# Sexting Behavior and Social Media Addiction as Predictors of Depression Anxiety and Stress among University Undergraduates

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**Abstract:**

This study examined the predictive influence of sexting behavior and social media addiction on the severities of depression anxiety and stress among undergraduates in a selected Nigerian university. Using a cross sectional survey, the study sample comprised of 299 participants (160 male and 139 female) with a mean age of 21 years. Participants responded to Bergen Facebook Addiction Scale (BFAS), Depression Anxiety Stress Scale (DASS) and the Sexting Behavior Scale (SBS). Descriptive and inferential statistics were used for data analysis. 13.7% severe depression, 16.9% severe anxiety and 17.3% sever stress levels were reported. Factors of social media addiction (salience, tolerance, mood modification, relapse, withdrawal and conflict) jointly and significantly predicted depression ($R^2$ = .113 p= .000); Anxiety ($R^2$ = .105, p=.000); and stress ($R^2$ = .095, p= .000) among undergraduates. Sexting behavior significantly predicted the severity of depression ($R^2$ = .171, p= .000); anxiety ($R^2$ = .197, p= .000); and stress ($R^2$ = .201, p=.000). Results imply that there is a high incidence of depression, anxiety and stress among the undergraduates, and that sexting behavior and social media addiction are significant predictors of depression anxiety and stress among university undergraduates.

*Keywords: Sexting, social media addiction, depression, anxiety, stress, undergraduates.*

## INTRODUCTION

Depression has been identified as a common occurrence in the adolescents and students (de Castro, et al., 2023; January, et al., 2018; Tung, et al., 2018; Amarasuriya, et al., 2015). Depression left untreated or treated inadequately may lead to increased distress or even death (Auerbach, et al., 2018). While anxiety is a normal and healthy emotion, however, when an individual regularly feels disproportionate levels of anxiety, it might become a medical disorder. The World Health Organization (WHO, 2017) estimates that there are about 322 million people living with depression around the world (James, et al., 2018). Prevalence rates for depression in Nigeria have been reported to be over seven million accounting for 3.9% of the total population (WHO, 2017).

Mental health is considered an essential aspect of human health and although the onset of depression may occur at any stage of life, the prevalence of major depression increases steadily during adolescence and young adulthood (WHO, 2015). Depression and anxiety in adolescents may be triggered by physical changes, hormonal changes, peer pressure and other factors (Oh, et al., 2023). Additionally, adolescents are at an age bracket for undergraduate schooling and this combination holds a risk for depression and anxiety as time in the university has been described as hectic given the many life-changing events taking place in a short time span and sometimes simultaneously (January et al., 2018). In the university, students experience many firsts, including

a new lifestyle, friends, roommates, new topics, exposure to a new culture and experiences and are in the midst of a major life transition. Consequently, students who are unable to cope with managing these "firsts" may struggle through the university and may be susceptible to developing depression and anxiety (Jenkins et al., 2020; Tung, et al., 2018). Excessive social media use among other factors has been identified as one of the specific causes of depression among undergraduates (Asibong et al., 2020; Vidal et al., 2020). Pedrelli, et al., (2015) assert that college students present a unique vulnerability to depression as mental illness often appears amid the transition from childhood to adulthood.

Studies reveal high prevalence of social media addiction among university undergraduates (Salari, 2023) and that the addiction is linked to poor mental health (Sujarwoto et al., 2023; Cain, 2018; Berryman et al., 2018; Kircaburun et al., 2018). The general public's use of social media has increased across practically all cohorts of the human life course (Kemp, 2020), although younger people have been disproportionately impacted (Elhai et al., 2020; Stieger et al., 2020). Most current university undergraduates belong to "Generation Z", which is described as the group born after 1996. Having grown up in the era of digital technology, this group are referred to as "digital natives" due to their early exposure to the internet and social media at a young age, further compounded by increased internet usage for educational and other purposes necessitated by the COVID-19 epidemic (Gómez-Galán et al., 2020). Taken together, these factors may expose learners to a variety of experiences, both positive and harmful.

The results of earlier research on the relationship between social media use and mental health among university students have been consistent. Studies have demonstrated the detrimental effects of excessive screen time on mental health (Rajkumar, 2020; Twenge et al., 2020). Using social media during the COVID-19 epidemic was associated with depression and secondary trauma in Chinese citizens (Zhong et al., 2021). Social media use and psychological distress are also related (Huckins et al., 2020; Sundarasen et al., 2020). Social media use was found to have a negative correlation with depression (Zhao, 2020). Also, in research on American university students, social media use was found to increase stress (Pahayahay & Khalili-Mahani 2020). In a systematic review of eleven studies measuring social media use and depressive symptoms in children and adolescents, McCrae, et al., (2017) report a trend of statistically significant relationship between excessive social media use and depression across several studies. With an estimate of over 3.2 billion social media users worldwide, and a steady increase in average daily social media use (Emarsys, 2019; Chaffey, 2019) and the millenials (the generation considered to have the broadest access to technology) rank highest in social media usage (Emarketer, 2019; Gafni & Geri, 2013), it is important to examine associate factors in this cohort in order to protect and enhance their mental health and general well-being.

Sexting, the act of sending, receiving, or forwarding sexually explicit messages, photographs, or images, primarily between mobile phones, computer or other digital devices of oneself to others (Gámez-Guadix et al., 2017; Klettke, et al., 2014) has been associated with social media use and addiction (Maheux, et al., 2020). There is however no generally agreed definition of sexting in the scientific community. Thus, while some authors describe it as sending of any kind of sexual image-based only content, (Barrense-Dias et al., 2017) others affirm the inclusion of coercion as a vital part of sexting behaviour (Englander, 2012). Yet others opine that sexting is voluntary (Gámez-Guadix et al., 2015). Some definitions include sending text messages with sexual contents that have no images (Morelli et al., 2016), while other definitions exclude them (Silva et al., 2016). There is a growing body of research on the negative effects of sexting behaviour on the mental

health of adolescents (Brenick et al., 2017; Kosenko et al., 2017). Mori, et al., (2019) has stated that sexting behaviors were significantly associated with internalizing problems, such as anxiety and depression and that, younger adolescents who sext reported stronger symptoms of depression and anxiety. There is a knowledge gap on the interaction between social media addiction, sexting behaviour and internalizing problems among Nigerian young people. This current study, therefore, aims to assess this interaction thus contribute to bridging the knowledge gap. We thus hypothesize that factors of social media addiction will jointly and significantly predict the severities of depression anxiety and stress. Also, that sexting behaviour will significantly predict the severities of depression anxiety and stress among undergraduates.

## MATERIALS AND METHOD

Adopting the multistage sampling technique, 299 undergraduates were recruited across several faculties at a private University in Osun state, Nigeria. Questionnaires were administered directly to respondents.

### Research Instrument

Three standardized research instruments; Bergen Facebook Addiction Scale (BFAS) (Andreassen, et al., 2012), Depression Anxiety Stress Scale (DASS) (Lovibond & Lovibond, 1995), and the Sexting Behavior Scale (SBS) (Dir, et al., 2013).

The BFAS is concerned with assessing respondents' experiences during the past one year related to Facebook use. It specifically measures six symptoms of addiction: salience, mood modification, tolerance, withdrawal, conflict, and relapse. The scale is an 18-item instrument, with a 5-point Likert response scale from 1=very rarely, 2 = rarely, 3=sometimes, 4= often, 5=very often. Total score ranges from 6 to 30 with higher scores reflecting higher addiction levels. The BFAS possesses acceptable psychometric properties for Nigerian population (Akpunne, et al., 2020).

The Depression Anxiety Stress Scale (DASS) is a self-report 42-item questionnaire, with 3 subscales measuring the negative emotional states of depression, anxiety and stress. Each subscale consists of 14 items. The subscales of the DASS have been shown to have high internal consistency, with reliability coefficients ranging from 0.71 to 0.81 and to yield meaningful discriminations in a variety of settings (Brown et al. 1997; Anthony et al. 1998; Crawford & Henry 2003). Exploratory and confirmatory factor analyses have also consistently sustained the proposition of three subscales.

The Sexting Behaviour Scale (SBS) (Dir et al., 2013) assesses the frequency and prevalence of the following sexting behaviors: receiving sexts; sending sexts; and content of messages (i.e., pictures or sexually suggestive content). There are also items assessing other behaviors, such as using social networking sites to exchange messages or publicly post sexually suggestive content. The scale consists of 11 items with responses based on a 5-point Likert scale from 1 (never) to 5 (frequently or daily) and has good internal consistency ($\alpha$ = .883). The internal reliability of the SBS for the study sample was .893. Sexting frequency is expressed as the mean score of the SBS

## RESULTS

### Socio-Demographic Data of Respondents

The sample of the present study comprised of 160 (56.7%) male and 139 (46.3%) female undergraduates of whom over half (62. 3%) were aged between 19 and 22 years. (Table 1).

## Table 1: Socio-demographic characteristics of participants

| Variables | | Frequency | Percentage |
|---|---|---|---|
| Gender | Male | 160 | 53.7 |
| | Female | 139 | 46.3 |
| | Total | 299 | 100.0 |
| Age categories | 15-18 | 62 | 21.4 |
| | 19-22 years | 180 | 62.3 |
| | 23 – 28 years | 57 | 16.3 |
| | Total | 299 | 100 |
| Education level | 100 level | 58 | 18.3 |
| | 200 level | 77 | 26.1 |
| | 300 level | 88 | 29.8 |
| | 400 level | 76 | 25.8 |
| | Total | 299 | 100 |

About a third of respondents (33.8%) reported mild anxiety and depression (30.3%) levels. Table 2 reveals the patterns of depression anxiety and stress among respondents for the present study.

## Table 2: Patterns of Depression, Anxiety and Stress among respondents

| Variables | Prevalence | | |
|---|---|---|---|
| | **Mild %** | **Moderate %** | **Severe %** |
| Depression | 20.4 | 29.5 | 15.7 |
| Anxiety | 33.8 | 27.8 | 16.9 |
| Stress | 30.3 | 29.2 | 17.3 |

A multiple regression analysis was conducted to investigate the joint effect of social media addiction on the severities of psychopathological symptoms (Depression, Anxiety and stress) in the present cohort. Factors of social media addiction (salience, Tolerance, Mood Modification, Relapse, Withdrawal and conflict) jointly and significantly predicted depression ($R^2$ = .113, F (5, 299) = 5.497, *p*= .000; Anxiety ($R^2$ = .105, F (5, 299) = 5.143, *p*=.000; and stress ($R^2$ = .095, F (5, 299) = 4.603, *p*= .000. (Table 3)

## Table 3: Multiple Regression Analysis Showing the Influence of social media addiction on severities of depression, anxiety and stress.

| | | | | | | | N = 299 | | |
|---|---|---|---|---|---|---|---|---|---|
| | **Depression** | | | **Anxiety** | | | **Stress** | | |
| **Variables** | **β** | **T** | **Sig.** | **β** | **T** | **Sig.** | **β** | **t** | **Sig.** |
| Salience | -.036 | -.379 | .705 | -.013 | -.138 | .890 | .068 | .693 | .489 |
| Tolerance | -.050 | -.479 | .633 | -.101 | -.979 | .328 | -.083 | -.810 | .419 |
| Mood Modification | .146 | 1.913 | .057 | .122 | 1.587 | .114 | .198 | 2.627 | .009 |
| Relapse | -.078 | -.821 | .412 | -.058 | -.626 | .532 | -.086 | -.920 | .359 |
| Withdrawal | .097 | .984 | .326 | .246 | 2.532 | .012 | .133 | 1.361 | .175 |
| Conflict | .271 | 3.121 | .002 | .125 | 1.451 | .148 | .105 | 1.196 | .233 |
| R | | .34 | | | .234 | | | .308 | |
| $R^2$ | | .113 | | | .105 | | | .095 | |
| F –ratio | | 5.497 | | | 5.143 | | | 4.603 | |
| *P* | | .000 | | | .000 | | | .000 | |

The model further reveals that 11.3%, 10.5% and 9.5% of variance observed in severities of depression, anxiety and stress respectively, is explained by the factors of social media addiction (salience, tolerance, mood modification, relapse, withdrawal and conflict) in the present cohort.

A second multiple regressions were conducted to test the second hypothesis that sexting behaviour will jointly significantly predict the severities of depression, anxiety and stress among respondents. Results reveal that sexting behavior significantly predicted the severity of depression ($R^2$ = .171, $F_{(5, 299)}$ = 56.798, $p$= .000; anxiety ($R^2$ = .197, $F_{(5, 299)}$ = 68.219, $p$= .000; and stress ($R^2$ = .201, $F_{(5, 299)}$ = 70.091, $p$=.000 (Table 4). The model further reveals that 17.1%, 19.7% and 20.1% of variance observed in depression, anxiety and stress respectively is explained by sexting behavior among the undergraduates. This hypothesis is therefore accepted.

**Table 4: Regression Analysis Showing the Influence of sexting behavior on depression, anxiety and stress**

| | | | | | | N = 299 | | |
|---|---|---|---|---|---|---|---|---|
| | Depression | | | Anxiety | | | Stress | | |
| Variables | β | T | Sig. | β | T | Sig. | β | t | Sig. |
| Constant | | 30.99 | .000 | | 1.25 | .21 | | 2.11 | .03 |
| Sexting Behavior | .41 | 7.53 | .000 | .44 | 8.26 | .00 | .44 | 8.37 | .00 |
| R | | .41 | | | .44 | | | .44 | |
| $R^2$ | | .17 | | | .19 | | | .20 | |
| F –ratio | | 56.78 | | | 68.29 | | | 70.09 | |
| P | | .00 | | | .00 | | | .00 | |

## DISCUSSIONS

The present study aimed to determine the extent to which social media addiction is related to depression and anxiety among university undergraduates in Osun State, Nigeria. In agreement with previous studies a high prevalence of social media addiction was reported in this study (Salari, 2023; Kemp, 2020; Akpunne & Ajirotutu, 2018). This result mirrors that of Li, et al., (2018) in a study of the relationship between online social networking addiction and depression. They found a bidirectional association between online social networking and depression among adolescents as depression significantly contributed to the development of social network addiction with depressed individuals experiencing more deleterious effect from addictive online social networking use. In a Chinese study, Hussain, et al (2020) performed a systematic review investigating social network use disorder and its association with depression and anxiety. The review established a pattern of association between social network use disorder, depression and anxiety. Also, in a related Nigerian study Akpunne and Akinnawo (2019) reported that problematic smartphone uses strongly predicted the severities of anxiety depression and psychological distress among selected Nigerian university undergraduates. The effects of excessive internet use on mental health have also been reported in literature (Rajkumar, 2020; Twenge et al., 2020). For instance, among Chinese population, social media use was associated with depression and secondary trauma (Zhong et al., 2021). Also, according to Pahayahay and Khalili-Mahani (2020) social media use was reported to increase stress among American university students as well as poor mental health among Spanish university students (Gómez-Galán et al., 2020). Again, social media use was reported as strong correlate of psychological distress (Huckins et al., 2020; Sundarasen et al., 2020; Zhao, 2020).

Sexting behavior was equally found to significantly predict the severity of depression, anxiety and stress among participants. This result is consistent with those obtained from other studies with larger samples. In a national telephone survey of American youths who were internet users (Mitchell, et al., 2012), a quarter of the respondents reported feelings of embarrassment and anxiety at receiving sexually explicit images. In a similar study, Ybarra & Mitchell (2014) found more frequent occurrence of psychosocial problems in teens who reported sexting regularly. Studies also show that symptoms of some internalizing problems might be linked to sexting depending on the response received from the sext. For instance, Borgogna et al., (2023) affirmed that individuals who sext but got no response reported more depression, anxiety and insomnia compared when compared with other groups. Research finding have also revealed that increase in depressive symptoms are associated with greater use of the internet (Holoyda et al., 2018). Furthermore, the more frequent the problematic internet use, the higher the prevalence of sexting behaviour (Medrano et al., 2018). Similarly, Gámez-Guadix and De Santisteban (2018) in a study among Spanish adolescents established that a higher degree of depressive symptoms predicted a higher degree of sexting behaviors. Studies show positive relationships between sexting behaviour and anxiety symptoms. For instance, Chaudhary et al., (2017) reported that young people who engaged in sexting reported more symptoms of anxiety than those who did not. Also, Cooper et al. (2016) found that sexting victimization was linked with negative psychological outcomes, such as anger, feelings of sadness, and anxiety disorders. Adolescents who received unwanted sext or were coerced to sext reported poor mental health, and those who received or sent unwanted but consensual sext reported higher severity of anxiety, stress, and depression and had lower self-esteem (Klettke et al., 2019). Also sexting behaviour is linked to suicidal behaviour (Medrano et al., 2018).

The present study has certain limitations such as the sampling technique adopted and a relatively small sample size may make it difficult to generalize our findings. It is recommended that future studies adopt other research enquiry methods in assessing the varied effects of social media use and addiction. Despite these limitations, the findings of the present study provide a framework that can prove useful to health professionals and policy makers in designing mental health initiatives for technology use in adolescents.

## CONCLUSION AND RECOMMENDATIONS

From the findings, it can be concluded that social media addiction and sexting behavior are strong predictors of depression, anxiety and stress among university undergraduates. Further studies to aid identification of individual students with severe levels of depression, anxiety and stress resulting from involvement in social media addiction and sexting is recommended. Upon such identification, appropriate psychotherapeutic interventions would prove very helpful.

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