secondary school students' mental health?

**Research Hypotheses**

The following hypotheses were tested:

**Ho<sub>1</sub>:** There is no significant impact of sleep disorders on senior secondary school students.

**Ho<sub>2</sub>:** There is no significant relationship of stress, sleep disorders and anxiety on senior secondary school students' mental health.

**METHODOLOGY**

The study employed the descriptive research design. The population was all public senior secondary schools in Sokoto State, Nigeria. The sample size of 300 students was drawn through strategic random sampling and simple random sampling among the schools in the State. The instrument for the study was an adopted version of the Pittsburgh Sleep Quality Index (PSQI) which is predominantly used for studies of this nature where it is considered the standard questionnaire used in measuring sleep quality and disorder. The instrument addresses questions regarding sleep quality regarding duration and fragmentation in addition to susceptibility to health problems. Validation of the instrument was confirmed by experts in the Faculty of Education, Nasarawa State University, Keffi, Nigeria, while its reliability was determined by employing Cronbach-alpha reliability, where it was found to be  $r = 0.78$ . This signifies that the instrument has both reliability and content validity to withstand the study.

**RESULTS**

**Research Question One:** *What are the sleep disorders among senior secondary school students?*

The sleep disorders among senior secondary school students are presented in Table 1.

**Table 1: Distribution of Sleep Disorders among Students**

Sleep Hours	Mean	SD	Rank
6-8 pm	15.60	2.36	5
8-10 pm	13.78	2.26	6
10pm-12 am	5.16	2.10	7
12-2 am	15.92	8.12	2
2-4 am	32.32	13.90	1
4-6 am	7.61	3.91	4
6-8 am	11.39	6.91	3

Table 1 shows that the students' predominant sleep hours are from 2 a.m. to 4 a.m., while the least was from 10 p.m. to 12 a.m.

**Research Question Two:** *What are the relationships of stress, sleep disorders and anxiety on senior secondary school students' mental health?*

The relationships of stress, sleep disorders and anxiety on senior secondary school students' mental health are shown in Table 2.

**Table 2: Relationships of Stress, Sleep Disorders and Anxiety on Senior Secondary School Students' Mental Health Based on PSQI**

Source	Normal Sleepers (146)		Poor Sleepers (154)		t-Values (df=288)
	Mean	SD	Mean	SD	
TST 7-days					
Weekdays	8.07	0.89	8.65	2.34	1.92
Weekend	8.32	0.98	8.87	2.35	1.78
AM Stress	9.51	1.23	7.45	2.93	1.17
Physical	4.65	6.39	4.89	10.31	1.57
Symptoms	4.08	1.76	7.43	2.52	3.97

Note:  $P < 0.05$ ; TST =Total Sleep Time; PSQI = Pittsburg Sleep Quality Index.

From table 2, it is evident that normal sleepers experience lower stress levels than poor sleepers who experience higher stress levels in their sleep.

**Ho<sub>1</sub>:** There is no significant impact of sleep disorders on senior secondary school students.

**Table 3: Result of ANOVA on Students' Sleep Disorders**

Source	Sum of Squares	Mean Square	Df	F	Sig.
Between groups	456.652	228.326	2	23.429	0.000
Within groups	4439.781	8.102	288		
Total	4896.433		300		

Significant at  $p < 0.05$

Table 3 shows significant impact of sleep disorders in the students. The result implies that sleep disorders produced significant impact on the students. The null hypothesis is therefore, rejected, indicating that there is significant impact.

**Ho<sub>2</sub>:** There is no significant relationship of stress, sleep disorders and anxiety on senior secondary school students' mental health.

**Table 4: Correlation between Stress, Sleep Disorders, Mental Health and Anxiety Scores**

Variables	Stress	Sleep Disorders	Mental Health	Anxiety
Stress	1			
Sleep disorders	0.34	1	0.56	0.33
Mental health	0.77	0.49	1	0.65
Anxiety	0.23	0.67	0.59	1

Significant at  $p < 0.05$

Table 4 shows among other findings that the correlation coefficient of sleep disorders with stress is 0.34, the correlation coefficient of sleep disorders and mental health is 0.56, while that of anxiety with mental health is 0.59.

## DISCUSSION

The findings of this study demonstrate that students' predominant sleep hours are from 2 a.m. to 4 a.m., while the least occur from 10 p.m. to 12 a.m. This demonstrates that stress derived from the students' daily school routines is associated with poor health-related well-being. It also signifies that poor sleepers are more vulnerable to adverse mental health. It was also discovered that majority of the students sleep less than eight hours during weekdays and they tend to recover their sleep debt during weekend. These findings agree with those of Sing and Wong (2011) and Nadorff, Nazem and Fiske (2011) who found that stress, and depression significantly impacted on the students' mental health.

The study found that normal sleepers experience lower stress levels than poor sleepers who experience higher stress levels in their sleep. Poor sleepers also reported significantly more physical and depressive symptoms. Both groups reported appreciable scores for morning fatigue severity. Although the rest of the health-related outcomes revealed variable outcomes for the depressive symptoms. These findings also suggest that stress derived from daily life was associated with poorer health-related well-being and that poor sleepers were more vulnerable to adverse mental health. It is realized that poor sleepers experience more depressive symptoms and physical symptoms compared to good sleepers. Similarly, stress and poor sleep are significant predictors of depressive symptoms and physical symptoms. These are consistent with the findings of Ramsawh, Stein, Belik and Jacobi (2009) who found that students who complain of poor sleep have also metabolic differences.

It was also found that there was significant impact of sleep disorders in the students. The result implies that sleep disorders produced significant impact on the students. This is in consonance with the findings of Huamaní and Castro (2014); Orzech, Salafsky and Hamilton (2011); Carskadon (2011) who found that

sleep habits are factors associated with sleepiness where they opined that adolescents should sleep for approximately 8 to 10 hours daily in order to reduce their chances of suffering from sleep disorders. Another discovery from this study is that the correlation coefficient of sleep disorders with stress is 0.34, the correlation coefficient of sleep disorders and mental health is 0.56, while that of anxiety with mental health is 0.59. These findings are consistent with earlier studies of Castillo and Schwartz (2012) who discovered similar positive relationship among the various variables, signaling that greater amount of sleep improves the general mental health of students. They also point to the fact that higher levels of stress play predominant roles in reducing quality of sleep.

## CONCLUSION

The findings of this study demonstrate the existence and impacts of stress, sleep disorders and anxiety among senior secondary school students' mental health in Sokoto State.

## RECOMMENDATIONS

- i. Proper counselling service should be provided in schools for students to improve their stress, sleep disorders, anxiety and mental health status.
- ii. The provision of educational materials in the areas of stress-coping, sleep hygiene and their impact on health outcomes should be included in the school curriculum.
- iii. Prove students' anxiety and mental health status.
- iv. A better understanding of the associations of stress, sleep disorders, anxiety and mental health on the students can prevent adverse stress and sleep problems.

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