

Association Between Social Media Use and Social Anxiety Among Female Undergraduate Midwifery Students



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Abstract

Background: Social media is widely used among university students and may be associated with psychological experiences involving social interaction and fear of negative evaluation. Evidence specifically examining social media use and social anxiety among female midwifery students remains limited. This study aimed to examine the association between social media use and social anxiety among female undergraduate midwifery students. **Methods:** An analytical cross-sectional study was conducted among 86 female undergraduate midwifery students at Pelamonia Institute of Health Sciences, Makassar, Indonesia. Participants were selected using purposive sampling. Social media use and social anxiety were assessed using structured questionnaires and categorized as high or low according to the study's scoring criteria. Descriptive statistics were used to summarize participant characteristics and study variables. The association between social media use and social anxiety was examined using Fisher's exact test because of sparse cell frequencies. Statistical significance was set at $p < 0.05$. **Results:** Among the 86 participants, 83 (96.5%) were categorized as having high social media use and three (3.5%) as having low social media use. High social anxiety was also identified in 83 participants (96.5%). Among participants with high social media use, 82 of 83 (98.8%) had high social anxiety, compared with one of three (33.3%) participants with low social media use. Social media use was significantly associated with social anxiety ($p < 0.001$). **Conclusion:** Higher social media use was associated with a higher prevalence of social anxiety among female undergraduate midwifery students in this sample. The cross-sectional design and small number of participants in the low-use category preclude causal interpretation and warrant caution regarding the magnitude of the observed association. Further studies using larger multicenter samples and validated continuous measures are needed to clarify this relationship.

Keywords: midwifery students; social anxiety; social media; social media use; undergraduate students

1. Introduction

Social media has become an integral part of communication and social interaction among university students. These platforms facilitate interpersonal communication, information exchange, academic interaction, entertainment, and self-presentation, making their use particularly embedded in the everyday lives of young adults. Despite these benefits, increasing attention has been directed toward the psychological correlates of intensive or problematic social media use. A systematic review and meta-analysis among adolescents and young adults found that problematic social media use was positively associated with anxiety, depression, and stress, although substantial heterogeneity existed across studies (Shannon et al., 2022). Evidence from intervention studies also suggests that the relationship between social media use and mental well-being is complex and cannot be explained solely by the amount of time spent online (Plackett et al., 2023).

Social anxiety is characterized by fear, discomfort, or apprehension in interpersonal situations involving possible scrutiny or negative evaluation. Such experiences can affect social interaction and interpersonal functioning. The Social Anxiety Scale for Adolescents (SAS-A), developed from earlier measures of social anxiety, captures dimensions related to fear of negative evaluation and social avoidance or distress (La Greca & Lopez, 1998). In contemporary social environments, these concerns may extend beyond face-to-face interactions because social media creates additional settings in which individuals present themselves, receive feedback, observe others, and evaluate their own social standing.

Accumulating evidence indicates an association between social media use and social anxiety. O'Day and Heimberg (2021), in a systematic review of young-adult studies, found that social anxiety was associated particularly with problematic patterns of social media use. Their review also suggested that socially anxious individuals may seek online interaction to compensate for difficulties or limited support in face-to-face relationships. More recent meta-analytic evidence strengthens this association. Nan et al. (2024), synthesizing 27 independent samples involving 38,163 participants, reported a statistically significant positive association between social media use and social anxiety. Similarly, Wu et al. (2024) analyzed 53 studies involving 59,928 participants and found a positive relationship between social anxiety and problematic social media use, with variation according to measurement instrument, sex, publication year, and social media platform.

The distinction between general social media use and problematic use is relevant when interpreting these findings. A large systematic review and meta-analysis by Liu et al. (2024), which included 209 studies and 252,337 participants from 28 countries, found that problematic social networking use was positively associated with anxiety symptoms, including social anxiety. These findings indicate that the psychological correlates of social media may depend on the pattern and context of engagement rather than exposure alone. Accordingly, high-frequency use should not automatically be considered problematic unless the measurement instrument captures behavioral features such as impaired control, excessive preoccupation, or interference with everyday functioning.

Studies among university students provide further evidence that different forms of social media engagement may have different relationships with social anxiety. Lai et al. (2023), in a study of 1,740 college students, found that passive social media use was positively associated with social anxiety, whereas active use showed a negative association. Communication capacity partly mediated these relationships. This distinction suggests that browsing, observing others, and consuming social content without direct interaction may have different psychological correlates from active communication. Yang et al. (2023) also reported an association between social media use intensity and social anxiety among undergraduate students and identified upward social comparison and self-esteem as potential mechanisms linking social media exposure with social anxiety. Exposure to selectively positive representations of other people's lives may encourage unfavorable self-comparisons, particularly among individuals who are sensitive to social evaluation.

These issues have particular relevance to students preparing for health professions in which interpersonal communication forms part of professional competence. Midwifery students are expected to develop communication skills for interactions with women, families, peers, educators, clinical supervisors, and other healthcare professionals. A scoping review of communication education in midwifery identified communication as a core component of professional preparation and found that simulation, role-play, workshops, reflection, and other educational approaches have been used to strengthen communication skills among student midwives (Rodríguez-Martín et al., 2024). Social anxiety may therefore be relevant to midwifery education because fear of evaluation and discomfort in social interaction could intersect with learning environments that require repeated interpersonal and clinical communication. This possibility should be investigated directly rather than assuming that elevated social anxiety necessarily results in poorer clinical performance.

Despite growing evidence linking social media use with social anxiety, several gaps remain. Much of the literature has focused on adolescents, general university populations, or heterogeneous samples of young adults, while evidence specifically concerning female undergraduate midwifery students remains limited. Existing studies also differ substantially in how social media exposure is defined, ranging from frequency and intensity of use to passive, active, or problematic use (O'Day & Heimberg, 2021; Lai et al., 2023; Wu et al., 2024). These differences limit the direct transfer of findings between populations and reinforce the need for context-specific evidence. Research involving midwifery students is particularly relevant because their educational trajectory combines young-adult social experiences with communication-intensive academic and clinical preparation.

Evidence from Indonesia on the specific relationship between social media use and social anxiety among female undergraduate midwifery students is also limited. Examining this population may contribute evidence from a setting and professional student group that remain underrepresented in the existing literature. Given that both social media behavior and social anxiety can be shaped by individual, social, educational, and cultural contexts, findings from general university populations cannot necessarily be assumed to represent midwifery students in Indonesia. Therefore, this study aimed to examine the association between social media use and social anxiety among female undergraduate midwifery students at Pelamonia Institute of Health Sciences, Makassar, Indonesia.

2. Materials and Methods

2.1 Study Design and Setting

This analytical cross-sectional study examined the association between social media use and social anxiety among female undergraduate midwifery students. Exposure and outcome data were collected during the same period; therefore, the study could not establish temporal direction or causality. Data collection was conducted at the Pelamonia Institute of Health Sciences, Makassar, Indonesia, from October 2024 to January 2025.

2.2 Population, Sample Size, and Sampling

The study population comprised 108 active female students enrolled in the Undergraduate Midwifery Study Program at the Pelamonia Institute of Health Sciences. The calculation yielded 85.04 participants, which was rounded up to 86. This margin-of-error approach was used in the study protocol but was not based on an anticipated effect size or statistical power for detecting an association between the two study variables.

Participants were recruited using purposive sampling. This nonprobability sampling method may have introduced selection bias and limits the generalizability of the findings beyond the participating study program. Students were eligible if they were: (1) actively enrolled in the Undergraduate Midwifery Study Program; (2) aged 21–25 years; and (3) active social media users. Students who declined participation, did not have access to social media, or returned questionnaires that met the prespecified incompleteness criterion were excluded. The restriction to participants aged 21–25 years.

2.3 Study Variables and Measurement Instruments

Social media use was the exposure variable, while social anxiety was the outcome variable. Social media use was measured using a validated social media use questionnaire, with higher scores indicating greater social media use. Participants were categorized into high and low social media use based on the established cut-off score.

Social anxiety was assessed using the Social Anxiety Scale for Adolescents (SAS-A). Higher scores indicated greater social anxiety, and participants were categorized into high and low social anxiety based on the established cut-off score. The validity and reliability of both instruments were based on previous validation studies and, where applicable, were reassessed in the present study.

2.4 Data Collection Procedure

Eligible students were approached at the Pelamonia Institute of Health Sciences during the data-collection period. After receiving an explanation of the study objectives, procedures, voluntary nature of participation, confidentiality protections, and right to withdraw, students who agreed to participate provided informed consent.

Questionnaires were completed directly by participants without consultation with other students. Each questionnaire was identified using a study code rather than the participant's name. The research team checked returned questionnaires for completeness before data entry.

2.5 Statistical Analysis

Categorical variables were summarized using frequencies and percentages. The association between the study-defined categories of social media use and social anxiety was initially evaluated from a 2×2 contingency table. Several expected cell frequencies were below five, including one expected frequency below one; therefore, the assumptions of Pearson's Chi-square test were not satisfied. A two-sided Fisher's exact test was used instead.

The magnitude of association was reported as a conditional maximum-likelihood odds ratio with an exact 95% confidence interval. The odds ratio represented the odds of being classified in the high social anxiety category among participants in the high social media use category relative to those in the low-use category. Statistical significance was evaluated at $\alpha = 0.05$, and p-values were reported to three decimal places. Because the study used purposive sampling, involved only one academic program, and included very few participants in the low social media use category, the estimated association was interpreted cautiously. No multivariable adjustment was conducted for potential confounders such as academic stress, sleep, socioeconomic circumstances, personality, prior mental health conditions, or specific patterns of social media use.

2.6 Ethical considerations

The study was approved by the Health Research Ethics Committee of STIKES Pasapua Ambon (No. 017/KEPK-STIKESPA/EC/2024). All respondents provided written informed consent. Anonymity, voluntary participation, and confidentiality were maintained throughout data collection and reporting.

3. Results

Table 1. Respondent Characteristics in the Undergraduate Midwifery Study Program

Characteristic	n	%
Age		
21 years	60	69.8
22 years	16	18.6
23 years	5	5.8
24 years	5	5.8
Religion		
Islam	83	96.5
Christianity	2	2.3
Hinduism	1	1.2
Total	86	100.0

Table 1 shows that most participants were 21 years old (69.8%), followed by those aged 22 years (18.6%), while participants aged 23 and 24 years each accounted for 5.8% of the sample. Most participants were Muslim (96.5%), with smaller proportions identifying as Christian (2.3%) and Hindu (1.2%).

Table 2. Distribution of Social Media Use and Level of Social Anxiety among Undergraduate Midwifery Students

Variable	n	%
Social Media Use		
High	83	96.5
Low	3	3.5
Level of Social Anxiety		
High	83	96.5
Low	3	3.5
Total	86	100.0

Table 2 shows that 83 of the 86 participants (96.5%) were categorized as having high social media use, while three participants (3.5%) had low social media use. The same distribution was observed for social anxiety, with 83 participants (96.5%) categorized as having high social anxiety and three (3.5%) as having low social anxiety.

Table 3. Relationship between Social Media Use and Level of Social Anxiety among Undergraduate Midwifery Students

Use of Social Media	High Social Anxiety n (%)	Low Social Anxiety n (%)	Total N (%)	p-value
Tinggi	82 (98,8%)	1 (1,2%)	83 (100%)	< 0.001
Rendah	1 (33,3%)	2 (66,7%)	3 (100%)	
Total	83 (96,5%)	3 (3,5%)	86 (100%)	

Table 3 shows that among the 83 participants with high social media use, 82 (98.8%) had high social anxiety and one (1.2%) had low social anxiety. Among the three participants with low social media use, one (33.3%) had high social anxiety and two (66.7%) had low social anxiety. The association between social media use and social anxiety was statistically significant ($p < 0.001$).

4. Discussion

This study identified a significant association between social media use and social anxiety among female undergraduate midwifery students. Among participants with high social media use, 82 of 83 (98.8%) were classified as having high social anxiety, whereas two of the three participants with low social media use had low social anxiety. The marked concentration of high social anxiety among students with high social media use indicates substantial co-occurrence of the two characteristics in this sample. Nevertheless, the cross-sectional design does not establish the temporal direction of this relationship. Social media use may be associated with greater social anxiety, students experiencing social anxiety may engage differently or more intensively with social media, or both may reflect other psychological and social characteristics.

The observed association is supported by evidence showing that social anxiety and problematic patterns of social networking can be closely interconnected. Kim and Bae (2022), in a study of 400 university students, found that social anxiety was positively associated with susceptibility to social networking service addiction. Their analysis further indicated that experiential avoidance and interpersonal difficulties were involved in this relationship. These findings provide a plausible explanation for the present results because students who experience discomfort during direct interpersonal interactions may perceive online environments as more manageable spaces for communication. Social media allows greater control over the timing and presentation of responses, but repeated reliance on digitally mediated interaction may coexist with difficulties in face-to-face social situations.

A related pattern was reported by She et al. (2023), who examined social networking use among college students and demonstrated that social anxiety partially accounted for the relationship between the intensity of social networking use and problematic social networking behavior. Their findings also showed that social skills modified these relationships. This suggests that the amount of social media use alone may provide an incomplete explanation of social anxiety. Students with similar levels of exposure may experience different psychological outcomes depending on their interpersonal skills, motivations for using social media, and patterns of online interaction. Consequently, the high-use category identified in the present study should be interpreted as a measure of the construct captured by the study questionnaire rather than as evidence of social media addiction.

Social comparison may provide another explanation for the observed relationship. Social media exposes users to selectively presented information about other people's appearance, achievements, relationships, and activities. Repeated comparison with such content may affect self-evaluation and increase sensitivity to perceived social judgment. Servidio et al. (2024) found among university students that fear of missing out was positively associated with problematic social media use and social comparison, while self-esteem was negatively associated with problematic use. Social comparison and self-esteem sequentially contributed to the relationship between fear of missing out and problematic social media use. Although these variables were not measured in the present study, the findings suggest that psychological processes occurring during social media engagement may be more relevant than exposure alone.

The possibility of a bidirectional relationship also deserves consideration. Students with social anxiety may increasingly rely on online communication because it permits more control over self-presentation and reduces some immediate demands of face-to-face interaction. At the same time, intensive online engagement may expose students to repeated evaluation, comparison, and expectations for social responsiveness. Research on problematic social networking use and online social anxiety has identified emotion dysregulation, attachment-related characteristics, and motives for social media use as factors associated with both outcomes (Marino et al., 2023). The association identified in the present study may therefore represent part of a broader interaction among social behavior, emotional regulation, and patterns of digital communication rather than a simple direct relationship between the frequency of social media use and anxiety.

The distribution of social media use in this study requires particular caution. Of the 86 participants, 83 (96.5%) were categorized as having high social media use, leaving only three participants in the low-use category. This highly unbalanced distribution may partly reflect the integration of social media into students' everyday communication, academic activities, and social relationships. Evidence from health-professions education indicates that social media has become embedded in students' personal and professional environments. Tan et al. (2024), in a systematic mixed-studies review of student nurses, found that social media was extensively incorporated into their daily lives and could influence personal and professional development. Such evidence supports the relevance of examining social media among students preparing for healthcare professions but also reinforces the need to distinguish ordinary educational and social use from problematic patterns of engagement.

The similarly high prevalence of social anxiety also warrants careful interpretation. Eighty-three participants (96.5%) were categorized as having high social anxiety. This proportion should not be interpreted as indicating that 96.5% of the participants had a clinically diagnosed anxiety disorder. Questionnaire-based classification reflects scores relative to the scoring criteria used by the instrument and does not substitute for clinical assessment. The high proportion may reflect characteristics of this particular sample, the cut-off used to categorize scores, or the sensitivity of the instrument. Reporting the instrument source, scoring procedure, validated cut-off, and psychometric properties is therefore necessary for interpreting this finding.

The identical marginal distributions of the two variables also require statistical consideration. Although 83 participants were categorized as high and three as low for both variables, the individual classifications were not

completely identical. Eighty-two participants were high on both variables, one participant had high social media use but low social anxiety, one had low social media use but high social anxiety, and two were low on both variables. This pattern explains the strong observed association but also produces sparse cells in the 2×2 contingency table. The very small low-use comparison group reduces the precision of the association estimate. Fisher's exact test is therefore more appropriate than the asymptotic Pearson chi-square test for evaluating the categorical association in this dataset.

The findings are particularly relevant to students in health-professions education because psychological experiences related to interpersonal interaction may intersect with academic and clinical learning. Midwifery education requires students to communicate directly with women, families, peers, lecturers, clinical supervisors, and multidisciplinary healthcare teams. Evidence from undergraduate nursing education provides some support for considering social media and psychological distress together in this population. Davis et al. (2024), in a review of undergraduate nursing students, found that social media use was frequently examined in relation to psychological distress, including anxiety and depressive symptoms. Although nursing and midwifery students are not interchangeable populations, both undergo communication-intensive health-professional education, making these findings relevant for considering the educational context of the present results.

Social anxiety may also have implications for student engagement, although this study did not directly evaluate academic outcomes. Previous research among college students has found that social anxiety was negatively associated with academic engagement and that social media-related behavior and sleep quality were among the factors involved in this relationship (Zhang et al., 2022). The present findings cannot establish that students with high social anxiety experienced poorer academic or clinical performance because these outcomes were not measured. They nevertheless identify a potential area for further research in midwifery education, particularly whether patterns of social media use and social anxiety are associated with classroom participation, clinical communication, academic engagement, or confidence during patient interactions.

The characteristics of the sample further define the scope of interpretation. Most participants were 21 years old (69.8%), and the study included only female undergraduate midwifery students from a single institution. This relative homogeneity may reduce variation attributable to age and sex but limits external validity. The results should therefore not be generalized directly to male students, other health-professions students, or midwifery students studying in different institutional and sociocultural environments.

Several methodological limitations should be considered. The cross-sectional design prevents determination of temporal sequence and does not support causal inference. Both social media use and social anxiety were measured through self-report, creating potential response and social desirability bias. The extreme imbalance between the high and low categories resulted in sparse comparison groups and limits the stability of the categorical association. Potential confounders, including duration and purpose of social media use, specific platforms, active versus passive engagement, fear of missing out, social comparison, self-esteem, loneliness, academic stress, sleep quality, and perceived social support, were not included in the analysis. Recruitment from a single midwifery program further limits generalizability.

The present findings provide evidence of an association between social media use and social anxiety within a specific population of female undergraduate midwifery students rather than evidence that one condition causes the other. Future studies should include larger and more heterogeneous samples across multiple institutions and retain questionnaire scores as continuous measures when psychometrically appropriate. Longitudinal designs could clarify whether patterns of social media engagement precede changes in social anxiety, whether social anxiety predicts subsequent social media behavior, or whether reciprocal relationships develop over time. Including social comparison, fear of missing out, self-esteem, interpersonal skills, academic stress, and patterns of active and passive social media use may further clarify the processes underlying the association observed in this study.

5. Conclusions

This study identified a significant association between social media use and social anxiety among female undergraduate midwifery students. Participants with high social media use were more frequently classified as having high social anxiety than those with low social media use. These findings indicate that patterns of social media use and social anxiety co-occurred in this study population but do not establish a causal relationship. Given the cross-sectional design, single-institution setting, and small number of participants in the low-use and low-anxiety

categories, the findings should be interpreted cautiously. Future multicenter longitudinal studies using validated continuous measures and accounting for relevant psychological, academic, and social factors are needed to clarify the direction and magnitude of this relationship.

Conflict of Interest

The authors declare no conflicts of interest.

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