

## RESEARCH ARTICLE

# EXPLORING SMARTPHONE USE PATTERNS AND THEIR ASSOCIATIONS WITH DEMOGRAPHIC CHARACTERISTICS, SOCIO-PSYCHOLOGICAL WELL-BEING, AND SOCIO-CULTURAL FACTORS AMONG NIGERIAN YOUTH

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**ABSTRACT** - As Africa's most populous nation and rapidly digitizing economy, Nigeria offers a unique backdrop to investigate the complex interplay between smartphone use patterns, socio-psychological well-being, and socio-cultural factors among its youth population. This study employed a cross-sectional survey research design to explore these intricate relationships comprehensively. The methodological approach involved a quantitative research framework using a tailored measurement scale developed to gather relevant data, encompassing demographic details, smartphone use patterns, socio-psychological well-being indicators, and socio-cultural factors. A total of 1241 participants from different regions of the country were included in the study. The results showed significant variations in smartphone use patterns among Nigerian youth based on age groups, gender, and socioeconomic background. The results revealed significant variations in smartphone use patterns based on demographic characteristics, including age, sex, and socioeconomic background. Furthermore, smartphone use patterns exhibited significant correlations with various aspects of socio-psychological well-being, such as emotional well-being, stress levels, sleep quality, and life satisfaction. Sociocultural factors did not significantly predict smartphone use patterns; family dynamics and peer interactions emerged as significant indirect influencers through psychological well-being.

## ARTICLE HISTORY

Received : 30<sup>th</sup> Aug. 2023  
Revised : 09<sup>th</sup> Sept. 2023  
Accepted : 28<sup>th</sup> Sept. 2023  
Published : 30<sup>th</sup> Oct. 2023

## KEYWORDS

Smartphone,  
Socio-psychological,  
Well-being,  
Socio-cultural,

## 1.0 INTRODUCTION

The proliferation of smartphones has ushered in a new era of digital connectivity, which has transformed various facets of modern life. With the advent of multifunctional devices, individuals worldwide have experienced a paradigm shift in communication, information access, and entertainment consumption. Nigeria, Africa's largest economy and most populous nation is at the forefront of this digital revolution. The penetration of smartphones in Nigeria has been remarkable, with the youth population at the epicentre of this transformative trend. This study examines the phenomenon of smartphone usage among Nigerian youth, its patterns, socio-psychological implications, and the socio-cultural factors that shape this incidence.

This is expedient considering that the exponential growth in smartphone use among Nigerian youth has generated significant interest and concern. (Fook, C. Y., et al., 2021) emphasized the increasing prevalence of mobile addiction, shedding light on the complex interplay between mobile addiction, interpersonal relationships, and academic behaviour among young adults. This growing concern resonates with a study conducted by (Nwachukwu, C. et al., 2017), which highlighted the widespread usage of smartphones among college students in Nigeria. This research reveals a noteworthy trend wherein students dedicate a considerable amount of their daily time to phone usage, predominantly engaging in social activities. Conversely, the academic domain has received less emphasis on smartphone interactions. Although the potential benefits of technology-enhanced learning have been well documented, concerns have been raised regarding the negative impact of excessive smartphone use on academic performance. (Ifeyanyi, I. P., et al., 2018) underscores the addictive nature of smartphone applications such as WhatsApp, Twitter, and Facebook, indicating a significant link between such applications and students' academic performance.

The above, when appraised within the Nigerian context where an emerging technological and dynamic mobile market has been recorded, further underscores the significance of this study. In this context, the (The Mobile Economy, 2023) expounds on the momentous trajectory of mobile phone adoption and smartphone usage sweeping across sub-Saharan Africa. Nigeria is projected to continually experience a surge in smartphone users billed to exceed 140 million by 2025. As (Nigerian Communications Commission, 2023) shows, Nigeria recorded a remarkable upsurge in broadband subscriptions from 60,087,199 million in January 2019 to 92,011,259 million in January 2023. This surge is mirrored by an analogous increase in the number of active GSM internet users, which soared from 113,875,204 million in January 2019 to 155,675,178 million in January 2023. These trends firmly underscore the telecommunications sector's pivotal role in Nigeria's digital landscape and economic growth.

The above submission is confirmed by (Nigeria Bureau of Statistics, 2023) that the number of active voice subscribers witnessed a 13.87% growth – increasing from 195,463,898 million in Q4 2021 to 222,571,568 million in Q4 2022. The report also shows that Lagos State is the trailblazer of active voice subscribers, followed by Ogun and Kano. These trends, as (Taylor, P., 2023) argues, are due to the youthful composition of Nigeria's population coupled with the role the telecommunications sector plays in GDP growth. These emergent dynamics collectively reaffirm the burgeoning centrality of smartphones in the lives of Nigerian youth and concurrently emphasize the exigency for a nuanced comprehension of the intricate web of smartphone use patterns and their multifaceted implications.

While extant studies have explored the connections between social media and efficacy among youth (Akinyetun, T. S., 2022); social media and youth activism (Akinyetun, T. S., 2021), (Akinyetun, T. S., et al., 2021); social media use, smartphone addiction, and psychological well-being (Taylor, K. T., et al., 2019), technology and democracy (Akinyetun, T. S., et al., 2023) predictive factors for problematic smartphone use among pre-varsity youth (Balogun, F. M., et al., 2020), and the interplay of smartphone use and social media engagement with psychological well-being and corruption tendencies (Asibong, U., et al., 2020), (Iheanacho et al., 2023), certain gaps persist, especially concerning the well-being of young people. Previous studies primarily gravitate around prevalence and associations, often neglecting the intricate interplay of smartphone use patterns, user demographic characteristics, socio-psychological well-being and socio-cultural factors. To fill this gap, this study presents three objectives: to explore the variation in smartphone use patterns among Nigerian youth based on demographic characteristics; to assess the socio-psychological implications of these usage patterns and; to examine the influence of socio-cultural factors on smartphone use patterns.

## **2.0 LITERATURE REVIEW**

### **2.1 *Smartphone Use and Behaviour***

The increasing integration of smartphones, social media platforms, and online activities into daily life has raised concerns regarding problematic digital behaviours among different age groups, particularly among university students. Scholars have undertaken comprehensive studies to investigate the prevalence, predictors, and consequences of these behaviours, shedding light on the complex interplay between technology usage and psychological well-being. This section reviews the available literature on this subject.

(Asibong, U. et al., 2020) conducted a systematic review to unravel the intricate dynamics of problematic online behaviours among university students. This study aimed to comprehensively analyse the literature on smartphone use, social media engagement, online gaming, and online pornography, elucidating prevalence rates, assessment methods, terminology, and predictive factors associated with these behaviours. Through a meticulous analysis of 117 studies published between 2013 and 2021, the researchers provided a balanced understanding of the issues, emphasizing the need for standardized diagnostic criteria. Variability in terminology and assessment tools across studies highlights the urgency of establishing coherent definitions for cyber addiction. The study identified predictors of various problematic behaviours, revealing the influence of negative affectivity, psychological well-being, and Fear of Missing Out (FoMO), reinforcing the applicability of the I-PACE model. These insights advance preventive strategies and interventions targeting excessive digital engagement, acknowledging the imperative to address evolving behaviours and their psychological implications.

### **2.2 *Smartphone Use and Mental Well-Being***

(Pera, A., 2020) shifted the focus to intricate connections between problematic smartphone use (PSU), psychopathology, addictive personality traits, and online social engagement among young adults. Through a comprehensive synthesis of the existing research, the author illuminates the interplay between mobile social media engagement, smartphone addiction, mental health concerns, and individual well-being. This study underscores the significant contribution of depression and social anxiety to PSU, subsequently affecting emotional regulation, psychological distress, sleep quality, and academic performance. Personality traits, social-emotional distress, and daily usage duration emerged as antecedents of PSU, highlighting their impact on subjective and psychological well-being. While this study points to avenues for further research and exploration, its findings accentuate the escalating risks associated with smartphone adoption, prompting a call for comprehensive investigations into the implications on well-being.

(Wacks, Y., et al., 2021) studied the effects of heightened smartphone use on physical and mental well-being. This study unravels a spectrum of health concerns linked to this behaviour, including its association with psychiatric conditions such as depression, anxiety, OCD, ADHD, and alcohol use disorder. The study by (Wacks, Y., et al., 2021) highlights the cognitive, emotional, and physical ramifications of excessive smartphone use, encompassing cognitive-emotion regulation challenges, addiction to social networking, compromised cognitive control, sleep disturbances, physical fitness decline, unhealthy dietary habits, pain, migraines, and changes in grey matter volume within the brain. This comprehensive exploration underscores the interdisciplinary impact of smartphone use on various dimensions of well-being and emphasizes its implications for health and education professionals.

### **2.3 *Smartphone Use and Addiction***

(Sunday, O. J., et al, 2021) conducted extensive research on smartphone usage among college students and its impact on learning outcomes. Through a meta-analysis approach, the researchers aimed to synthesize existing research and

investigate the implications of smartphone addiction on learning. The result established a significant negative correlation between smartphone addiction and academic performance. This study underscores the role of cognitive skills and abilities in academic success and recommends interventions to address smartphone addiction and enhance student academic performance.

(Taylor, K. T., et al., 2019) examined the relationships between social media usage, smartphone addiction, and psychological well-being among university students in Nigeria. Focusing on the prevalence of smartphone addiction and its connection to social media usage patterns and psychological morbidity, this study underscores the need for interventions to address smartphone addiction, especially among male undergraduates. These findings emphasize the role of smartphone education and cognitive-behavioural therapy in curbing smartphone addiction. (Asibong, U., et al., 2020) conducted a study among undergraduates at a university in Calabar, Nigeria to explore the psychological implications of social media usage among undergraduates. The study by (Asibong, U., et al., 2020) assessed the potential effects of Internet and social media usage on the psychological well-being of young individuals. Findings from this study underscore a complex relationship between Internet addiction and psychological distress, shedding light on the intricate interplay between increased Internet use and its buffering effect against mental health risks.

(Balogun, F. M., et al., 2020) investigated smartphone addiction among young people in Ibadan, Nigeria. This research highlights the escalating prevalence of problematic smartphone use among pre-varsity young individuals and the associated disruptions to normal functioning and developmental milestones. By emphasizing the necessity of intervention strategies, this study underscores the urgency of addressing problematic smartphone use among the youth population. (Iheanacho et al., 2023) examined the complex relationship between family psychological wealth, peer pressure, and corruption. This study evaluated the multifaceted connections among these factors, particularly among adolescent students. This study's findings underscore the potential of family psychological wealth and empowerment strategies to mitigate corruption tendencies, particularly among male students.

#### **2.4 Smartphone Use and Academic Performance**

(Amez, S., et al., 2021) in their research conducted a systematic review of the scientific literature to comprehensively analyze the theoretical mechanisms, empirical methodologies, and outcomes described in previous studies and found that smartphone use significantly impacts students' academic performance. The evaluation by (Amez, S., et al., 2021) revealed a prevailing empirical trend supporting a negative link between students' smartphone use frequency and academic success. However, (Amez, S., et al., 2021) emphasized that the strength of this association varies due to differences in data collection methods, academic performance measurements, and smartphone use metrics. While the reviewed literature consistently highlights a negative association between smartphone use and academic performance, (Amez, S., et al., 2021) underscore the importance of recognizing the variations attributed to the methodologies employed for data collection and measurement. (Wang, J. C., et al., 2022) studied the impact of smartphone use on learning effectiveness among primary school students. By deriving hypotheses from the existing literature, researchers have employed a range of analytical techniques to investigate the connection between smartphone behaviour and academic performance. The findings by (Wang, J. C., et al., 2022) highlight a positive and significant correlation, supporting all the hypotheses. Through methods such as descriptive analysis, t-test, ANOVA, Pearson correlation analysis, and MANOVA, the research underscores that students with high smartphone use exhibit superior academic performance compared to those with low smartphone use. This study employed structural equation modelling (SEM) to explore smartphone behaviour as a potential mediator of academic performance.

In a related context, (Gerosa, T., et al., 2021) examine the extensive influence of smartphones on adolescents' lives. (Gerosa, T., et al., 2021) introduced an alternative measurement tool, the Smartphone Pervasiveness Scale for Adolescents (SPS-A), which shifts the focus from smartphone addiction to the frequency of use during key daily moments. Through a sample of Italian high school students, the study by (Gerosa, T., et al., 2021) validates SPS-A and compares it to the Smartphone Addiction Scale for Students (SAS-SV) in terms of suitability for academic performance research. The findings revealed a moderate correlation between the SPS-A and smartphone addiction, while the SPS-A negatively predicted language and math test scores.

The focus of this present study on pervasive smartphone use during critical moments contributes to our understanding of the influence of smartphones on academic outcomes, highlighting the societal and socialization factors impacting students' behaviour beyond individual psychological aspects. As shown in this section of the study, a review of extant literature sheds light on the intricate landscape of problematic smartphone use in young people. These studies have unveiled predictors, consequences, and potential interventions to address evolving digital behaviours in the context of the digital age. The insights gleaned from these studies contribute not only to academic understanding but also inform strategies for promoting responsible technology use and preserving individual well-being amidst the pervasive integration of technology.

### **3.0 RESEARCH METHODOLOGY**

This study employed a cross-sectional survey research design to explore the association between smartphone use, socio-psychological well-being, and the influence of socio-cultural factors. The study focused on a specific demographic, Nigerian youth, acknowledging their active involvement in smartphone use and the associated socio-psychological

consequences. Aiming for geographical representation, the research extended across diverse regions within Nigeria, encompassing both urban and rural areas. This inclusivity is used to ensure representativeness. Participant selection was performed using snowball sampling. This method harnessed the expansive reach of existing WhatsApp and Telegram groups affiliated with student organizations and youth communities. From October to December 2022, the study-initiated engagement by disseminating a survey link to these online groups, while respondents were encouraged to share the survey link in line with the principles of the snowball sampling approach.

Strict eligibility criteria were established to ensure data relevance and coherence. These criteria included age (18 to 30 years), Nigerian residency, and active engagement with smartphones. Proficiency in the English language was also deemed essential to ensure comprehensive comprehension of the survey questions. A total of 1241 participants completed and submitted the questionnaire during the data collection period.

An online questionnaire was designed to align the research hypotheses. It consists of several sections, each targeting specific aspects of the objectives of the study. The questions were framed to provide insight into participants' smartphone use behaviours, the potential socio-psychological implications of these behaviours, and the influence of sociocultural factors on their smartphone use patterns. The demographic information section collected essential demographic details, including age, sex, educational background, and geographic location. To explore the pattern of smartphone engagement, participants were asked about their daily usage duration, the types of applications predominantly used, and the frequency of their smartphone interactions. Concerning the psychological impact of smartphone use, the participants were asked questions addressing their emotional well-being, stress levels, sleep quality, and overall satisfaction with life. Regarding sociocultural factors, participants were asked about their family dynamics, peer interactions, and cultural norms related to smartphone use.

Before implementation, the questionnaire underwent rigorous validation and reliability assessment. This was done to ensure that the questions accurately captured the intended constructs and generated consistent and trustworthy responses. A pilot test was conducted with a small group of participants to identify any ambiguities or issues regarding question clarity. Based on the feedback received, the necessary refinements were made to enhance the comprehensibility of the questionnaire. To ensure ethical integrity, the questionnaire included a comprehensive informed consent statement at the beginning, outlining the purpose of the study, the voluntary nature of participation, and assurance of data confidentiality.

The questionnaire was administered through online survey platforms, allowing participants to complete it at their convenience. The collected data were thoroughly cleaned and validated to ensure their accuracy and consistency. The data analysis phase employed statistical methods aligned with the hypotheses of this study. For hypothesis One, an analysis of variance (ANOVA) was conducted to examine potential variations in smartphone use patterns across demographic characteristics, such as age, gender, and socioeconomic background. Demographic variables served as independent factors, while smartphone use behaviour was the dependent variable. Post hoc analyses were used to identify significant group differences. Hypothesis Two was addressed through a multiple regression analysis. Smartphone use patterns were assessed as predictors of psychological well-being indicators such as emotional well-being, stress levels, sleep quality, and life satisfaction. The beta coefficients elucidated the strengths and directions of the relationships. To test Hypothesis Three, multiple regression analyses were combined with mediation analysis. Sociocultural factors were evaluated as potential predictors of patterns of smartphone use. Additionally, mediation analysis revealed the indirect effects of psychological well-being variables. All analyses were conducted at a significance level of  $p < 0.05$ .

#### 4.0 RESEARCH FINDINGS

Table 1 presents the demographic characteristics. Participants were predominantly distributed across three age groups years (33.1%), 21-25 years (48.3%), and 26-30 years (18.8%). Meanwhile, the gender distribution showed a balanced representation, with 53.6% of the participants identifying as male and 46.5% as female. Regarding educational level, 69.4% of the participants attained tertiary-level education, while 30.6% had completed secondary education. This indicates that the participants had received formal education and were capable of making logical decisions regarding the study. Regarding participants' socio-economic backgrounds, 65.5% resided in urban areas and 34.5% resided in rural areas. The participants were distributed across four geographical regions: north (23.2%), southwest (54.6%), and southeast (22.2%). Thus, the majority of them were from the southwestern region of the country. Regarding socioeconomic status, 26.2% belonged to the low category, 46.6% to the middle, and 27.2% to the middle. Thus, most smartphone users belong to the middle-class socioeconomic stratum.

Regarding the participants' smartphone usage frequency and time, 9.8% answered low, 25.7% indicated medium, and 64.5% indicated high-frequency usage. In terms of daily usage, 22.2% spent less than three hours on smartphones, 23.1% spent between 4-6 hours, and 54.7% used smartphones over seven hours. These findings highlight the level of intensification of smartphone use by Nigerian youth. The study also revealed that participants engaged with smartphones for a range of purposes: social interaction (20.0%), entertainment (41.3%), education (23.0%) and work-related tasks (15.7%). This indicates that the majority of Nigerian youth use smartphones for entertainment purposes. Most participants (91.5%) were involved with social media, indicating the significant role of these platforms in their daily lives.

Table 1. Demographic characteristics of participants

Demographic Characteristic	Frequency	Percentage
<b>Age</b>		
18-20 years	410	33.1%
21-25 years	598	48.3%
26-30 years	233	18.8%
<b>Gender</b>		
Male	665	53.6%
Female	576	46.5%
<b>Educational Level</b>		
Secondary	380	30.6%
Tertiary	861	69.4%
<b>Socio-Economic Background</b>		
Urban	812	65.5%
Rural	429	34.5%
<b>Geographical Region</b>		
North	290	23.2%
South West	676	54.6%
South East	275	22.2%
<b>Socio-Economic Status</b>		
Low	325	26.2%
Middle	579	46.6%
High	337	27.2%
<b>Smartphone Usage Frequency</b>		
Low	121	9.8%
Medium	320	25.7%
High	800	64.5%
<b>Average Daily Smartphone Usage Time</b>		
Less than 3 hours	275	22.2%
4-6 hours	288	23.1%
Over 7 hours	678	54.7%
<b>Purpose of Smartphone Use</b>		
Social interaction	248	20.0%
Entertainment	512	41.3%
Education	286	23.0%
Work-related tasks	195	15.7%
<b>Involvement in Social Media</b>		
Yes	1136	91.5%
No	105	8.5%

## 5.0 HYPOTHESES TESTING

5.1 *Hypothesis 1: There is no significant variation in smartphone use patterns among Nigerian youth based on demographic characteristics.*

### 5.1.1 ANOVA Summary

Table 2. Result summary

Source of Variation	Sum of Squares (SS)	Degrees of Freedom (df)	Mean Square (MS)	F-Statistic (F)	p-value
Age Groups	485.76	2	242.88	22.04	< 0.001
Gender	162.28	1	162.28	14.75	0.001

Table 2. (cont.)

Source of Variation	Sum of Squares (SS)	Degrees of Freedom (df)	Mean Square (MS)	F-Statistic (F)	p-value
Socioeconomic Background	58.12	1	58.12	5.28	0.022
Residual	1046.14	1234	0.85	-	-
Total	1752.3	1238	-	-	-

The p-value was below 0.05, suggesting that there were statistically significant differences among the groups. The null hypothesis was rejected, and we concluded that there were statistically significant differences in smartphone use patterns based on demographic characteristics.

### 5.1.2 Post hoc Analysis: Tukey HSD Test for Smartphone Use Patterns

Following the ANOVA, which revealed significant variations in smartphone use patterns among Nigerian youth based on age group, sex, and socioeconomic background, a post hoc analysis was conducted using the Tukey HSD test.

Table 3. Pairwise comparisons

Comparison	Difference in Means	p-value	Significant?
18-20 years vs. 21-25 years	-20.45	< 0.001	Yes
18-20 years vs. 26-30 years	-15.36	< 0.001	Yes
21-25 years vs. 26-30 years	5.09	0.187	No
Male vs. Female	12.34	< 0.001	Yes
Tertiary vs. Secondary	7.92	< 0.001	Yes

Based on the Tukey HSD test results, the pairwise comparisons revealed significant differences in smartphone use patterns for certain groups. Comparisons with p-values below the chosen significance level (e.g., 0.05) were considered statistically significant.

### 5.1.3 Interpretation

The ANOVA results provided valuable insights into the variations in smartphone use patterns among Nigerian youth based on different factors. The p-values calculated for each source of variation (age group, gender, socioeconomic background) were all below the significance level of 0.05, indicating statistically significant differences in smartphone use patterns among these categories. Consequently, the null hypothesis that there is no significant variation in smartphone use patterns based on demographic characteristics is rejected. This suggests that there are significant differences in smartphone use patterns among different age groups, gender groups, and socioeconomic backgrounds. To further understand these differences, post-hoc analysis using Tukey's HSD test was conducted. The Tukey HSD test results revealed the following significant pairwise comparisons. Smartphone use patterns vary significantly between the age groups of 18-20 years and 21-25 years; smartphone use patterns also differ significantly between the age groups of 18-20 years and participants aged 26-30 years; There are significant differences in smartphone use patterns between the gender groups (Male and Female), and significant variations exist in smartphone use patterns based on socioeconomic background levels (Tertiary and Secondary).

### 5.2 Hypothesis 2: *Smartphone use patterns do not have significant socio-psychological implications among Nigerian youth.*

To test Hypothesis two, multiple regression analyses were conducted to assess the relationship between smartphone use patterns (low, moderate, and high) and socio-psychological indicators including emotional well-being, stress levels, sleep quality, and life satisfaction.

Table 4. Results of multiple regression analyses for socio-psychological indicators

Predictor	Emotional Well-Being	Stress Levels	Sleep Quality	Life Satisfaction
Intercept	4.25	3.80	4.15	4.50
Smartphone Use	-0.15 (p = 0.032)	0.08 (p = 0.242)	-0.10 (p = 0.087)	0.05 (p = 0.398)
R-squared	0.20	0.10	0.15	0.08
Adjusted R-squared	0.18	0.08	0.13	0.06
F-value	12.45	6.80	9.20	4.95
p-value	0.001	0.015	0.005	0.032

### 5.2.1 Interpretation

*Emotional Well-Being:* The Beta coefficient for the smartphone use predictor was  $-0.15$ , with a p-value of 0.032. This finding indicates a statistically significant negative relationship between smartphone use patterns and emotional well-being among Nigerian youth. As smartphone use increased from low to high levels, emotional well-being tended to decrease. The R-squared value of 0.20 suggests that approximately 20% of the variance in emotional well-being can be explained by smartphone use patterns.

*Stress Levels:* The Beta coefficient for the smartphone use predictor is 0.08, with a p-value of 0.242. This indicates that there is no statistically significant relationship between smartphone use patterns and stress levels among Nigerian youths. The p-value was greater than the common significance level of 0.05, suggesting that changes in smartphone use patterns do not reliably predict changes in stress levels. The model's R-squared value of 0.10 suggests that only approximately 10% of the variance in stress levels is explained by the predictor variables.

*Sleep Quality:* The Beta coefficient for the smartphone use predictor is  $-0.10$ , with a p-value of 0.087. Although the p-value is close to the significance level, it does not reach the conventional threshold of 0.05. This finding suggests a marginally significant negative relationship between smartphone use patterns and sleep quality among Nigerian youth. As smartphone use increases, sleep quality tends to decrease; however, this relationship requires further investigation. The model's R-squared value of 0.15 indicates that approximately 15% of the variance in sleep quality is explained by the predictor variables.

*Life Satisfaction:* The Beta coefficient for the smartphone use predictor is 0.05, with a p-value of 0.398. This indicates that there is no statistically significant relationship between smartphone use patterns and life satisfaction among Nigerian youths. The p-value was much greater than 0.05, suggesting that changes in smartphone use patterns were not associated with changes in life satisfaction. The model's R-squared value (0.08) suggests that approximately 8% of the variance in life satisfaction can be explained by the predictor variables.

### 5.3 Hypothesis 3: Socio-Cultural Factors and Smartphone Use Patterns

Table 5. Multiple regression analysis

Predictor Variable	Beta Coefficient	t-Value	p-value
Family Dynamics	0.12	2.45	0.015
Peer Interactions	0.08	1.76	0.082
Cultural Norms	-0.04	-0.82	0.410
Constant	1.25	6.87	< 0.001

#### 5.3.1 Interpretation

Multiple regression analysis was conducted to explore the influence of sociocultural factors, namely family dynamics, peer interactions, and cultural norms, on smartphone use patterns among Nigerian youth.

*Family Dynamics:* The beta coefficient of 0.12 indicates that for every one-unit increase in the family dynamics score, there is a corresponding 0.12 increase in the predicted value of smartphone use patterns. The t-value of 2.45 is associated with a p-value of 0.015, indicating that family dynamics have a statistically significant influence on smartphone use patterns among Nigerian youth.

*Peer Interactions:* The beta coefficient of 0.08 suggests that peer interactions are positively associated with smartphone use patterns. However, the t-value of 1.76 resulted in a p-value of 0.082, indicating a trend towards significance, but not statistically significant at the chosen significance level (e.g., 0.05).

*Cultural Norms:* The beta coefficient of  $-0.04$  implies a negative association between cultural norms and smartphone use patterns. However, a t-value of  $-0.82$  yields a p-value of 0.410, indicating that cultural norms do not have a statistically significant influence on smartphone use patterns among Nigerian youth.

*Constant:* The constant term has a beta coefficient of 1.25, suggesting a predicted value of smartphone use patterns when all predictor variables are zero. A high t-value of 6.87 corresponds to a p-value of less than 0.001, indicating the statistical significance of the constant term. This suggests that there are other factors beyond socio-cultural variables that contribute to smartphone use patterns.

### 5.4 Mediation Analysis: Sociocultural Factors, Psychological Well-Being, and Smartphone Use Patterns

The mediation analysis aimed to examine the potential indirect effects of sociocultural factors (family dynamics, peer interactions, and cultural norms) on smartphone use patterns through psychological well-being indicators (emotional well-being, stress levels, sleep quality, and life satisfaction).

Table 6. Mediation analysis

Mediation Path	Indirect Effect ( $\beta$ )	Standard Error	95% CI	t-Value	p-value
Family Dynamics > Psychological Well-Being > Smartphone Use Patterns	0.06	0.03	[0.02, 0.14]	2.20	0.031
Peer Interactions > Psychological Well-Being > Smartphone Use Patterns	0.04	0.02	[0.01, 0.10]	2.05	0.042
Cultural Norms > Psychological Well-Being > Smartphone Use Patterns	-0.02	0.02	[-0.06, 0.01]	-1.00	0.317

#### 5.4.1 Interpretation

Mediation analysis explored the potential indirect effects of socio-cultural factors (family dynamics, peer interactions, and cultural norms) on smartphone use patterns through psychological well-being indicators.

*Family Dynamics:* The indirect effect of family dynamics on smartphone use patterns through psychological well-being was significant, with a beta coefficient of 0.06. The 95% confidence interval (CI) [0.02, 0.14] did not include zero, indicating that the effect was statistically significant. This suggests that family dynamics influence psychological well-being, which, in turn, affects smartphone use patterns.

*Peer Interactions:* The indirect effect of peer interactions on smartphone use patterns through psychological well-being was also significant, with a beta coefficient of 0.04. The 95% CI [0.01, 0.10] did not include zero, indicating statistical significance. Peer interactions appear to influence psychological well-being, which in turn influences smartphone use patterns.

*Cultural Norms:* The indirect effect of cultural norms on smartphone use patterns through psychological well-being was not statistically significant, as the 95% CI [-0.06, 0.01] included zero. This suggests that cultural norms do not significantly influence psychological well-being, which in turn affects smartphone use patterns.

## 6.0 DISCUSSION

This study aimed to explore the complex landscape of smartphone use patterns among Nigerian youth and their associated socio-psychological and socio-cultural implications. The results provide a multifaceted perspective on the interplay between technology use, psychological well-being, and cultural influences, shedding light on the intricate relationships that shape young individuals' lives in the digital age.

Hypothesis one explored the potential variation in smartphone use patterns among Nigerian youth based on their demographic characteristics. Our analysis involved a robust examination of age groups, sex, and socioeconomic background as potential predictors of smartphone use patterns. The ANOVA results revealed statistically significant differences in smartphone use patterns across age groups, gender categories, and socioeconomic backgrounds. These findings resonate with the existing literature on the subject, aligning with the studies by (Amez, S., et al., 2021) and (Wang, J. C., et al., 2022), which underline the substantial role of demographic factors in shaping technology use behaviours. The implications of these results underscore the need for tailored interventions and educational strategies to cater to the diverse preferences and habits within different demographic groups.

The observed variation in pattern of smartphone usage is particularly significant, considering the widespread adoption of digital technology among Nigerian youth. The influence of age is in line with the findings of (Wang, J. C., et al., 2022), who highlight the growing reliance on smartphones for educational purposes among youth. Additionally, the gender-based differences in smartphone use align with the study conducted by (Gerosa, T., et al., 2021), demonstrating that technology use behaviours may be influenced by socio-cultural and societal factors beyond individual psychological aspects.

Hypothesis two explored the potential socio-psychological implications of smartphone use patterns among Nigerian youth. Our study found significant correlations between smartphone use patterns and indicators of psychological well-being including emotional well-being, stress levels, sleep quality, and life satisfaction. These findings are consistent with those of previous research conducted by (Pera, A., 2020) and (Asibong, U., et al., 2020), who illuminate the intricate relationship between excessive smartphone use and adverse psychological outcomes. The study by (Wacks, Y., et al., 2021) also resonated with our findings by highlighting the negative impact of smartphone addiction on mental health and overall well-being.

The mediation analysis conducted in our study further enhances our understanding of the underlying mechanisms connecting smartphone use patterns and psychological well-being. By revealing indirect effects through psychological well-being variables, our study aligns with the I-PACE model proposed by (Akinyetun, T. S., et al., 2023), which emphasizes the interplay between psychological factors and digital engagement behaviours. These results underscore the importance of adopting a holistic approach that considers both the frequency and quality of smartphone use concerning psychological well-being.



Hypothesis three investigated the potential influence of sociocultural factors, including family dynamics, peer interactions, and cultural norms related to smartphone use, on the smartphone use patterns of Nigerian youth. Our multiple regression analysis provided intriguing insights, indicating that these sociocultural factors were not significant predictors of smartphone use patterns. These findings contrast with the expectations drawn from the study by (Iheanacho, R.A.E., et al., 2023), which suggests a potential relationship between family psychological wealth and smartphone use behaviours.

The non-significant influence of sociocultural factors on smartphone use patterns among Nigerian youth highlights the role of culture and environment in shaping technology use behaviours. While previous research has emphasized the importance of sociocultural factors in driving certain behaviours, our findings suggest that other variables, such as individual preferences and motivations, might play a more prominent role in shaping smartphone use patterns. This highlights the need for further exploration of the complex interplay between culture, the environment, and individual agency in the context of technology adoption.

This study's findings have several implications for researchers, practitioners, and policymakers. The significant variations in smartphone use patterns based on demographic characteristics emphasize the importance of targeted interventions and educational programmes. Moreover, the connection between smartphone use patterns and psychological well-being highlights the need to promote responsible technology use to mitigate potential negative outcomes. The lack of significant influence of sociocultural factors on smartphone use patterns prompts a re-evaluation of the role of culture and environment in shaping technology behaviours (Gerosa, T., et al., 2021).

In light of these findings, future research could delve deeper into the cultural and contextual factors that might influence smartphone use patterns among Nigerian youths. Exploring cultural values, social norms, and local technological ecosystems could provide a more comprehensive understanding of the intricate relationship between technology adoption and cultural influence.

## 7.0 CONCLUSION

In the ever-evolving landscape of the digital age, this study sought to explore the intricate dynamics of smartphone use patterns among Nigerian youth. Through a comprehensive analysis of the demographic, socio-psychological, and socio-cultural dimensions, this research sheds light on the multifaceted relationships that govern the lives of young individuals in the digital era. The results emphasized a significant difference in smartphone use patterns across different age groups, gender categories, and socioeconomic backgrounds. The implications of these findings transcend statistical significance, emphasizing the urgency for tailored interventions that address the diverse preferences and habits of distinct demographic groups. Furthermore, this study delved into the socio-psychological implications of smartphone use patterns. The correlation between smartphone use and indicators of psychological well-being, including emotional well-being, stress levels, sleep quality, and life satisfaction, reaffirms the growing body of research underscoring the nuanced relationship between technology engagement and mental health outcomes.

This study reinforces the need to adopt a comprehensive approach that considers both the frequency and quality of smartphone use to foster a holistic understanding of its impact on well-being. This study also explored the influence of sociocultural factors on smartphone use patterns. The findings of this study indicate that these factors might not play a prominent role in shaping smartphone use patterns among Nigerian youth, as initially anticipated. This underlines the complexity of technology adoption and the need to recognize individual preferences and motivations as crucial determinants of behaviour, aligning with the broader sociocultural context.

This study contributes to the growing body of research on smartphone use patterns among Nigerian youth by providing a comprehensive understanding of the interplay among demographic, socio-psychological, and socio-cultural factors. The exploration of sociocultural factors sheds light on the nuanced nature of technology adoption, paving the way for further investigations into the interplay between culture, environment, and individual agency. As technology continues to reshape lives, this study serves as a valuable guide for educators, policymakers, and researchers striving to navigate the complexities of technology use and its implications for the youth in Nigeria and beyond.

## 8.0 RECOMMENDATIONS

Given the observed significant variations in smartphone use patterns based on age group, gender, and socioeconomic background, it is imperative to design tailored interventions that cater to the unique preferences and habits of different demographic groups. The findings linking smartphone use patterns to psychological well-being underscore the importance of promoting digital well-being among Nigerian youths. Schools and educational institutions can integrate well-being education into the curriculum and promote awareness campaigns, workshops, and seminars to help students manage their stress, improve sleep quality, and cultivate emotional resilience.

Researchers and mental health professionals should collaborate to develop smartphone use assessment tools that encompass usage patterns, content consumption, and emotional responses. This approach provides a more nuanced perspective on how the different dimensions of smartphone engagement influence psychological well-being.

Recognizing the significant influence of family dynamics and peer interactions on smartphone use patterns, parents and guardians are encouraged to engage in open conversations with their children regarding technology usage. Schools

can create peer support groups where students can discuss the experiences, challenges, and strategies to maintain a healthy digital lifestyle.

Policymakers and educators should collaborate with cultural experts to develop culturally sensitive interventions that acknowledge the impact of cultural norms on technological engagement. Recognizing cultural values, traditions, and norms can contribute to a holistic approach to technology education. Educational institutions should incorporate digital literacy into their curriculum to prepare Nigerian youth for responsible digital citizenship. Digital literacy education should focus on critical thinking, online safety, privacy protection, and ethical use of technology.

Parents play a pivotal role in shaping children's technological habits. To provide effective guidance and support, parents should educate themselves on the potential benefits and risks of technology use. Finally, policymakers can collaborate with educational institutions, mental health professionals, and technology experts to develop guidelines to promote digital well-being, particularly in educational settings.

## 9.0 ACKNOWLEDGEMENTS

The author acknowledges the Editor and the anonymous reviewers for their insightful comments in strengthening the paper.

## 10.0 CONFLICTS OF INTEREST

The author declares no conflict of interest.

## 11.0 FUNDING STATEMENT

This research was carried out without any funding support.

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