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"CONNECTED YET ALONE": THE MEDIATING ROLE OF SOCIAL COMPARISON IN THE RELATIONSHIP BETWEEN SOCIAL MEDIA USE AND LONELINESS AMONG UNIVERSITY STUDENTS

Ayesha Shafique
Lecturer and Research Supervisor in the Gender Studies Department at Govt. Fatima Jinnah Graduate College for Women, Chuna Mandi, Lahore.
PhD student at Minhaj University, Lahore School of Sociology
maharayesha96@gmail.com
Amber Jabbar *(Corresponding Author)*
Visiting lecturer at Govt Fatima Jinnah Graduate College, Chuna Mandi, Lahore.
amberjaabar@gmail.com
Tashakkur Fatima
Master's in Interior Design (Ongoing), Federal Chartered Degree Awarding Institute for Art and Culture, Raiwind Road, Lahore, Pakistan.
tashakkurfatima17@gmail.com
AR. M. Nasir Chaudhry
Assistant Professor, School of Architecture, Design & Urbanism, Federal Chartered Degree Awarding Institute for Art and Culture, Raiwind Road, Lahore, Punjab, Pakistan
nasir.chaudhry1@gmail.com

Abstract
Social media has become an integral part of university students' lives, yet frequent online interaction does not necessarily translate into meaningful social connections. This study examines the relationship between social media use and loneliness among university students, focusing on the mediating role of social comparison. A quantitative, cross-sectional survey design was employed, and data was collected from university students using a structured questionnaire. Partial least squares structural equation modelling (PLS-SEM) was used to assess the measurement and structural models. The findings revealed positive relationships between social media use and loneliness, social media use and social comparison, and social comparison and loneliness. These findings suggest that increased social media engagement may be associated with more frequent comparisons with others and greater feelings of social disconnection. The study highlights the importance of understanding students' online experiences and promoting mindful social media use. Universities can support students through digital well-being awareness, counselling services, and opportunities for meaningful face-to-face interaction. However, further research is needed to confirm the mediating role of social comparison.
Keywords: *Social media use, social comparison, loneliness, university students, digital well-being, PLS-SEM.*

Introduction

Social media has become a part of university students' daily lives, influencing their communication, relationships, experiences, and self-assessment with others. Social media platforms like Facebook, Instagram, TikTok and Snapchat enable social interaction and keep students in touch with friends, classmates and other social networks. But being engaged online doesn't always lead to emotional closeness or feeling like a part of the family. Students can feel

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lonely and socially disconnected, and in doing so, pose a significant question: how can people feel socially disconnected and feel connected online at the same time? Loneliness is the negative feeling that occurs when there is a mismatch between one's desired and actual social relations (Perlman & Peplau, 1981). It is indicative of the quality of social contacts rather than just the number of social contacts. Students at university may be especially at risk due to the transition to university, academic stress, friendships, identity formation and new social settings. Social media can be used to communicate, but online interactions do not necessarily meet students' needs for meaningful companionship.

There are complex relationships between social media use and psychological well-being that have been established in previous research. Kross et al. (2013) showed that Facebook use was associated with negative changes in subjective well-being in young adults, and Primack et al. (2017) reported an association between social media use and perceived social isolation. Likewise, Verduyn et al. (2017) pointed out that social networking sites can have a positive or negative impact on well-being based on the experiences and patterns of their use. The results indicate that the digital connection does not always lead to emotional connection. Social comparison is one psychological process that could account for this relationship. Festinger's (1954) social comparison theory proposes that people compare themselves with others to assess their opinions, abilities, and situations. Social media offers regular chances for such comparisons, with posts of peers' accomplishments, friendships, life, and social events. Students can compare themselves with others and may judge themselves poorly when they see aspects of daily life that are idealised or selective in the online environment. Appel et al. (2016) studied the interaction between Facebook use, social comparison, envy, and depression and Vogel et al. (2014) looked at the relationships between social media use, social comparison, and self-esteem. The studies emphasise the need for comparative processes in comprehending the psychological experiences of social media users.

Social comparison can also increase feelings of loneliness if students think their friends have better friendships, social connections, or social lives. These perceptions may lead to social self-efficacy even if students keep in touch online regularly. Dibb and Foster (2021) explored the relationship between loneliness and Facebook use, and social comparison and rumination, which serves as a relevant background for the study of these relationships. However, the impact of social comparison can vary according to the type of comparison and personal experiences, so it is important to explore the link between social comparison and loneliness empirically. Although research has already been conducted on social media use, social comparison and psychological well-being, it is worthwhile to investigate how these variables interact in the context of university students. Specifically, the influence of social comparison as a possible mediator can shed light on the relationship between social media use and loneliness and help determine if there is a partial mediation effect. While social networking experiences can have various impacts on well-being (Verduyn et al., 2017), the proposed relationships need to be empirically tested in a single framework.

Thus, the present study, entitled “Connected Yet Alone”: The Mediating Role of Social Comparison in the Relationship Between Social Media Use and Loneliness Among University Students, aimed to investigate the relationships between social media use, social comparison and loneliness. Specifically, it examined the positive relationship between social media use and loneliness, the positive relationship between social media use and social comparison, and the positive relationship between social comparison and loneliness. It also explored the proposed mediation of social comparison. A quantitative, cross-sectional survey design was employed, and partial least squares structural equation modelling (PLS-SEM) was used to assess the hypothesised

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relationships. This study builds on the literature examining how digital engagement is related to perceived social disconnection by exploring social comparison as a psychological explanation. The results of this research could also help shape digital well-being programs at the university level by emphasising the significance of students' online experiences and their own ratings of those experiences. However, causal interpretations are restricted by the cross-sectional design, and the mediation effect must be statistically tested by testing the indirect effect.

Literature Review

Social Media Use and Loneliness

The use of social media is an important part of the daily lives of university students in terms of communication, relationship maintenance and social participation. But more online interaction doesn't always mean better relationships or a greater sense of belonging. Loneliness is a feeling of isolation from others because of a difference between the social relationships one wants and one has (Perlman & Peplau, 1981). Evidence suggests that social media is linked to psychological well-being and to feelings of social isolation. Kross et al. (2013) reported that Facebook use was a predictor of decreases in subjective well-being among young adults, and that social media use was associated with increased social isolation among social media users (Primack et al., 2017). Verduyn et al. (2017) also noted that social networking sites can have varying effects on well-being based on users' experiences and patterns of use. So, students can be digitally connected without feeling emotionally fulfilled or having a strong sense of social intimacy. Social media can be used to keep students connected, but can also create a skewed view of friendships and social engagement. Therefore, the analysis of social media usage and social comparisons might help to understand the phenomenon of loneliness among university students.

H1: Social media use is positively associated with loneliness among university students.

Social Comparison Theory and Social Media Use

Social comparison theory is a basis for understanding how people compare themselves to others. Festinger (1954) suggested that people make comparisons between their opinions and their abilities and those of other people, especially in the absence of objective standards. This process enables people to evaluate their achievements, experiences and personal situation. Social media provides regular chances to compare, as students see what other students are achieving, who they are friends with, what they are doing and what they are doing socially. Students may compare their own situation to idealised depictions of their peers in online content, which may be selectively shared experiences. Social comparison was identified as an important mechanism in the understanding of the psychological consequences of social networking by Appel et al. (2016), and the relationship between social media use, social comparison, and self-esteem was examined by Vogel et al. (2014). Regularly viewing peers' posts online can lead students to make comparisons about their academic performance, relationships, and lives. Some comparisons may inspire; others may cause dissatisfaction or a feeling of inferiority. Thus, there could be a positive correlation between social media use and social comparison among university students.

H2: Social media use is positively associated with social comparison among university students.

Social Comparison and Loneliness

Loneliness is a sense of lack of social relationships, not just a lack of social contact. Perlman and Peplau (1981) highlighted the difference between ideal and actual relationships as an important element of loneliness. People can feel lonely even though they are connected with others on a regular basis. Social comparison can be a factor in loneliness when students compare their social lives with others' social lives shown in the media. When students see posts about friendships,

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celebrations and social events, they might think that they do not have as fulfilling a relationship, which can lead to feeling excluded or disconnected. Appel et al. (2016) talked about social comparison in the context of psychological outcomes of social networking, and Vogel et al. (2014) emphasized its importance in relation to people's self-evaluations. Dibb and Foster (2021) explored the relationship between loneliness and Facebook usage, and how this relates to social comparison and rumination, which was relevant to the investigation of these relationships. While the results of comparisons may differ depending on the individual and their offline relationships, negative assessments of social situation could be linked to increased loneliness.

H3: Social comparison is positively associated with loneliness among university students.

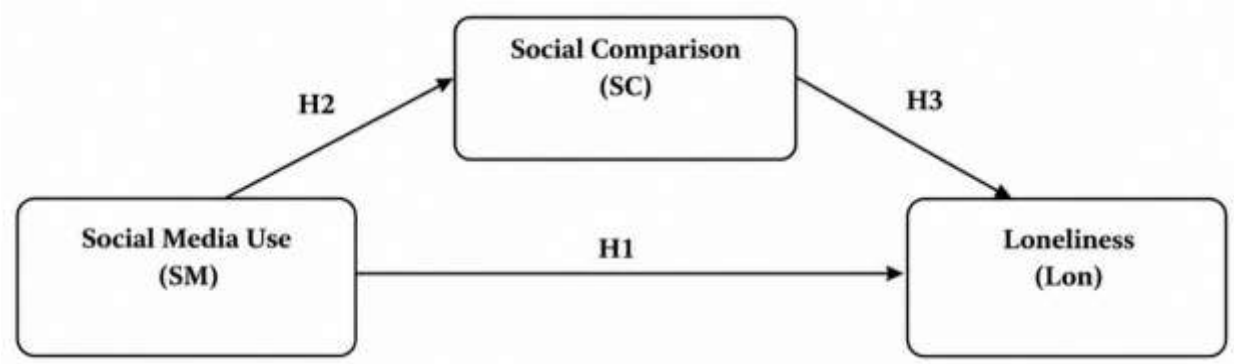
The Mediating Role of Social Comparison

Social comparison can help to understand the connection between social media and loneliness. Students can see what others are doing, achieving and relating to on social media, which can lead to comparisons of their own social situations. If these comparisons lead to a sense of less satisfactory relationships or less social inclusion, then students could feel lonelier. This proposed mechanism is based on social comparison theory (Festinger, 1954). Appel et al. (2016) explored the psychological impact of social comparison in social networking contexts, and Vogel et al. (2014) explored the nature of comparison-based self-evaluations among social media users. Social comparison, loneliness, and Facebook use were also examined by Dibb and Foster (2021). Taken together, these studies can serve as a springboard to examine social comparison as a potential mediator. Yet, mediation is not necessarily concluded when there are significant relationships between the use of social media, social comparison, and loneliness. The indirect effect needs to be statistically tested, usually by bootstrapping and by looking at the confidence interval. Because of the cross-sectional design, any mediation that is significant should be viewed as a statistical indirect effect, not as a causal effect.

Social media use has been explored in previous research with respect to psychological well-being, perceived social isolation and social comparison. Kross et al. (2013) and Primack et al. (2017) pointed to its connection to well-being and perceived isolation, and Appel et al. (2016) and Vogel et al. (2014) to the role of social comparison in online settings. Dibb and Foster (2021) also explored social comparison and loneliness and Facebook usage. In spite of these contributions, a joint examination of social media use, social comparison and loneliness in the context of a single framework for university students is warranted. To fill this gap, the present study examines the direct relationships between these constructs and tests the possible mediation of social comparison through the use of partial least squares structural equation modelling (PLS-SEM). The results can help to understand the psychological processes that occur in the digital experience of students and can be used in future research on the social connectedness of university students.

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Figure 1. Conceptual Framework



Methodology

The study used a quantitative, cross-sectional survey design to explore the relationships between social media use, social comparison and loneliness among university students. The data were gathered using a structured questionnaire, and the hypothesised relationships were tested by using partial least squares structural equation modelling (PLS-SEM) (Hair & Alamer, 2022; Hair et al., 2021; Hair et al., 2019). Due to the cross-sectional design, the results were interpreted as associations and not as causal relationships. The target population were university students aged 18 years and above who actively used at least one social media platform. A purposive sampling method was used, and a sample of 370 respondents was reported. The final manuscript should include the names of the universities involved, geographical context, survey time and recruitment method based on the actual survey records. The social media use was assessed with items informed by the Social Media Use Integration Scale (SMSIS) developed by Jenkins-Guarnieri et al. (2013) that measure engagement, daily integration, online connectedness and relationship maintenance. Social comparison was assessed with adapted items from Gibbons and Buunk (1999) that emphasised comparisons with personal situations, accomplishments, friendships, and lifestyles. Both constructs were measured on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Loneliness was assessed by items based on the UCLA Loneliness Scale, Version 3 (Russell, 1996), which included perceived isolation, lack of companionship, and dissatisfaction with social relationships. The answers were given using a 4-point frequency scale from 1 (never) to 4 (often). The reliability and validity of the adapted measures were assessed. Descriptive statistics, measurement and structural model assessments were performed in the data analysis. Internal consistency was assessed by Cronbach's alpha and composite reliability (CR); convergent validity was assessed by average variance extracted (AVE); discriminant validity was assessed by the heterotrait–monotrait ratio (HTMT) (Henseler et al., 2015). Path coefficients, t-values, p-values, coefficient of determination (R^2) and effect sizes (f^2) were used to evaluate the structural model. The significance of the direct relationships and indirect effects necessary to support the proposed mediation was evaluated using bootstrapping. Three hypotheses were tested in the study: social media use is related to loneliness (H1); social media use is related to social comparison (H2); social comparison is related to loneliness (H3); and the mediating role of social comparison (H4). For direct hypotheses, path coefficients and significance levels were used; for mediation, a significant indirect effect and bootstrapped confidence interval were used. Ethical approval or exemption,

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informed consent, voluntary participation, confidentiality, and data-protection procedures should be reported according to the actual study records.

Results and Discussion

The demographic profile of the respondents, descriptive statistics, construct reliability, discriminant validity, structural model assessment, effect sizes and the results of the hypothesis test are presented in this chapter in the study titled Connected Yet Alone": The Mediating Role of Social Comparison in the Relationship between Social Media Use and Loneliness among University Students. The analysis is mainly based on the relationships between social media use (SM), social comparison (SC) and loneliness (Lon). Results are explained in terms of the study hypotheses and literature.

Demographic Profile of Respondents

The sample of the study was 370 university students. Their demographic characteristics such as age, gender, study level and daily use of social media are presented in Table 1.

Table 1. Demographic Characteristics of Respondents (N = 370)

Demographic characteristic	Category	Frequency	Percentage
Age	18–22 years	168	45.4%
	23–27 years	147	39.7%
	28 years and above	55	14.9%
Gender	Male	176	47.6%
	Female	186	50.3%
	Prefer not to say	8	2.2%
Study level	Undergraduate	236	63.8%
	Master's	92	24.9%
	MS/MPhil	30	8.1%
	PhD	12	3.2%
Daily social media use	Less than 1 hour	35	9.5%
	1–2 hours	94	25.4%
	2–4 hours	151	40.8%
	More than 4 hours	90	24.3%

As per age distribution, the largest group of respondents were in the age group of 18-22 years (45.4%) followed by 23-27 years (39.7%). The 14.9% of the sample were aged 28 years and above. The profile suggests that the majority of the respondents were part of the younger university student group, where social media could play a significant role in their daily communication and peer interaction. As far as gender is concerned, there were 50.3% female and 47.6% male respondents. Another 2.2% did not report their gender. The roughly equal numbers of male and female students allow for a perspective from both sides, but do not necessarily mean that the sample is representative of the larger population of students at the university. The largest education

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group was the undergraduate students (63.8%), followed by the students enrolled in master programmes (24.9%). The percentage of MS/MPhil students was 8.1%, while the percentage of PhD students was 3.2%. The distribution shows that the results are mostly from undergraduate students. Social media use was fairly high on a daily basis. The majority (40.8%) said they used social media two to four hours a day, and 24.3% said over four hours a day. Therefore, 65.1% of respondents were in the two to four hour or more than four hour categories. This pattern makes the sample suitable for the study of social media usage and social comparison and loneliness. The demographic results are descriptive, however, and cannot conclude that increased social media use leads to increased feelings of loneliness.

Descriptive Statistics and Construct Reliability

The mean, standard deviation, Cronbach's alpha (CA), composite reliability (CR), and average variance extracted (AVE) are shown for the three constructs of the study in Table 2.

Table 2. Descriptive Statistics and Reliability of Constructs

Construct	Mean	SD	CA	CR	AVE
Social media use	3.62	0.78	0.76	0.85	0.74
Social comparison	3.51	0.81	0.89	0.71	0.62
Loneliness	3.48	0.67	0.70	0.72	0.68

Social media use had the highest mean score (M = 3.62, SD = 0.78), followed by social comparison (M = 3.51, SD = 0.81) and loneliness (M = 3.48, SD = 0.67). The means indicate relatively high responses for the three constructs. The meaning of the mean scores, however, will vary depending on the response scales of the questionnaire. Loneliness scores should be interpreted based on coding and direction of loneliness items, especially. Cronbach's alpha scores ranged from 0.70 to 0.89, which are within or near the minimum acceptable scores. The reported CR values ranged from 0.71 to 0.85. However, the CR values for social comparison (0.71) and loneliness (0.72) are worth checking, particularly the alpha value for social comparison is significantly higher than the CR. The reliability findings should then be validated with the original indicator-level findings. The reported AVE values ranged from 0.62 to 0.74, which is higher than the typical 0.50. These values, if confirmed, suggest that, on average, more than 50% of the variance in the indicators is accounted by each construct, which supports the convergent validity. The overall measurement model (indicator loadings and reliability statistics) should be taken into account when making the final assessment, not any single measure.

Discriminant Validity Assessment

To determine the empirical distinctiveness of social media use, social comparison and loneliness, the heterotrait–monotrait ratio (HTMT) was employed. The reported HTMT values are given in Table 3.

Table 3. HTMT Assessment of Discriminant Validity

Construct pair	HTMT
Social media use – Social comparison	0.68
Social media use – Loneliness	0.61
Social comparison – Loneliness	0.74

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The constructs had discriminant validity, as all HTMT values were below the widely accepted threshold of 0.85 (Henseler et al., 2015). The highest value was between social comparison and loneliness (0.74), followed by social media use and social comparison (0.68). The lowest value was between social media use and loneliness (0.61). Based on these results, it can be concluded that the constructs are correlated but are empirically differentiated. This distinction is crucial as the conceptual model regards social comparison as a distinct explanatory construct that connects social media use to loneliness. However, indicator loadings and bootstrapped HTMT confidence intervals should also be taken into account in a full measurement-model evaluation.

Structural Model and Hypothesis Testing

The structural model was tested to explore the conceptual relationships between social media use, social comparison, and loneliness. The path coefficients, t-values, and p-values are reported in Table 4.

Table 4. Structural Model and Hypothesis Testing

Hypothesis	Relationship	β	t-value	p-value	Decision
H1	Social media use → Loneliness	0.342	4.871	0.001	Supported
H2	Social media use → Social comparison	0.286	3.964	< 0.001*	Supported
H3	Social comparison → Loneliness	0.218	2.742	0.006	Supported

Social Media Use and Loneliness (H1)

The coefficient value suggests that in the estimated model, increased social media use was correlated with increased loneliness. A possible reason is that the frequent use of online content does not always meet students' needs for meaningful companionship, emotional support, and close relationships. Students can have a lot of contact with each other online, but still have limited emotional contact. Previous studies have also demonstrated that social media experiences can relate to well-being in various ways, depending on how people use these platforms and the type of interactions they have online (Kross et al., 2013; Verduyn et al., 2017). In addition, Primack et al. (2017) studied the association between social media use and perceived social isolation among young adults, which offers context to the link between social media and a sense of belonging. However, the current finding needs to be interpreted as an association, not as a causal link between social media use and loneliness. The cross-sectional design does not allow for the establishment of direction of causality or other explanations, such as that pre-existing loneliness may affect online behaviour.

Social Media Use and Social Comparison (H2)

The results indicate that the more social media users used, the more frequently they compared themselves with others. Social media sites present information about friends' successes, lives, friendships, activities, and experiences. This type of material can lead users to compare themselves with the experiences that are only highlighted in the material. Social comparison theory suggests that people compare themselves with others to assess their opinions and abilities (Festinger, 1954). In digital environments, these comparisons can occur more often as social information is always on hand. Appel et al. (2016) described how social comparison is used to explain the psychological

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effects of social networking sites and Vogel et al. (2014) explored the relationship between social networking site use, social comparison, and self-perceptions. This theoretical perspective is confirmed by the positive coefficient of the present study. But it doesn't necessarily mean that every use of social media leads to negative comparisons. Comparisons can be positive or negative, and can be motivating or reassuring. The current model does not differentiate between upward, downward or lateral comparisons, but rather reflects the general relationship between social media use and social comparison.

Loneliness and Social Comparison (H3)

This finding suggests that there is a relationship between social comparison and loneliness, with students reporting higher levels of social comparison reporting higher levels of loneliness. When students compare their friendships, social activities, accomplishments, or lifestyle to what they see others doing, some students may think that they are not as successful as others and that they do not have as much of a social life as they would like. These perceptions may be especially relevant when content online is idealised or only offers positive experiences. Appel et al. (2016) found that social comparison is an important mechanism in understanding the relationship between social networking site experiences and psychological outcomes. Dibb and Foster (2021) also investigated the relationship between loneliness and Facebook use with regard to social comparison and rumination. This literature collectively gives a relevant basis to interpret the positive relationship observed in the present model. The finding indicates that social comparison is a valid correlate of students' loneliness, but it does not imply that social comparison is the only or main cause of loneliness. Other factors such as quality of offline relationships, perceived social support, individual differences and wider life circumstances can also play a role. The coefficient needs to be interpreted in the context of the three-construct model.

Effect Size Assessment (f^2)

The effect size (f^2) assesses the contribution of an individual predictor to the explained variance of an endogenous construct. Unlike statistical significance, which indicates whether a relationship is statistically distinguishable from zero, effect size provides information about the practical contribution of a predictor to the model.

Table 5. Effect Sizes (f^2)

Predictor relationship	**(f^2)**	**Interpretation**
Social media use → Social comparison	0.142	Small, approaching medium
Social media use → Loneliness	0.099	Small
Social comparison → Loneliness	0.071	Small

The effect of social media use on social comparison was the largest among the three reported relationships (f^2)= 0.142). Although this value approaches the conventional medium-effect threshold of 0.15, it falls slightly below it and is therefore classified as a small effect approaching medium. This result suggests that social media use contributes meaningfully to explaining differences in students' social comparison, although other factors are also likely to be important.

The effect of social media use on loneliness was small (f^2) = 0.099). This indicates that social media use contributes to the explanation of loneliness, but its individual contribution is limited

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when considered within the structural model. Similarly, social comparison had a small effect on loneliness (f^2)= 0.071). Despite the statistically significant path coefficient reported for this relationship, its effect size indicates a relatively modest contribution to explained variance. Overall, the effect size results complement the hypothesis-testing findings. All three relationships were statistically significant, but their estimated contributions differed in magnitude. Social media use contributed most strongly to social comparison, whereas the individual effects on loneliness were smaller. These results support a measured interpretation of the model rather than suggesting that social media use or social comparison alone determines students' loneliness.

4.6. Coefficient of Determination (R^2))

The coefficient of determination (R^2) indicates the proportion of variance in an endogenous construct explained by its predictor or predictors in the structural model. The reported results are presented in Table 6.

Table 6. Coefficient of Determination (R^2)

Endogenous construct (R^2)		**Variance explained**
Social comparison	0.576	57.6%
Loneliness	0.3682	36.82%

The model accounted for 57.6% of the variance in social comparison. This suggests that the observed variation in social comparison could be explained by social media use as captured in the reported model. The variance not explained by the model could be due to other factors not measured by the model, including personality factors, peer relationships, online experiences specific to the platform, or patterns of online engagement. For loneliness, the reported (R^2) value is 0.3682, which means that 36.82% of the variance of the model was explained. This indicates that social media use and social comparison together explained a significant portion of the variance in students' loneliness, and 63.18% of the variance was not accounted for by the predictors in this model. The explanatory power of loneliness is thus less than that of social comparison. This difference is acceptable because loneliness is a complex phenomenon that could also be influenced by emotional, interpersonal, social, and situational dimensions that are beyond the scope of the current model. The (R^2) values must be understood within the context of the study and the complexity of the model, and should not be used as a measure of predictive accuracy or causal influence.

Discussion of Overall Findings

The results support the three direct relationships hypothesised in the study. Loneliness was positively related to social media use, social media use was positively related to social comparison, and social comparison was positively related to loneliness. Overall, these findings indicate that higher levels of social media use and more frequent social comparison are associated with increased loneliness among the participants in the study, university students. The positive link between social media use and loneliness underscores the difference between social media contact and emotional connectedness. Communication and relationship-building opportunities through online platforms can be useful, but if used regularly, it does not necessarily mean that the user feels

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understood, supported or socially included. Previous research has shown that the psychological effects of social media are not just a function of whether online connections are available, but also of users' experiences and experiences' quality (Kross et al., 2013; Verduyn et al., 2017). The correlation between social media usage and social comparison is in line with social comparison theory (Festinger, 1954). Peer information is easy to access and users can see what other people are doing and achieving on social media. When such information is repeated, it may lead some students to make comparisons with their own situations. But the study did not identify specific platforms or content types that were more impactful, nor did it differentiate between various types of comparison.

The positive association between social comparison and loneliness also indicates that students' perceptions of their social lives might be important for their sense of connectedness. Students might think they have fewer satisfying relationships when they look at friendships or social experiences that are shown online. These perceptions might be linked to loneliness even if students have frequent online interactions. This interpretation is supported by research that explores social comparison and feelings of loneliness in social networking contexts (Appel et al., 2016; Dibb & Foster, 2021). However, the three key direct pathways alone do not provide evidence of mediation of the link between social media use and loneliness. There is a need for an independent test of the indirect effect of social media use on loneliness via social comparison, preferably bootstrapping and a confidence interval. The direct effects reported support H1–H3; mediation hypothesis should not be stated as supported until the indirect-effect results are reported. The results also have implications for the well-being of university students. Digital well-being awareness can be integrated into student support services, reflecting on social media use, and fostering meaningful in-person engagement. It is also important for students to understand that posts on the internet may be a representation of a person's life, not the whole life. Such initiatives are reasonable implications of the study's findings, although their effectiveness would need to be evaluated through further research.

The demographic characteristics, measurement properties, discriminant validity, structural relationships, effect sizes, and explanatory power of the proposed model were examined in this chapter. A sample of 370 university students (most of whom were 18-27 years old) was used. The reported HTMT values were less than 0.85, which indicates discriminant validity. The results of the structural model showed that loneliness was positively associated with social media use (β = 0.342, p = .001), social media use was positively associated with social comparison (β= 0.286, p < .001), and social comparison was positively associated with loneliness (β= 0.218, p = .006), which supported H1, H2, and H3. Effect sizes reported were small or small-to-near-medium. The model accounted for 57.6% of the variance in social comparison and 36.82% in loneliness. In general, the findings support the proposed direct relationships and suggest that social comparison is a factor that can be considered in the understanding of students' feelings of loneliness in the context of social media use. The indirect effect via social comparison, however, has not been confirmed until the bootstrapped indirect effect is reported. Also, the reliability statistics, especially the composite reliability values, should be compared to the original SmartPLS output before submission of the chapter for publication.

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Conclusion and Recommendations

Conclusion

This study investigated the relationships between social media use, social comparison and loneliness among university students, focusing on the possible mediation role of social comparison. The results showed that there was a positive and significant correlation between social media use and loneliness (β= 0.342, p = .001), which supports H1. Social comparison was also positively correlated with social media use (β= 0.286, p < .001), supporting H2. In addition, social comparison was positively related to loneliness (β= 0.218, p = .006), which was also in the direction of H3. The results indicate that more use of social media can be accompanied by increased feelings of loneliness and more frequent social media comparisons. While digital platforms enable students to communicate and keep up with social connections, online interaction does not always meet students' emotional needs or offer a sense of companionship. Students' awareness of what their peers are achieving, how they live and how they engage in social activities can also raise students' awareness of their own experiences in comparison to idealized online representations. The model accounted for 57.6% of the variance in social comparison and 36.82% of the variance in loneliness. The results of the effect size showed that the use of social media had the highest effect on social comparison and the individual effects on loneliness were small. The results overall underscore the need to grasp the extent of social media use by students, as well as the meaning and reactions to the content they encounter. But the mediation of social comparison cannot be definitely concluded from the direct relationships. The indirect effect has to be established through bootstrapping. Furthermore, the cross-sectional design does not allow for causal interpretation.

Recommendations

The results should inform the development of digital well-being workshops at universities to support responsible and mindful social media use, fostering students' awareness of their social media behaviors and emotional experiences. Pupils should be alerted to the fact that social media content is likely to show only a part of the picture of a person's life. Second, universities need to enhance opportunities for in-person interaction by creating student societies, group projects, peer-support programmes and other extracurricular activities. These efforts can contribute to creating meaningful relationships and a sense of belonging for students. Third, the student counselling services should offer easy access to support for those feeling lonely, socially excluded or distressed by online comparison. Awareness sessions might also be useful for students to learn to make healthier comparisons and to understand the boundaries of judging self-worth based on online content. Last but not least, future studies need to use longitudinal designs to explore the time course of social media use and loneliness. Researchers should also differentiate between active communication and passive content browsing, and explore various platforms and factors like social support, self-esteem and fear of missing out. Bootstrapped mediation analysis is recommended to report to see if social comparison is a significant mediator of the relationship between social media use and loneliness. These steps would further build the evidence base for effective student well-being interventions.

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