

Social Media Addiction and Loneliness Among Young Adults: A Cross-Sectional Study

Najath. N, Guest Faculty, Bethany Navajeevan College of Physiotherapy, Kerala University of Health Sciences

Dr. Archana Chandran, Assistant Professor, Dept of Psychology, Govt College for Women, University of Kerala

Alisha Jasseer, Research Scholar, Dept of Psychology, University Calicut

Dr. Priyanka S.J, Guest Lecturer, Dept of Psychology, University of Kerala

Dr. C. Jayan, Professor (rtd), Dept of Psychology, University of Calicut

A B S T R A C T

Social media has become integral to young adults' communication and relationship maintenance; however, problematic engagement may coexist with diminished psychological well-being. Although prior research has associated problematic social media use with loneliness, less is known about whether social media addiction explains loneliness beyond demographic and usage-related factors. The present study examined whether social media addiction is associated with loneliness among young adults and, crucially, whether this association remains significant after accounting for sex and time spent on social media. A cross-sectional correlational design was used with 120 college students aged 18–29 years, including 77 females and 43 males. Loneliness was assessed using the UCLA Loneliness Scale, and social media addiction was assessed using the Bergen Social Media Addiction Scale. Pearson's correlation, hierarchical multiple regression, and two-way analyses of variance were conducted. Social media addiction was positively associated with loneliness ($r(118) = .23, p = .002$). After controlling for sex and time spent, social media addiction remained a significant positive predictor of loneliness ($\beta = .22, p = .008$). The final regression model explained approximately 24% of the variance in loneliness. Sex and time spent also showed significant main and interactive effects on loneliness and social media addiction. These findings indicate that dysregulated social media engagement is associated with loneliness beyond mere exposure to social media. Interventions should emphasise intentional digital self-regulation, meaningful offline relationships, and psychological well-being rather than screen time alone.

Keywords: Social media addiction, loneliness, young adults, problematic social media use, and digital well-being.

Introduction

Social media platforms have transformed how young adults communicate, maintain relationships, express identity, obtain information, and participate in social communities. For individuals in the transition from adolescence to adulthood, social media may provide valuable opportunities for social support, networking, self-expression, and relationship maintenance. At the same time, persistent and poorly regulated engagement has raised concerns about the possible psychological costs, particularly when use becomes compulsive or interferes with everyday functioning.

A distinction is therefore required between frequent social media use, social media addiction, and problematic social media use. High frequency alone does not necessarily represent psychopathology. Problematic use is more appropriately characterised by excessive preoccupation, impaired control, unsuccessful attempts to regulate use, salience, interference with responsibilities, and continued use despite negative consequences. This distinction is important because the psychological consequences of social media appear to depend not only on the duration of exposure but also on motives, patterns of engagement, and functional impairment.

Loneliness is a psychological outcome frequently considered in relation to digital behaviour. Loneliness refers to the distressing subjective experience that occurs when perceived social relationships are insufficient in quality or quantity relative to an individual's desired relationships. It differs from objective social isolation because a person can be surrounded by others and still feel lonely. Young adulthood may be particularly relevant to loneliness because it involves transitions in education, residence, friendships, intimate relationships, and personal identity.

Social media may influence loneliness in opposing ways. Digital communication can strengthen relationships, sustain long-distance contact, and facilitate access to social support. Conversely, compulsive engagement may replace meaningful face-to-face interaction, promote unfavourable social comparison, increase reassurance seeking, and create an appearance of social connection without corresponding emotional intimacy. For this reason, the relationship between social media and loneliness is likely to be more complex than a simple dose-response relationship.

Meta-analytic and systematic review evidence has associated problematic social media use with poorer psychological well-being and symptoms of depression, anxiety, stress, and loneliness (Huang, 2022; Shannon et al., 2022). Studies among university students have likewise reported significant relationships between social media addiction and social or emotional loneliness (Uyaroğlu et al., 2022), while research among young women has linked loneliness and depressive symptoms with Internet and social media addiction (Rachubińska et al., 2021). However, findings on general social media exposure remain mixed, reinforcing the importance of distinguishing addictive engagement from ordinary use (Berryman et al., 2018). Accordingly, the present study examined whether social media addiction is associated with loneliness among young adults and whether this association remains significant after accounting for sex and time spent on social media. By doing so, the study aimed to determine whether problematic patterns of engagement, rather than exposure alone, are uniquely related to loneliness.

Review of Literature

Problematic Social Media Use and Psychological Well-Being

Huang (2022) synthesised evidence on problematic social media use and mental health and reported significant associations with poor psychological outcomes, including reduced well-being and increased distress. This supports the view that maladaptive patterns of engagement may be more psychologically important than routine participation on social networking platforms. Shannon et al. (2022) similarly reported an association between problematic social media use and internalising symptoms among adolescents and young adults, placing problematic social media use within a broader network of emotional and interpersonal vulnerabilities rather than treating it as an isolated behavioural phenomenon. However, Berryman et al. (2018) found that general social media use was not a strong predictor of impaired mental health functioning in young adults. Their findings underscore an important methodological point: the form and psychological quality of online behaviour may matter more than exposure itself.

Loneliness and Social Media Addiction

Empirical research generally supports a positive relationship between problematic social media engagement and loneliness, although the strength and direction of the underlying mechanisms remain uncertain. Uyaroğlu et al. (2022), studying university students in Turkey, reported a significant association between social media addiction and social and emotional loneliness. Rachubińska et al. (2021) similarly found relationships among loneliness, depression, Internet addiction, and Facebook-related addictive behaviour among young Polish women.

Bonsaksen et al. (2023) demonstrated that the motives for social media use are relevant to loneliness. This finding is theoretically important because equal amounts of social media exposure may have different psychological consequences depending on whether the behavior is driven by relationship maintenance, information seeking, entertainment, avoidance, or emotional compensation. Broader evidence also supports the link between loneliness and problematic digital behaviours. Wang and Zeng (2024), in a meta-analysis of more than 35,000 participants, found a positive association between loneliness and internet addiction. These findings suggest that loneliness and dysregulated online engagement may operate through mutually reinforcing psychological processes.

Sex, Time Spent, and Context of Use

Sex differences in problematic social media behaviour and loneliness have been inconsistent across studies. Variations may reflect platform preferences, cultural expectations, interpersonal motives, or differences in the way emotional experiences are expressed. Therefore, sex is best treated as a contextual variable rather than a universal risk factor.

Time spent is another frequently examined indicator. Although increased exposure may create more opportunities for problematic engagement, time alone does not establish addiction. Hashemi et al. (2022) showed that the purposes underlying Internet use were differentially associated with social networking site addiction: social and recreational motives were positively related to problematic use, whereas academic and informational purposes were negatively associated. These findings support the distinction between the quantity of exposure and dysregulation of use.

Theoretical Framework

The association between social media addiction and loneliness can be understood from compensatory and displacement perspectives. From a compensatory perspective, individuals who experience unmet social needs may turn to social media for reassurance, companionship, distraction and validation. Because online interactions provide rapid and repeated reinforcement, such coping may become habitual or difficult to regulate.

From a displacement perspective, excessive social media engagement may replace activities that are more strongly associated with well-being, including face-to-face relationships, sleep, physical activity, academic work, and participation in the community. These two processes are not mutually exclusive and can occur simultaneously. Loneliness may encourage greater reliance on social media, and problematic engagement may subsequently intensify loneliness. These perspectives highlight the need to examine whether problematic social media engagement contributes uniquely to loneliness beyond demographic and usage factors.

Research Gap

Although previous studies have linked digital addiction with psychological distress, much of the literature has examined generalised Internet addiction or simple time spent online. Few studies have tested whether social media addiction contributes uniquely to loneliness after demographic and usage-related variables are statistically controlled. Existing findings suggest that problematic social media use is associated with poorer well-being, yet it remains unclear whether social media addiction contributes uniquely to loneliness once factors such as sex and time spent are taken into account. Addressing this question is important for clarifying whether interventions should focus primarily on reducing screen time or on targeting dysregulated patterns of engagement.

The present study addressed this gap by examining (a) the bivariate association between social media addiction and loneliness, (b) the incremental predictive contribution of social media addiction to loneliness beyond sex and time spent, and (c) the main and interactive effects of sex and time spent on loneliness and social media addiction.

Objectives

1. To examine the relationship between social media addiction and loneliness among young adults.
2. To determine whether social media addiction predicts loneliness after controlling for sex and time spent on social media.
3. To examine the effects of sex and time spent on loneliness.
4. To examine the effects of sex and time spent on social media on addiction.
5. To examine whether sex and time spent interact in relation to loneliness and social media addiction.

Hypotheses

- H1.** Social media addiction was significantly and positively associated with loneliness among young adults.
- H2.** Social media addiction significantly predicted loneliness after controlling for sex and time spent on social media.
- H3.** Loneliness differed significantly according to sex and time spent on social media.
- H4.** Social media addiction differed significantly according to sex and time spent on social media.

H5. Sex and time spent on social media interacted in their association with loneliness and social media addiction.

Method

Design and Participants

This study used a quantitative cross-sectional correlational design. The sample comprised 120 college students aged 18–29 years who were regular smartphone users and active on social media platforms. Among the participants, 77 (64.2%) were women and 43 (35.8%) were men. Participants reported their average daily time spent on social media in hours. For descriptive purposes, time spent was initially categorised into three groups: less than 2 hours, 2–4 hours, and more than 4 hours. For the analyses of variance, time spent was recoded into two categories (≤ 4 hours vs. > 4 hours) to ensure adequate cell sizes and stable estimates.

Convenience sampling was used to recruit participants, which may limit the representativeness of the sample. The sample size of 120 was considered sufficient for detecting small-to-moderate associations in correlational and regression analyses involving a small number of predictors. However, future research should aim for larger and more diverse samples to enhance statistical power and generalisability. Given the cross-sectional and non-experimental design, findings were interpreted as associations rather than causal effects.

Measures

UCLA Loneliness Scale

Loneliness was assessed using the 20-item UCLA Loneliness Scale (Russell et al., 1978), which evaluates subjective experiences of loneliness and perceived social isolation. Participants responded on a 4-point frequency scale, with certain items reverse-scored prior to the calculation of a total score. Higher scores reflect increased levels of loneliness. The scale demonstrates excellent internal consistency, with Cronbach's alpha consistently ranging from 0.89 to 0.94 across various populations. Additionally, the test-retest reliability is stable, showing a correlation of $r = 0.73$ over a one-year interval.

The Bergen Social Media Addiction Scale (BSMAS)

The instrument developed by Andreassen et al. (2016) was designed to evaluate problematic or addictive social media use. It comprises six items, each reflecting one of the core components of behavioural addiction: salience, tolerance, mood modification, relapse, withdrawal, and conflict. Respondents rate each item on a 5-point Likert scale, where 1 signifies "very rarely" and 5 signifies "very often." The cumulative score ranges from 6 to 30, with higher scores denoting increased levels of social media addiction. The original research demonstrated strong internal consistency, evidenced by a Cronbach's alpha of .88. Subsequent research has further corroborated the scale's construct validity, reliability, and applicability across different cultures.

Procedure and Ethical Considerations

Permission was obtained from the relevant authority before data collection. Participants were informed of the purpose of the study, participation was voluntary, confidentiality was assured, and informed consent was obtained. Questionnaires were administered individually, and procedural questions were clarified when necessary.

Statistical Analysis

Pearson's product-moment correlation was used to examine the association between social media addiction and loneliness. A two-step hierarchical multiple regression was used to examine whether social media addiction explained additional variance in loneliness beyond sex and time spent. Sex and time spent were entered in Step 1, followed by social media addiction in Step 2. Two-way between-subjects analyses of variance were used to examine the main and interactive effects of sex and time spent on loneliness (H3, H5) and social media addiction (H4, H5). Time spent was treated as a dichotomous factor (≤ 4 hours vs. > 4 hours). Effect sizes were expressed as partial eta squared (partial η^2). Statistical significance was set at $\alpha = .05$.

Result**Table 1**

Correlation Between Social Media Addiction and Loneliness (N = 120)

	Loneliness	Social Media Addiction
Loneliness	-	
Social Media Addiction	.23**	-

Note. ** $p < .01$

A statistically significant positive association was found between social media addiction and loneliness ($r(118) = .23, p = .002$). The magnitude was small to moderate, with approximately 5% shared variance ($r^2 \approx .05$). Thus, greater social media addiction was associated with greater loneliness, supporting H1.

Table 2

Hierarchical Regression Model Predicting Loneliness

Model	Predictor	R	R ²	Adjusted R ²	ΔR^2	F
1	Sex, Time Spent	.44	.19	.18	.19	14.07***
2	Sex, Time Spent, Social Media Addiction	.49	.24	.22	.05	12.14***

Note. Model 1: $F(2, 117) = 14.07$. Model 2: $F(3, 116) = 12.14$. *** $p < .001$

In Step 1, sex and time spent explained 19% of the variance in loneliness ($R^2 = .19$, adjusted $R^2 = .18$, $F(2, 117) = 14.07, p < .001$). Adding social media addiction in Step 2 produced a significant increase in the explained variance, $\Delta R^2 = .05$, $\Delta F(1, 116) = 6.86, p = .008$. The full model explained approximately 24% of the variance ($R^2 = .24$, adjusted $R^2 = .22$, $F(3, 116) = 12.14, p < .001$). These findings indicate that social media addiction contributes uniquely to loneliness beyond sex and time spent, supporting H2.

Table 3

Regression Coefficients for the Final Model Predicting Loneliness

Predictor	B	SE	β	t	p	95% CI
Constant	267.80	8.50	-	31.51	<.001	[250.97, 284.63]
Sex	-10.10	5.05	-.15	-2.00	.048	[-20.10, -0.10]
Time Spend	-30.20	6.65	-.35	-4.54	<.001	[-43.37, -17.03]
Social Media Addiction	0.43	0.16	.22	2.69	.008	[.11, .75]

Table 3 shows the regression coefficients of the final model predicting loneliness. Social media addiction remained a significant positive predictor of loneliness after sex and time spent were controlled ($B = 0.43$, $SE = 0.16$, $\beta = .22$, $t(116) = 2.69$, $p = .008$, 95% CI [0.11, 0.75]), with a small incremental effect size. Sex and time spent were also significant predictors of loneliness.

Table 4*Two-Way ANOVA for Loneliness by Sex and Time Spent*

Source	df	F	p	Partial η^2
Sex	1	4.12	.045	.034
Time Spend	1	15.82	<.001	.120
Sex x Time Spend	1	4.35	.039	.036
Error	116			

Table 4 shows the results of the two-way ANOVA for loneliness by sex and time spent. there was a significant main effect of sex on loneliness, $F(1, 116) = 4.12$, $p = .045$, partial $\eta^2 = .034$, and a significant main effect of time spent, $F(1, 116) = 15.82$, $p < .001$, partial $\eta^2 = .120$. The Sex $\times$ Time spent interaction was also significant, $F(1, 116) = 4.35$, $p = .039$, partial $\eta^2 = .036$. Examination of group means indicated that participants who spent more than 4 hours per day on social media reported higher loneliness than those who spent 4 hours or less, and this difference was more pronounced among women than men. These results support H3 and provide evidence relevant to H5.

Table 5*Two-Way ANOVA for Social Media Addiction by Sex and Time Spent*

Source	df	F	p	Partial η^2
Sex	1	7.62	.007	.062
Time Spend	1	12.18	.001	.095

Sex x Time Spend	1	4.35	.039	.033
Error	116			

A significant main effect of sex was observed for social media addiction, $F(1, 116) = 7.62, p = .007$, partial $\eta^2 = .062$, with women reporting higher scores than men. The main effect of time spent was also significant, $F(1, 116) = 12.18, p = .001$, partial $\eta^2 = .095$; participants who spent more than 4 hours per day on social media reported higher social media addiction than those who spent 4 hours or less. The Sex $\times$ Time spent interaction was statistically significant, $F(1, 116) = 4.35, p = .039$, partial $\eta^2 = .033$. The interaction pattern suggested that the difference in social media addiction between high and lower time spent groups was greater among women than among men. These results support H4 and are consistent with H5.

Discussion

This study examined the relationship between social media addiction and loneliness among young adults and tested whether social media addiction contributed to loneliness after considering sex and time spent on social media. Consistent with H1, a statistically significant positive association was observed: participants who reported greater social media addiction also tended to report greater loneliness. Importantly, and in line with H2, social media addiction remained a significant predictor of loneliness after sex and time spent were controlled, accounting for an additional 5% of variance.

The positive association aligns with prior studies involving university students and young adults (Rachubińska et al., 2021; Uyaroğlu et al., 2022) and with broader meta-analytic evidence linking loneliness with problematic digital behaviour (Wang & Zeng, 2024). Although the bivariate effect was modest, loneliness is influenced by many factors, including attachment, relationship quality, social support, personality, life transitions, and emotional health. A small unique association with one behavioural variable can therefore remain theoretically meaningful.

The findings may reflect compensatory processes. Individuals experiencing loneliness may use social media to seek companionship, validation, or emotional relief. Repeated reliance on online interaction may become reinforcing and difficult to regulate. The reverse pathway is also plausible: problematic social media engagement may displace face-to-face interaction, promote social comparison, or create superficial connections without sufficient emotional intimacy. Thus, loneliness and problematic social media engagement may be mutually reinforcing, a proposition that requires longitudinal testing.

The hierarchical regression findings provide empirical support for distinguishing the quantity of exposure from the problematic nature of engagement. Consistent with H2, social media addiction contributed uniquely to loneliness beyond sex and time spent. Screen time is a crude indicator: long use may occur for academic, occupational, informational, or adaptive social purposes. Addiction-oriented measures capture impaired control and functional interference, which may be more relevant to psychological outcomes.

The analyses of variance further clarified the contextual roles of sex and time spent. In support of H3 and H4, both factors showed significant main effects on loneliness and social media addiction. Participants who spent

more than 4 hours per day on social media generally reported higher loneliness and social media addiction than those who spent 4 hours or less. The significant Sex $\times$ Time spent interactions, consistent with H5, indicated that these effects were not uniform across men and women. In particular, the differences in loneliness and social media addiction between high and lower time spent groups were more marked among women, suggesting that intensive social media engagement may be especially linked to adverse outcomes for some female users.

Theoretical and Practical Implications

The results are compatible with compensatory Internet use and displacement perspectives. They suggest that online engagement may function both as a coping response to unmet interpersonal needs and as a behaviour that can interfere with richer offline experiences when poorly regulated. The unique contribution of social media addiction beyond time spent supports models that emphasise dysregulation, motives, and functional impairment rather than exposure alone.

From a practical perspective, universities and mental health professionals should avoid treating all forms of social media use as harmful. Screening should focus on impaired control, compulsive checking, emotional dependence on online feedback, interference with sleep or academic work, and the replacement of meaningful offline relationships. Interventions may combine digital self-monitoring, behavioural self-regulation, social skills training, cognitive-behavioural strategies for maladaptive social comparison, and opportunities to strengthen offline social support. Preventive efforts might particularly target young adults who spend long hours on social media and report feelings of loneliness, with attention to potential sex-specific patterns.

Limitations and Future Directions

This study has several limitations. First, the cross-sectional design of the study prevented causal inference. Second, the sample was modest and limited to college students aged 18–29 years, which restricts its generalisability. Third, the sex distribution was unequal. Fourth, all measures were self-reported and may have been influenced by recall or social desirability bias.

Future studies should employ longitudinal or cross-lagged designs to examine this directionality. Larger and more diverse samples should be used, and researchers should distinguish between active interaction, passive browsing, social comparison, entertainment, information seeking, academic use, and reassurance seeking. Mediation and moderation models may clarify whether variables such as social support, fear of missing out, attachment insecurity, and emotion regulation explain the association between social media use and loneliness.

Conclusion

This study found a significant positive relationship between social media addiction and loneliness among young adults. Social media addiction remained a significant predictor after sex and time spent were controlled, indicating that problematic engagement provides information beyond the simple duration of use. The findings do not demonstrate that social media use causes loneliness; rather, they suggest that dysregulated patterns of engagement are associated with greater subjective loneliness. Therefore, interventions should emphasise intentional digital

engagement, self-regulation, and the development of meaningful offline relationships rather than relying solely on screen-time reduction.

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