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Associations between social media usage, daily routines, and academic performance among undergraduate Rwandan students: a cross-sectional study

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Background: Globally, technological progression has changed social media usage into daily occupations which influence how people engage, communicate, and learn. Among university students, these platforms enhance collective learning and access to information; but underuse or overuse may damage academic engagement, occupational balance, and daily functioning. Despite the growing importance and use of these social media in Rwanda, research on its impact remains scarce. Therefore, we assessed the associations between social media use, daily routines, and academic performance among undergraduate students.
Method: A cross-sectional study was conducted among 219 undergraduate students from the University of Rwanda. Descriptive statistics summarize demographic characteristics and social medial use patterns. Analytical analyses comprised multinomial, logistic, and multiple linear regression models to determine predictors of daily routines and academic outcomes. Odds ratio (ORs) with 95% confidence intervals and statistically significant at $p < 0.05$ were used.
Results: Almost all participants (n = 192, 87.7%) engaged in social media platforms for academic purposes, and 93.6% viewed platforms as important to their collaboration with peers and professionals. However, nearly half (47.5%) experienced academic distraction, and 56.7% spent more time on non-academic content. Engaging in social media accounts for 33,6% of variance in increasing academic engagement. However, addicted students to social media had higher likelihoods to experience routine disruption (OR = 1.45, 95%CI: 1.10–1.90, p = 0.01) than non-addicted peers. Participants engaged in more than three social media platforms reported more disruptions (OR = 1.60, 95%CI: 1.05–2.45, p = 0.03) than those engaging in three or less platforms. The third-year students were almost twice as likely as first-year students to experience those disruptions (OR = 1.75, 95% CI: 1.20–2.55, p = 0.003).
Conclusion: Social media platforms are important sources for learning, yet they also cause routine disruptions. These results notify that future scholars are recommended to explore causal relationships between social media use and daily routines disruptions through longitudinal designs.

KEYWORDS
academic performance, daily routine, occupational therapy, sleeping, social media

Background

Social media platforms have rapidly transformed human interaction, with over 4.9 billion users worldwide by the end of 2023, representing 61% of the global population (Mushimiyimana et al., 2022). For university students, social media has been deeply embedded into their day-to-day life by contributing to enhanced communication, networking with professionals in their field, academic collaboration and easy access to information (Goet, 2022). Daily routines of university students include but not limited to the regular pattern of activities, habits, and tasks that a student typically follows each day to balance their studies, personal life, and well-being which includes communication, learning routine, leisure activities and sleep patterns (Chen and Xiao, 2022). Social media also poses a growing concern regarding its effect on time management, productivity, mental health and sleep quality (Tandon et al., 2020). Many researchers have evidenced that using social media platforms cause occupational injustices characterized by distractions during different activities of daily living like academics and lead to poor sleep quality, while also recognizing its potential to support learning and social engagement (Goet, 2022; Fadhil et al., 2020; Aydemir et al., 2025).). These occupational injustices occur when students as individuals are denied equitable opportunities to engage in meaningful and health-related promotions. This means failure to engage in daily routines that bring important academic outcomes and promote their wellbeing when they are in academic settings activities (Townsend and Wilcock, 2004). When they misuse or overuse social media, it can disrupt balance, involvement, and wellbeing in several ways that fit recognized forms of occupational injustices. An imbalance between productive, restorative, and leisure occupations are the results from such use of social media (Guszkowska and Dąbrowska-Zimakowska, 2023; Rahman et al., 2025). This double role described social media as a valuable servant for academic enabler if it is well used otherwise a potentially harmful master of distraction makes it an essential area of inquiry for understanding student well-being and daily functioning (Celestine and Nonyelum, 2018; Kolhar et al., 2021).

In the 20 first century, the evolution of digital technologies and increased use of social media platforms have revolutionized higher education practice in sub-Saharan Africa (SSA) (Ajaegbu and Ajaegbu, 2024). For instance, previous studies in Ghana and Malawi demonstrated that social media is not merely a recreational tool but increasingly embedded within teaching and learning, with social media platforms such as Twitter, blogs, and scholarly networking sites being used to support collaboration and knowledge sharing (Boateng et al., 2021; Chawinga, 2017). Social media is increasingly part of student life in Kenya, reflecting broader societal trends of rapid digital uptake (Wamuyu, 2020). Although there is significant improvement of social media in these countries, a recent report persistent challenges including limited infrastructure, lack of connectivity, inadequate regulatory environments, and limited skills on the use of social media (World Bank, 2024). For example, research in Nigeria showed that postgraduate students are likely to know about scholarly networking websites but lack the competencies and abilities to fully leverage their potential for research and career development (Tolorunleke et al., 2019). However, excessive use of social media can also contribute to poor study habits and poor academic focus (Olutola et al., 2016). These dynamics suggest that African higher education social media is a double-edged sword offering the possibility of innovative learning and engagement but, simultaneously, undermining academic discipline and well-being if not undergirded by digital literacy and institutional capacity.

Through national information and communication technology (ICT) policies and the Smart Rwanda Master Plan, the Rwandan government has made digital transformation a top priority, with the goal of integrating technology into all spheres of life, including administration, healthcare services, social service and in education (DataReportal, n.d.). Thus, internet connectivity has increased on many college campuses, with free Wi-Fi provided in hostels, classrooms, and leisure spaces (Mushimiyimana et al., 2022). As a result, young people in Rwanda are using social media much more now. By 2024, there were 0.93 million active social media users in Rwanda, up from 0.59 million in 2017; nonetheless, the percentage of users is still just 12% of the total population (DataReportal, n.d.). Social media has become a popular tool to facilitate communication, entertainment, and learning among the students, although, some scholars continue to document that overuse and excessive use of these opportunities lead to many occupational challenges including poor sleep patterns, and decline in academic performance (Tandon et al., 2020; Brasier et al., 2021).

The impact of social media use on occupations among the students is highly relevant from the viewpoint of occupational therapy (OT). Throughout the year, individuals follow various consistent routines, including daily activities such as sleeping and eating, while occasionally experiencing irregular days (Fisher and Robinson, 2010). Social media has the potential to either promote or hinder occupational balance, which is the sensible allocation of time and energy among worthwhile everyday pursuits like social interaction, study, and relaxation (Fisher and Robinson, 2010; Hou et al., 2020). Students may encounter disruptions to their routines and performance patterns, such as irregular study habits, decreased physical activity, and poor sleep (NCADV, 2017). Furthermore, from the standpoint of occupational justice, disparities including unequal access to technology, low digital literacy, and the addictive nature of social media platforms may make it more difficult for certain students to pursue fulfilling careers that promote their health (Noori et al., 2023). These interruptions raise questions about how students can balance their digital habits, maintain their academic achievement, and take care of their emotional and physical health.

The growing use of social media among university students has raised concern about its potential influence on day-to-day routines and academic performance (Mohiya, 2025). Although many studies have explored the cognitive and psychological impacts of social media usage (Stieger and Wunderl, 2022), there remain significant gaps in understanding how these digital behaviors interfere with engagement of students in occupations such as studying, sleeping, leisure, and communication from an OT perspective. Existing studies have largely focused on psychosocial outcomes like addiction, stress, or mental health effects of social media use, while comparatively less attention has been paid to how social media engagement influences daily

routines of students and occupational balance (Kituyi and Kyeyune, 2024). Moreover, evidence originates from high-income nations, with limited research examining these relationships within rapidly digitizing higher education contexts in Sub-Saharan African (SSA) countries (Nkolimwa, 2024). In Rwanda, where national policies are accelerating digital connectivity and access to online platforms among young people, understanding how social media interacts with daily routines and academic functioning among students is particularly important. Despite the increasing availability of internet access and social media platforms on university campuses, empirical evidence examining how these technologies influence everyday occupations and academic performance among university students remains scarce. Addressing these gaps is essential from an occupational therapy perspective, as daily routines such as study habits, sleep patterns, leisure activities, and social participation are fundamental to occupational balance and student well-being. Disruptions in these routines may influence the ability of students to effectively engage in academic occupations and maintain optimal performance. Therefore, this research aimed to examine the associations between social media usage, daily routines, and academic performance among undergraduate students in Rwanda. Specifically, the study sought to (1) assess patterns of social media use among undergraduate students, (2) explore how social media engagement relates to daily routines of students, and (3) determine whether these patterns are associated with differences in academic performance. The results from this investigation will guide universities, health professionals, and policymakers in developing support strategies that promote healthy technology use among the students. The results will also inform future policy discussions around appropriate digital in higher education and contribute to carrying out future research agendas focused on occupational balance and academic achievement in the digital era. Lastly, the results contribute to the growing literature on digital technology and wellbeing of students in SSA.

Methods

Study design and area

This study employed a cross-sectional quantitative study design to examine the associations between social media usage, daily routines, and academic performance among undergraduate Rwandan students (Kesmodel, 2018). It was conducted in the University of Rwanda (UR) specifically at the College of Medicine and Health Science (CMHS) at Remera campus, located in Gasabo district, Kigali city of Rwanda (University of Rwanda, 2018). CMHS is one of seven colleges found in university of Rwanda. UR-CMHS mainly focuses on teaching and training students in area of medicine and health related departments (University of Rwanda, 2018).

Study participants characteristics

The study population consisted of undergraduate students enrolled in the College of Medicine and Health Sciences at the University of Rwanda, Remera Campus, during the 2024–2025 academic year. These students were targeted because they are active users of social media in their daily routines, which aligns with the study's focus. According to the Registrar's Office at Remera Campus, an estimated 1,454 students met the eligibility criteria. The inclusion criteria for participation required that students be enrolled in undergraduate programs at the College of Medicine and Health Sciences, be aged 18 years or older, and use social media daily. Students were excluded from this study if they were enrolled in postgraduate programs, were under the age of 18, did not use social media regularly (i.e., not daily), or were on academic leave or inactive during the period of data collection.

Sample size and sampling strategies

The sample size calculations formula was conducted using formula of Yamane to obtain a reliable sample for this study $\left(n_y = \frac{N}{1+N\left(\alpha^2\right)} \right)$ where "n_y" stands for sample size, "N" population, and "e" margin error (Louangrath, 2017). Using such formula, "$n_y = \frac{1454}{1+1454\left(0.05^2\right)}$=314," we found a sample size of 314.

Probability sampling approach, specifically simple random sampling, was used to select participants for the study. This technique ensured that every eligible participant had equal chance to be enrolled in this research, thereby minimizing selection bias (Etikan, 2017). We randomly selected participants across different departments and years to enhance representativeness and support the generalizability of the research findings (Etikan, 2017). To minimize selection bias, the researchers selected participants from different departments and different years of study. This step of selecting participants reduced potential bias and allowing generalizability of results.

Study variables

This research constituted different factors classified into three types of variables: independent variables, confounding or sociodemographic variables, and dependent variables. First, the independent variable (IV) comprised factors such as social media use, frequency of use, purpose of use (academic vs. non-academic), and time of use (day versus night). It also included variables related to daily routines, leisure and social life (relaxation, games, entertainment, peer communication), academic routines (study time, collaboration, research, distraction), and sleep and well-being (late-night scrolling, sleep disruption, daytime sleepiness). Second, confounding or sociodemographic variables comprised factors such as age, gender, and year of study (Level 2, 3, 4, 5 in Rwanda). Finally, the dependent variable (DV) includes academic performance, positive outcomes (collaboration, knowledge sharing, improved grades), and negative outcomes (distraction, addiction, reduced understanding).

Data collection and procedures

After obtaining ethical approval from the Institutional Review Board of the College of Medicine and Health Sciences of the University of Rwanda, the research team reached out to the relevant departments within the School of Health Sciences at the University of Rwanda at Remera Campus. The head of department assisted in obtaining the contact information of the class representative, who then helped gather the students' details, including their email addresses and WhatsApp numbers. The research team distributed the Google Forms

link to participants through their personal email addresses and WhatsApp numbers. To promote engagement, the form began with clear instructions outlining the purpose of the study, details about informed consent, assurances of confidentiality, and the voluntary nature of participation. Furthermore, the contact information of the principal investigator was provided to facilitate communication in case participants had any concerns or questions related to the study. Consent was obtained digitally, with participants required to confirm agreement before proceeding with the questionnaire.

Research instruments

The researchers collected data through a structured self-administered online questionnaire. The research team used a modified questionnaire from social media and academic performance of students questionnaire (SMAAPOS) by Sudarta (2022). The questionnaire composed of two different sections A and B. Section A was designed to collect demographic personal data of respondents while Section B consisted of questions focusing on academic performance and daily routine of the respondents with response options: Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) (Sudarta, 2022). The questionnaire was modified by researchers through brainstorming the relevant questions which assessed some areas which were not assessed in the original questionnaire. The added questions were designed to assess sleep patterns, communication and learning routines. The questionnaire used close ended questions with four Likert scale which made analysis straightforward and allow for statistical test. To validate this instrument, we carried out a pilot among 10 participants who were not included in the final as recommended (Kennedy, 2022). The findings showed good internal consistency of SMAAPOS (Cronbach's alpha, $\alpha = 0.75$).

For Section B which assessed academic performance and daily routines using a four-point Likert scale Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD) was later recoded into binary responses, with 'Yes' representing the combined responses of Strongly Agree and Agree, and 'No' representing the combined responses of Disagree and Strongly Disagree for better data presentation and discussion.

Data analysis

After data collection, responses were reviewed to ensure completeness, and any incomplete or inconsistent data was removed or cleared in excel before transferring data to the Statistical Package for Social Sciences (SPSS) version 25.5 for statistical analyses. Data was analyzed using descriptive and inferential analyses. In descriptive, statistical parameters including frequency, and percentage were utilized to summarize socio-demographic characteristics of participants and characteristics of patterns of social media usage. In inferential statistics, we performed multinomial logistic regression to estimate the odds ratios (ORs) and 95% confidence intervals for categorical outcomes, assessing associations between social media and daily routines as well as other predictors of daily routines. Furthermore, we conducted logistic regression models to examine the likelihood of specific academic and behavioral outcomes as a function of predictors of relaxation habits, collaboration, and online learning tools usage. We also performed multiple linear regression analyses to determine the combined predictive of variables like sex, academic year, and social media engagement patters on perceived academic engagement and learning outcomes of the students, with adjusted R^2 value used to indicate explained variances in the model. Model fit and significance were executed using chi-square tests, F-tests, and statistical significance at $p < 0.05$, which unstable or extreme ORs were interpreted with caution due to sparse data or model separation. Multicollinearity concerns were assessed using a threshold of Variance of inflation Factor (VIF) with a cut off of below 5 in which we considered as acceptable as preceding studies recommended (Kim, 2019).

Results

Socio-demographic characteristics of participants

Of the 314 expected participants, only ($n = 219$, 69.74%) undergraduate students participated in this study. There were various reasons for the lack of involvement of the remaining participants. Such reasons include time constraints related to academic workload like clinical placement or exams ($n = 51$), lack of interest in the research subject ($n = 9$), lack of personal incentives or benefits related to participation ($n = 6$). Further, some participants were excluded during data analysis due to substantial incomplete responses ($n = 17$). In addition to these reasons, few students did not check or respond to recruitment messages on time, lacked internet access or faced technical difficulties in completing the online questionnaire ($n = 7$). Others expressed concerns about privacy or fatigue from multiple research invitations to participate in research throughout the semester, which they perceived as stressful ($n = 5$). The participants were enrolled in various academic years whose majority ($n = 76$, 34.7%) were in the year 3 followed by those from the fourth year ($n = 72$, 32.9%). Majority of participants ($n = 141$, 64.4%) were males while ($n = 78$, 35.6%) were female and those aged 24 years ($n = 53$, 24.2%) (Table 1).

Profile of social media used by students

Among 219 participants, WhatsApp emerged as the most frequently used social media platform with ($n = 155$, 70.8%) of students reporting regular use. This was followed by Instagram ($n = 128$, 58.4%) and YouTube ($n = 115$, 52.5%) indicating that messaging and content sharing platforms are dominant in performing daily occupations of the students. The platforms like X ($n = 93$, 42.5%), Facebook ($n = 68$, 31.1%), and TikTok ($n = 57$, 26%) were used less frequently, whereas professional or niche platforms including LinkedIn ($n = 56$, 25.6%), Snapchat ($n = 25$, 11.4), and Telegram ($n = 10$, 4.6%) showed limited engagement. The use of Reddit and Threats was negligible (<1% each) (Supplementary Table 1).

The associations between social media and academic performance

The results revealed that 73 (42.5%) of the participants acknowledged that addiction to online social networks is a problematic issue that negatively affects their academic performance. Additionally, 104 (47.5%) of respondents reported that online social networks distract them from their studies, while 124(56.7%) indicated that they spend more time scrolling through social media for non-academic purposes than engaging in academic reading. About 22.9% ($n = 50$) of the participants agreed

TABLE 1 Demographic characteristics of participants (n = 219).

Variables	Frequency	Percentage	Mean (±SD)
Sex			
Female	78	35.6	
Male	141	64.4	
Year of study			
Year 2	62	28.3	
Year 3	76	34.7	
Year 4	72	32.9	
Year 5	9	4.1	
Age			
20	8	3.7	
21	16	7.3	
22	50	22.8	
23	38	17.4	
24	53	24.2	23.42 (±1.744)
25	31	14.2	
26	16	7.3	
27	4	1.8	
28	2	0.9	
32	1	0.5	

that there is no improvement in their grades since they became engaged in social networking sites, and 24.2% (n = 53) indicated that having unlimited access to social media platforms has negatively affected their academic performance. Conversely, 87.7% (n = 192) of the respondents agreed that engaging in academic discussions on network sites like WhatsApp has improved their academic performance. A significant majority 96.8% (n = 212) reported using WhatsApp to share knowledge with their classmates. Furthermore, 62.1% (n = 136) of participants admitted to relying solely on information obtained from networking sites to complete their assignments without consulting other sources. 88.2% (n = 193) of the participants believed that the use of social media for research has helped improve their academic performance. In addition, majority 91.3% (n = 200) of participants showed a reduction of rate of understanding due to use of social media, using materials from blogging sites for completing what they have learned in the class 95.0% (n = 208). Few participants reported not performing well academically if they stopped using social media 29.6% (n = 65) (Supplementary Table 2).

Association between social media and daily routines

Our found that (n = 196, 89.5%) of the participants agreed that social media helps them relax after learning, indicating its perceived utility for relaxation and enjoyment. Nearly 60.3% (n = 132), however, also admitted that watching live streams or video content reduced the time they spent studying, which suggests an exchange between relaxation and academic discipline. Most of the students (n = 130, 59.4%) preferred physical recreational activities over online recreational activities, while (n = 142, 64.8%) participants preferred social media communication over formal communication, and 55.7% (n = 121) felt isolated without it. This suggests the role of social media in peer bonding and emotional support. Further, a majority (n = 203, 92.7%) agreed that social media provides timely academic updates, and 93.6% (n = 205) said it allows collaboration and professional networking, with lectures, researchers and other professionals, which highlights its academic utility beyond social purpose. Late night use of social media was a problem. Over 149 (68%) of participants said that social media affects negatively sleep, and 70.3% (n = 154) experienced daytime sleepiness due to late night scrolling. Many students (n = 188, 85.8%) experienced sleep improvement when they limited nighttime use of social media. There are (61.6%) of the participants who conceded that social media is a source of distraction when studying. Yet, 196 (89.5%) participants indicated they utilize academic resources found on social media to enhance learning, reflecting a dual impact. Only 84 (38.3%) participants preferred online classes to conventional ones, indicating a sustained appreciation for classroom physical engagement (Supplementary Table 3).

Associations between social media use demographic and patterns-related to social media and disruptions in daily routines

The findings showed significant associations between social media use and disruptions in daily routines. Addicted students to social media were more likely to experience disruptions in their daily routines (OR = 1.45, 95%CI: 1.10–1.90, p = 0.01) compared to non-addicted peers. Those engaged within more than three platforms were more likely to face routine disruptions (OR = 1.60, 95%CI: 1.05–2.45, p = 0.03) compared to those using three or fewer platforms. Indeed, year of study was found as an important predictor, where third-year students had higher likelihoods to experience routines disruptions

(OR = 1.75, 95%CI: 1.20–2.55, $p = 0.003$) than first-year students. Interestingly, while social media provided good access to academic updates, students who benefitted from this had greater likelihoods to face disruptions in their daily routines (OR = 2.10, 95%CI: 1.30–3.40, $p < 0.001$) compared to those with poor academic updates. In contrast, sex (male vs. female) and sleep impact (poor versus good) were not significantly associated with routine disruption. The extremely large, unstable odds ratios for social media interactions by age reflect sparse data or model separation, so those estimates are unreliable (Table 2).

Multivariate regression analyses for the factors associated with social media and academic outcomes

Ten of 11 factors in our models presented statistical significance ($p \leq 0.050$), which showed that predictors like sex, year of study, and various patterns of social media use explain meaningful portion of variance in most outcome variables. Social medial usage accounted 13.1% of variance in reported addiction to online social networks ($R^2 = 0.13$, $p = 0.046$), and 13% of variance in learning disruption ($R^2 = 0.13$, $p = 0.05$). Engaging in social media described 20% of variance in improved academic grades ($R^2 = 0.20$, $p < 0.001$). Additionally, involving in network-based academic dialogs accounted for 15% of variance in positive academic outcomes ($R^2 = 0.15$, $p = 0.013$), specifically showing contribution to collaboration and knowledge sharing. There was a moderate impact of use of social media on daily routines or academic-related outcomes ($R^2 = 0.22$, $p < 0.001$) which indicates frequent platform use enhances connectivity and potentially learning. Relying on information from online sources was found to explain variance of 16.5% in advancing information-seeking behaviors and academic knowledge ($R^2 = 0.16$, $p = 0.005$). Using research tools like Google Scholar, PubMed, EBSCO indicated 18.2% of enhancing research-based learning ($R^2 = 0.182$, $p < 0.001$). Further, engaging in academic forums explained 33.6% of the variance in academic engagement ($R^2 = 0.336$, $p < 0.001$). Finally, utilizing online materials complemented learning, explaining 16.2% of the variance in positive academic outcomes ($R^2 = 0.162$, $p = 0.006$). However, the statement "I will perform well even if I stop using social media" was not statistically significant, which highlight that students largely view social media as important their academic endeavors (Table 3).

TABLE 2 Multinomial regression analyses for the associations between social media use demographic and patterns-related to social media and disruptions in daily routines.

Predictor	Category	Odds ratio (OR)	95% CI	*p*-value
Addiction to social media	Yes vs. No	1.45	1.10–1.90	0.01**
Social media interactions (≤3 vs. >3)	Age (20–24)	30,400,933	0.00–∞ (unstable)	*<0.001*[uv]
Social media interactions (≤3 vs. >3)	Age (25–28)	37,528,425	0.00–∞ (unstable)	*<0.001*[uv]
Social media interactions (≤3 vs. >3)	Age (25)	118,840,013	0.00–∞ (unstable)	*<0.001*[uv]
Sex	Female vs. Male	1.2	0.90–1.60	0.15
Year of study	Year 3 vs. Year 1	1.75	1.20–2.55	0.003**
Number of platforms use	>3 vs. ≤3	1.6	1.05–2.45	0.03*
Sleep impact	Poor vs. Good	0.8	0.60–1.10	0.18
Academic updates via social media	Good vs. Poor	2.1	1.30–3.40	<0.001***

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.
OR, odds ratio; Italic *p*-value: unstable variable; vs: versus.

TABLE 3 The associations between social media use and academic outcomes among undergraduate students.

Dependent variable	R^2 (Adj.)	$F(18, 200)$	*p*-value
Addiction to online social networks is a problematic issue	0.131 (0.053)	1	0.046*
Online social networks distract me from my studies	0.130 (0.051)	1	0.05*
There is improvement in my grades since I became engaged	0.200 (0.128)	2	< 0.001***
I usually have unlimited access to social media platforms	0.151 (0.074)	1	0.013*
I engage in academic discussions on network sites like WhatsApp	0.150 (0.074)	1	0.013*
I make use of WhatsApp, Gmail and other social media platforms	0.222 (0.152)	3	< 0.001***
I solely rely on information gotten from online sources	0.165 (0.090)	2	0.005**
The usage of Google Scholar, PubMed, EBSCO for research has enhanced my learning	0.182 (0.108)	2	0.001***
Engaging in academic forums on social media platforms increases my academic engagement	0.336 (0.277)	5	< 0.001***
I use materials gotten from online sites to complement what I have learned	0.162 (0.087)	2	0.006**
I will perform well in my academics even if I stop using social media	0.120 (0.041)	1	0.089 ns

R^2 (Adj.): Indicates the proportion of variance in the DV (dependent variable) explained by social media use (adjusted for number of predictors). Values range from 0.120 to 0.336. Higher values show a great effect; $F(18, 200)$: *F*-statistic for regression model significance; *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$, ns, not significant.

Logistic regression analyses for the predictors of online social network use and academic outcomes

Across these 10 logistic models, a clear pattern emerges: specific social-media uses especially watching live-streams or video content and using platforms to relax after studying consistently double to quadruple (and in one case over 200-fold) odds of students in viewing social-network addiction as problematic, experiencing study distraction, maintaining unlimited access, and turning to academic tools like WhatsApp, Gmail or scholarly databases. Perceived academic utility receiving timely updates, collaborating with peers, and leveraging online learning tools drives each outcome even more strongly (odds ratios from roughly 2 up to 20), predicting engagement in academic discussions, forums, and complementing coursework with online materials. In addition, sleep-related behaviors (limiting night use, daytime sleepiness) further elevate research-tool use and forum participation by three to six times, while a preference for online gaming sometimes modestly reduces or slightly increases odds of academic reliance. However, all models explain very little variance (pseudo-$R^2 \approx 0$–0.08), implying that additional contextual factors are essential (Table 4).

Discussion

Profiling the social media used by university students

The study revealed a diverse landscape of social media use among university students, with WhatsApp as the most used platform (21.8%), followed by Instagram (18.0%) and YouTube (16.2%). Our results

TABLE 4 Logistic regression analyses of predictors of online social network use and academic behavior among undergraduate students.

Outcome	χ^2 (df = 13, p)	R^2 (Cox and Snell/ Nagelkerke)	Overall accuracy (%)	Top significant predictors [Exp(B)]
"Addiction to online social networks is problematic"	26.00, $p = 0.013$*	~0.00/~0.00	66	Watching livestreams (2.00)
"Online social networks distract me from my studies"	23.00, $p = 0.037$*	~0.00/~0.00	63	Watching livestreams (2.10)
"I usually have unlimited access to social media platforms"	32.00, $p = 0.002$**	~0.00/~0.00	76	Prefers online games (2.00); Watching livestreams (4.00)
"I engage in academic discussions on network sites like WhatsApp"	24.00, $p = 0.024$*	~0.00/~0.00	88	– (step-1 coefficients not provided)
"I make use of WhatsApp, Gmail and other social media platforms"	38.00, $p < 0.001$***	~0.00/~0.00	97	Relax after studying (231.0); Prefers games (0.03); Academic updates (6.00); Collaboration (12.0)
"I solely rely on information from online sources"	32.00, $p = 0.002$**	~0.00/~0.00	72	Watching livestreams (3.00); Academic updates (3.00); Online learning tools (3.00)
"Use of Google Scholar, PubMed, EBSCO for research"	33.00, $p = 0.002$**	~0.00/~0.00	89	Relax after studying (4.00); Watching livestreams (0.37); Sleepiness (3.00); Collaboration (5.01); Prefers quizzes (0.37)
"Engaging in academic forums on social media platforms increases…"	45.00, $p < 0.001$***	~0.00/~0.00	92	Relax after studying (2.01); Collaboration (20.6); Online learning tools (7.00); Night-use trend (3.00)
"I use materials from online sites to complement what I have"	16.00, $p < 0.001$	0.074/~0.00	94	Limiting night use (6.00); Collaboration (10.0); Relax after studying (2.00); Scrolling sleepiness (1.10)
"I will not perform well academically even if I stop using social media"	17.00, $p < 0.001$***	0.077/~0.00	73.1	Prefers online games (1.08); Late-night scrolling (1.02); Collaboration (2.00); Learning tools (3.00)

Chi-square (χ^2): These tests indicate that all models were statistically significant at $p < 0.05$; R^2 values (Cox and Snell/Nagelkerke): They are close to zero in most cases which indicate statistical significance of the predictors, which display small proportion of the variance in the outcomes; Overall accuracy rates of this model ranges between 63 and 97%.

showed moderate usage for X (formerly Twitter), Facebook, and TikTok, and low usage for LinkedIn, Telegram, Reddit, and Threads. This trend is reflected in broader SSA trends, where communication among students and learning are driven by mobile-first platforms (Boateng et al., 2021; Chawinga, 2017). Additionally, the popularity of WhatsApp aligns with its multifunctionality for real-time messaging, file sharing, and group chat. The popularity of Instagram and YouTube suggests that the students watch both learning and entertainment content, aligning with previous studies, which stated that Kenyan students often use visual media to learn informally as well as for leisure activities, with the two converging Wamuyu, 2020. Besides, our results revealed that students who used three or less platforms had considerably higher odds of reporting academic benefits, which implies that multiple platforms may enhance exposure to diverse scholarly work. Alternatively, this could heighten the potential for distraction (Aydemir et al., 2025; Woods and Scott, 2016).

Influences of social media on academic performance

Though 42.5% of the students confirmed that addiction, and 47.5% indicated study distraction, a substantial majority (87.7%) agreed that academic discussions on platforms like WhatsApp increased their performance. Moreover, 96.8% reported using WhatsApp to share information, while 88.2% indicated that social media enhanced their research skills, consistent with findings from previous study (Kolhar et al., 2021). Multivariate analysis supports these impressions by indicating that involvement in academic forums on social media explained 33.6% of the changes or differences observed in academic engagement among the students, which indicated that how much students engaged in academic forums significantly influenced overall academic performance. These findings concur with a study in Nigeria among postgraduates that showed using scholarly social networking sites had greater research productivity and academic confidence (Tolorunleke et al., 2019). Besides, the students who utilized academic research databases like Google Scholar, PubMed, and EBSCO presented improved research-based learning, and this contribution is meaningful but moderate. An effective use of social media including online participation in academic groups or availability of scholarly databases can enhance deeper learning and motivation, as a previous study stated (Junco, 2012). This is apparent in this study, where students provided with timely academic information via social media were more than twice as likely to report improved performance supporting academic value of social media. However, addiction to social media and distraction remain significant problems, showing that the benefits of social media are contingent and moderated upon intended use. These findings align with previous studies (Kolhar et al., 2021; Van Cuong et al., 2025). The reliance on social media in completing assignments without consulting other sources is a question mark about instrumental learning and reduced critical thinking. This might be a sign of ease and not scholarship, a situation noted by scholars who cautioned that pandemic digitalization, as necessary as it was, did not normally amount to pedagogically packed (Chen and Xiao, 2022; Mhlanga and Moloi, 2020).

Influences of social media on daily routines

Social media use has effects that go beyond academic performance, it also influences daily occupations of students like communication, sleep and well-being. Most participants (89.5%) used social media to relax after studying, and 60.3% confirmed that live streaming shortened their study time. Our findings showed that relaxation after study significantly predicted an increase of academic productivity, which suggests moderate use for pleasure is compatible with effective learning behavior. This finding is similar to prior evidence that found balanced social media enhances occupational balance and social functioning while intense usage leads to imbalance (Aydemir et al., 2025). In addition, 64.8% preferred to communicate mainly through social media networks rather than formal communication, and 55.7% felt lonely when disconnected. This was affirmed by the multivariate analysis that reported significant increase in emotional and academic bonding due to peer and professional collaboration. This align with research which documented that online peer communication increases persistence and emotional health among tertiary students in resource-scarce environments (Olutola et al., 2016).

The cognitive value of social media was also reflected in the 92.7% receiving timely academic information and 93.6% using it for professional networking. This indicates the formation of informal learning networks, where students access and reuse knowledge obtained from different sources. This aligns with findings where such networks grant access to information where formal infrastructure is poor (Chawinga, 2017). Our findings revealed that year of study was an important factor in disruptions of daily occupations among students. Specifically, third-year students were more likely to experience disruptions in their routines compared to those in first year. These results are relevant to the preceding studies (NCADV, 2017; Noori et al., 2023).

While 89.5% of the students utilized online resources for study, 61.6% reported being distracted while studying. Multinomial logistic regression approved this by revealing that utilization of more than three platforms increased the odds of disruption of daily routine. These results suggest that there is distraction supplemented by uncontrolled multitasking, but educationally focused multitasking increases productivity. In addition, disturbed sleep was also seen as an important factor of disturbance in daily occupations where 68% of participants reported disturbed sleep and 70.3% excessive daytime somnolence. These results were affirmed by the multivariate logistic regression models that indicated that those with poor sleep were more likely to experienced disruptions in their daily routines. Regression analysis indicated that limiting social-media usage at night improved quality of sleep, consistent with researches which linked high screen exposure with low quality sleep and mental fatigue (Woods and Scott, 2016; Pérez-Chada et al., 2023).

Strengths and limitations

This study presents several noteworthy strengths. First, to our knowledge, it is the first of its kind to examine daily routines of students from an OT perspective, with a specific focus on the association between social media use and daily activities. This perspective introduces valuable insights into a relatively underexplored area, enriching the field of occupational science especially in contexts where occupational therapy is still emerging, such as Rwanda. Second, the study employed a relatively large sample size, enhancing the reliability of the findings and allowing for generalization among undergraduate students at the university. Third, the research addressed a highly relevant and timely topic, aligning with national priorities regarding the promotion and regulation of technology and social media use. As such, the findings offer valuable evidence for policymakers and academicians. Finally, this study used validated tools and statistical analyses that increase the methodological rigor of the research.

However, several limitations must be considered when interpreting the findings. Although the sample size was relatively large, it fell short of the target due to non-responses, incomplete questionnaires, and limited access to students on clinical placements resulting in a 30% non-response rate. Additionally, important confounding factors such as mental health status of students, part-time employment, and external life stressors were not assessed, yet they may influence daily routines. The use of a cross-sectional design also limits the ability to establish causal relationships between social media use, daily routines, and academic performance. Furthermore, the study relied entirely on self-reported measures of academic performance rather than official academic records, which could introduce the risk of social desirability and recall bias, potentially affecting the accuracy of responses. Besides, this research did not control for several factors that might influence academic performance such as socio-economic status, actual study hours, motivation to learn, and previous academic levels. Lastly, due to the rapidly evolving nature of social media, some findings may become outdated as new platforms and features emerge, changing user behaviors in ways not captured in this study. Despite these limitations, the study offers a strong foundation for future research and highlights the importance of longitudinal studies to explore causal pathways and long-term implications.

Conclusion

This research revealed empirical evidence on how social media use influences daily occupations and academic performance among the students. Our findings indicated that dual roles of social media as both facilitator of learning and a potential source of occupational disruption. Those distractions are manifested through a reduction in quality sleep, daytime fatigue, and disturbance during studies. These two contrasting effects of social media among students refer to the necessity of organized policies and awareness interventions promoting purposeful and balanced social media use, whereby the students enjoy learning advantages without compromising their health and everyday functioning. The research suggests an imperative for institutional policy and student education programs that reinforce productive, healthy use of social media in academic settings. Policymakers should promote balanced schedules by developing support interventions that allow students to establish healthy habits involving study, recreation, and sleep. Students should learn how to limit the use of social media for nonacademic purposes during study hours and before sleep to avoid distractions and sleeplessness. Finally, it could be helpful to organize sensitization campaigns to increase the awareness of effects of social media use on daily living.

Future studies should include these additional variables (e.g., socioeconomic, study hours, motivation to learn, and prior academic achievement) and, where possible, rely on use official academic records and larger, more diverse samples to strengthen validity of the findings. Longitudinal study designs are also recommended to examine causal effects of social media use on academic achievement and lifestyle over time. In addition, exploring underlying psychosocial and behavioral mechanisms (such as self-regulation, time management) that often mediate the association between social media and daily routines is also essential. Moreover, it is important to explore protective predictors including social support, socio-economic status, institutional efforts, and digital literacy since the evidence from such investigation can inform effective measures to reduce harmful impacts of excessive use of social media among students. Finally, it is important to examine potential mediating and moderating mechanisms that may explain how social media use influences daily routines and academic performance of students, using longitudinal or advanced analytical approaches to better understand these relationships.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving humans were approved by Institutional Review Board of the College of Medicine and Health Sciences at the University of Rwanda. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study. Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

Author contributions

GO: Writing – original draft, Writing – review & editing. DU: Writing – review & editing, Writing – original draft. FH: Writing – review & editing, Writing – original draft. JN: Writing – review & editing, Writing – original draft. PU: Writing – original draft, Writing – review & editing. PT: Writing – original draft, Writing – review & editing. LC: Writing – original draft, Writing – review & editing. EB: Writing – original draft, Writing – review & editing.

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Supplementary material

The Supplementary material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fhumd.2026.1748542/full#supplementary-material

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