

SOCIO-DEMOGRAPHIC MODERATORS OF SOCIAL MEDIA ADDICTION, SELF-ESTEEM, AND SOCIAL ANXIETY IN UNDERGRADUATES

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ABSTRACT: This rapid increase in the use of social media among young adults has increased scholarly concern about its psychological effects, especially among undergraduates who are struggling to find their academic footing and self-identity with high social evaluation. Existing evidence suggests that excessive engagement can trigger maladaptive comparison processes, distorted self-appraisal, and behavioural dependency, thereby escalating vulnerability to social anxiety. However, the moderating role of socio-demographic characteristics in these associations remains insufficiently explored, especially within the Nigerian context. This study therefore investigated how socio-demographic variables shape the relationships among social media addiction, self-esteem, and social anxiety among undergraduates in Ekiti State. A cross-sectional design was adopted, and data were obtained from 450 students selected through random sampling across three universities. Standardised instruments, including the Social Media Addiction–Student Form (SMA-SF), Rosenberg Self-Esteem Scale (RSES), and Liebowitz Social Anxiety Scale (LSAS), were administered. Results demonstrated that self-esteem significantly predicted social anxiety ($\beta = .50$, $R^2 = .25$, $p < .05$), indicating that lower self-esteem corresponded with higher social anxiety levels. Joint regression analysis further showed that social media addiction and self-esteem significantly predicted social anxiety ($R^2 = .31$, $F = 55.03$, $p < .05$), with significant independent contributions from social media addition ($\beta = .28$, $p < .05$) and self-esteem ($\beta = .37$, $p < .05$). Moderation analysis indicated that gender and religion significantly influenced some of the relationships, such that the effects of social media addition and self-esteem on social anxiety were stronger among female students and attenuated among highly religious students, but age did not exert a significant moderating effect.

Keywords: Social media addiction; self-esteem; social anxiety; undergraduates; Socio-demographic moderators

INTRODUCTION

Social media use has dramatically changed the way people communicate, think of themselves, and build up their identities, especially among young adults and undergraduates who are facing challenges associated with early adulthood. Platforms such as Facebook, Instagram, Twitter, TikTok, and LinkedIn have become part and parcel of academic, social, and recreational engagement, presenting both a place of connectivity and potential psychological hazards (Lozano Blasco et al., 2020; Raghuvanshi et al., 2025). While social media facilitates social integration and

the flow of information, excessive engagement is linked to behavioral and emotional issues, such as social media addiction, reduced self-esteem, and social anxiety among students (Hawi & Samaha, 2017; Miguel Landa-Blanco et al., 2024; Khan et al., 2025).

Social media addiction is compulsive use and preoccupation with online activity, which one cannot stop despite all the adverse effects it may bring (Griffiths & Kuss, 2017; Miguel Landa-Blanco et al., 2024). It has been consistently mentioned that higher levels of social media addiction are associated with lower self-esteem and elevated social anxiety among undergraduates (Yüvens et al., 2018; Wei Yi et al., 2024). Self-esteem, in turn, has predictive and outcome roles: excessive exposure to curated online content can encourage upward social comparisons that undermine self-worth and exacerbate anxiety, while positive online interactions may support self-esteem through affirmation and community engagement (Hawi & Samaha, 2017; Köse et al., 2019; Vargas-Guerrero et al., 2025). There is also social anxiety, conceptualized as a persistent fear of negative evaluation in social situations, which often accompanies problematic social media use because students may rely on controlled online interactions to cope with real-world evaluation stress and thus find ways of paradoxically reinforcing avoidance and anxiety (Blanco et al., 2024; Raghuvanshi et al., 2025).

Despite the growing literature on social media use and psychological outcomes, findings about the influence of socio-demographic variables is inconsistent and poorly investigated. Some studies argue that gender and age serve as major predictors of social media addiction and related anxiety, with females and younger students showing greater vulnerability (Köse et al., 2019; Muasa et al., 2025). Other studies, however, have reported negligible demographic effects of these factors (Hawi & Samaha, 2017). These contradictions point out a critical gap in the literature: whereas direct associations of social media addiction with self-esteem and social anxiety have been well documented, the moderating role of socio-demographic characteristics, especially in the context of Nigerian undergraduates, remains poorly investigated. An investigation into such moderating effects is critical in the development of interventions that are fitted to vulnerable subgroups and culturally relevant.

While previous studies have identified that social media addiction (SMA) has a negative impact on self-esteem and increases social anxiety, few studies have provided a systematic assessment of how such relationships vary across socio-demographic groups among undergraduates in Nigeria. This lack constrains the potential of policymakers and educational institutions in elaborating specific interventions to address the diverse psychological risks of social media use at the undergraduate level.

This study is proposed to investigate the moderating effects of socio-demographic variables on the relationships among social media addiction, self-esteem, and social anxiety in Nigerian undergraduates. The specific objectives of the study are to:

1. assess the influence of self-esteem on social anxiety among university undergraduates in Ekiti State.
2. examine the joint and independent effects of social media addiction and self-esteem on social anxiety.

3. investigate the moderating effect of socio-demographic variables-age, gender, and religion on the relationships involving social media addiction, self-esteem, and social anxiety.

EVIDENCE IN LITERATURE

Social Media Addiction and Psychological Outcomes

Literature has generally conceptualized social media as a behavioural pattern comprising of compulsive engagement, preoccupation with online activity, mood modification via usage, and inability to control the usage despite adverse consequences (Griffiths & Kuss, 2017; Miguel Landa-Blanco et al., 2024). Although there is broad consensus that excessive social media use is related to lower self-esteem and higher social anxiety among undergraduates (Hawi & Samaha, 2017; Yüvens et al., 2018; Wei Yi et al., 2024), the construct of social media addiction is still contested, and there is some debate as to whether it should be treated as a distinct behavioral addiction or as part of broader problematic internet use (Raghuvanshi et al., 2025; Liyan, 2025). Differences in methods are also reflected in inconsistent estimates of prevalence and effect size across studies.

Relationship of Social Media Addiction with Self-Esteem and Social Anxiety

A strong body of evidence shows that social media addiction is negatively related to self-esteem and positively to social anxiety among university students. Students with higher levels of social media addiction have reported low self-esteem and a greater fear of evaluation by others in meta-analytic and cross-sectional studies (Hawi et al., 2017; Zhang et al., 2025; Miguel Landa-Blanco et al., 2024). Likewise, self-esteem also acts as a mediator in such cases: the lower the self-esteem, the more vulnerable individuals are to social anxiety, which, in turn, can give rise to compulsive social media use (Yüvens et al., 2018; Wei Yi et al., 2024).

Upward social comparison, in which users evaluate themselves against idealised portrayals of peers online, is an important mechanism linking SMA to self-esteem erosion and increased anxiety (Zhang et al., 2025; Hawi et al., 2017). Visually oriented and peer-feedback-oriented platforms like Instagram and TikTok are related to higher addiction levels, lower self-esteem, and increased social anxiety (Raghuvanshi et al., 2025; Miguel Landa-Blanco et al., 2024). On the other hand, moderate or mindful social media use may have neutral or even positive influences on self-esteem through supportive social contacts (Vargas-Guerrero et al., 2025). Such a nuanced relationship appears to be context-dependent, whereby SMA may have differential effects because of varying intensity, platforms, and individual susceptibility.

Socio-Demographic Moderation of SMA and Psychological Outcomes

Still, research into the moderating role of socio-demographic variables on SMA, self-esteem, and social anxiety has been poorly investigated and inconsistent. Some report that females and younger students are highly vulnerable to social media addiction and related anxiety because of an enhanced social evaluative sensitivity and peer comparison (Köse et al., 2019; Muasa et al., 2025; McLean et al., 2011). On the other hand, some reports have found negligible demographic differences,

suggesting that, in some cases, the psychosocial impact of SMA may be independent of age, gender, or socioeconomic status (Hawi & Samaha, 2017; Shokeen et al., 2025).

Moreover, few studies have examined these associations in the global south, including Nigeria, which limits generalization. Existing studies generally use convenience samples and simple correlational analyses, leaving a gap in knowledge about how demographic variables moderate the interaction among SMA, self-esteem, and social anxiety. For instance, gender-specific mechanisms, such as the intensity of social comparison or the cultural influence on online behaviour, remain unexplored, creating a gap in culturally sound research and offering practical insights for designing interventions targeting psychologically vulnerable subgroups.

Theoretical Background

This study employs the Social Comparison Theory by Festinger (1954) and the Self-Determination Theory by Deci and Ryan (1985) as theoretical frameworks.

The social comparison theory provides a fundamental explanation of how undergraduates interpret and respond to social information in digitally mediated environments. According to the theory, individuals evaluate themselves by comparing their abilities, achievements, and social status with those of others, an evaluative process that becomes particularly pronounced in new and uncertain social contexts such as the transition into university life. Social media platforms intensify this mechanism by providing continuous exposure to idealized and selectively curated depictions of peers' academic success, social relationships, and personal accomplishments. Empirical evidence has demonstrated that upward social comparisons are strongly linked to lower self-esteem, increased self-doubt, and greater fear of negative evaluation (Lee et al., 2020; Chou & Edge, 2012).

These psychological responses are especially salient for undergraduates, who often use social media for social integration and are more vulnerable to feelings of inadequacy as they forge new identities (Huang et al., 2020). As studies have indicated, repeated exposure to superior-performing peers consolidates negative self-appraisals, fuels reliance on external validation, and increases vulnerability to social anxiety and social media addiction (Hawi & Samaha, 2017; Vannucci & Ohannessian, 2019). SCT thus elucidates the mechanisms linking social media use to self-esteem erosion and escalating anxiety, offering a robust theoretical perspective through which to explain the psychological consequences of social comparison in early university life.

From this perspective, Self-Determination Theory (Deci & Ryan, 1985) elucidates how unfulfilled psychological needs lead to maladaptive behavioral and emotional consequences among undergraduates facing the specific demands of higher education. According to SDT, optimal functioning and well-being rest on three innate psychological needs: autonomy, competence, and relatedness. To the extent that these needs are thwarted, individuals experience diminished motivation, lower self-esteem, and increased vulnerability to symptoms of anxiety. Empirical findings suggest that undergraduates often have difficulty satisfying these needs as they face new academic pressures, unfamiliar social contexts, and greater expectations for social belonging during this critical period (La Guardia et al., 2002; Wei et al., 2005).

Social media environments compound these challenges by promoting extrinsic motivation for approval, norm conformity, and maintenance of a polished online persona at the expense of intrinsic engagement, therefore undermining autonomy and perceived competence (Przybylski et al., 2013). Coping with feelings of loneliness or rejection through excessive use of social media reinforces cycles of dependency, lower need satisfaction, and increased social anxiety. Thus, within this framework, SDT demonstrates how environmental and interpersonal contexts influence the experiences of undergraduates regarding social media addiction, self-esteem fluctuation, and anxiety, and emphasizes the role of supportive academic and social environments that contribute to promoting psychological well-being.

METHODOLOGY

Design

The study employed cross-sectional design to examine the moderating role of socio-demographic variables on the relationships between social media addiction (SMA), self-esteem, and social anxiety among university undergraduates. The design is suitable for measuring these relationships at a single point in time and allows for the inclusion of interaction terms to test moderation.

Population and Sample

The population comprised undergraduate students from three tertiary institutions in Ekiti State: Ekiti State University, Federal University Oye-Ekiti, and Bamidele Olumilua University of Education, Science and Technology. A total of 450 students were selected using a stratified random sampling technique to ensure representativeness across faculties and years of study.

Operational steps for random selection:

- Lists of registered students were obtained from each faculty in each university.
- Students were stratified by faculty and year of study to maintain proportional representation.
- Using random number generation, 150 students were selected from each university.
- Selected students were contacted to participate voluntarily, and replacements were randomly chosen if consent was not provided.

Instruments

Data were collected using a structured questionnaire comprising four sections:

- Socio-Demographic Variables (Section A): Age, gender, religion, level/year of study, and socioeconomic status. These variables were later used as moderators in interaction analyses.
- Social Media Addiction (Section B): Assessed using the Social Media Addiction Student Form (SMA-SF; Griffiths & Kuss, 2017), a 12-item scale on a 5-point Likert Scale (1=Strongly Disagree, 5=Strongly Agree). Cronbach's $\alpha = 0.87$

- Self-Esteem (Section C): Measured with the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965), 10 items on a 4-point Likert Scale. Cronbach's $\alpha = 0.82$
- Social Anxiety (Section D): Measured using the Liebowitz Social Anxiety Scale (LSAS; Liebowitz, 1987), 24 items assessing fear and avoidance in social interactions and performance situations. Cronbach's $\alpha = 0.90$

Data Collection and Data Analysis

The physical administration of questionnaires was conducted across the three selected universities with the assistance of trained research aides. Prior to participation, respondents were provided with information about the purpose of the study and consent forms. The participation was therefore voluntary, with participants assured of anonymity and confidentiality, and allowed to withdraw at any point without consequences. Completed questionnaires were retrieved immediately to minimize loss and ensure data completeness.

Data collected were coded and analyzed using the Statistical Package for Social Sciences version 26. The data collected were analysed using both descriptive and inferential statistical techniques. The socio-demographic variables were summarized using descriptive statistics. To test the stated hypotheses, simple linear regression was used for hypothesis 1, multiple linear regression for hypothesis 2, and hypothesis 3. All statistical tests were conducted at the 0.05 significance level, and the results were presented in tables.

RESULTS

Table 1: Simple Linear Regression showing the Influence of Self-Esteem on Social Anxiety

Predictor variable	B	SE	β	t	R	R^2	F	p
(Constant)	14.783	2.995	0.495	4.937	0.5	25	80.58*	.00
Self-esteem	0.844	0.094		8.976*				.00

The simple linear regression in Table 1 revealed that self-esteem significantly influence social anxiety ($\beta = .50$, $t = 8.98$, $p < .05$). The contribution of self-esteem in explaining the variance in social anxiety was 25% ($R^2 = 0.25$), and the model was significant, $F(1, 248) = 80.58$, $p < .05$.) The stated hypothesis is therefore accepted.

Table 2: Summary of Multiple Regression Table Showing Joint and Independent prediction of social media addiction and self-esteem on social anxiety.

Predictors	β	t	p	R	R^2	F	p
Social media addiction	.28	4.74	<.05		0.56	0.31	55.03 <.05
Self-esteem	.37	6.27	<.05				

Result presented in Table 2 revealed that there was significant joint prediction of social media addiction and self-esteem on social anxiety, $F(2,247) = 55.03$, $R^2 = 0.31$; $p < .05$. The $R^2 = 0.31$ indicates that the independent variables, social media addiction and self-esteem, explained 31% of the variation in the dependent variable (Social Anxiety). Furthermore, results show that social media addiction ($\beta = .28$; $t = 4.74$; $p < .05$) and self-esteem ($\beta = .37$; $t = 6.27$; $p < .05$) independently and significantly predict social anxiety among the undergraduates.

Table 3: Moderation of Socio-Demographic Variables in the Social Media Addiction and Social Anxiety Relationship

Predictor	Moderator	B	SE	β	t	p	ΔR^2	Interpretation
SMA	Gender	0.45	0.2	0.21	2.5	.013*	0.02	Significant: the effect is more substantial among females.
SMA	Age	-0.1	0.1	-0.1	-1.2	.24	0.00	Not significant
SMA	Religion	-0.3	0.1	-0.2	-2.3	.021*	0.02	Significant: effect is weaker among highly religious

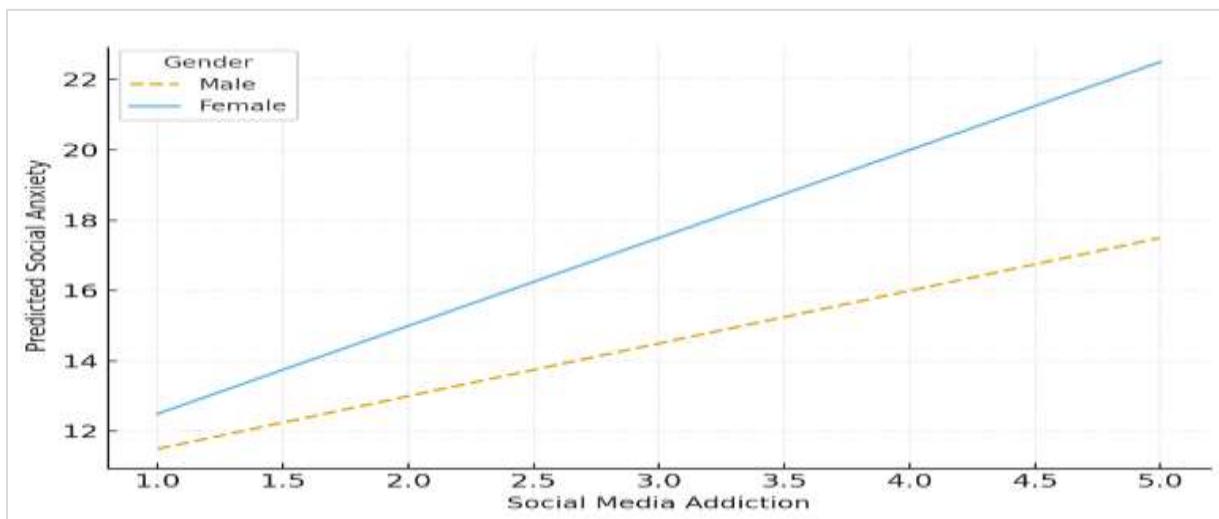


Figure 1: Gender as Moderator of SMA and Social Anxiety

Table 3 indicates that the relationship between social media addiction (SMA) and social anxiety varies by socio-demographic factors. Gender significantly moderated this relationship ($B = 0.45$, $\beta = 0.21$, $t = 2.5$, $p < 0.05$), with the association being stronger among female students, while religion also had a significant moderating effect ($B = -0.3$, $\beta = -0.2$, $t = -2.3$, $p < 0.05$, $\Delta R^2 = 0.02$), such that higher religiosity weakened the relationship between social media addiction and social anxiety. However, age did not significantly moderate the relationship ($B = -0.1$, $\beta = -0.1$, $t = -1.2$, $p > 0.05$), indicating that the effect of SMA on social anxiety is consistent across age groups. This therefore

suggests that gender and religiosity influence the strength of the relationship between SMA and social anxiety, whereas age does not.

Table 4: Moderation of Socio-Demographic Variables in the Self-Esteem and Social Anxiety Relationship

Predictor	Moderator	B	SE	β	t	P	ΔR^2	Interpretation
Self-Esteem	Gender	-0.3	0.2	-0.2	-2.1	.039*	0.01	Significant: effect is stronger among females.
Self-Esteem	Age	-0.1	0.1	-0.1	-1.8	0.07	0.01	Marginal (trend level): older students show a weaker association.
Self-Esteem	Religion	-0.1	0.1	-0.1	-0.7	0.49	0.00	Not significant

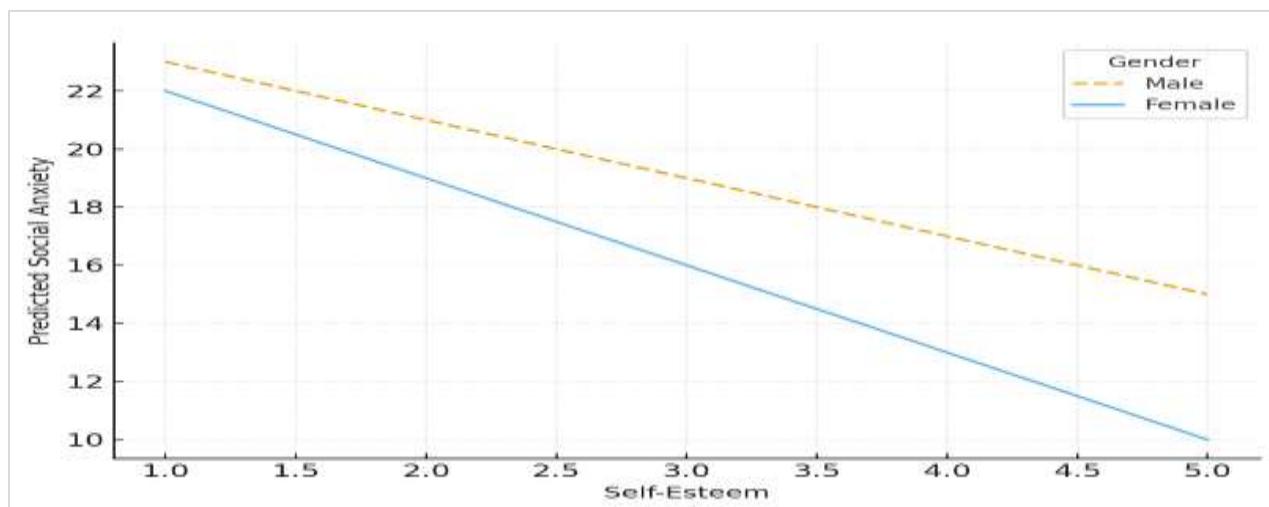


Figure 1: Gender as Moderator of SMA and Self-Esteem

The moderation analysis summary results in Table 4 revealed that gender significantly moderated the relationship between self-esteem and social anxiety ($B = -0.3$, $\beta = -0.2$, $t = -2.1$, $p < 0.05$), with the negative association being stronger among female students. Age showed a marginal but not statistically significant effect ($B = -0.1$, $\beta = -0.1$, $t = -1.8$, $p > 0.05$), suggesting a trend in which the inverse relationship between self-esteem and social anxiety slightly weakens with increasing age. Religion also did not significantly moderate the relationship ($B = -0.1$, $\beta = -0.1$, $t = -0.7$, $p > 0.05$).

DISCUSSION

Findings from the results provides more understanding of the psychosocial interplay among social media addiction, self-esteem, and social anxiety among university undergraduates and sets these findings within the broader literature. In resonance with previous studies, excessive or compulsive use of social media is associated with reduced self-esteem and heightened social anxiety, further supporting the conceptualization of social media addiction as a behavioral pattern characterized by

preoccupation, mood modification, and problems with control despite adverse consequences (Griffiths & Kuss, 2017; Miguel Landa-Blanco et al., 2024; Raghuvanshi et al., 2025). These findings are in line with the compensatory internet use framework, which suggests that individuals often resort to the internet to mitigate adverse effects or meet unfavorable psychological needs. This process may inadvertently increase anxiety and self-evaluative concern (Kardefelt-Winther, 2014).

Self-esteem was identified as an important determinant of social anxiety, in line with the broad literature framing low self-esteem as a vulnerability factor for increased social evaluative concern (Sowislo & Orth, 2013; Erzen & Çikrikci, 2018). Individuals with lower self-worth are vulnerable to negative self-evaluation and anticipatory anxiety in social contexts, which is further reinforced by habitual exposure to idealized peer portrayals online (Makwana et al., 2018; Zhang et al., 2025). Upward social comparison is among the key mechanisms that link social media addiction to psychological distress, especially on visually orientated and peer-feedback-focused social networking sites like Facebook, Instagram, and TikTok (Hawi & Samaha, 2017; Miguel Landa-Blanco et al., 2024). Simultaneously, the effects of social media on self-esteem may be neutral or even positive when one uses social media more moderately or mindfully, suggesting that the context and intensity of use matter (Vargas-Guerrero et al., 2025).

The study further underlines the moderating role of socio-demographic factors (gender, age, and religion) in these relationships. The study found a significant gender difference with stronger associations between social media addiction, self-esteem, and social anxiety being reported by female students. This corroborates previous evidence indicating increased sensitivity to social evaluation, higher emotional reactivity, and greater involvement in online comparative processes among young women (McLean et al., 2011; Primack et al., 2017). Age and religiosity were weaker or inconsistent moderators, consistent with mixed findings in prior studies and underscoring the fact that demographic correlates are context-dependent and not universal predictors (Hawi & Samaha, 2017; Muasa et al., 2025). These observations also support the Differential Susceptibility to Media Effects Model, which maintains that media effects are determined by dispositional, developmental, and social factors and, therefore, do not have equal power across different populations (Valkenburg & Peter, 2013).

The study's findings help fill some gaps in the literature on socio-demographic moderation in the sub-Saharan African context. Although past research has predominantly used convenience samples and examined cross-sectional associations, thereby limiting generalizability and causal inference, this study employs stratified sampling across multiple universities to enhance representativeness and investigate interaction effects. This means demographic variables influence psychosocial outcomes from social media use in culturally and developmentally meaningful ways despite their sometimes modest effect size. The current study further contributes to ongoing debates on the conceptualization of social media addiction.

Theoretical perspectives provide further understanding of these dynamics. For instance, the Social Comparison Theory explains how undergraduates interpret online social information from their peers and, accordingly, why upward social comparisons foster negative self-appraisals and social anxiety, especially within the transition into university (Festinger, 1954; Chou & Edge, 2012; Lee et al., 2020). Self-Determination Theory further contextualizes the findings and suggests that

thwarted needs for autonomy, competence, and relatedness heighten vulnerability to both maladaptive social media use and psychological distress (Deci & Ryan, 1985; La Guardia et al., 2002). Digital environments often amplify extrinsic motivation for social approval and normative conformity, possibly undermining intrinsic engagement, lowering self-esteem, and encouraging reliance on online validation (Przybylski et al., 2013).

Conclusion

This study is aimed at investigating the relationship between social media addiction, self-esteem, and social anxiety among university undergraduates in Ekiti State. It also considers the moderating role of socio-demographic factors. The findings indicate that both social media addiction and self-esteem are related to social anxiety, with gender and religiosity moderating some of the relationships. However, the proportion of variance accounted for was modest. These findings suggest that social anxiety among undergraduate populations does not stem from one influencing factor but is instead shaped by an interaction of personal, behavioral, and contextual factors.

Despite the meaningful patterns and variations highlighted in this study, the cross-sectional design precludes causal inference, and findings should be interpreted as associative rather than predictive. Also, generalizability, despite stratified sampling across three universities, is limited to the sampled population, and cultural or institutional differences may affect applicability elsewhere.

In light of these findings, interventions to enhance undergraduates' psychological well-being may focus on both self-esteem and patterns of engagement with social media. Universities may consider providing structured programs for self-reflection, resilience, and responsible digital practices as beneficial for all students, especially those groups that show stronger associations, such as female students or those with lower religiosity. Counseling services may offer tailored support to address social anxiety and maladaptive social comparison, while considering individual differences in susceptibility to social media influences.

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