



**WHATSAPP DEPENDENCE AS A CORRELATE OF SLEEP QUALITY AMONG
SENIOR SECONDARY STUDENTS IN THE FCT, ABUJA METROPOLIS**

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Abstract

This study sought to determine the relationship between WhatsApp dependence and sleep quality of senior secondary school students within the FCT, Abuja metropolis. 405 participants enrolled for the study. 227 students representing 55.9% of the total participants were boys, while 178 students representing 44.08% of the total participants were girls. Out of the total number of participants 211 students representing, 52.0 % reported WhatsApp dependence with positive association with poor sleep quality. Two scales were used in the study. WhatsApp dependence was measured using WhatsApp Dependence Scale (WDS) which was adapted from Bergen Facebook Addiction Scale (BFAS). The second scale (SQS) was adapted and modified from Pittsburgh Sleep Quality Index (PSQI). The reliability coefficient using Cronbach alpha is 0.92 for WDS and 0.80 for SQS.

The first null hypothesis was rejected since there was a positive statistical relationship between WhatsApp dependence and poor sleep quality with r 0.568 at 0.01 level of significance using the Pearson product moment statistical tool. The second null hypothesis was retained as the chi square statistical tool was used to test the differences in the responses of both boys and girls in terms of WhatsApp dependence and poor sleep quality at 0.05 level of significance. The calculated value was 0.0028, while the table value was 3.841.

Key words: *WhatsApp dependence, sleep quality, students*

Introduction

Sleep is a restorative process for the body which is very essential for the proper functioning of individuals. Diekelman & Born (2010) looked at sleep as a reversible, recurring and active state of reduced consciousness that consolidates learning and memory; and promotes growth, repair and restorative processes through the brain and the body. Sleep plays an essential role in physical and emotional growth (Brand & Kirov 2011). Adolescents are expected to have at least 9 hours and 15 minutes of sleep, children need 10 hours and adults need 8 1/4 hours for optimal daily functioning at home, work or at school (Kutluhan ,Ayse, Neriman & Seval 2011). According to Smyth (2012) Sleep is an important aspect of maintaining the body's circadian rhythm. Levenson (2016) postulated that this circadian rhythm can be altered through prolong use of social media and can lead to poor sleep quality of individuals. In spite of the great value of sleep to the human life, many adolescent students seem not to have enough of it. This could impact negatively on their academic performance. Lack of sleep has grave consequences in the life of an individual, Sleep deprivation and insufficient sleep have a number of negative health outcomes (Dinesh , Ravi & Farzan 2017).

One of the things that have affected the sleep quality of people including adolescent students is the social media platform. WhatsApp in particular seems to have affected the sleep quality of many like other social media platforms, especially Facebook. This has grave consequences on their daily functioning. Researchers have concentrated much on Facebook dependence but in this present study, emphasis is on WhatsApp messenger, which has become very popular among many people. Its relationship with sleep quality of students in the senior secondary schools within the Abuja metropolis formed the main thrust of this study.

In a study conducted by Nasirudeen, Lau, Koh, Lim & Li (2017) in Singapore using a cross-sectional, quantitative research study, they observed that students' daytime sleepiness was as a result of social media dependence. They used a survey that contained questions concerning demographic data, daytime sleepiness, total sleep time and social media usage and a version of the Cleveland Adolescent Sleepiness Questionnaire which was modified and used for the study with a number of tertiary students used for data collection (n=969). The result of the study confirmed that the most preferred tool for accessing social networking sites were smartphones; and WhatsApp was the most accessed site. Daytime sleepiness was reported as a result of prolonged social media usage. The researcher emphasized that WhatsApp was the most frequently used social media platform in the study. This provides evidence of prevalence of WhatsApp dependence and association with sleep quality.

In a study conducted by Ganasegeran, Abdulrahman, Radman, Rashid, Perumal & Renganathan (2017) titled: "Identifying factors associated with sleep disturbances among health workers using WhatsApp in Malaysia", a cross-sectional study among 306 health care workers comprising of doctors and nurses in a Malaysian public health hospital, they noticed the prevalence of sleep disturbances among health workers using WhatsApp was relatively high. They used self-administered questionnaire consisting of items on socio-demographics, WhatsApp usage characteristics, perceived sleep disturbances, addictive lifestyles and validated items on psychological factors to gather data from participants. They observed that Women significantly showed higher poor sleep quality than men. The study shows an empirical data confirming prevalence of WhatsApp dependence and its association with

sleep quality. Furthermore, the study confirmed female preponderance in the relationship between the two variables.

Similarly, Al Suwayri (2017) in a study, “The impact of social media volume and addiction on medical students sleep quality and academic performance: A cross-sectional observational study” conducted in Saudi Arabia, reported Poor quality sleep (72.9% and 63.5% during the week or at the weekend, respectively) and social media addiction (27.1% addicted to three or more platforms) were common. Individuals with high-volume WhatsApp (odds ratio [OR] 1.59 [1.20–2.10], $P = 0.001$) and Snapchat (OR 1.41 [1.10–1.81], $P = 0.007$) use were more likely to have very poor sleep quality at the weekend, the latter persisting in multivariable analysis. Students who were addicted to Snapchat (OR 2.53 [1.03–6.22], $P = 0.044$) or who were addicted to three or more social media platforms (OR 2.93 [1.19–7.23], $P = 0.019$) had an even greater risk of very poor weekend sleep quality. The researcher observed social media addiction was not associated with academic performance. The study noted that the majority of students (82.4%) used social media during both the daytime and in the evening/at night, with only 1.8% using it solely during the day and 15.9% exclusively in the evenings/at night. In terms of addiction, participants were most commonly addicted to Snapchat (41.2%) and WhatsApp (31.2%), although addiction to Twitter (30.6%) and Instagram (28.2%) were also common. Thirty percent of participants reported non addiction to social media and the majority of students reported only one addiction (24.7%). However, over a quarter (27.1%) of students reported three or more addictions to different social media platforms. From this study the researcher reported addiction to WhatsApp (31.2%). Poor quality sleep was also reported among participants

Nigerian literature emphasizing prevalence of social media dependence and sleep quality also abound. Edidiong, Emaediong & Ibanga (2016) in a study, “Social Media Use and Sleep Disturbances among Medical Undergraduates in Southern Nigeria”, sought to determine the average time spent on social media by medical undergraduates in University of Uyo, Akwa Ibom State, Nigeria and to determine the relationship between social media use and disturbances of sleep quality and quantity amongst medical undergraduates in University of Uyo. The study was a cross sectional survey with 208 medical students in University of Uyo, Southern Nigeria as participants. They were randomly selected with a proportionate stratified random sampling method and data collection was done using a self-reporting anonymous questionnaire. Social media use was assessed using multiple items reflecting the frequency, volume, location and platform of social media use. The researchers reported that the average time spent on social media by respondents was 1-3 hours, with Facebook being the highest in the rank. The study noted that participants who spent more time on social media per day had significantly greater risk of having disturbance of sleep quality when compared with those who spent less than 3 hours per day on social media, those who spent 1-3 hours per day had an adjusted odds ratio of 4.59 (95% CI: 4.14-5.48, p value < 0.001). The study concluded that there was significant association between volume of social media use and sleep disturbance. The researchers through the study further strengthened the evidence of prevalence of WhatsApp dependence and sleep quality. Although the study did not specifically emphasize WhatsApp, but social media, one can still lay claim to its prevalence and sleep quality among Nigerian population since it is one of the widely used social media platform in Nigeria.

So far the prevalence of social media dependence and association with sleep quality has been established from available literature. However, the need for empirical evidence reporting prevalence of WhatsApp and correlation with sleep quality of adolescent is a sine qua non to provide more research evidence that can throw more light on these variables and their relationships.

Statement of the Problem

Social media has come to stay with its multiple effects. The WhatsApp messenger is a great tool for communication. It is very popular, especially because it comes with most smartphones in Nigeria, and perhaps in other countries as a default messenger. People from different backgrounds use this communication platform to chat with loved ones, colleagues or to broadcast information to the general public. In as much as this platform has enriched lives, the negative side of it seems to be competing vigorously with the positive side. Some of the negative effects that have been identified by some researchers include addiction, poor sleep quality and impaired daily functioning. Sound sleep is important for cerebral functions, learning and attention, social functioning, well-being, and overall quality of life (Li, Zhu, Jin, Yan, Wu, Jiang & Shen 2010).

A lot of researchers have centered their studies on social media dependence and sleep quality in general approaches, with a handful on Facebook reporting prevalence and association with sleep quality. However, empirical studies devoted to WhatsApp dependence or addiction with correlation with sleep quality is relatively scarce. In a more specific term, such literature is scarce within the Nigerian setting, and much scarcer within the Guidance and counselling field of study. Furthermore, the few available studies do not focus attention on students of senior secondary schools as research subjects. Students' sleep quality is very important, as poor sleep quality among them can result in poor learning and eventual poor academic performance. These perceived gaps in literature addressing adolescent WhatsApp dependence and its relationship with sleep quality were a major motive behind this empirical investigation using students of senior secondary schools within the FCT, Abuja metropolis as research subjects. The study therefore provides empirical evidence of association between WhatsApp dependence and sleep quality of senior secondary school students.

This study will be of help to counsellors and significant others within the helping profession. Counselling services are of importance to all classes of people, especially students. School counsellors spend a lot of time to understand the possible reasons behind poor academic performance of students. It is essential to state that not all poor academic performance of students can be based on poor teaching or learning environment. Students' sleep quality can be a reason for poor academic performance. Counsellors have significant roles to play to help students to overcome WhatsApp addiction so that they can improve their sleep quality to enhance better performance in school activities. The American Counselling Association (ACA) as cited in Adeniyi & Ogunesan (2018), looked at counselling as a professional relationship that enables diverse individuals, families, and groups to achieve mental health, fitness, education, and career goals. From the definitions provided here, it may be safe to say that counselling is a viable tool to use to help students gain self-understanding in relation to their WhatsApp dependence in order to come out of addiction to improve sleep quality which will in turn improve their academic performance and overall health condition.

The study will also be useful to researchers, policy makers, teachers, heads of school and many others.

Purpose of Study

The purpose of this study was to study the relationship of WhatsApp dependence and sleep quality of senior secondary school students in the FCT, Abuja metropolis. The specific objectives of the study are:

- To examine the relationship between WhatsApp dependence and sleep quality of students of senior secondary schools within the FCT, Abuja metropolis.
- To investigate the moderating role of sex in the associations between WhatsApp dependence and sleep quality of students of senior secondary schools within the FCT, Abuja metropolis.

Research Questions

The following research questions were presented to achieve the purpose of the study:

- Is there any relationship between WhatsApp dependence and sleep quality of students of senior secondary schools within the FCT, Abuja metropolis?
- Does sex play a role in the associations between WhatsApp dependence and sleep quality of students of senior secondary schools within the FCT, Abuja metropolis?

Research Hypotheses

The following were the research hypotheses of the study

- There is no significant relationship between WhatsApp dependence and sleep quality of students of senior secondary schools within the FCT, Abuja metropolis.
- There is no significant difference between the responses of boys and girls on WhatsApp dependence and sleep quality scales.

Research Design

The correlational research design was adopted for this study. This was because the study focused on relationship of variables. This study is a bivariate correlational study looking at the relationship between WhatsApp dependence with sleep quality. Correlational design was adequate for the study since the research interest was on the relationship of the two variables and not causes and effects.

Participants

Participants were students of senior secondary school students of FCT, Abuja metropolis who willingly accepted to be part of the study after their consents were sought. 405 participants enrolled for the study. 227 students representing 55.9% of the total participants of the participants were boys, while 178 students representing 44.08% of the total participants were girls. The simple random sampling was used to screen students for WhatsApp dependence or addiction statuses and sleep quality. The sample was further stratified into boys and girls to have a fairly equal representation since sex was a variable that was considered in the study. Hence, random sampling and stratified sampling were used and considered adequate for the study.

Instruments

Two scales were used in the study. WhatsApp dependence was measured using WhatsApp Dependence Scale (WDS) which was adapted from Bergen Facebook Addiction Scale (BFAS). The scale was originally developed to measure Facebook dependence. Since WhatsApp dependence is close to Facebook dependence, the scale was adapted and modified to suit the variables to be measured and the research environment. The adapted scale is a 5 point scale of Always - 5, frequently – 4, Sometimes - 3, Rarely 2, and Never - 1. The second scale that was used to measure sleep quality was the Sleep Quality Scale (SQS), adapted and modified from Pittsburgh Sleep Quality Index (PSQI). The scale was modified to suit the research environment. The adapted scale is also a 5 point scale of Always - 5, frequently – 4, Sometimes - 3, Rarely 2, and Never - 1. The two scales were trial tested on a group of 22 students who did not participate in the actual study. The reliability coefficient using Cronbach alpha is 0.92 for WDS and 0.80 for SQS.

Students were screened using the scales designed for this study. Those with a mean score of 2.5 -5.0 on a 5 point scale of WDS were adjudged as WhatsApp depended and those with < 2.5 were adjudged not to be WhatsApp dependent. Similarly those with a mean score of 2.5- 5 on a 5 point of SQS were adjudged to have poor sleep quality and those with < 2.5 were judged not to have poor sleep quality.

Method of Data Analysis

The research questions were analyzed using frequency, percentage and mean. The hypotheses were tested using The Pearson Product Moment statistical tool to determine significant relationships of variables at 0.01 level of significance to measure the relationships of variables under study. The chi square was used to measure the difference in the responses of the boys and girls and participated in the study.

Data collection

Data were collected from students through direct contact. The consents of participants were also obtained before the instruments were administered. Before the instruments were administered, the participants were educated about the purpose of the study and test items were explained to them when it was necessary. The students completed the questionnaires and submitted by hand. The study was based on self-reports of respondents.

Discussion and Data Analysis

405 participants enrolled for the study. Students were screened using the scales designed for this study. Those with a mean score of 2.5 -5.0 on a 5 point scale of WDS were adjudged as WhatsApp depended, while those with < 2.5 were adjudged not to be WhatsApp dependent. Similarly, those with a mean score of 2.5- 5 on a 5 point of SQS were adjudged to have poor sleep quality and those with < 2.5 were judged not to have poor sleep quality. 227 students representing 55.9% of the total participants were boys, while 178 students representing 44.08% of the total participants were girls. Out of the total number of participants 211 students representing, 52.0% reported WhatsApp dependence with positive association with poor sleep quality. 71 representing, 17.5% reported WhatsApp dependence, but no relationship with poor sleep quality. 44 representing 10% reported poor sleep quality, but no relationship with WhatsApp dependence. 106 representing 26.1% reported < 2.5 WhatsApp dependence and < 2.5 poor sleep quality.

Out of the 227 boys who enrolled for the study, 104 representing 45% reported WhatsApp dependence and poor sleep quality. 44 representing, 24.7% reported WhatsApp dependence, but no poor sleep quality. 27 representing 11.8% reported poor sleep quality, but no WhatsApp dependence. 79 representing 34.8% reported neither WhatsApp dependent nor poor sleep quality. Similarly, Out of the 178 girls who enrolled for the study, 107 representing 60.1% reported WhatsApp dependence and poor sleep quality. 27 representing, 9.5% reported WhatsApp dependence, but no poor sleep quality. 17 representing 9.5% reported poor sleep quality, but no WhatsApp dependence. 27 representing 15.1% reported neither WhatsApp dependent nor poor sleep quality.

The data showed that there was a positive relationship between WhatsApp dependence and poor sleep quality of students of senior secondary school within the Abuja metropolis since 211 students representing 52.0 % of the participants confirmed WhatsApp dependence showing positive relationship with poor sleep quality. Similarly, sex plays a role in the association between WhatsApp dependence and poor sleep quality of students of senior secondary schools within the FCT, Abuja metropolis because out of the 178 girls, 107 representing 60.1% reported positive relationship between WhatsApp dependence and poor sleep quality, while out of the 227 boys, 104 representing 45% reported positive WhatsApp dependence and poor sleep quality. The difference of 15% showed that girls were more predisposed to WhatsApp dependence with positive relationship with poor sleep quality than boys. Hence, sex played a role in determining the relationship between WhatsApp dependence and poor sleep quality based on the percentage difference. The finding in this research was in line with the report of Ganasegeran et al. (2017) who reported positive association between WhatsApp dependence and sleep disturbance among health workers in Malaysia.

The null hypotheses which stated that there was no significant statistical relationship between WhatsApp dependence and poor sleep quality of senior secondary school students in the FCT, Abuja metropolis was rejected since there was a positive statistical relationship of $r = 0.568$ at 0.01 level of significance using the Pearson product moment statistical tool. The finding was in consonance with the report of Edidiong, Emaediong & Ibanga (2016) who reported significant relationship between volume of time spent on social media and sleep disturbance. The second hypothesis sought to test if there was any significant difference

between the responses of boys and girls on WhatsApp dependence and sleep quality scales. The chi square statistical tool was used to test the responses of both boys and girls in terms of WhatsApp dependence and poor sleep quality at 0.05 level of significance. The calculated value was 0.0028, while the table value was 3.841. Because the calculated value was less than the table value, the null hypothesis was retained. It means there was no significant difference in the responses of boys and girls to WhatsApp dependence and sleep quality scales.

Conclusion & Recommendations

This study sought to determine the relationship between WhatsApp dependence and poor sleep quality of senior secondary school students of Abuja metropolis. Sleep is very important for the wellbeing of students. The finding in this research has proved that there is a positive statistical relationship between WhatsApp dependence and poor sleep quality of the participants who enrolled in this study. Sleep is very important for the overall developmental processes of students (Brand & Kirov 2011). Counsellors are to counsel students on the need to maintain quality sleep for optimal daily functioning (Kutluhan ,Ayse, Neriman & Seval 2011; Smyth 2012). Sleep is an important aspect for maintaining the body's circadian rhythm. Counsellors also need to counsel students who are WhatsApp dependent to come out of such addiction since it can alter their circadian rhythm or sleep wake circle (Levenson 2016). The health implications of poor sleep quality should be emphasized by counsellors since it can create health problems for students (Dinesh , Ravi & Farzan 2017). Students that are below the age of 18 are not expected to be on the social media. School counsellors and psychologists should help students to plan their sleep pattern. WhatsApp dependence can affect so many things in the lives of students. Inadequate sleep can resort to insomnia and other sleep related disorders. Students should therefore have quality sleep to avoid dysfunctional daily activities. This should be strongly emphasized when counselling an under aged student. Parents are to be counselled to monitor the social media activities of their children.

The study did not seek to determine causality. Hence, it is recommended that researches geared towards examining causality in terms of the variable responsible for a change in another variable should be considered. In other words, a research aimed at investigating effects of WhatsApp on sleep quality should be a good venture.

References

- Adeniyi B, & Ogunesan O.B (2018) Counselling services in Nigerian schools. *APROCON Issues in professional counselling* 101-108
- Alfano, C. A., Ginsburg, G. S., & Kingery, J. N. (2007). Sleep related problems among children and adolescents with anxiety disorders. *Journal of the American Academy of Child & Adolescent Psychiatry*, 46(2), 224-232
- Al Suwayri S.M. (2017).The impact of social media volume and addiction on medical student sleep quality and academic performance: A cross-sectional observational study. <https://www.researchgate.net/publication/320004292>. Retrieved August, 2019.
- Brand, S., & Kirov, R. (2011). Sleep and its importance in adolescence and in common adolescent somatic and psychiatric conditions. *International Journal of General Medicine*, 4, 425
- Diekelmann S, Wilhelm I, and Born J. (2009). The whats and whens of sleep-dependent memory consolidation. *Sleep Med Rev* 13: 309-321.
- Dinesh K, Ravi T.S, Farzan S. (2017). Investigating the Effects of Social Media Usage on Sleep Quality, Proceedings of the Human Factors and Ergonomics Society 2017 Annual Meeting
- Edidiong F., Emaediong A., Ibanga E. (2016). Social Media Use and Sleep Disturbances among Medical Undergraduates in Southern Nigeria. *Saudi Journal of Medicine* 1.3.2: 2-9
- Nasirudeen, A, Lau C, Koh W., Lim L., and Li W.(2017) Impact of social media usage on daytime sleepiness: A study in a sample of tertiary students in Singapore. *Digital Health* 3: 1–9
- Ganasegeran, K. Abdulrahman, A, Radman, A., Rashid, A., Perumal,M., and Renganathan,P (2017). Identifying factors associated with sleep disturbances among health workers using WhatsApp in Malaysia, *Journal of Hospital Management and Health Policy*, 1(2): 2-14
- Kutluhan Y, Ayse K, Neriman A, Seval K. (2011). Understanding sleep habits and associated factors can help to improve sleep in high school adolescents. *The Turkish Journal of Pediatrics*. 2011; 53(4): 430-436.
- Levenson, J. C., Shensa, A., Sidani, J. E., Colditz, J. B, Primack, B. A. (2016). The association between social media use and sleep disturbance among young adults. *Preventive Medicine*, 85, 36-41
- Li, S., Zhu, S., Jin, X., Yan, C., Wu, S., Jiang, F., & Shen, X. (2010). Risk factors associated with short sleep duration among Chinese school-aged children. *Sleep Medicine*, 11(9): 907-916.
- Smyth C. (2012). The Pittsburgh Sleep Quality Index (PSQI), New York University College of Nursing