

# STRESS, SOCIAL MEDIA USE, AND BODY IMAGE CONCERNS AMONG ADOLESCENT GIRLS: A CROSS-SECTIONAL STUDY

## Original Article

Ayesha Khalid<sup>1</sup>, Gulrukh Rana<sup>2</sup>, Rabia Gul<sup>3</sup>, Marhaba Rana<sup>4</sup>, Najmus Sahar Shoaib<sup>5\*</sup>, Amna Noor<sup>6</sup>, Intzar Ali<sup>7</sup>

<sup>1</sup>Assistant Professor of Psychology, University of Home Economics, Lahore, Pakistan.

<sup>2</sup>Research Associate, Allama Iqbal Open University, Islamabad, Pakistan.

<sup>3</sup>Kabir Medical College, Peshawar, Pakistan.

<sup>4</sup>Lecturer in Sociology, Govt. Graduate College of Science, Wahdat Road, Lahore, Pakistan.

<sup>5</sup>Institute of Professional Psychology, Bahria University, Karachi, Pakistan.

<sup>6</sup>Senior Demonstrator, Postgraduate Department (Pathology), Rawalpindi Medical University, Holy Family Hospital, Rawalpindi, Pakistan.

<sup>7</sup>Final Year Nursing Student, College of Nursing Federal Government Polyclinic Hospital Islamabad Affiliated with Shaheed Zulfikar Ali Bhutto Medical University, Pakistan.

**Corresponding Author:** Najmus Sahar Shoaib, Institute of Professional Psychology, Bahria University, Karachi, Pakistan, [najmussahar99@gmail.com](mailto:najmussahar99@gmail.com)

**Conflict of Interest:** None

**Grant Support & Financial Support:** None

**Acknowledgment:** The authors thank the participating schools and students for their valuable contribution.

## ABSTRACT

**Background:** Adolescent girls are increasingly exposed to social media environments that promote idealized body standards, placing them at heightened risk for body dissatisfaction and psychological distress. Given the developmental vulnerability of this age group, the potential mental health consequences of such exposure warrant focused investigation.

**Objective:** To examine the associations between social media usage patterns and psychological distress related to body image among adolescent girls.

**Methods:** A cross-sectional study was conducted over six months involving 287 female secondary school students aged 13–18. Participants were categorized into low, moderate, and high social media engagement groups based on the Social Media Engagement Questionnaire. Body image concerns were assessed using the Body Shape Questionnaire (BSQ-34), while stress, anxiety, and depression were measured with the Depression Anxiety Stress Scales (DASS-21). Statistical analyses included Pearson correlation and multiple linear regression, with significance set at  $p < 0.05$ .

**Results:** High social media engagement was significantly associated with elevated BSQ-34 scores (mean =  $126.8 \pm 15.2$ ), indicating greater body dissatisfaction compared to moderate ( $103.4 \pm 13.8$ ) and low ( $82.5 \pm 10.3$ ) engagement groups. DASS-21 subscale scores for stress, anxiety, and depression were also markedly higher in the high engagement group. Regression analysis confirmed social media engagement as a significant predictor of body image distress and psychological symptoms after controlling for confounders.

**Conclusion:** Frequent and appearance-focused social media use is strongly linked with body dissatisfaction and psychological distress in adolescent girls. These findings highlight the urgent need for preventive interventions and policies promoting healthy digital behaviors among youth.

**Keywords:** Adolescent Behavior, Anxiety, Body Image, Depression, Female, Mental Health, Social Media, Stress, Students, Surveys and Questionnaires.

## INTRODUCTION

Adolescence is a critical period marked by rapid physical, emotional, and social changes, during which young individuals begin to form and solidify their identity, including perceptions of body image. For adolescent girls in particular, the formation of body image can have a profound impact on self-esteem, psychological well-being, and overall mental health. In recent years, the rising use of social media has become a dominant feature of adolescent life, shaping how young individuals interact with the world and perceive themselves. With platforms like Instagram, TikTok, and Snapchat deeply woven into the fabric of teenage communication, questions have emerged about the psychological impact of such digital engagement—especially on vulnerable populations such as adolescent girls (1,2). The modern digital environment exposes users to a relentless stream of idealized images, often portraying narrow and unrealistic beauty standards. These curated portrayals of appearance, frequently altered through filters and editing tools, are not only difficult to attain but are also presented as normative and desirable. Numerous studies have suggested that repeated exposure to such content may be linked to body dissatisfaction, low self-worth, and psychological distress, particularly among impressionable young users. For adolescent girls, who may already experience heightened sensitivity to peer evaluation and societal expectations about appearance, the effects of social media can be particularly potent (3,4).

Several cross-sectional and longitudinal studies have begun to unpack the relationship between social media use and body image concerns. For example, research has consistently shown that higher levels of social media use—especially passive scrolling through appearance-centric content—are correlated with increased body dissatisfaction and internalization of thin ideals. Notably, studies indicate that these effects are not uniform across all users; rather, they are influenced by individual factors such as pre-existing self-esteem levels, frequency of social comparison, and perceived social pressures to conform to beauty ideals (5). Additionally, certain types of engagement, such as comparing oneself to influencers or peers, and frequent posting and feedback-seeking behaviors (e.g., “likes” or comments on selfies), have been found to exacerbate negative body image and emotional stress. Moreover, recent literature has pointed to a concerning rise in psychological distress among adolescents, including elevated rates of anxiety, depression, and self-harm, particularly among girls (6,7). While many factors contribute to these trends, the timing has paralleled the increased proliferation of smartphones and social networking apps. This temporal alignment has sparked further investigation into how these platforms may be contributing to a broader mental health crisis. Importantly, while some studies suggest a direct correlation between time spent on social media and mental health outcomes, others emphasize that the nature of engagement and the content consumed play more critical roles in determining psychological impacts (8,9).

Despite growing attention in this area, significant gaps remain in understanding how specific patterns of social media use relate to psychological outcomes such as body image distress among adolescent girls. Much of the existing research relies on broad measures of social media time or platform use, without accounting for nuanced behaviors such as appearance-focused interactions or engagement with idealized content. Furthermore, there is limited understanding of how stress and psychological distress may mediate or moderate these relationships (10,11). By focusing on these underexplored dimensions, the present study seeks to offer more precise insights into the pathways linking digital engagement to mental health outcomes in this population. This study specifically aims to examine the associations between social media usage patterns and psychological distress related to body image among adolescent girls. Using a cross-sectional design, the research investigates whether frequency, type, and emotional context of social media engagement are associated with elevated levels of stress and body dissatisfaction. By addressing a critical gap in current literature, this study aims to contribute to a more nuanced understanding of the interplay between digital behaviors and adolescent mental health, with the objective of informing targeted interventions and public health strategies aimed at supporting the well-being of young girls in the digital age.

## METHODS

This cross-sectional study was conducted over a period of six months at three urban secondary schools located in a metropolitan region, selected to represent a diverse adolescent population in terms of socioeconomic background, ethnicity, and access to digital technology. The objective was to examine associations between social media usage patterns and psychological distress related to body image in adolescent girls. The school setting provided a practical and ethically appropriate environment to reach participants in the specified age range while ensuring systematic data collection under supervised conditions. The study targeted female students aged 13 to 18 years, reflecting the critical developmental stage during which body image concerns and psychological stress often intensify. Participants were recruited through stratified random sampling to ensure balanced representation across grade levels and school types. Inclusion criteria consisted of self-identifying as female, current enrollment in secondary education, and active social media use defined as engagement

with at least one social media platform on five or more days per week over the past three months. Exclusion criteria included a formal diagnosis of a psychiatric disorder requiring active clinical treatment, current use of psychotropic medication, or any physical illness that might affect perception of body image or interfere with daily online activity. Prior to participation, written informed consent was obtained from both the participants and their parents or legal guardians, and the study was approved by the institutional ethics committee.

Sample size was determined through power analysis using G\*Power 3.1 software. Based on previous literature indicating a medium effect size (Cohen's  $d = 0.3$ ) for associations between media exposure and psychological outcomes, with a power of 0.80 and alpha of 0.05, the required sample size was estimated at 274 participants. To account for possible attrition or incomplete responses, 300 participants were initially enrolled in the study, with 287 complete datasets ultimately included in the final analysis (12). Data collection was conducted through a structured self-administered questionnaire distributed in classroom settings under the supervision of trained research assistants. The questionnaire was composed of four sections: demographic profile, social media usage patterns, body image concerns, and psychological distress indicators. Social media use was assessed using a modified version of the Social Media Engagement Questionnaire (SMEQ), which captured metrics such as daily usage time, platform preference, nature of interactions (e.g., posting, scrolling, commenting), and exposure to appearance-focused content. Body image concerns were measured using the Body Shape Questionnaire (BSQ-34), a validated tool designed to assess cognitive and emotional concerns about body shape over the preceding four weeks. Psychological distress was evaluated using the Depression Anxiety Stress Scales (DASS-21), a brief but robust instrument measuring symptom of depression, anxiety, and stress over the same time period (12,13).

To ensure data reliability, a pilot test of the questionnaire was conducted on 30 students from a separate institution not included in the main sample. Internal consistency was confirmed with Cronbach's alpha coefficients of 0.88 for BSQ-34 and 0.91 for DASS-21, indicating high reliability. Questionnaire administration was standardized across sites to reduce response bias and environmental variability. Data were entered and analyzed using SPSS version 27. Descriptive statistics were computed for demographic variables and key study measures. Normality of data distribution was assessed using the Shapiro-Wilk test and visual inspection of histograms and Q-Q plots, confirming that the data were approximately normally distributed. Bivariate analyses were conducted using Pearson correlation coefficients to assess relationships between social media usage patterns and scores on the BSQ-34 and DASS-21 scales. To further explore associations while adjusting for potential confounders such as age, socioeconomic status, and academic pressure, multiple linear regression models were employed. Variance inflation factor (VIF) values were examined to rule out multicollinearity, and residual plots were evaluated to confirm homoscedasticity and linearity assumptions. Statistical significance was set at  $p < 0.05$ . Effect sizes were reported alongside p-values to provide context for the strength of observed associations. Missing data were minimal ( $<5\%$ ) and handled using mean substitution for continuous variables and mode imputation for categorical variables. All participants were debriefed following completion of the questionnaire and provided with written resources for psychological support, including access to the school counselor and local mental health services. Throughout the research process, participant anonymity and confidentiality were strictly maintained, and all data were stored in encrypted digital files accessible only to the principal investigator and authorized study staff.

## RESULTS

The final sample comprised 287 adolescent girls aged between 13 and 18 years (mean age  $15.7 \pm 1.4$  years). Participants were distributed across grades 9 to 12 with relatively even representation. The majority belonged to middle (43.6%) and low (31.4%) socioeconomic backgrounds, ensuring broad demographic representation across social strata. Regarding social media usage patterns, 29.6% of participants were categorized as high-engagement users, 38.3% as moderate users, and 32.1% as low-engagement users based on their responses to the Social Media Engagement Questionnaire. Girls in the high-engagement group reported significantly higher levels of body image dissatisfaction compared to moderate and low users. The mean BSQ-34 scores were 126.8 ( $SD = 15.2$ ) in the high group, 103.4 ( $SD = 13.8$ ) in the moderate group, and 82.5 ( $SD = 10.3$ ) in the low engagement group. These results indicated a clear gradient, with higher social media engagement associated with more pronounced body shape concerns. Psychological distress, as assessed using the DASS-21, also varied significantly across the three engagement groups. Stress scores averaged 20.5 in the high-engagement group compared to 14.7 in moderate and 10.2 in low users. Anxiety scores showed a similar trend, with means of 17.4, 12.3, and 8.5 respectively. Depression scores were likewise elevated in the high-engagement cohort, with a mean of 18.9 compared to 13.8 and 9.1 in the moderate and low groups, respectively. These findings highlight a consistent pattern across all psychological distress domains. Multiple linear regression analysis revealed that high levels of social media engagement significantly predicted increased BSQ-34 scores ( $\beta = 0.47$ ,  $p < 0.001$ ), controlling for age, socioeconomic status, and grade level. Similarly, engagement was a significant predictor of all three DASS-21 subscales: stress ( $\beta = 0.42$ ,  $p < 0.001$ ), anxiety ( $\beta = 0.39$ ,  $p < 0.001$ ), and depression ( $\beta = 0.44$ ,  $p < 0.001$ ). Variance

inflation factors were below 1.8 for all predictors, indicating minimal collinearity among variables. The strength of associations between social media usage and psychological outcomes was visually supported by bar charts displaying the gradient in BSQ-34 and DASS-21 scores across user groups. These visual aids complemented the tabular data and provided a clear overview of the patterns observed in the dataset.

Table 1: Demographics

Variable	Value
Age (mean ± SD)	15.7 ± 1.4
Grade Level (9th)	70 (24.4%)
Grade Level (10th)	80 (27.9%)
Grade Level (11th)	72 (25.1%)
Grade Level (12th)	65 (22.6%)
Socioeconomic Status (Low)	90 (31.4%)
Socioeconomic Status (Middle)	125 (43.6%)
Socioeconomic Status (High)	72 (25.1%)

Table 2: BSQ-34 Scores by Social Media Use

Social Media Engagement	Mean BSQ-34 Score	SD
Low	82.5	10.3
Moderate	103.4	13.8
High	126.8	15.2

Table 3: DASS-21 Subscale Scores by Social Media Use

Social Media Engagement	Mean DASS-21 Stress	Mean DASS-21 Anxiety	Mean DASS-21 Depression
Low	10.2	8.5	9.1
Moderate	14.7	12.3	13.8
High	20.5	17.4	18.9

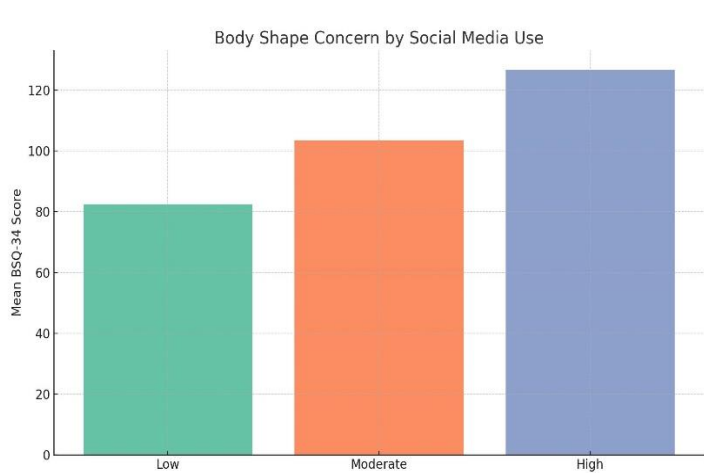


Figure 1 Body Shape Concern by Social Media Use

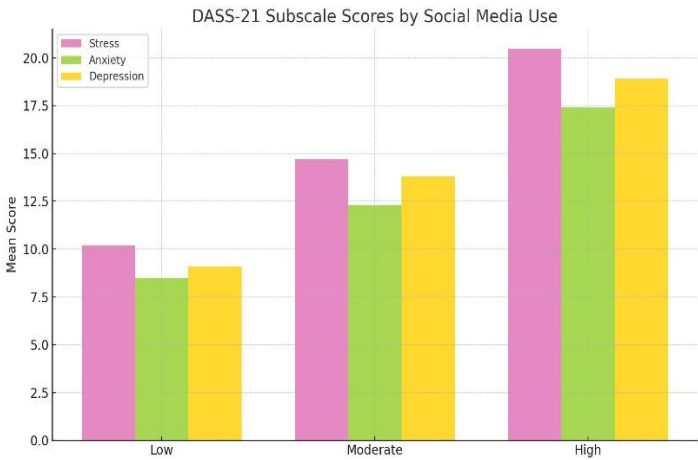


Figure 2 DASS-21 Subscale Scores by Social Media Use

## DISCUSSION

The findings of this study underscore a clear and consistent association between high levels of social media engagement and increased psychological distress related to body image among adolescent girls. These results are congruent with existing literature that positions social media as a powerful sociocultural force shaping adolescent self-perception and mental health (14). Adolescence is a phase of heightened vulnerability, especially for girls, whose body image is closely tied to their self-worth and emotional well-being. The current results showing significantly elevated BSQ-34 and DASS-21 scores among high social media users align with prior research identifying appearance-focused online activity as a key contributor to body dissatisfaction. For instance, a study proposed a developmental–sociocultural model suggesting that social media intersects with adolescence-specific factors like peer validation and sociocultural gender norms to exacerbate body image concerns (15,16). Quantitative associations found in this study between social media use and DASS-21 subscales for stress, anxiety, and depression reflect the broader psychological toll of online appearance comparisons. This pattern has been observed in global populations, including in the comparative study, which identified a similar link between social media use and low self-esteem and increased emotional strain in adolescent girls from both the United States and South Korea (17,18).

An additional strength of the current study is its use of validated tools, such as BSQ-34 and DASS-21, enhancing the reliability and comparability of findings with another research. This approach enables robust statistical modeling and helps control for potential confounders such as socioeconomic status and academic pressure. Regression analyses confirmed the independent predictive power of social media engagement on body image dissatisfaction and psychological distress. However, the study is not without limitations. Its cross-sectional design restricts causal inference, and while associations are strong, directionality cannot be definitively established. It is possible that girls experiencing greater distress may also turn to social media more frequently as a coping mechanism, potentially leading to a bidirectional relationship. Furthermore, the self-reported nature of the data introduces the risk of recall bias and social desirability effects. The sample, though diverse within an urban setting, may not fully capture the experiences of rural adolescents or those from different cultural backgrounds.

Another notable limitation is the lack of granularity in differentiating types of content consumed. As recent work highlights, the nature of social media content—whether it promotes unrealistic body ideals or body positivity—may distinctly affect body image outcomes (19). Similarly, studies emphasized the potential of influencer-led, evidence-based interventions in mitigating body dissatisfaction, suggesting that not all digital engagement is inherently harmful (20,21). In light of these findings, future research should adopt longitudinal and experimental designs to better establish causality and explore protective factors. Studies have advocated for the inclusion of mediating variables such as appearance-ideal internalization and social comparison tendencies to better understand the pathways from social media use to psychological outcomes (22,23). Moreover, interventions grounded in media literacy and positive peer modeling appear promising and should be evaluated at scale. In conclusion, this study reinforces the mounting evidence that high social media engagement among adolescent girls is strongly associated with body image dissatisfaction and increased psychological distress. These outcomes emphasize the urgent need for school-based and digital interventions that not only address the risks of social media but also promote resilience, critical media engagement, and self-acceptance among young users.

## CONCLUSION

This study demonstrated a significant association between high social media engagement and elevated body image dissatisfaction and psychological distress among adolescent girls. The findings underscore the urgent need for targeted interventions promoting media literacy and emotional resilience. By clarifying the psychological risks linked to appearance-focused online behavior, this research contributes vital evidence to inform school-based programs and policy strategies aimed at safeguarding adolescent mental health in the digital era.



## AUTHOR CONTRIBUTION

Author	Contribution
Ayesha Khalid	Substantial Contribution to study design, analysis, acquisition of Data Manuscript Writing Has given Final Approval of the version to be published
Gulrukh Rana	Substantial Contribution to study design, acquisition and interpretation of Data Critical Review and Manuscript Writing Has given Final Approval of the version to be published
Rabia Gul	Substantial Contribution to acquisition and interpretation of Data Has given Final Approval of the version to be published
Marhaba Rana	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published
Najmus Sahar Shoaib*	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published
Amna Noor	Substantial Contribution to study design and Data Analysis Has given Final Approval of the version to be published
Intzar Ali	Substantial Contribution to study design and Data Analysis Has given Final Approval of the version to be published

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