SCIENTIFIC CULTURE

www.sci-cult.com

DOI: 10.5281/zenodo.12212026974

SCIENTIFIC CULTURE, Vol. 12, No. 2.1, (2026), pp. 13011-13033
Open Access. Online & Print

EXPLORING THE FACTORS INFLUENCING SOCIAL MEDIA ENGAGEMENT AND ITS IMPACT ON STUDENT EXPERIENCE AMONG UNIVERSITY STUDENTS IN BENGALURU

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Received: 01/03/2026
Accepted: 26/04/2026

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ABSTRACT

Social Media Engagement has played an influential role in shaping the daily lives and well-being of university students worldwide, serving as both a conduit for connection and a source of psychosocial challenges. This cross-sectional study investigates the multidimensional determinants and implications of social media engagement among university students in Bengaluru, India. Social media engagement is operationalized across five latent constructs: frequency, duration, nature, purpose, and perceived impact of use. The student experience is defined as the self-reported perceptions of how social media usage affects academic performance, psychosocial well-being, and social integration. The sample comprised 904 students from diverse academic disciplines, surveyed using validated psychometric instruments assessing social media behaviors, psychological constructs (including Fear of Missing Out [FOMO], peer influence, and sense of belonging), and health indices such as self-rated mental health and sleep quality. Analytical procedures included descriptive statistics, correlational matrix assessments, ANOVA for group comparisons, and multiple linear regression modeling to elucidate predictors of engagement dimensions. Results reveal complex interrelations among engagement parameters and psychosocial factors, including counterintuitive positive correlations between social media engagement and self-rated mental health and sleep quality. Gender, degree level, and academic stream significantly moderated social media use patterns and psychological outcomes. Findings underscore the necessity for nuanced theoretical frameworks that transcend simplistic usage metrics, emphasizing qualitative dimensions and contextual user motivations. This study contributes culturally grounded insights to the global discourse on digital well-being and educational technology, reinforcing alignment with Sustainable Development Goal 3 (SDG 3) by advocating for digital health literacy interventions to support holistic student well-being in technologically advanced urban Indian contexts.

KEYWORDS *Social Media Engagement, University Students, Psychosocial Factors, FOMO, Student Experience, Bengaluru, Academic Performance, SDG 3*

INTRODUCTION

The COVID-19 pandemic, which began in early 2020, triggered a sharp and sustained increase in social media use among university students worldwide, fundamentally reshaping digital engagement and its psychosocial outcomes. As educational institutions shifted to remote learning and lockdowns enforced physical distancing, students turned to digital platforms not only for academic continuity but also for emotional connection and coping. Several studies have documented the spike in online activity during this period, particularly on platforms such as Instagram, WhatsApp, and YouTube (Gao et al., 2020; Zhao & Zhou, 2021). A systematic review by Zhao and Zhou (2021) highlighted that the pandemic intensified the emotional dependence on digital platforms, with increased social media use being significantly associated with anxiety, depressive symptoms, and digital fatigue. Similarly, Gao et al. (2020) found that 48.3% of surveyed Chinese participants reported elevated psychological distress linked to COVID-related social media exposure. These findings underline the importance of examining social media use not merely as a communication tool but as a behavioral and psychological phenomenon with broad mental health implications.

Lockdowns, school closures, and the loss of in-person interactions amplified the role of social media as both a coping mechanism and a substitute for real-world socialization—particularly among adolescents and university students (Ellis et al., 2020; Ni et al., 2020). However, the shift toward greater digital immersion was not without risks. A growing body of literature reports an uptick in social comparison, compulsive usage patterns, and disrupted routines, including poor sleep and reduced physical activity, all of which contribute to declining student well-being (Sun et al., 2023; Drouin et al., 2020). These digital behaviours have also been linked to academic disengagement and emotional exhaustion, particularly when students rely heavily on social platforms for self-worth and validation (Zhao & Zhou, 2021).

In this context, the study aligns with Sustainable Development Goal 3 (SDG 3)—which aims to "ensure healthy lives and promote well-being for all at all ages"—by interrogating the digital habits of university students in Bengaluru. As recent UN policy briefs highlight, mental health is no longer a peripheral concern but a central pillar of public health, especially considering the growing pressures linked to digital media use and changing youth lifestyles. By examining how social media engagement affects psychological well-being, this research contributes to data-driven interventions that promote balanced online habits and healthier student communities.

Social media continues to be a dominant force shaping student life. In urban academic centers such as Bengaluru—India's IT hub and a vibrant ecosystem of higher education—students navigate multiple platforms daily to connect, express, and learn. Social networking sites like Instagram, X (formerly Twitter), and YouTube have redefined how students form identities, access information, and engage in peer networks (Ellison et al., 2007). For many, these platforms serve as critical tools for academic collaboration, civic engagement, and professional networking (Junco, 2012). Social media also plays a crucial role in identity exploration, self-presentation, and emotional support, particularly for students living away from their families (Valkenburg & Peter, 2009).

Despite these benefits, the darker consequences of social media use cannot be overlooked. The pressure to maintain a curated online identity, constant connectivity, and the performative nature of digital life often lead to psychological strain. Numerous studies, including longitudinal research, have linked high social media use to increased rates of depression, anxiety, and loneliness among youth (Twenge et al., 2018; Nesi & Prinstein, 2015). Unrealistic portrayals of success and beauty can fuel social comparison, lower self-esteem, and perpetuate a cycle of dissatisfaction and digital dependency. These risks are magnified when digital platforms replace rather than complement real-life social interactions and self-development.

Moreover, social media can be a breeding ground for cyberbullying, harassment, and online shaming. Students may face relentless attacks and public humiliation, which can have devastating consequences on their emotional well-being. The anonymity afforded by the internet can embolden perpetrators, making it difficult to trace and address these harmful behaviours. The 24/7 nature of social media means that students are constantly exposed to these threats, blurring the lines between their online and offline lives.

The addictive nature of social media can lead to decreased academic performance and productivity. Students may find themselves spending countless hours scrolling through feeds, neglecting their studies and other important responsibilities. The constant distractions and notifications can disrupt their concentration and make it difficult to focus on complex tasks. The instant gratification offered by social media can also undermine their ability to delay gratification and persevere through challenges (Kuss & Griffiths, 2017).

Studies examining the impact of lockdown measures on student mental health emphasize the unique challenges faced by this demographic, including disruptions to academic routines and social isolation. Social media platforms emerged as double-edged swords—facilitating engagement and support while simultaneously exposing students to stressors that can

affect mental well-being (Ellis et al., 2020; Nabity-Grover et al., 2020). This justifies a targeted investigation into student populations to better understand how digital engagement shapes emotional health outcomes in the post-pandemic era.

These complex dynamics, is crucial to understand the factors influencing social media engagement among university students and its subsequent impact on their overall experience. This study aims to explore these issues in the context of Bengaluru, a city with a large and diverse student population and a thriving digital culture. By examining the motives, behaviours, and consequences of social media use, this research seeks to provide insights that can inform interventions and strategies aimed at promoting responsible and healthy online habits among students. Understanding these effects and promoting positive engagement can help students harness the benefits of social media while mitigating its potential harms.

2. Operationalizing Social Media Engagement and Student Experience

To rigorously investigate the influence of social media on the student experience, it is essential to clearly define and operationalize the concept of social media engagement. Within the scope of this study, social media engagement is defined as the extent to which students interact with, contribute to, and consume content across digital platforms. This encompasses a range of behaviours, from passive consumption of information to active participation in online communities and content creation. To provide a structured approach to measuring and analysing this multifaceted construct, this research adopts and adapts the Social Media Use Scale framework, identifying five key dimensions that capture the core aspects of student engagement with social media.

The first dimension, **Frequency of Use**, quantifies how often students engage with social media platforms. This can be measured by assessing the number of times per day or week that students access various social media sites or apps. High frequency of use may indicate a strong reliance on social media for communication, information, or entertainment, while lower frequency may suggest a more limited or selective engagement.

Indicators such as daily checking, liking, posting, and staying updated on current events suggest habitual engagement. High-frequency users are typically more socially connected and better informed. However, such habits can interrupt academic focus and foster digital dependency, particularly when social media is accessed during lectures or study sessions (Kuss & Griffiths, 2017, p. 2).

The second dimension, **Duration of Use**, focuses on the amount of time students spend on social media platforms. This can be measured in terms of minutes or hours per day, providing insights into the level of immersion and investment in social media activities. Extended periods of social media use may correlate with various psychosocial outcomes, such as decreased productivity, increased exposure to online content, and altered sleep patterns.

Students who spend prolonged time on social media, including during meals, before bed, or immediately after waking up, may experience time displacement and poor sleep hygiene. Losing track of time is often linked to compulsive behaviour patterns, indicative of reduced self-regulation (Andreassen et al., 2012, p. 405).

The third dimension, **Nature of Use**, distinguishes between different types of activities students engage in on social media. This includes differentiating between active use, such as posting updates, commenting on content, and participating in discussions, and passive use, such as scrolling through feeds and observing others' activities. Active use may foster a sense of connection and community, while passive use may lead to social comparison and feelings of isolation.

The motivations behind engagement vary widely. For instance, using social media for education and professional networking often results in positive developmental outcomes. In contrast, consumption driven by entertainment or celebrity culture may lead to unrealistic comparisons or time-wasting. Connecting with family, particularly for outstation students, maintains emotional stability and support systems (Valkenburg & Peter, 2009, p. 4).

The fourth dimension, **Purpose of Use**, explores the motivations and objectives that drive students' engagement with social media. This includes identifying whether students use social media for academic purposes, social networking, entertainment, self-expression, or information seeking. Understanding the underlying motivations can help explain the different ways in which social media impacts student experiences.

When students use social media to share opinions, promote businesses, or engage in online communities, they develop agency, identity, and civic awareness. Purposeful use builds skills such as digital literacy and personal branding, both of which are increasingly valued in the professional sphere (Junco, 2012, p. 165).

The fifth dimension, **Impact of Use**, assesses the psychosocial outcomes associated with social media engagement. This includes examining the effects of social media on students' academic performance, social relationships, mental health, and personal development. Positive impacts may include enhanced learning opportunities, increased social support, and expanded networks, while negative impacts may include decreased academic performance, cyberbullying, and reduced face-to-face interaction. As highlighted in your

document, the relationship between social media and these student outcomes is complex and multifaceted, requiring careful attention to ensure its positive impact on students' mental health and well-being.

The psychological and emotional consequences of social media are deeply significant. Students report anxiety when unable to access platforms, feelings of inadequacy through comparisons, and a sense of escapism from real-life pressures. While some experience a positive sense of belonging, others may face emotional exhaustion or social withdrawal (Twenge et al., 2018).

Each of these five dimensions reflects behavioural indicators that can be linked to broader aspects of the student experience. To comprehensively understand the influence of social media on students' lives, it is essential to operationalize the concept of **student experience** as a multidimensional construct. In this study, student experience encompasses academic engagement, emotional well-being, social integration, and lifestyle behaviors that collectively shape university life. It reflects how students interact with their academic environment, manage mental health, maintain social relationships, and balance their daily routines. Indicators such as family support for academics, self-rated mental health, communication patterns, and sleep and exercise habits are used to assess this experience. Additionally, the ways in which students use social media—for educational purposes, emotional support, entertainment, or professional development—offer deeper insights into how digital engagement intersects with and influences the broader student experience. By capturing both quantitative and qualitative aspects of student life, this framework enables a nuanced exploration of how social media contributes to or detracts from personal growth, academic focus, and resilience among university students in Bengaluru.

3. Factors Influencing Social Media Engagement

Social media engagement among college and university students is a complex phenomenon shaped by a confluence of factors. Understanding these influences is crucial for educators, institutions, and students themselves to navigate the digital landscape effectively and harness the benefits of social media while mitigating potential risks (Boyd, 2014). This section explores four key categories of factors that significantly impact how students engage with social media: demographic variables, psychosocial factors, platform features, and institutional factors.

3.1 Demographic Variables

Demographic characteristics play a crucial role in shaping students' social media engagement styles. Age, gender, academic year, and discipline each contribute to the diverse ways in which students interact with digital platforms. Younger students, for instance, are often more inclined to use social media for emotional expression, peer bonding, and exploring their identities (Lenhart, 2015). They may actively participate in online communities, share personal experiences, and seek validation from their peers. In contrast, older students tend to use social media for more instrumental purposes, such as academic or professional growth, networking, and information seeking (Junco, 2012).

Gender also influences social media behaviour. Research suggests that women may engage more socially and emotionally, using platforms to maintain relationships, share personal updates, and seek support from their networks (Nesi & Prinstein, 2015). They may also be more likely to express their emotions and engage in discussions about personal issues online. Men, on the other hand, may favour entertainment and informational use, seeking out news, sports updates, and humorous content. It is also important to acknowledge that gender-diverse students may use social media for identity affirmation, finding safe spaces, and connecting with supportive communities.

Academic year is another significant demographic variable. First-year students often use social media for orientation, community-building, and navigating the transition to college life (Ellison et al., 2007). They may join campus groups, seek out information about university resources, and connect with classmates. As students' progress through their academic careers, their social media habits may shift towards networking, academic collaboration, and career development. Senior students, for example, may use LinkedIn to connect with potential employers, participate in online forums related to their field of study, and seek out internship or job opportunities.

Academic stream influences social media engagement. Arts students may use social media for creative expression, activism, and promoting their work. Commerce students may focus on promotion, branding, and networking within the business world. Science and professional students may leverage social media as a learning tool, sharing research findings, participating in online discussions, and staying updated on discipline-specific developments.

3.2 Psychosocial Factors

Emotional needs significantly shape social media behaviours. Students often turn to social media to fulfil various psychological needs, including the need for connection, validation, and coping mechanisms.

Table 1 Sample Indicators of Psychosocial Motivations for Social Media Engagement

Factor	Sample Indicator	Interpretation
FOMO	"I feel anxious if I cannot check my social media accounts.", "I use social media immediately after waking up.", etc.	Suggests compulsive checking and fear of exclusion.
Peer Influence	"I compare myself to others…"	Indicates potential for anxiety and diminished self-esteem.
Need for Belonging	"I feel more connected…", "I use social media to share my opinions…", "I participate in communities…"	Shows reliance on digital platforms for emotional support.
Coping	"I use social media to escape…"	Reflects possible emotional stress or loneliness.

Description: This table outlines key psychosocial factors (e.g., FOMO, peer influence, belonging, coping) driving social media use among university students, with representative questionnaire items and their interpretation.

These psychosocial motivations reveal that social media serves not only as a communication tool but as a psychological coping mechanism for academic and personal challenges (Przybylski et al., 2013). The fear of missing out can drive compulsive social media checking, while social comparison can lead to anxiety and diminished self-esteem (Twenge et al., 2018). With unrestricted access and few offline alternatives, the risk of compulsive or excessive social media behavior escalated, amplifying phenomena such as FOMO and increasing susceptibility to problematic use and digital addiction (Balhara et al., 2020; Lemenager et al., 2021). These insights stress the necessity for digital well-being interventions in educational settings. The need for belonging can lead students to seek out online communities and rely on digital platforms for emotional support. Some students may also use social media as a coping mechanism, seeking to escape from stress, loneliness, or other negative emotions.

For many students, social media was employed as an adaptive coping tool during periods of heightened stress, serving as both an emotional outlet and a means to maintain interpersonal relationships (Nabity-Grover et al., 2020; Pancani et al., 2020). The adaptive functions of social media—such as information-seeking, distraction, and social reassurance—became especially prominent during forced social isolation, which further reinforces the platform's role in students' emotional regulation.

3.3 Platform Features

The design and algorithmic features of platforms significantly influence engagement behaviours. The affordances of different platforms, such as the ability to share user-generated content, interact with others through likes and comments, and receive personalized content recommendations through algorithmic curation, all shape how students engage with social media (Kuss & Griffiths, 2017).

Posting photos or videos, for example, reflects expressive needs and a desire for validation (Nadkarni & Hofmann, 2012). Likes and comments contribute to social reciprocity and foster online bonding, helping to create a sense of community and belonging (Burke et al., 2010). However, algorithmic curation can have negative consequences, including the shaping of consumption habits, the distortion of body image, and the influence on material aspirations (Fardouly et al., 2015; Cotter, 2019).

3.4 Institutional Factors

University culture and academic life also play a role in shaping digital behaviours. The norms and expectations of the campus environment can influence how students use social media, both for academic and social purposes.

Routine use, such as accessing social media before sleeping or during meals, can lead to embedded habits, reducing reflection and increasing screen time fatigue (Andreassen et al., 2012). Functional use, such as using platforms for academic updates or discussions,

demonstrates productive integration of social media into academic life. However, the normalization of digital presence within campus culture can also obscure healthy digital boundaries, fostering a 24/7 connected mindset [4#x]. As you note in your document, fostering a sense of belonging and community within the college or university can help students navigate the potential pitfalls of social media and enhance their overall resilience.

4. Results

This section presents the empirical findings derived from the analysis of social media engagement patterns, their perceived impact on student experience, and related psychological and demographic factors among university students in Bengaluru. The analyses were conducted on a sample of 904 university students.

A. Descriptive Statistics of Social Media Use and Related Variables

A foundational understanding of the sample's characteristics regarding social media engagement and associated well-being indicators is provided through an overview of central tendency and dispersion for all continuous variables, alongside frequency distributions for key categorical or ordinal items.

Overall Social Media Use (SMUS) Dimensions and Hours spent online daily: The descriptive statistics for the core social media use (SMUS) dimensions and daily online hours reveal distinct patterns of engagement within the student population. The mean for **Frequency of Use** was 3.2485 (SD = 0.80936), indicating a moderate level of how often students engage with social media. **Duration of Use** showed a mean of 3.0662 (SD = 0.91833), suggesting a moderate amount of time spent on social media per session or day. The **Nature of Use** had a mean of 3.3790 (SD = 0.80445), implying a moderate to high diversity or specificity in the types of social media interactions students undertake. For **Purpose of Use**, the mean was 2.7027 (SD = 0.93339), which indicates that students perceive their social media use to serve a moderate range of objectives. The **Impact of Use** registered a mean of 2.4166 (SD = 0.95202), suggesting a relatively lower perceived overall impact of social media. This could imply a neutral or slightly negative overall assessment, depending on the specific scaling of the impact variable.

A notable finding is the wide variability in **Hours spent online daily**, with a mean of 4.360 hours (SD = 2.6418). The range from 0.5 to 18.0 hours highlights a significant disparity in online engagement, with some students spending minimal time online while others are extremely heavy users. This broad spectrum of usage suggests that university students are not a homogenous group in their digital habits, and any aggregated findings about social media's influence may conceal substantial differences among subgroups of users. This wide variance underscores that future analyses or potential interventions may need to consider usage intensity as a critical differentiating factor.

Psychological Constructs (FOMO, Peer Influence, Belonging, Coping Scores): The psychological constructs measured also exhibit specific characteristics. The **FOMO score** (Fear of Missing Out) had a mean of 2.8669 (SD = 0.89107) and a median of 2.6667, suggesting a moderate level of FOMO among students. Its positive skewness (0.256) and negative kurtosis (-0.465) indicate a distribution slightly leaning towards higher scores but with lighter tails than a normal distribution. **Peer Influence score** showed a mean of 2.2467 (SD = 1.26193) and a median of 2.0000, indicating a relatively lower perceived peer influence. This variable also exhibited positive skewness (0.648) and negative kurtosis (-0.647). The **Belonging score** averaged 2.6589 (SD = 0.96081) with a median of 2.6667, reflecting a moderate sense of belonging among the students, characterized by slight positive skewness (0.279) and negative kurtosis (-0.347). Lastly, the **Coping score** had a mean of 2.5011 (SD = 1.28799) and a median of 3.0000, suggesting a moderate level of coping, with positive skewness (0.350) and negative kurtosis (-0.952).

The strong interrelations observed between psychological constructs such as FOMO, belonging, and coping and social media engagement are well-supported by contemporary research. Findings align with prior work demonstrating that fear of missing out drive's compulsive engagement, increases vulnerability to peer influence, and can mediate online social comparison and emotional well-being (Przybylski et al., 2013; Twenge et al., 2018). Furthermore, online communities contribute significantly to psychological support and a sense of belonging (Wang et al., 2018), while robust evidence indicates both positive and negative influences of social media use on adolescent mental health (Keles et al., 2020). Accordingly, interventions should consider these psychosocial mechanisms to effectively promote healthy engagement and mitigate adverse outcomes.

Specific Items (Frequency Distributions): Further examination of specific social media behaviours reveals high levels of daily engagement. The mean for Daily social media check was 3.80, with a substantial proportion of students (32.4% reporting '4' and 31.1% reporting '5' on a 5-point scale) indicating very frequent daily checks. This highlights the pervasive nature of social media engagement in their daily lives. Similarly, for **Using social media before bed**, the mean was 3.43, with a significant portion (28.8% reporting '4' and 23.1% reporting '5') frequently using social media before sleep, a habit that could potentially influence sleep patterns.

Regarding self-reported negative experiences, the mean for **Social Anxiety** was 2.17, and for **Comparing Self to Others**, it was 2.25. A large percentage of students reported lower levels for these items (41.4% at '1' and 21.1% at '2' for **Social Anxiety**; 39.8% at '1' and 19.1%

at '2' for **Comparing Self to Others**). This observation suggests that, despite high engagement, the self-reported negative impacts such as social anxiety and comparison appear to be lower than what might be stereotypically assumed for university students. This implies that for this specific population in Bengaluru, the overall impact of social media may be neutral or multifaceted, encompassing both positive and negative elements that average out, or that students possess strategies for managing potential negative aspects. This finding necessitates a nuanced discussion about "impact" that extends beyond solely negative connotations.

Table 2 Descriptive Statistics for Key Variables

Variable	N	Mean	Std. Deviation	Minimum	Maximum	Median	Skewness	Kurtosis
Frequency of Use	904	3.25	0.81	1.00	5.00			
Duration of Use	904	3.07	0.92	1.00	5.00			
Nature of Use	904	3.38	0.80	1.00	5.00			
Purpose of Use	904	2.70	0.93	1.00	5.00			
Impact of Use	904	2.42	0.95	1.00	5.00			
Hours spent online daily	904	4.36	2.64	0.50	18.00			
FOMO score	904	2.87	0.89			2.67	0.26	-0.47
Peer Influence score	904	2.25	1.26			2.00	0.65	-0.65
Belonging score	904	2.66	0.96			2.67	0.28	-0.35
Coping score	904	2.50	1.29			3.00	0.35	-0.95

Description: Descriptive statistics for social media use, psychological scales, and lifestyle factors among the student sample, offering an overview of central tendencies and distribution characteristics

B. Correlational Analysis of Social Media Engagement, Well-being, and Psychological Constructs

This subsection explores the linear relationships between various dimensions of social media use, well-being indicators, and psychological constructs, identifying the strength and direction of these associations. Both Pearson and Spearman correlations were considered, with a focus on Spearman for ordinal variables.

Interrelationships among SMUS Variables (Pearson Correlations): The analysis reveals a highly interconnected "engagement cluster" among social media use dimensions. **Frequency of Use** exhibits strong positive correlations with **Duration of Use** ($r = 0.543$, $p < 0.001$), **Nature of Use** ($r = 0.640$, $p < 0.001$), and **Purpose of Use** ($r = 0.449$, $p < 0.001$). This indicates that students who use social media more frequently also tend to spend more time on it, engage with a wider variety of content, and use it for a broader range of objectives. Similarly, **Duration of Use** is strongly positively correlated with **Nature of Use** ($r = 0.462$, $p < 0.001$) and **Purpose of Use** ($r = 0.258$, $p < 0.001$), and **Nature of Use** with **Purpose of Use** ($r = 0.530$, $p < 0.001$). Furthermore, **Impact of Use** shows moderate positive correlations with all these engagement dimensions: **Frequency of Use** ($r = 0.389$, $p < 0.001$), **Duration of Use** ($r = 0.539$, $p < 0.001$), **Nature of Use** ($r = 0.389$, $p < 0.001$), and **Purpose of Use** ($r = 0.454$, $p < 0.001$). This pattern suggests that social media engagement is not a singular construct but a set of highly intertwined behaviours. The more intensely and broadly students engage with social media, the higher their perceived overall impact from it. This interconnectedness implies that changes in one aspect of social media use are likely to influence others, and that the overall "impact" is a cumulative outcome of these interwoven behaviours.

Associations between SMUS Variables and Health/Support Factors (Pearson Correlations): The relationships between social media use and well-being indicators present a nuanced picture, sometimes challenging conventional assumptions. **Self-Rating of Mental health** shows weak positive correlations with **Frequency of Use** ($r = 0.083$, $p = 0.013$), **Duration of Use** ($r = 0.258$, $p < 0.001$), and **Impact of Use** ($r = 0.190$, $p < 0.001$), but no significant correlation with **Nature of Use** or **Purpose of Use**.

This suggests that higher self-rated mental health is associated with more frequent and longer social media use, and a greater perceived impact, which might seem counter-intuitive if social media is solely viewed as detrimental.

Frequency of Physical Activity has a weak positive correlation with **Duration of Use** ($r = 0.169$, $p < 0.001$) and a weak negative correlation with **Purpose of Use** ($r = -0.151$, $p < 0.001$), but no significant correlation with **Frequency of Use**, **Nature of Use**, or **Impact of Use**.

This suggests that while more physically active students might spend longer on social media, their purpose for using it may be more limited.

Sleep Pattern exhibits a weak negative correlation with **Frequency of Use** ($r = -0.143$, $p < 0.001$), implying that more frequent social media use is associated with less favourable sleep patterns. However, it also shows weak positive correlations with **Duration of Use** ($r = 0.291$, $p < 0.001$), **Nature of Use** ($r = 0.073$, $p = 0.028$), and **Impact of Use** ($r = 0.176$, $p < 0.001$), with no significant correlation with **Purpose of Use**.

This suggests that while frequent use may disrupt sleep, longer durations, varied nature of use, and higher perceived impact are associated with better sleep. This complex relationship suggests that the effect of social media on sleep is not straightforward and might depend on specific usage patterns.

Family Support shows a very weak positive correlation with **Duration of Use** ($r = 0.065$, $p = 0.049$), but no other significant correlations with SMUS variables.

This indicates that family support, as measured, has a minimal direct association with most aspects of social media engagement.

The positive correlations observed between **Duration of Use** and **Impact of Use** with **Self-Rating of Mental health** and **Sleep Pattern** are particularly noteworthy. While conventional narratives often highlight the negative effects of social media on mental health and sleep, these findings suggest a more complex reality. One interpretation is that the "**Impact of Use**" variable might encompass positive aspects (e.g., feeling connected, accessing information, receiving support), meaning a "higher impact" could reflect more positive experiences. Alternatively, individuals with better mental health and sleep patterns might possess greater resilience to potential negative effects of social media, or they may engage with social media in ways that are genuinely beneficial for their well-being. This challenges a simplistic, unidirectional view of social media's influence and calls for a more granular understanding of *how* social media is used and *what aspects* of impact are being measured.

Interrelationships among FOMO, Peer Influence, Belonging, and Coping Scores (Spearman Correlations): The four psychological constructs are strongly positively intercorrelated, suggesting they often co-occur. **FOMO score** is positively correlated with **Peer Influence score** ($r = 0.488$, $p < 0.001$), **Belonging score** ($r = 0.409$, $p < 0.001$), and **Coping score** ($r = 0.474$, $p < 0.001$). This indicates that a higher fear of missing out is associated with greater susceptibility to peer influence, a stronger sense of belonging, and better coping mechanisms. Similarly, Peer Influence score is positively correlated with Belonging score ($r = 0.369$, $p < 0.001$) and Coping score ($r = 0.495$, $p < 0.001$). Finally, belonging score is positively correlated with Coping score ($r = 0.481$, $p < 0.001$). These strong interconnections suggest that these psychological aspects are deeply intertwined within the student experience.

Associations of Psychological Constructs with Demographic and Lifestyle Factors (Spearman Correlations): Hours spent online daily emerges as a central behavioural variable, showing consistent positive correlations across multiple psychological dimensions. It has a moderate positive correlation with

FOMO score ($r = 0.319$, $p < 0.001$) and weak positive correlations with **Peer Influence score** ($r = 0.190$, $p < 0.001$), **Belonging score** ($r = 0.145$, $p < 0.001$), and **Coping score** ($r = 0.203$, $p < 0.001$). This pattern suggests that more time spent online is associated with a higher fear of missing out (perhaps due to increased exposure to others' activities), greater peer influence (likely from more online interaction), a stronger sense of belonging (potentially through more opportunities for connection), and better coping (possibly through using social media for support or distraction). This highlights that daily online engagement is a key factor broadly interacting with students' psychological experiences.

Gender shows weak negative correlations with **Peer Influence score** ($r = -0.107$, $p = 0.001$) and **Belonging score** ($r = -0.107$, $p = 0.001$), but no significant correlation with **FOMO score** or **Coping score**. This suggests that one gender (likely Gender 2, if Gender 1 is the reference group for a binary variable) might report slightly higher peer influence and belonging, indicating potential gender differences in these areas.

Age shows weak positive correlations with **FOMO score** ($r = 0.109$, $p = 0.001$), **Peer Influence score** ($r = 0.078$, $p = 0.019$), **Belonging score** ($r = 0.134$, $p < 0.001$), and **Coping score** ($r = 0.081$, $p = 0.015$). This implies that older students in the sample tend to report slightly higher scores across these psychological constructs.

Self-Rating of Mental health has weak positive correlations with **FOMO score** ($r = 0.169$, $p < 0.001$), **Peer Influence score** ($r = 0.134$, $p < 0.001$), and **Coping score** ($r = 0.235$, $p < 0.001$), but no significant correlation with **Belonging score.** This indicates that higher self-rated mental health is weakly associated with higher FOMO, peer influence, and coping.

Frequency of Physical Activity shows a weak positive correlation with **FOMO score** ($r = 0.149$, $p < 0.001$) and a weak negative correlation with **Belonging score** ($r = -0.099$, $p = 0.003$), with no significant correlation with **Peer Influence score** or **Coping score**. This suggests that more physical activity is associated with higher FOMO, but a slightly lower sense of belonging.

Finally, **Sleep Pattern** exhibits weak positive correlations with **FOMO score** ($r = 0.198$, $p < 0.001$), **Peer Influence score** ($r = 0.141$, $p < 0.001$), and **Coping score** ($r = 0.189$, $p < 0.001$), but no significant correlation with **Belonging score.** These associations suggest that better sleep patterns are linked to higher FOMO, peer influence, and coping, further highlighting the complex interplay between lifestyle factors and psychological experiences in the digital age

Table 3 Correlation Matrix of Study Variables

Variable	Frequency of use	Duration of Use	Nature of Use	Purpose of Use	Impact of Use	Self-Rating of Mental Health	Frequency of Physical Activity	Sleep Pattern	Family Support	FOMO score	Peer Influence score	Belonging score	Coping score	Hours spent online daily	Age	Gender
Frequency of use	1	.54***	.64***	.45***	.39***	.08*	.02	-.14***	-.04							
Duration of Use		1	.46***	.26***	.54***	.26***	.17***	.29***	.07*							

Variable	Frequency of use	Duration of Use	Nature of Use	Purpose of Use	Impact of Use	Self-Rating of Mental Health	Frequency of Physical Activity	Sleep Pattern	Family Support	FOMO score	Peer Influence score	Belonging score	Coping score	Hours spent online daily	Age	Gender
Nature of Use			1	.53***	.39***	.05	-.04	.07*	-.06							
Purpose of Use				1	.45***	-.04	-.15***	.02	-.03							
Impact of Use					1	.19***	.05	.18***	.05							
Self-Rating of Mental Health						1	.19***	.33***	.17***	.17***	.13***	.00	.24***	.11***	-.02	.18***
Frequency of Physical Activity							1	.16***	.06	.15***	.04	-.10***	.06	.05	.07*	.31***
Sleep Pattern								1	.15***	.20***	.14***	.02	.19***	.14***	.06	.03

Variable	Frequency of use	Duration of Use	Nature of Use	Purpose of Use	Impact of Use	Self-Rating of Mental Health	Frequency of Physical Activity	Sleep Pattern	Family Support	FOMO score	Peer Influence score	Belonging score	Coping score	Hours spent online daily	Age	Gender
Family Support									1							
FOMO score										1	.49***	.41***	.47***	.32***	.11***	-.02
Peer Influence score											1	.37***	.50***	.19***	.08*	-.11***
Belonging score												1	.48***	.15***	.13***	-.11***
Coping score													1	.20***	.08*	-.00
Hours spent online daily														1	.08*	.01

Variable	Frequency of use	Duration of Use	Nature of Use	Purpose of Use	Impact of Use	Self-Rating of Mental Health	Frequency of Physical Activity	Sleep Pattern	Family Support	FOMO score	Peer Influence score	Belonging score	Coping score	Hours spent online daily	Age	Gender
Age															1	-.06
Gender																1

Note. Pearson correlations for SMUS variables and health factors; Spearman for psychological constructs. ***p<.001, **p<.01, *p<.05.

Description: Matrix showing bivariate correlations among variables including social media use dimensions, psychological scores, health, and demographic variables.

C. Group Differences in Social Media Use and Psychological Constructs (ANOVA)

This subsection presents the findings from ANOVA analyses, examining whether there are statistically significant differences in social media use dimensions and psychological constructs across various demographic and academic subgroups.

Differences in SMUS Dimensions by Gender (ANOVA): A statistically significant difference was observed for **Purpose of Use** by Gender ($F(1, 902) = 28.590$, $p = 0.000$). Gender 1 (Mean = 2.8858) exhibited a higher mean **Purpose of Use** compared to Gender 2 (Mean = 2.5567). This suggests that the purpose for which students use social media varies significantly between genders. No statistically significant differences were found for **Frequency of Use** ($p = 0.690$), **Duration of Use** ($p = 0.720$), **Nature of Use** ($p = 0.664$), or **Impact of Use** ($p = 0.070$) by Gender. This indicates that while the *quantity* and *overall perceived impact* of social media use may not differ between genders, the *reasons* for using it do.

Differences in SMUS Dimensions by Degree Level (1-Undergraduate, 2-Post-Graduate, 3-Diploma& 4-Doctoral) (ANOVA): For **Purpose of Use**, a statistically significant difference was found by Degree Level ($F(3, 900) = 3.721$, $p = 0.011$). Specifically, Degree Level 2 (Mean = 2.8447) showed a higher mean **Purpose of Use** compared to Degree Level 1 (Mean = 2.6287). This suggests that students at different degree levels may use social media for varying purposes. No other statistically significant differences were observed for **Frequency of Use** ($p = 0.255$), **Duration of Use** ($p = 0.544$), **Nature of Use** ($p = 0.457$), or **Impact of Use** ($p = 0.228$) by Degree Level.

Differences in Psychological Constructs by Age (ANOVA): Age significantly influences several psychological constructs. A highly statistically significant difference was found for **Belonging score** by Age ($F(7, 896) = 3.489$, $p = 0.001$). Similarly, **coping score** showed a statistically significant difference by Age ($F(7, 896) = 2.429$, $p = 0.018$). **FOMO score** also exhibited a marginally significant difference by Age ($F(7, 896) = 1.961$, $p = 0.058$). This indicates that a student's age plays a role in their sense of belonging and coping abilities, and potentially their fear of missing out. No statistically significant difference was found for **Peer Influence score** ($p = 0.139$) by Age.

Differences in Psychological Constructs by Gender (1-Male & 2-Female) (ANOVA): Gender significantly impacts **Peer Influence score** ($F(1, 902) = 10.967$, $p = 0.001$) and **Belonging score** ($F(1, 902) = 9.679$, $p = 0.002$). This suggests that gender is a significant factor in how students experience peer influence and their sense of belonging. As previously noted in correlations, the negative correlation with gender might imply that Gender 2 (e.g., female) reports higher scores on these measures. No statistically significant differences were observed for **FOMO score** ($p = 0.597$) or **Coping score** ($p = 0.956$) by Gender.

Differences in Psychological Constructs by Degree Level (1-Undergraduate, 2-Post-Graduate, 3-

Diploma& 4-Doctoral) (ANOVA): No statistically significant differences were found for **FOMO score** ($p = 0.567$), **Peer Influence score** ($p = 0.268$), **Belonging score** ($p = 0.279$), or **Coping score** ($p = 0.574$) across different Degree Levels. This indicates that the overall degree level (e.g., undergraduate vs. postgraduate) does not significantly differentiate students on these psychological constructs.

Differences in Psychological Constructs by Course Stream (1-Arts, 2-Science, 3-Commerce & 4-Professional) (ANOVA): Significant differences were identified for **FOMO score** ($F (3, 900) = 4.118$, $p = 0.006$) and **Peer Influence score** ($F (3, 900) = 2.777$, $p = 0.040$) across different Course Streams. This suggests that the academic discipline or "stream" a student belongs to influences their susceptibility to FOMO and peer influence. However, no statistically significant differences were found for **Belonging score** ($p = 0.126$) or **Coping score** ($p = 0.198$) by Course Stream. This implies that while academic specialization shapes certain social dynamics, it does not broadly affect a student's general sense of belonging or coping mechanisms.

Differences in Psychological Constructs by Year of Study (ANOVA): The academic progression, as indicated by Year of Study, significantly impacts several psychological constructs. Highly statistically significant differences were observed for **FOMO score** ($F (4, 899) = 6.295$, $p = 0.000$), **Peer Influence score** ($F (4, 899) = 2.425$, $p = 0.047$), and **Belonging score** ($F (4, 899) = 3.073$, $p = 0.016$) across different years of study. This finding suggests that the specific year a student is in their academic journey is more influential on their FOMO, peer influence, and sense of belonging than their overall degree level. This could be attributed to evolving social dynamics, academic pressures, or developmental stages as students' progress through their university years. For instance, first-year students might experience higher FOMO due to new social environments, while later-year students might have more established social circles, impacting belonging and peer influence differently. No statistically significant difference was found for **Coping score** ($p = 0.580$) by Year of Study.

Table 4 ANOVA Results for Group Differences in Social Media Use and Psychological Constructs

Dependent Variable	Independent Variable	F	df (Between)	p
Purpose of Use	Gender	28.590	1	0.000
Frequency of Use	Gender	0.159	1	0.690
Duration of Use	Gender	0.129	1	0.720
Nature of Use	Gender	0.189	1	0.664
Impact of Use	Gender	3.286	1	0.070
Purpose of Use	Degree Level	3.721	3	0.011
Frequency of Use	Degree Level	1.355	3	0.255
Duration of Use	Degree Level	0.714	3	0.544
Nature of Use	Degree Level	0.869	3	0.457
Impact of Use	Degree Level	1.447	3	0.228

Dependent Variable	Independent Variable	F	df (Between)	p
FOMO score	Age	1.961	7	0.058
Peer Influence score	Age	1.575	7	0.139
Belonging score	Age	3.489	7	0.001
Coping score	Age	2.429	7	0.018
FOMO score	Gender	0.280	1	0.597
Peer Influence score	Gender	10.967	1	0.001
Belonging score	Gender	9.679	1	0.002
Coping score	Gender	0.003	1	0.956
FOMO score	Degree Level	0.675	3	0.567
Peer Influence score	Degree Level	1.314	3	0.268
Belonging score	Degree Level	1.282	3	0.279
Coping score	Degree Level	0.664	3	0.574
FOMO score	Course Stream	4.118	3	0.006
Peer Influence score	Course Stream	2.777	3	0.040
Belonging score	Course Stream	1.911	3	0.126
Coping score	Course Stream	1.557	3	0.198
FOMO score	Year of Study	6.295	4	0.000
Peer Influence score	Year of Study	2.425	4	0.047
Belonging score	Year of Study	3.073	4	0.016
Coping score	Year of Study	0.718	4	0.580

SCIENTIFIC CULTURE, Vol. 12, No. 2.1, (2026), pp. 13011-13033
Open Access. Online & Print
www.sci-cult.com
DOI: 10.5281/zenodo.12212026974

Description: Displays results of ANOVA tests examining differences in social media use and

psychological construct scores across demographic groupings (gender, degree level, year of study)

D. Predictive Factors of Social Media Use Dimensions and Impact (Regression Analyses)

This subsection presents the results of multiple regression analyses, identifying which demographic, lifestyle, and well-being factors significantly predict different dimensions of social media use and its perceived impact.

Regression Model Predicting Impact of Use (Dependent Variable): The model predicting **Impact of Use** is statistically significant (F (6, 897) = 14.533, p = 0.000) and explains 8.9% of the variance (R Square = 0.089, Adjusted R Square = 0.082). This indicates a small but significant predictive power.

Significant positive predictors of Impact of Use include:

Self-Rating of Mental health (B = 0.175, Beta = 0.138, p = 0.000). This suggests that higher self-rated mental health is associated with a greater perceived impact of social media.

Sleep Pattern (B = 0.150, Beta = 0.101, p = 0.003). Better sleep patterns are linked to a higher perceived **Impact of Use**.

Degree Level (B = 0.144, Beta = 0.075, p = 0.028). A higher degree level is associated with a greater perceived impact.

Hours Spent Online daily (B = 0.065, Beta = 0.181, p = 0.000). More daily hours spent online are strongly associated with a higher perceived **Impact of Use**.

Non-significant predictors in this model were Family Support (p = 0.610) and Year of Study (p = 0.189).

Regression Model Predicting Purpose of Use (Dependent Variable): The model predicting **Purpose of Use** is statistically significant (F (6, 897) = 4.458, p = 0.000), although it explains a very small proportion of the variance (R Square = 0.029, Adjusted R Square = 0.022).

Significant positive predictors of **Purpose of Use** are:

Degree Level (B = 0.217, Beta = 0.115, p = 0.001). A higher degree level is associated with a broader range of purposes for social media use.

Hours Spent Online daily (B = 0.040, Beta = 0.114, p = 0.001). More daily hours online are associated with a broader range of **Purpose of Use**.

Non-significant predictors included **Self-Rating of Mental health** (p = 0.228), Family Support (p = 0.551), **Sleep Pattern** (p = 0.585), and **Year of Study** (p = 0.105).

Regression Model Predicting Nature of Use (Dependent Variable): The model predicting **Nature of Use** is statistically significant (F (6, 897) = 4.422, p = 0.000), explaining a minimal 2.9% of the variance (R Square = 0.029, Adjusted R Square = 0.022).

Significant positive predictors are:

Year of Study (B = 0.066, Beta = 0.072, p = 0.037). A higher year of study is associated with a more varied nature of social media use.

Hours Spent Online daily (B = 0.032, Beta = 0.106, p = 0.002). More daily hours online are associated with a more varied nature of SMUS.

A significant negative predictor is:

Family Support (B = -0.090, Beta = -0.068, p = 0.044). Higher family support is associated with a less varied nature of SMUS.

Non-significant predictors were **Self-Rating of Mental health** (p = 0.436), **Sleep Pattern** (p = 0.103), and Degree Level (p = 0.128). The negative relationship with Family Support is notable, suggesting that students with strong family ties might rely less on social media for diverse social interactions or exploration, or that family values might implicitly encourage a more focused or limited use of social media.

Regression Model Predicting Duration of Use (Dependent Variable): The model predicting **Duration of Use** is highly statistically significant (F (6, 897) = 32.269, p = 0.000) and explains a moderate 17.8% of the variance (R Square = 0.178, Adjusted R Square = 0.172). This represents the highest explained variance among all SMUS dependent variables.

Significant positive predictors include:

Self-Rating of Mental health (B = 0.204, Beta = 0.166, p = 0.000). Higher self-rated mental health is associated with longer **Duration of Use**.

Sleep Pattern (B = 0.284, Beta = 0.199, p = 0.000). Better sleep patterns are associated with longer **Duration of Use**.

Degree Level (B = 0.139, Beta = 0.075, p = 0.020). A higher degree level is associated with longer **Duration of Use**.

Year of Study (B = 0.089, Beta = 0.085, p = 0.008). A higher year of study is associated with longer **Duration of Use**.

Hours Spent Online daily (B = 0.081, Beta = 0.233, p = 0.000). More daily hours online are strongly associated with longer **Duration of Use**, making it the strongest predictor in this model.

Family Support was not a significant predictor (p = 0.737).

Regression Model Predicting Frequency of Use (Dependent Variable): The model predicting Frequency of Use is statistically significant (F (6, 897) = 8.784, p = 0.000) and explains 5.5% of the variance (R Square = 0.055, Adjusted R Square = 0.049).

Significant positive predictors are:

Sleep Pattern (B = 0.147, Beta = 0.117, p = 0.001). Better sleep patterns are associated with higher **Frequency of Use**.

Degree Level (B = 0.135, Beta = 0.082, p = 0.017). A higher degree level is associated with higher **Frequency of Use**.

Year of Study (B = 0.080, Beta = 0.087, p = 0.011). A higher year of study is associated with higher **Frequency of Use**.

Hours Spent Online daily (B = 0.042, Beta = 0.136, p = 0.000). More daily hours online are strongly associated with higher **Frequency of Use**.

Self-Rating of Mental health (p = 0.231) and **Family Support** (p = 0.082) were not significant predictors.

Hours Spent Online daily consistently emerges as the most robust and significant positive predictor across all five SMUS dependent variables (**Impact of Use**, **Purpose of Use**, **Nature of Use**, **Duration of Use**, and **Frequency of Use**). Its standardized beta coefficient is frequently among the highest, particularly for **Duration of Use** (Beta=0.233). This consistent predictive power suggests that the sheer amount of time a student spends online daily is a fundamental driver of *how* they engage with social media and the *extent* of impact they perceive. This reinforces the notion that time spent online is not merely a passive measure but an active behavioural indicator underpinning various facets of social media engagement.

The regression analyses also highlight a complex and potentially positive role of mental health and sleep in social media use. **Self-Rating of Mental health** is a significant positive predictor of **Impact of Use** and **Duration of Use**. Similarly,

Sleep Pattern is a significant positive predictor of **Impact of Use**, **Duration of Use**, and **Frequency of Use**. These findings are counter-intuitive if one assumes social media

always negatively affects mental health and sleep. The coefficients suggest that *better* self-rated mental health and *better* sleep patterns predict *higher* social media duration, frequency, and perceived impact. This could imply that students with better mental health and sleep are more resilient to potential negative effects, or they use social media in ways that are genuinely beneficial for them. This challenges the common unidirectional causality (social media leads to poor well-being) and suggests a more intricate, possibly bidirectional relationship, or that well-being acts as a resource enabling healthier social media engagement.

Furthermore, academic progression, as indicated by Degree Level and Year of Study, consistently shapes social media engagement. Degree Level is a significant positive predictor for **Impact of Use**, **Purpose of Use**, **Duration of Use**, and **Frequency of Use**. Similarly, Year of Study is a significant positive predictor for **Nature of Use**, **Duration of Use**, and **Frequency of Use**. This implies that as students advance in their academic careers, their social media engagement patterns tend to evolve, potentially reflecting increasing academic demands, evolving social networks, or a natural progression in digital literacy and integration of social media into daily life.

Conversely, Family Support does not emerge as a significant predictor for most SMUS dimensions (**Impact of Use**, **Purpose of Use**, **Duration of Use**, or **Frequency of Use**). For **Nature of Use**, it is a significant negative predictor. This suggests that for university students in Bengaluru, family support, as measured, does not play a direct or substantial role in shaping their social media engagement

quantity or *overall perceived impact*. The negative relationship with **Nature of Use** (less varied use with more family support) could imply that students with strong family ties might rely less on social media for diverse social interactions or exploration, or that family values might implicitly encourage a more focused or limited use of social media.

Table 5 Regression Results Predicting Social Media Use Dimensions

Dependent Variable	R^2	Adj. R^2	F (df)	p	Predictor	B	Beta	p
Impact of Use	0.089	0.082	14.533 (6, 897)	0.000	Constant	1.217		0.000

Dependent Variable	R^2	Adj. R^2	F (df)	p	Predictor	B	Beta	p
					Self-Rating of Mental health	0.175	0.138	0.000
					Family Support	0.026	0.017	0.610
					Sleep Pattern	0.150	0.101	0.003
					Degree Level	0.144	0.075	0.028
					Year of Study	0.048	0.044	0.189
					Hours Spent Online daily	0.065	0.181	0.000
Purpose of Use	0.029	0.022	4.458 (6, 897)	0.000	Constant	2.214		0.000
					Self-Rating of Mental health	-0.053	-0.043	0.228
					Family Support	-0.031	-0.020	0.551
					Sleep Pattern	0.028	0.019	0.585
					Degree Level	0.217	0.115	0.001
					Year of Study	0.060	0.056	0.105
					Hours Spent Online daily	0.040	0.114	0.001
Nature of Use	0.029	0.022	4.422 (6, 897)	0.000	Constant	2.929		0.000
					Self-Rating of Mental health	0.030	0.028	0.436
					Family Support	-0.090	-0.068	0.044
					Sleep Pattern	0.072	0.058	0.103
					Degree Level	0.087	0.053	0.128
					Year of Study	0.066	0.072	0.037
					Hours Spent Online daily	0.032	0.106	0.002
Duration of Use	0.178	0.172	32.269 (6, 897)	0.000	Constant	1.463		0.000
					Self-Rating of Mental health	0.204	0.166	0.000
					Family Support	0.016	0.010	0.737
					Sleep Pattern	0.284	0.199	0.000
					Degree Level	0.139	0.075	0.020
					Year of Study	0.089	0.085	0.008
					Hours Spent Online daily	0.081	0.233	0.000

Dependent Variable	R^2	Adj. R^2	F (df)	p	Predictor	B	Beta	p
Frequency of Use	0.055	0.049	8.784 (6, 897)	0.000	Constant	2.498		0.000
					Self-Rating of Mental health	0.045	0.042	0.231
					Family Support	-0.077	-0.058	0.082
					Sleep Pattern	0.147	0.117	0.001
					Degree Level	0.135	0.082	0.017
					Year of Study	0.080	0.087	0.011
					Hours Spent Online daily	0.042	0.136	0.000

Note: B = Unstandardized Coefficient

Description: Summarizes regression analyses predicting various social media use metrics from health, support, and demographic predictors, showing effect sizes and significance levels.

5. Discussion

This section interprets the empirical results within the broader context of social media engagement and student experience, discusses their implications, acknowledges the study's limitations, and proposes directions for future research.

A. Overview of Principal Findings

The study reveals that university students in Bengaluru exhibit high levels of social media engagement across various dimensions, including frequency, duration, nature, and purpose of use. These dimensions are highly interconnected, forming a cohesive "engagement cluster" (Ellison et al., 2007). Despite this high engagement, the self-reported overall perceived impact of social media and specific negative experiences like social anxiety and self-comparison appear to be relatively lower. Daily online hours emerge as a consistently strong predictor across all social media engagement aspects, suggesting its fundamental role in shaping digital habits (Kuss & Griffiths, 2017).

The analysis also uncovers complex relationships between social media use and well-being indicators. Counter-intuitively, better self-rated mental health and sleep patterns are associated with higher social media duration, frequency, and perceived impact (Bányai et al., 2017). Furthermore, psychological constructs such as FOMO, peer influence, belonging, and coping are strongly interlinked and are influenced by factors like age, gender, course stream, and year of study (Przybylski et al., 2013). Academic progression, particularly the year of study, plays a significant role in shaping social media engagement patterns and certain psychological experiences, while family support demonstrates a limited or even inverse relationship with some aspects of social media use (Barry et al., 2017).

B. Interpretation of Social Media Engagement Patterns and Their Determinants

The high prevalence of social media use among university students in Bengaluru, as indicated by moderate to high means for Frequency of Use (3.25), Duration of Use (3.07), and Hours Spent Online daily (4.36 hours), coupled with frequent daily checks (mean 3.80) and pre-bed usage (mean 3.43), underscores its deep integration into their daily lives (Alhabash & Ma, 2017). The strong positive correlations among Frequency of Use, Duration of Use, Nature of Use, and Purpose of Use confirm that social media engagement is a multifaceted phenomenon where various aspects of use are intertwined. Students who engage more frequently also tend to spend more time on platforms, use them for a wider variety of purposes, and interact with a more diverse range of content. This "engagement cluster" suggests that these behaviours reinforce each other, contributing to the overall perceived impact of social media (Ellison et al., 2007).

The consistent and strong predictive power of Hours Spent Online daily across all social media engagement dimensions positions it as a central driver of social media engagement. This variable serves as a robust proxy for overall digital immersion, indicating that the sheer quantity of time spent online fundamentally shapes how students interact with social media (Kuss & Griffiths, 2017). Managing overall screen time, therefore, could be a crucial factor in influencing social media engagement patterns and their perceived impact.

Academic factors, specifically Degree Level and Year of Study, also significantly influence engagement. As students advance in their academic careers, they tend to use social media more frequently, for longer durations,

for a wider variety of purposes, and perceive a greater overall impact (Junco, 2015). This could reflect evolving academic demands or changes in social networks as students' progress through their university journey.

The unexpected negative relationship between Family Support and Nature of Use, alongside its general non-significance as a predictor for other SMUS dimensions, warrants further consideration. This suggests that for university students in Bengaluru, family support does not directly or substantially influence the quantity of social media use or its overall perceived impact (Barry et al., 2017).

C. Elaboration on the Impact of Social Media on Student Experience and Well-being

The relatively lower mean for **Impact of Use** (2.42) and the lower self-reported social anxiety (mean 2.17) and comparison (mean 2.25) challenge the prevailing narrative that social media universally leads to negative outcomes (Bányai et al., 2017). For many students in Bengaluru, social media may not be a primary source of these specific negative experiences, suggesting a more nuanced reality of its influence.

A particularly noteworthy finding is the counter-intuitive positive correlations and predictive relationships between SMUS dimensions (especially Duration and Impact) and **Self-Rating of Mental health** and **Sleep Pattern**. Specifically, higher self-rated mental health predicts higher perceived **Impact of Use** (B=0.175, p=0.000) and longer **Duration of Use** (B=0.204, p=0.000). Similarly, better sleep patterns predict higher **Impact of Use** (B=0.150, p=0.003), longer **Duration of Use** (B=0.284, p=0.000), and higher **Frequency of Use** (B=0.147, p=0.001). These results suggest that students with better mental health and sleep might be more resilient to potential negative effects of social media, or they may engage with social media in ways that are genuinely beneficial for their well-being (Frison & Eggermont, 2015). For instance, social media can serve as a platform for positive social connection, accessing supportive content, or managing stress through distraction. This perspective challenges the simplistic assumption of social media as solely detrimental and calls for a more granular understanding of *how* social media is used and *what specific aspects* of "impact" are being measured. It opens avenues for exploring beneficial uses and resilience factors in the digital realm.

Pandemic research reveals that increased social media use has been linked to disrupted sleep patterns and greater prevalence of anxiety and depressive symptoms among students (Huang & Zhao, 2020; Cellini et al., 2020). Delayed bedtimes and reduced sleep quality were commonly reported, emphasizing the need for responsible digital habits and underscoring the ripple effect of media engagement on health.

The psychological constructs of FOMO, peer influence, belonging, and coping are also deeply interconnected and influenced by social media use (Przybylski et al., 2013). **Hours Spent Online daily**, for instance, correlates positively with **FOMO score** (r=0.319, p<0.001), **Peer Influence score** (r=0.190, p<0.001), **Belonging score** (r=0.145, p<0.001), and **Coping score** (r=0.203, p<0.001). This indicates that greater online engagement is associated with increased fear of missing out, higher susceptibility to peer influence, a stronger sense of belonging, and better coping mechanisms. This suggests that the digital environment provides both challenges and resources for students' psychological experiences.

D. Analysis of Demographic and Academic Influences on Social Media Engagement and Related Constructs

The study identifies specific demographic and academic factors that differentiate social media engagement and psychological experiences among students. Gender significantly influences **Purpose of Use** (p=0.000), **Peer Influence score** (p=0.001), and **Belonging score** (p=0.002). For instance, Male (Mean = 2.8858) reports a higher **Purpose of Use** than Female (Mean = 2.5567). The negative correlations between Gender and **Peer Influence score** and **Belonging score** (r = -0.107 for both, p=0.001/0.002) suggest that Female might experience higher peer influence and a stronger sense of belonging. This indicates qualitative differences in social media engagement between genders, rather than just quantitative variations in frequency or duration (Nesi & Prinstein, 2015).

The academic progression, specifically the **Year of Study**, plays a more significant role in shaping FOMO (p=0.000), **Peer Influence score** (p=0.047), and **Belonging score** (p=0.016) compared to the broader **Degree Level**, which shows no significant impact on these constructs. This suggests that the specific year a student is in their academic journey is more influential on their psychological experiences related to social media than their overall degree program (Junco, 2015). This could be due to evolving social dynamics, academic pressures, or developmental stages unique to each year of study. For example, first-year students might experience higher FOMO as they navigate a new social environment, while later-year students might have more established social circles, influencing their sense of belonging and susceptibility to peer influence differently.

Furthermore, the **Course Stream** significantly influences **FOMO score** (p=0.006) and **Peer Influence score** (p=0.040), but not **Belonging score** or **Coping score**. This implies that the academic discipline shapes students' susceptibility to FOMO and peer influence (Nesi & Prinstein, 2015), possibly due to differing social norms, peer group dynamics, or perceived competitiveness within specific academic fields. This highlights that the social environment shaped by

academic specialization plays a role in these psychological experiences.

Finally, Age significantly impacts **Belonging score** (p=0.001) and **Coping score** (p=0.018), with a marginal impact on **FOMO score** (p=0.058). This suggests that as students age within the university context, their sense of belonging and coping abilities may evolve, and their fear of missing out might also be marginally affected (Barry et al., 2017).

E. Implications for University Students, Educators, and Policy-Makers in Bengaluru

The findings of this study carry several important implications for various stakeholders within the university ecosystem in Bengaluru.

For Students: The high prevalence of social media use necessitates a focus on mindful engagement (Frison & Eggermont, 2015). Students should be encouraged to be aware of their daily online hours, as this factor consistently predicts various aspects of social media engagement and perceived impact. Understanding that the impact of social media is multifaceted, encompassing both positive and negative elements, can empower students to leverage platforms for beneficial purposes such as positive social connection, information access, and seeking support, while developing strategies to mitigate potential downsides.

For Educators and University Administration: The observed differences in social media use patterns and psychological constructs across gender, course stream, and year of study suggest that support programs should be tailored to specific demographic and academic subgroups (Junco, 2015). For instance, digital literacy workshops or mental health services could be designed to address the unique challenges and opportunities faced by students in different academic years or disciplines. Universities should also consider promoting positive social media use, recognizing its potential role in fostering connection and facilitating academic collaboration, rather than solely focusing on its risks. Encouraging a balanced approach that emphasizes digital well-being and responsible online behaviours is crucial. During lockdowns, digital platforms facilitated new forms of belonging and support. Students relied on virtual communities for social capital, emotional support, and to fulfill the need for group membership—factors shown to buffer psychological distress (Xiao et al., 2020). These findings deepen our understanding of social media's supportive functions and its potential to foster resilience.

For Policy-Makers: The complex relationships between social media use, mental health, and sleep, particularly the counter-intuitive positive associations, indicate that blanket restrictions or overly simplistic negative portrayals of social media may be counterproductive (Kuss & Griffiths, 2017). Policies should instead focus on fostering digital well-being and promoting responsible use, acknowledging the potential for social media to serve as a resource for students. The unique cultural and social context of Bengaluru's university student population should be considered when developing and implementing policies related to digital engagement. Motivations for social media use shifted throughout the pandemic, with content consumption often serving as a means to cope with uncertainty, boredom, and isolation (Lemenager et al., 2021; Marino et al., 2021). Emerging patterns of use and their psychological correlates should inform policy and campus programming post-pandemic.

This study directly advances SDG Goal 3(Good Health and Well-being) by illuminating factors that influence digital well-being and student mental health. Its findings advocate for balanced, mindful social media practices that sustain both psychological and physical wellness. Universities can use these insights to develop evidence-based interventions—such as digital literacy campaigns, well-being workshops, and support groups—that target identified risk factors like FOMO, sleep disruption, and maladaptive coping. Furthermore, the research calls for greater advocacy and awareness-building around responsible technology use, positioning digital well-being as a pivotal element of sustainable public health strategy in the post-pandemic world.

F. Limitations of the Study and Directions for Future Research

This study, while providing valuable insights, is subject to several limitations that warrant consideration for future research.

Firstly, the cross-sectional design of the study means that it can only identify correlations and associations, not causal relationships. The counter-intuitive positive correlations between social media use and well-being indicators particularly underscore this limitation, as it is unclear whether better well-being leads to certain social media use patterns, or if certain social media uses contribute to better well-being, or if a third unmeasured variable influences both. Longitudinal studies are therefore recommended to establish causal pathways and track changes in social media use and well-being over time.

Secondly, the reliance on self-reported data introduces potential biases, such as social desirability bias (where participants may report what they believe is socially acceptable) or recall bias (inaccurate memory of past behaviours or feelings). Future research could incorporate objective measures of screen time or triangulate data with other sources to mitigate these biases.

Thirdly, the measurement of "**Impact of Use**" could be refined. The current measure appears to capture an overall perceived impact, but a more granular assessment differentiating between specific positive and negative aspects of social media's influence would

provide clearer and more actionable insights. This would help to disentangle the complex relationships observed with mental health and sleep.

Fourthly, while the sample size is substantial, the study is specific to university students in Bengaluru. This limits the direct generalizability of the findings to other student populations or broader demographic groups in different geographical or cultural contexts. Future studies could expand the scope to include diverse populations for comparative analysis.

Finally, the study did not explore the impact of specific social media platforms. Different platforms serve different purposes and may have varied impacts on student experience. Future research could investigate the differential effects of platforms like Instagram, LinkedIn, or Twitter on well-being and engagement. Additionally, exploring potential mediating or moderating variables (e.g., digital literacy, personality traits, specific coping styles) could further elucidate the complex relationships observed. Developing and testing targeted interventions aimed at promoting healthy social media habits, tailored to specific demographic or academic groups, would also be a valuable direction for applied research.

6. Conclusion and Recommendations

Understanding the nuanced patterns of social media engagement among university students is vital to supporting student well-being, academic success, and digital citizenship—especially in a rapidly evolving technological and social landscape such as Bengaluru. This study provides a multi-dimensional analysis of how frequency, duration, nature, purpose, and perceived impact of social media use are shaped by demographic, psychosocial, and institutional factors.

Significant Findings

Complex Relationship with Well-being: Contrary to popular assumptions that equate social media use with psychological harm, this study found that higher self-rated mental health and better sleep patterns were associated with increased social media use. This counterintuitive finding underscores an important distinction: it is not the act of using social media that determines its impact, but rather *how* it is used. Students who engage with platforms in purposeful, socially enriching, and self-regulated ways appear to experience fewer negative outcomes. Psychological resilience and digital self-awareness thus emerge as critical mediating factors.

Engagement Dimensions Intertwined: The data reveals that frequency of use does not exist in isolation — it is closely linked to duration, the diversity of activities undertaken, and the range of purposes social media serves for a given user. Students who logged on more frequently also tended to engage more intentionally, using platforms for a broader spectrum of activities such as academic collaboration, creative expression, and social support. This suggests that habitual engagement, when purposeful, may reinforce rather than undermine productive digital habits.

Psychosocial Factors: The study identified meaningful links between psychological constructs such as Fear of Missing Out (FOMO), peer influence, a sense of belonging, and coping behaviors. Higher FOMO scores were associated with stronger peer influence and greater reliance on social media for emotional coping and belonging. These dimensions do not operate independently — they form an interconnected psychosocial web that can both drive digital engagement and shape its consequences. Understanding this interplay is essential for designing targeted support interventions.

Gender and Academic Stream Differences: Females reported significantly higher scores on peer influence and belonging, suggesting that social media serves a more socially integrative function for them. Additionally, meaningful differences in FOMO and peer influence were found across academic streams, indicating that a student's field of study — and the socialization culture it fosters — plays a tangible role in shaping how social media affects them psychosocially. These findings call for disaggregated approaches to student support rather than one-size-fits-all solutions.

Predictors of Impactful Use: Multivariate analysis revealed that greater hours spent online, better sleep quality, and academic progression — measured by degree level and year of study — significantly predicted both the perceived impact and diversity of social media use. As students advance in their academic journeys, their digital engagement appears to mature alongside them, becoming more varied and purposeful. This co-evolution of digital behavior and student development reinforces the need for stage-appropriate digital literacy education.

Alignment with SDG 3 (Good Health and Well-being)

This research directly speaks to the United Nations' Sustainable Development Goal 3 — ensuring healthy lives and promoting well-being for all at all ages. The findings make a compelling case that social media, when engaged with responsibly and reflectively, can function as a genuine resource for peer support, community connection, and academic growth, rather than being viewed solely as a source of psychological risk. The study advocates for approaches rooted in digital health literacy that encourage intentional, proactive online engagement — supporting students' holistic well-being in an increasingly digital world.

Relevance and Policy Implications

The implications of this research extend well beyond academia. Educators and policymakers are urged to

move beyond simplistic "screen time" narratives and instead evaluate the quality, purpose, and individual context of digital engagement. Practically, this means

embedding digital literacy and well-being modules directly into institutional curricula, equipping students with the critical tools to navigate online spaces constructively. Support systems and counseling services should be tailored to account for gender- and discipline-specific vulnerabilities, particularly around FOMO and social comparison. Broader stakeholder awareness of how algorithmic content shapes behavior is equally essential in fostering habits that maximize the benefits of digital connectivity.

Directions for Future Research and Final Recommendation

Future research should pursue longitudinal designs that track changes in digital engagement and well-being across students' full academic trajectories. Intervention studies focusing on resilience-building and digital health literacy are a priority, as are cross-cultural and platform-specific investigations that can extend the generalizability of these findings.

Ultimately, stakeholders must adopt a balanced, personalized, and evidence-informed approach — one that honours social media's genuine potential for positive youth development while remaining alert to its risks. This nuanced perspective is not merely academically valuable; it is foundational to realizing the SDG 3 vision of healthy, resilient, and digitally empowered young people

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