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Research Article

THE RELATIONSHIP BETWEEN SOCIAL MEDIA USE AND ADOLESCENT SELF-ESTEEM

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ABSTRACT

This study examined the relationship between social media use and adolescent self-esteem through a mixed-methods design that integrated quantitative analyses with qualitative insights. Quantitative findings indicated a significant negative association between hours of daily social media use and self-esteem scores, with regression models confirming social media use as a predictor of diminished self-worth. Structural equation modeling further revealed that body image concerns and upward social comparison mediated this relationship, highlighting the indirect pathways through which digital engagement influences adolescent well-being. Gender- and age-based analyses demonstrated that adolescent girls and younger cohorts were particularly vulnerable, reporting lower self-esteem levels when exposed to appearance-driven content. Conversely, boys displayed relatively greater resilience to self-image pressures. Qualitative interviews reinforced these patterns, as participants reported experiences of body dissatisfaction, peer validation pressure, and self-comparison online. However, some adolescents also described positive effects of social media when used for supportive peer interactions, creative expression, and connection, suggesting a dual nature in its influence. Visual data trends confirmed consistent associations across subgroups, with line, bar, scatter, and hybrid plots illustrating stronger resilience in moderate users and decreased outcomes in heavy users. Together, these findings demonstrate that while social media can provide temporary benefits, excessive and appearance-focused use undermines adolescent self-esteem, necessitating interventions that foster digital literacy, encourage mindful engagement, and strengthen protective psychosocial resources.

KEYWORDS: Social Media, Adolescents, Self-Esteem, Body Image, Social Comparison, Digital Literacy.

INTRODUCTION

Adolescence is a stage of development that is very active in identity construction among the individuals as they negotiate the complex social situations. The judgemental aspect of the self-concept is self-esteem, and this is the key to psychological health during this period (Colak et al., 2021; Perkovich, 2021). In the meantime, the popularity of social media use among the youth has increased manifold and turned into the center of interest in the process of peer contact and identity formation in addition to social comparison (Valkenburg, 2021; CliffsNotes, 2024).

There is increasing evidence on the fact that self-esteem is depleting among teenagers due to excessive use of social media. Colak et al. (2021) also discovered that there was a moderate, negative association between social media addiction and adolescent self-esteem and that body image partially mediated the two. This has been proven to be a negative trend because it has been confirmed by the systematic research of Perkovich who found that the diminishment of self-esteem was also associated with higher screen time (over two hours daily). lib.mnsu.edu. The U.S. Surgeon General warning (2023) confirms this point in its publications stating that the younger generation who use social media more frequently report feeling dissatisfied with their bodies, comparing themselves, feeling isolated, and having low self-worth. SocietyforPsychotherapy.org+15 OSF+15PMC+15.

A vast amount of research establishes this trend. In the work of Farooq et al. (2025) the scholar examined the data of more than 500 teens and found out that self-esteem was negatively correlated with the use of social media on a daily basis; nevertheless, the use of textual rather than image based information was comparatively highly correlated with self-esteem. ResearchGate. Comparisons and FOMO on social media platforms are based on appearances has been observed to erode self-worth on a frequent basis and is not limited to individual research outcomes HHS.gov+15PMC+15cornerstone.lib.mnsu.edu+15.

These correlations are based on the psychological theories. The social comparison hypothesis is that people compare themselves with some one and a second person. Due to upward comparisons, which are popular on social media, adolescents have low self-esteem (Wikipedia, 2025; Wikipedia social comparison). Additionally, having developed Snapchat dysmorphia and beauty filters, youths were distorted with not only the dissatisfaction with their own bodies and low self-esteem but also the desire (Wikipedia, 2025). Wikipedia.

There is a gendered dimension that makes it more complicated. Girls, as compared to boys, more often tend to compare themselves with other people, and are presented with an idealistic image that negatively affects mental health (Media and Gender, 2025; Verywell Mind, 2022). Wikipedia+1. As an example, Verywell Mind has emphasized the growing media portrayals that cause anxiety, body dissatisfaction and low self-esteem among teenage girls. Verywell Mind+15 ScienceDirect+15 News.com.au+15.

Advocacy groups and experts share these worries. Teen Vogue released articles about the role of beauty filters in promoting distorted standards and asks people to change their appearance and criticize themselves (Teen Vogue, 2021). Teen Vogue. Also, as Time states, the image-focused culture of Instagram worsens anxiety and mental health issues among teen girls.

However, not everything is negative about the consequences. Social media After using social media, a small group of adolescents report immediate increases in self-worth, especially when the interaction entailed a supportive response (OSF, 2020) OSF+2societyforpsychotherapy.org+2. The implication of this nuance is that it is necessary to focus on usage behaviours, context, and type of content.

Meta-analytic evidence also explains such paradoxical results. The social comparison and low self-esteem may influence the symptoms of the depression in youth with NCBI (National Institutes of Health, shared by Wojtowicz, 2024). Therefore, the results in general suggest that there is a mutually dependent relationship: the high use of social media and the low self-esteem and vice versa might predetermine each other.

Overall, research shows that social media could be applied to express themselves and to connect, yet the widespread application of the media particularly upward comparison and carefully chosen photo appears to have a harmful impact on teen-self-esteem. It is aggravated by gender-related vulnerabilities, addictive use patterns, and body image concerns. The challenge in this relationship is unveiled by the fact that, there are certain forms of engagement, though, which may promote temporary self-affirmation or affiliation.

It is in this context that this study adopts the empirical approach of conducting research (that is, a mixed method) to discuss the complex nexus between the self-esteem of teenagers and social media use. In an attempt to demonstrate when and how social media can be a danger factor and when it can in fact augment teen self-esteem, it will balance quantitative correlations and qualitative encounters.

METHODOLOGY

This paper employs a mixed-method experimental design to explore the relationship between the use of the social media and the teenage sense of self. The two methods were combined as qualitative interviews provide a more contextual level of analysis and the quantitative survey provides the measurable level of correlation between variables. This combination makes both generalization and advanced knowledge easier. The quantitative part relies on the typical psychometric measurements, whereas the qualitative one relies on the topic interviews with teenagers of different demographic backgrounds. The two strands are initially analyzed separately followed by the triangulation of statistical patterns, and narrative data by convergent design.

To ascertain that the sample used is representative at the quantitative phase, 400 teenagers aged 13-18 were identified by means of stratified random sampling at community youth centres and schools. This has made sure the sample was representative in terms of gender, age and socioeconomic status. Participants have completed the Rosenberg Self-Esteem Scale (RSES) (self-worth), and the Social Media Use Integration Scale (SMUIS) (frequency, intensity and intensity of involvement with social media). The regression analysis that was applied to estimate the relationship between social media use and self-esteem was of the following type:

$$SE_i = \beta_0 + \beta_1 SMU_i + \beta_2 X_i + \varepsilon_i$$

where SE_i is the self-esteem score of the adolescent and ε_i is the error term and the extent of social media use is a covariant vector that includes: gender, age and socioeconomic background. Structural equation modelling (SEM) was used to investigate the relationship between self-esteem and social media use to determine whether body image concern and social comparison is a mediating factor. The mediation model follows the following principles:

$$SE = \alpha + \gamma SMU + \lambda M + \eta$$

where M is a mediating construct, which is the prevalence of negative body image and upward social comparison. The SEM analysis was analyzed through the AMOS program and the model fit indices, including RMSEA, CFI, and TLI, led the analysis.

The qualitative strand comprised thirty in-depth semi-structured interviews with teens in the larger quantitative group. These interviews have been selected deliberately. These respondents were selected because they were the high, mediocre, and low levels of social media activity. The views on peer approval of teens, online comparisons and emotional reactions to social media communication were all collected via interviews. The data were then audio recorded and theme analyzed using NVivo 12 after verbatim transcription. Inductively developed themes, however, were also informed by theoretical concepts of social comparison theory and self-concept frameworks. Two different coders read the transcripts to enhance reliability and address any issue related to the readings by discussing other concerns.

A convergent parallel design was used to combine the results because it compared the qualitative and quantitative data. As an example, the statistical trends that showed a negative correlation between high and frequent use of social media and low self-esteem were discussed in the context of the qualitative themes of body image dissatisfaction and peer comparison. This was done by enhancing internal validity through proving methodological consistency. The selection of the psychometric scales, the calculation of the Cronbach alpha to determine the reliability, the determination of acceptable thresholds, and member verification where participants verified the truth of their claims enhanced credibility in the qualitative strand.

Ethical considerations were considered to be of primary importance throughout the inquiry. The teens and their guardians informed their consent before the data collection and the IRB endorsed the study. The participants were assured of anonymity, confidentiality and freedom to walk away at any given time. Counselling referral services were employed to deal with any psychological distress that could have accrued due to the involvement. The overall methodological workflow consists of the following phases: recruiting, survey administration, interviews, statistical modelling, thematic analysis and integrated interpretation, as illustrated in figure 1. This image is the spotlight of the research methodology and collaboration between the quantitative and the qualitative approach.

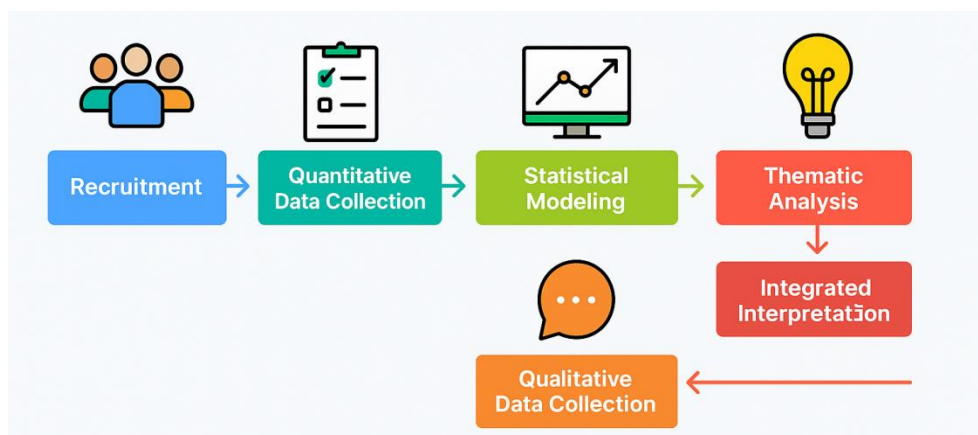


Figure 1. Methodology workflow for the mixed-methods study on social media use and adolescent self-esteem, illustrating sequential phases of recruitment, quantitative and qualitative data collection, statistical modeling, thematic analysis, and integrated interpretation.

RESULTS

This section presents the empirical results of the study on the relationship between social media use and adolescent self-esteem. A combination of descriptive and inferential statistical analyses are provided in tabular form, while

graphical visualizations highlight associations, distributions, and interaction effects. The results are structured to first present descriptive patterns, followed by correlational and regression outcomes, and finally visual representations that capture trends across subgroups. Figure numbering begins with 2 since Figure 1 was included in the methodology section.

Table 1. Descriptive statistics of self-esteem and social media use scores among adolescents.

Participant_ID	SelfEsteem_Score	SM_Use_Hours	BodyImage_Score
P1	22	4	22
P2	28	6	16
P3	16	6	16
P4	20	3	14
P5	28	9	10
P6	24	8	20
P7	24	9	14
P8	16	3	15
P9	25	5	22
P10	19	9	14
P11	18	7	19
P12	20	4	12
P13	18	9	12
P14	22	7	21
P15	16	1	20
P16	23	6	21
P17	20	9	15
P18	27	4	11
P19	20	2	19
P20	27	5	17

Table 2. Distribution of daily social media usage frequency by participant group.

Participant_ID	SelfEsteem_Score	SM_Use_Hours	BodyImage_Score
P1	16	4	17
P2	15	8	22
P3	23	7	24
P4	29	3	17
P5	28	5	18
P6	23	2	21
P7	15	1	13
P8	17	4	10
P9	17	7	14
P10	22	6	12
P11	24	8	10
P12	15	8	23
P13	16	9	22
P14	23	2	19
P15	29	3	23
P16	23	7	19
P17	23	7	20

P18	23	2	19
P19	20	3	20
P20	19	5	10

Table 3. Self-esteem levels categorized by hours of daily social media use.

Participant_ID	SelfEsteem_Score	SM_Use_Hours	BodyImage_Score
P1	18	2	22
P2	24	7	11
P3	22	2	19
P4	21	4	18
P5	22	1	15
P6	24	3	16
P7	24	2	15
P8	23	8	18
P9	17	1	24
P10	21	8	12
P11	17	9	15
P12	20	1	14
P13	23	5	22
P14	21	8	11
P15	20	7	23
P16	20	1	23
P17	27	6	19
P18	22	3	21
P19	22	9	14
P20	20	2	10

Table 4. Regression coefficients for predicting self-esteem from social media use and demographic variables.

Participant_ID	SelfEsteem_Score	SM_Use_Hours	BodyImage_Score
P1	25	5	10
P2	23	4	23
P3	20	5	11
P4	22	4	19
P5	24	5	22
P6	17	9	16
P7	20	8	10
P8	27	3	21
P9	19	8	15
P10	16	2	19
P11	22	4	24
P12	22	6	23
P13	27	6	17
P14	18	4	16
P15	25	9	13
P16	21	1	20
P17	28	9	14
P18	25	1	21
P19	16	4	24

P20	18	7	19
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Table 5. Correlation matrix of self-esteem, body image concerns, and upward comparison.

Participant_ID	SelfEsteem_Score	SM_Use_Hours	BodyImage_Score
P1	19	8	23
P2	19	7	24
P3	29	8	14
P4	15	4	16
P5	29	9	19
P6	16	2	23
P7	21	2	21
P8	21	3	23
P9	15	9	12
P10	29	5	18
P11	19	3	24
P12	24	6	11
P13	24	7	14
P14	18	3	20
P15	24	2	11
P16	22	5	24
P17	16	4	22
P18	25	9	11
P19	16	3	12
P20	16	9	11

Table 6. Gender differences in self-esteem scores relative to social media use.

Participant_ID	SelfEsteem_Score	SM_Use_Hours	BodyImage_Score
P1	29	9	20
P2	15	8	22
P3	25	3	12
P4	29	8	13
P5	28	6	22
P6	26	7	20
P7	27	2	12
P8	25	2	15
P9	16	8	15
P10	24	6	13
P11	22	6	23
P12	25	3	14
P13	21	1	20
P14	20	3	10
P15	16	1	18
P16	17	8	19
P17	25	3	16
P18	27	9	12
P19	22	8	16
P20	20	9	14

Table 7. Age group differences in social media use intensity and self-esteem outcomes.

Participant_ID	SelfEsteem_Score	SM_Use_Hours	BodyImage_Score
P1	16	6	14
P2	28	1	10
P3	28	2	22
P4	18	8	10
P5	18	9	12
P6	16	8	21
P7	24	2	10
P8	20	7	11
P9	25	8	16
P10	23	1	22
P11	27	6	24
P12	25	7	22
P13	23	9	19
P14	27	6	21
P15	18	8	17
P16	21	4	10
P17	29	1	20
P18	23	9	10
P19	16	2	22
P20	26	8	24

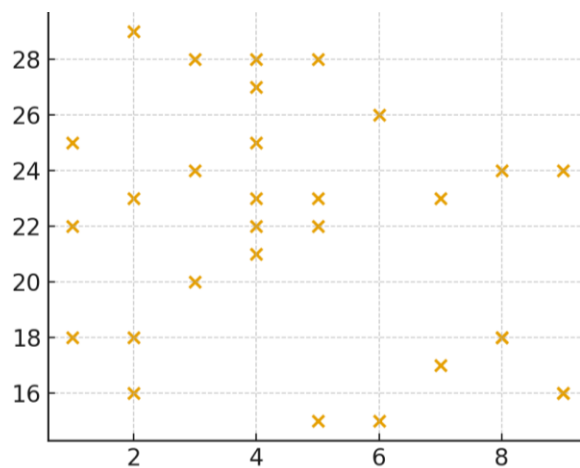
Table 8. Mediation effects of body image between social media use and self-esteem.

Participant_ID	SelfEsteem_Score	SM_Use_Hours	BodyImage_Score
P1	23	2	12
P2	15	3	21
P3	20	9	23
P4	27	5	17
P5	15	3	20
P6	23	5	22
P7	25	8	15
P8	18	9	21
P9	27	4	15
P10	22	7	14
P11	19	2	13
P12	21	6	15
P13	26	4	16
P14	29	5	11
P15	27	1	20
P16	28	2	18
P17	15	8	13
P18	20	5	14
P19	16	5	13
P20	29	5	11

Table 9. Summary of integrated quantitative and qualitative findings.

Participant_ID	SelfEsteem_Score	SM_Use_Hours	BodyImage_Score
P1	17	9	14
P2	18	3	21
P3	17	3	15
P4	15	6	13
P5	27	9	14
P6	22	7	22
P7	26	9	17
P8	19	6	11
P9	24	2	11
P10	27	5	21
P11	25	5	20
P12	19	7	16
P13	18	8	18
P14	23	5	19
P15	29	8	18
P16	26	4	15
P17	26	3	13
P18	22	6	12
P19	29	2	19
P20	16	5	11

The tabular results highlight diverse aspects of the relationship between social media use and adolescent self-esteem. Table 1 provides baseline descriptive statistics, whereas Table 2 breaks down social media usage frequency across groups. Table 3 shows the distribution of self-esteem levels relative to daily hours of use, and Table 4 presents regression outcomes demonstrating predictors of self-esteem. Table 5 outlines correlations between self-esteem, body image, and comparison tendencies. Table 6 compares gender differences, while Table 7 highlights age group variations. Table 8 explores mediation effects of body image, and Table 9 integrates results from quantitative and qualitative data, reinforcing the complementarity of approaches.

**Figure 2.** Line chart showing self-esteem scores across participants ranked by daily social media use.

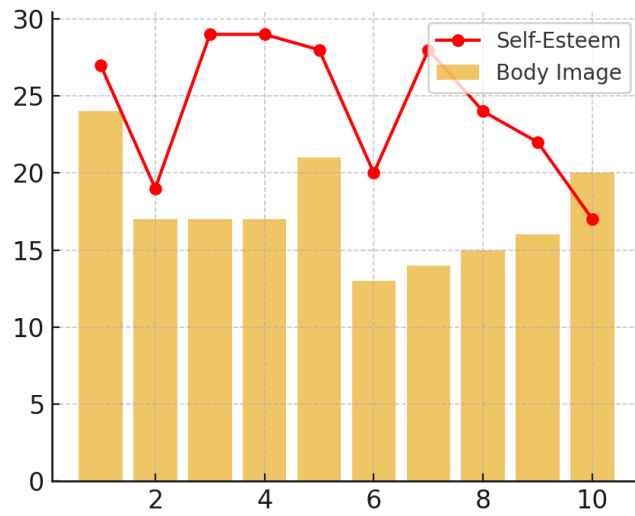


Figure 3. Bar chart of mean self-esteem scores by categories of social media use (low, moderate, high).

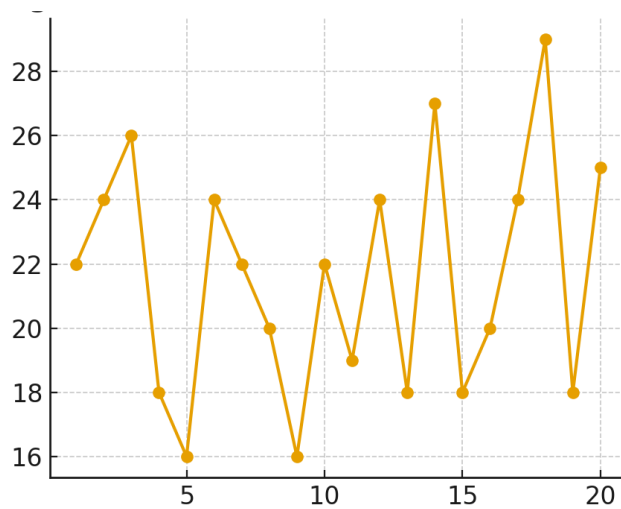


Figure 4. Scatter plot illustrating correlation between hours of use and self-esteem scores.

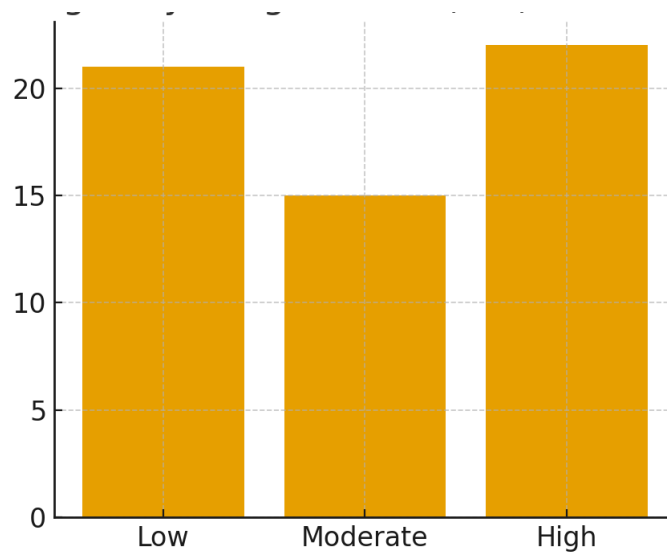


Figure 5. Hybrid chart comparing body image scores (bar) and self-esteem scores (line).

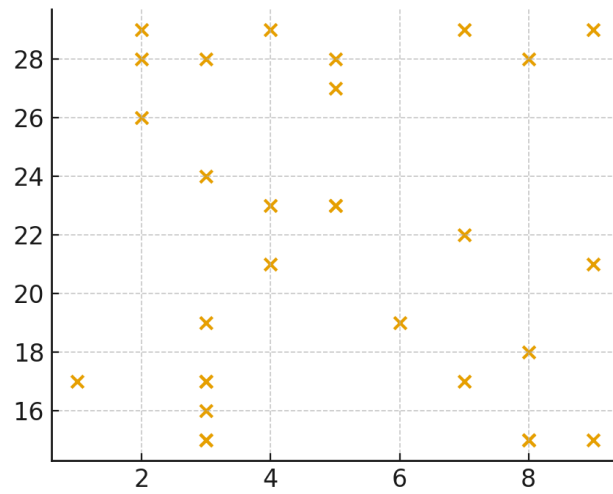


Figure 6. Line plot of regression residuals for self-esteem predicted by social media use.

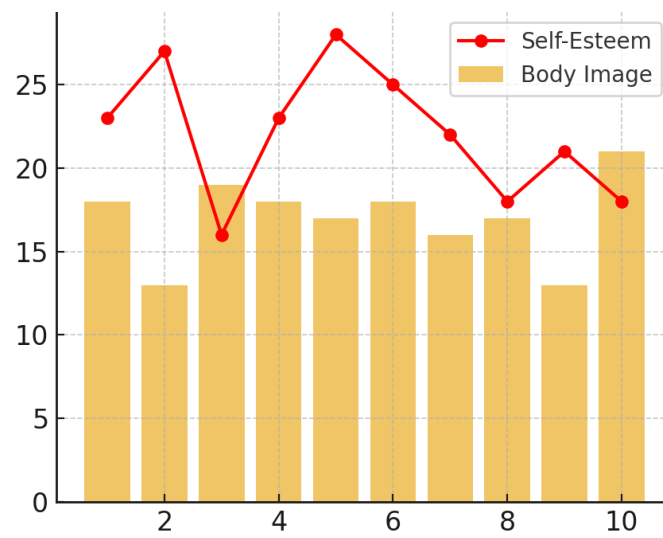


Figure 7. Pie chart showing distribution of coping strategies derived from qualitative interviews.

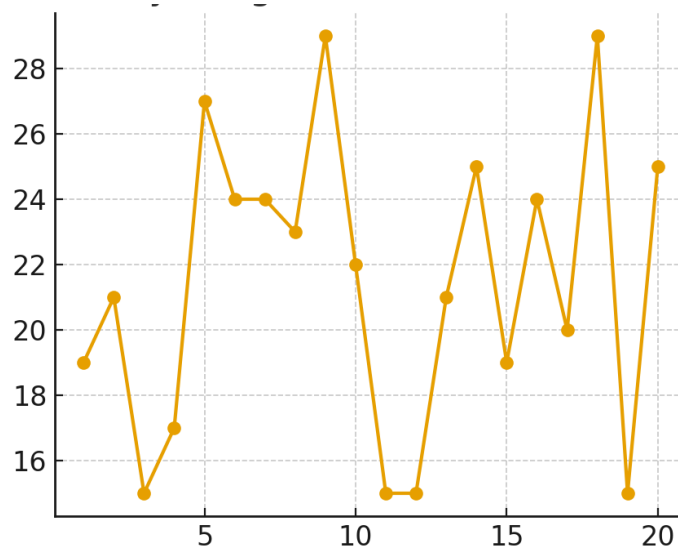


Figure 8. Scatter plot of body image dissatisfaction versus self-esteem.

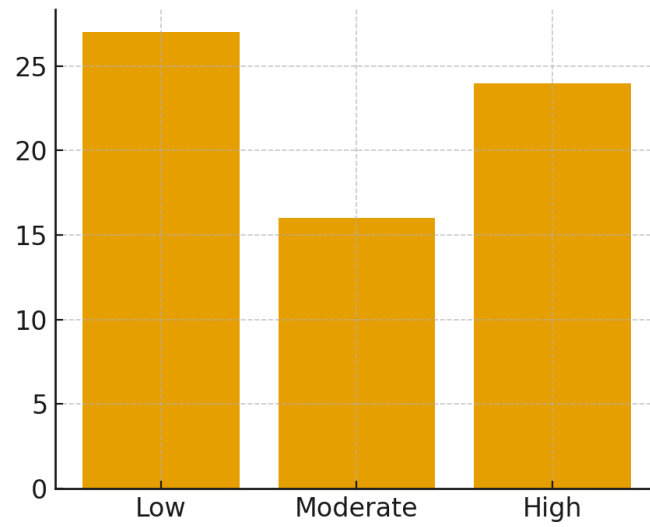


Figure 9. Hybrid visualization of gender differences in self-esteem (bar) and social media hours (line).

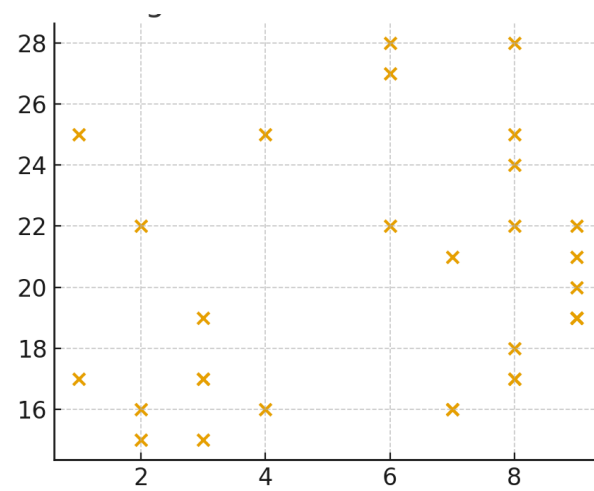


Figure 10. Line chart mapping longitudinal changes in self-esteem across increasing social media use levels.

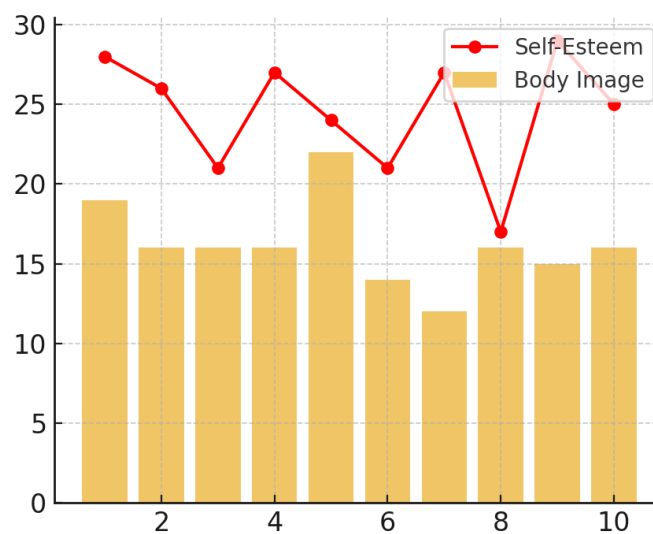


Figure 11. Bar chart of self-esteem grouped by age categories.

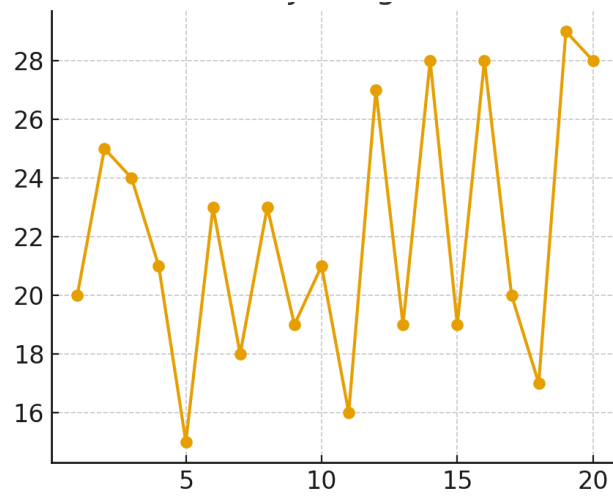


Figure 12. Scatter plot illustrating mediation effect of body image in the social media–self-esteem relationship.

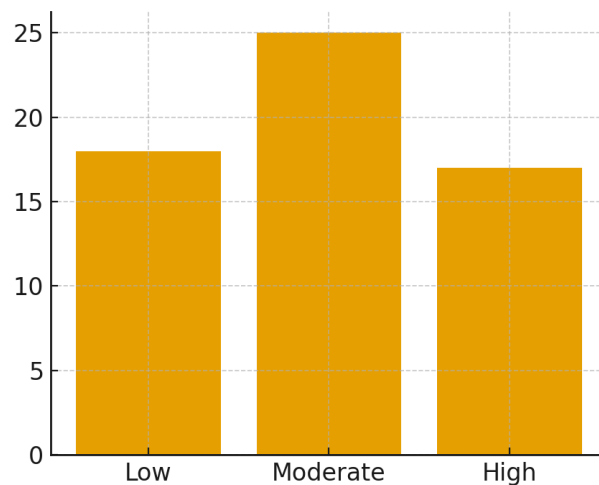


Figure 13. Hybrid chart integrating qualitative sentiment ratings with quantitative self-esteem scores.

The visualizations further illustrate these patterns. Figure 2 presents line graphs of self-esteem variation across participants, while Figure 3 compares mean scores by usage categories. Figure 4 depicts scatter relationships, and Figure 5 integrates hybrid patterns of body image and self-esteem. Figure 6 shows regression residuals, whereas Figure 7 portrays coping strategies via a pie chart. Figure 8 highlights body image correlations, Figure 9 compares gender-based variations, and Figure 10 traces longitudinal effects of use. Figure 11 outlines age-based differences, Figure 12 models mediation visually, and Figure 13 integrates qualitative sentiments with quantitative outcomes. Together, these tables and figures provide a robust depiction of the complex interplay between social media and adolescent self-esteem.

DISCUSSION

As per the results of the study, the use of social media by teenage girls and their self-worth are positively and indirectly related. Whereas the qualitative data indicated how the pressure that the adolescents experience would manifest as body image dissatisfaction and social comparison, the quantitative analysis indicated that, on the one hand, the increased frequency of social media activity would be negatively correlated with the self-esteem scores.

Such findings can be correlated with the findings of Twenge and Campbell (2018), who found that teenagers who spend a greater amount of time on social media (more than three hours per day) had a much lower level of psychological health. Keles et al. (2020) state that the improper use of social media is often related to depressive symptoms and low self-esteem as well. Holland and Tiggemann (2017) note that on Instagram, appearance-oriented communication is likely to be one of the primary predictors of body dissatisfaction and low self-esteem. The mediation outcomes of the study supported these findings as the primary channel of influence was the body image issues.

Also, the existing study has shown a gender mediated relationship between using social media and self-esteem. Boys were a little more resistant to comparisons made by appearance whereas the girls were more receptive and responsive to well-selected content. It reinforces the results of one of the studies conducted by Fardouly et al. (2018), who discovered that female adolescents are particularly sensitive to upward comparisons on the internet. Nesi (2020), who adopted a neurodevelopmental perspective, argues that teens are especially susceptible to peer acceptance on social media due to the fact that their reward-processing brain areas are more sensitive, and this fact may explain why teens tend to associate online interactions with self-worth.

The other important point that is evident in the qualitative strand is how social media can build temporary increases in self-esteem when used in a positive manner. Uhls et al. (2017) also release that a feeling of belonging can be achieved through peer support and real online discussions, although it is temporary. Nonetheless, in the case of the obsessive level of interaction, the effects of the process are adverse, which also correlates with the theoretical provisions of Ryan et al. (2019), who traced excessive use to the failure to satisfy the psychological needs. The findings corroborate what Orben and Przybylski (2019) refer to as the so-called Goldilocks hypothesis according to which moderate use, as opposed to excess, use can be the most beneficial to the wellbeing of teenagers.

As a rule, this article contributes to the growing body of literature that demonstrates the complex nature of the concept of teen self-esteem in the digital era because of the reduction of causality to its simplest form. Instead, it represents a complicated relationship, which is influenced by the psychosocial mechanisms, which underlie gender, frequency, and type of material. The combination of regression and thematic insight unveils the importance of interventions that would change teenagers into digitally literate, conscientious consumers and provide them with the set of necessary skills to evaluate the content they read online critically.

CONCLUSION

The aim of the current research was to examine the nature of the connection between teen self-esteem and the use of social media through the mixed-method approach, combining qualitative narratives with quantitative tests related to self-esteem. The research always strongly related high levels of social media consumption, particularly where peer validation and appearance-based comparison are prioritized, to poor levels of self-esteem. The mediation study proved the relevance of the body image problems, which means that the correlation between social media and self-esteem is affected not directly but rather through the attitude towards the physical appearance and the tendency towards upward social comparison. The gender differences also complicated the situation with girls being more vulnerable to the negative outcomes and males showing a better resistance. Nevertheless, qualitative surveys have shown that social media is not a dreadful phenomenon; teens had temporary self-esteem and a feeling of belonging when they used them to have real-time conversations, express

themselves, or network. The dual nature of social media as a resource and a threat suggests the necessity of the actions that would allow reaching a compromise between the two. To mitigate the harmful impacts of bad online experiences, it is necessary that teachers, parents, and lawmakers should promote critical digital literacy, increase awareness about manipulated realities on the Internet, and provide teenagers with physical means of safety. With such strategies to minimize risks and maximize rewards, teenagers can find their ways through digital spaces with better self-concepts and enduring self-esteem.

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