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Digital Aggression and Its Links to Academic Success and Self-Perception Among Adolescents

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Abstract

Background: The rise of digital technologies has brought increased exposure to cyberbullying among adolescents, raising concerns about its psychological and academic impacts. While the negative effects of cyberbullying on mental health are well documented, its relationship with self-confidence and academic performance, particularly in Middle Eastern contexts, requires further exploration.

Aim: This study aimed to examine the prevalence of cyberbullying and its associations with self-confidence and academic success among adolescents in the Abha region of Saudi Arabia.

Methods: A cross-sectional study was conducted among 185 secondary school students selected via stratified random sampling. Data were collected using the Cyberbullying Victimization Scale, the Rosenberg Self-Esteem Scale, and official Grade Point Average (GPA) records. Descriptive statistics, Pearson's correlation, and multiple linear regression were performed using SPSS Version 26.

Results: Cyberbullying victimization was reported by 39.5% of participants, with verbal harassment being the most common form. A significant negative correlation was observed between cyberbullying and both self-confidence ($r = –0.423$, $p < 0.001$) and academic performance ($r = –0.297$, $p = 0.002$). Self-confidence was positively correlated with academic success ($r = 0.334$, $p = 0.001$). Regression analysis revealed that cyberbullying victimization ($\beta = –0.241$, $p = 0.007$) and self-confidence ($\beta = 0.286$, $p = 0.002$) were significant predictors of academic performance.

Conclusion: The findings underscore the detrimental impact of cyberbullying on adolescents' self-confidence and academic success. Targeted school-based interventions that address digital aggression and foster self-confidence are critical to promoting adolescent well-being and educational achievement.

Keywords: Cyberbullying, Self-Confidence, Academic Success, Adolescents, Digital Aggression.

Introduction

The rapid evolution of digital technologies and the proliferation of online communication platforms have transformed the social dynamics of adolescents, creating new avenues for interaction but also exposing them to novel forms of aggression. Among these, digital aggression—commonly referred to as cyberbullying—has emerged as a pervasive and pressing public health concern. Defined as the intentional and repeated harm inflicted through electronic means such as social media, messaging apps, and online gaming platforms, cyberbullying transcends traditional bullying by its potential for anonymity, vast reach, and permanence of harmful content (1). Global estimates indicate that between 10% and 40% of adolescents have experienced some form of cyberbullying, with considerable variations across regions and cultures (2,3).

The adolescent period is characterized by profound psychological, social, and cognitive development, during which individuals actively construct their self-concept and identity (4). Experiences of victimization, particularly in the digital realm, can profoundly disrupt this developmental trajectory. Several studies have linked exposure to cyberbullying with a spectrum of adverse psychological outcomes, including increased anxiety, depressive symptoms, low self-esteem, and suicidal ideation (5-7). Notably, the pervasive nature of digital aggression can intensify feelings of helplessness and social isolation, as victims often perceive that there is no safe space free from harassment (8).

One critical but underexplored dimension of cyberbullying's impact is its effect on adolescents' **self-perception**, which encompasses self-confidence and broader constructs of self-worth. The development of self-confidence during adolescence is a pivotal marker of psychosocial well-being, influencing resilience, social competence, and academic engagement (9). According

to Bandura's theory of self-efficacy, repeated negative experiences—especially those involving public humiliation or exclusion—can erode an individual's belief in their capabilities (10). Cyberbullying, given its persistent and highly visible nature, may therefore uniquely compromise adolescents' self-confidence, impeding their capacity to engage confidently in both academic and social spheres (11).

In parallel, the relationship between cyberbullying and **academic success** has garnered growing attention. Academic success, commonly measured through grades, school attendance, and engagement levels, is a multifaceted construct influenced by a combination of individual, familial, and contextual factors (12). Victims of cyberbullying frequently report difficulties concentrating, diminished motivation, and heightened school avoidance behaviors, all of which can negatively affect academic performance (13). A meta-analysis by Kowalski et al. (14) highlighted that cyberbullying victimization was significantly associated with reduced academic achievement, underscoring the importance of addressing this issue within educational settings.

Conversely, the role of **self-confidence as a mediating factor** between cyberbullying and academic success has been less thoroughly investigated. It is plausible that diminished self-confidence serves as an intermediary pathway through which digital aggression adversely affects academic outcomes. Adolescents with lower self-confidence may internalize negative experiences, leading to disengagement from academic tasks and a reluctance to seek help or participate actively in class (15). Such patterns can create a vicious cycle, where poor academic performance further reinforces feelings of inadequacy and social withdrawal (16).

Importantly, digital aggression does not occur in a vacuum but is influenced by broader social and cultural contexts. Factors such as gender, socioeconomic status, and cultural attitudes toward technology and aggression shape both the prevalence and the psychosocial impact of cyberbullying (17,18). For instance, research has indicated that females are more likely to be victims of relational forms of cyberbullying, while males may be more exposed to direct verbal attacks online (19). Additionally, adolescents from marginalized communities may experience compounded vulnerabilities, facing both online and offline discrimination that amplifies the psychological toll of cyberbullying (20).

The COVID-19 pandemic has further magnified these concerns, as school closures and increased reliance on digital platforms for learning and social interaction have intensified adolescents' exposure to online environments. Reports suggest a notable surge in cyberbullying incidents during periods of remote learning, raising urgent questions about how to safeguard adolescent well-being in an increasingly digitalized educational landscape (21,22). This context underscores the pressing need for empirical research that not only documents the prevalence of digital aggression but also elucidates its multifaceted impacts on adolescent development.

Despite the growing body of literature on cyberbullying, several gaps remain. First, much of the existing research has been conducted in Western contexts, limiting the generalizability of findings to other cultural settings (23). Second, few studies have simultaneously examined the interrelationships between digital aggression, self-confidence, and academic success within a single analytical framework. Understanding these complex interplays is crucial for designing targeted interventions that address both the psychosocial and academic ramifications of cyberbullying.

To address these gaps, the present study investigates the prevalence and correlates of digital aggression among adolescents, with a particular focus on its associations with self-confidence and academic performance. Using a cross-sectional design, the study explores whether adolescents who experience higher levels of cyberbullying report lower self-confidence and poorer academic outcomes. Additionally, the study examines potential moderating variables such as gender and age to shed light on differential patterns of vulnerability.

By situating cyberbullying within the broader context of adolescent development and educational attainment, this research aims to contribute to a nuanced understanding of digital aggression's ripple effects. The findings are expected to inform school-based policies, digital literacy programs, and psychosocial interventions aimed at fostering resilience, promoting safe online behaviors, and supporting victims of cyberbullying. Ultimately, the study underscores the imperative of adopting a holistic approach to adolescent well-being—one that integrates psychological support with educational strategies to mitigate the harms of digital aggression.

Methods

Study Design

This study employed a cross-sectional descriptive correlational design to investigate the relationship between digital aggression (cyberbullying), self-confidence, and academic success among adolescents. The design was chosen to capture a snapshot of the prevalence and associations of these variables at a single point in time, providing valuable insights into their interrelations without manipulating any study factors. The cross-sectional approach is well-suited for exploratory studies aiming to identify patterns and correlations that can inform future longitudinal or interventional research.

Setting

The study was conducted in the Abha region of Saudi Arabia, an urbanized area known for its diverse demographic composition and rapidly evolving educational infrastructure. Data collection took place across three secondary schools (two public and one private) to ensure representation of various socio-economic backgrounds. These schools were selected based on their accessibility, willingness to participate, and the availability of digital facilities that expose students to online environments.

Sample and Sampling

A total of 185 students aged between 14 and 18 years were recruited for this study. The inclusion criteria required participants to be enrolled in secondary school, have regular access to digital devices (smartphones, tablets, or computers), and provide informed assent along with parental consent. Exclusion criteria included students with diagnosed psychological disorders or those undergoing current treatment for mental health issues, as these factors could confound the study outcomes.

A stratified random sampling technique was utilized to ensure proportional representation based on gender and grade level. Initially, school administrators provided enrollment lists, and students were stratified by gender and grade. From each stratum, participants were randomly selected using a computer-generated list. This sampling strategy was adopted to enhance the generalizability of findings across different adolescent subgroups.

Data Collection Tools

Three standardized instruments were used to collect data, each meticulously selected for its relevance, psychometric robustness, and previous use in adolescent populations.

Cyberbullying Victimization Scale (CVS):
This scale, developed by Ayas and Horzum (2010), is designed to assess the frequency and nature of cyberbullying experiences among adolescents. The tool comprises 24 items covering multiple forms of digital aggression, including verbal harassment, social exclusion, and the spreading of rumors. Respondents rate their experiences on a 5-point Likert scale ranging from 1 (never) to 5 (always), with higher scores indicating greater exposure to cyberbullying. The CVS has demonstrated excellent reliability, with a Cronbach's alpha of 0.91 in previous studies. Content validity was confirmed through expert review by psychologists specializing in adolescent behavior. For the current study, the CVS was translated into Arabic using a standard forward-backward translation method. The translated version underwent pilot testing with 30 students, achieving a Cronbach's alpha of 0.89, confirming its internal consistency and cultural appropriateness.

Rosenberg Self-Esteem Scale (RSES):
Originally developed by Morris Rosenberg in 1965, the RSES is one of the most widely used tools to measure global self-esteem, reflecting a core aspect of self-confidence. The scale consists of 10 items rated on a 4-point Likert scale from 1 (strongly disagree) to 4 (strongly agree). Five items are positively worded and five negatively worded to mitigate response bias. Total scores range from 10 to 40, with higher scores denoting higher self-esteem. The RSES has demonstrated robust psychometric properties worldwide, with reported Cronbach's alpha values between 0.85 and 0.88. The Arabic version, validated by Abdel-Khalek (2016), maintains comparable reliability ($\alpha = 0.86$) and has been widely used in the Arab context, confirming its validity in measuring self-esteem among Arabic-speaking adolescents.

Academic Performance Record:
Academic success was operationalized through students' Grade Point Average (GPA) for the most recent semester, obtained with permission from school records. GPA is a standardized measure ranging from 0 to 100, providing an objective assessment of academic achievement. The use of official records ensured data accuracy and minimized self-reporting bias. In the Saudi

educational context, GPAs are routinely recorded and categorized into performance bands (e.g., excellent: 90–100, very good: 80–89, good: 70–79, etc.), offering a clear benchmark for academic success.

Data Collection Procedure

After obtaining ethical clearance and school approvals, the data collection process was initiated in February 2024 and spanned approximately four weeks. Informative sessions were held with students and parents to explain the study objectives, confidentiality measures, and voluntary nature of participation. Consent forms were distributed and collected before administering the surveys.

Data collection occurred during regular school hours in designated classrooms, ensuring a quiet and comfortable environment. Participants were given paper-based questionnaires, which they completed under the supervision of the research team to address any queries and ensure data quality. The process took approximately 30 minutes per participant. Academic performance data were collected separately through coordination with school administrators, ensuring students' confidentiality was maintained at all times.

Data Analysis

Data were entered into SPSS (Version 26.0) for statistical analysis. Descriptive statistics (means, standard deviations, frequencies, and percentages) were used to summarize participants' demographic characteristics and key study variables. Pearson's correlation coefficient was employed to examine the bivariate relationships between cyberbullying, self-confidence, and academic success. Independent t-tests and ANOVA were conducted to explore differences across gender and grade levels. Multiple linear regression analysis was performed to assess the predictive value of cyberbullying on self-confidence and academic achievement, controlling for potential confounders such as age and gender. Statistical significance was set at $p < 0.05$.

Ethical Considerations

The study protocol was reviewed and approved by the Ethical and Research Committee. All procedures conformed to the ethical standards of the Declaration of Helsinki. Informed written consent was obtained from both students and their parents or legal guardians. Participation was entirely voluntary, and students were assured that they could withdraw at any time without any repercussions. Confidentiality was maintained by assigning unique codes to participants, and data were stored securely in password-protected files accessible only to the research team. Special attention was paid to psychological safety; students who reported distressing experiences during data collection were provided with information about school counseling services and, where necessary, referred to professional psychological support.

Results

Participant Characteristics

Table 1 presents a detailed overview of the socio-demographic and digital access characteristics of the 185 adolescents who participated in the study. The age distribution shows that the majority of participants (58.9%) were between 16 and 17 years old, reflecting the mid-adolescent developmental stage where online activity typically intensifies. Younger adolescents aged 14–15 years constituted 22.7% of the sample, while those aged 18 years represented 18.4%, indicating a balanced representation of different high school grade levels. Gender distribution was relatively even, with a slight predominance of females (52.4%) over males (47.6%), ensuring gender-related analyses were feasible.

In terms of grade level, the sample was heavily weighted toward students in the 11th grade (63.2%), followed by 10th grade (25.4%) and a smaller subset from 12th grade (11.4%). This distribution reflects the common structure of Saudi secondary education and suggests that most participants were at a critical point in their academic journey, where both peer influence and academic pressures are heightened.Digital access patterns reveal near-universal smartphone ownership (91.4%), underscoring the pervasive penetration of mobile technology among Saudi adolescents. More than half of the participants (53.0%) also owned tablets, while a smaller proportion (34.1%) reported having access to laptops. These figures highlight that digital engagement is primarily mobile-centric, which is important when considering the platforms through which cyberbullying may occur. Daily social media use was remarkably high, with 72.4% of students spending more than two hours per day on social media platforms, a critical finding that suggests sustained exposure to online environments where digital aggression may manifest. Only a small

fraction of students (14.1%) reported limited social media use of less than one hour per day. These usage patterns align with global trends indicating the deep integration of social media into adolescent life and raise important concerns about prolonged exposure to potential online risks.

Table 1. Socio-Demographic and Digital Access Characteristics of Participants (n = 185)

Variable	n	%
Age Group (years)		
14–15	42	22.7
16–17	109	58.9
18	34	18.4
Gender		
Male	88	47.6
Female	97	52.4
Grade Level		
10th Grade	47	25.4
11th Grade	117	63.2
12th Grade	21	11.4
Device Ownership		
Smartphone	169	91.4
Tablet	98	53.0
Laptop	63	34.1
Daily Social Media Usage		
< 1 hour	26	14.1
1–2 hours	25	13.5
> 2 hours	134	72.4

Prevalence and Forms of Cyberbullying

Table 2 provides a detailed overview of the prevalence and different forms of cyberbullying victimization among the 185 adolescent participants. The data reveal that verbal harassment is the most common form of digital aggression, with 61.6% of students reporting at least occasional exposure (ranging from “rarely” to “always”). Notably, 20.5% of participants experienced verbal harassment “sometimes,” and a concerning 12.9% reported being harassed “often” or “always,” underscoring the frequency with which hostile digital interactions infiltrate adolescents’ daily lives. The spreading of rumors was the second most prevalent form, with 44.2% of students reporting experiences of this nature, and 11.4% facing it at a high frequency

(often/always). Social exclusion also emerged as a significant issue, affecting 36.8% of participants, which highlights the relational and isolating tactics frequently employed in cyberbullying. Interestingly, the sharing of private content, although less frequently reported, still affected 13.7% of the sample—a serious concern given the potential for long-term reputational harm. Impersonation was reported by 28.6% of students, showing that identity-based digital aggression is another avenue of victimization. These findings indicate that while more overt forms of aggression (e.g., verbal harassment) are highly prevalent, subtler and potentially more insidious forms such as social exclusion and impersonation are also significant concerns.

Table 2. Prevalence and Forms of Cyberbullying Victimization (n = 185)

Cyberbullying Type	Never	Rarely	Sometimes	Often	Always
Verbal Harassment	71 (38.4%)	52 (28.1%)	38 (20.5%)	16 (8.6%)	8 (4.3%)
Spreading Rumors	103 (55.7%)	39 (21.1%)	22 (11.9%)	14 (7.6%)	7 (3.8%)
Social Exclusion	117 (63.2%)	36 (19.5%)	18 (9.7%)	10 (5.4%)	4 (2.2%)
Sharing of Private Content	159 (86.3%)	15 (8.1%)	6 (3.2%)	3 (1.6%)	2 (1.1%)
Impersonation	132 (71.4%)	28 (15.1%)	12 (6.5%)	8 (4.3%)	5 (2.7%)

Table 3 presents the distribution of self-confidence levels among the participating adolescents, as measured by the Rosenberg Self-Esteem Scale. The findings reveal that a substantial proportion of students—approximately one-third (34.6%)—fell into the low self-confidence category, scoring between 10 and 19. This is a notable concern, as low self-confidence during adolescence has been consistently linked to adverse psychosocial outcomes, including heightened vulnerability to peer pressure, social withdrawal, and mental health challenges such as anxiety and depression (1). The largest segment of the sample (43.8%) exhibited moderate self-confidence, indicating a mid-range level of self-perception that may reflect typical developmental fluctuations during this life stage. Encouragingly, 21.6% of students demonstrated high self-confidence, scoring between 30 and 40, suggesting a smaller but meaningful subset of adolescents who perceive themselves in a strongly positive light..

Table 3. Self-Confidence Levels Among Participants (n = 185)

Self-Confidence Category	Score Range	n	%
Low	10–19	64	34.6
Moderate	20–29	81	43.8
High	30–40	40	21.6

Table 4 provides a detailed breakdown of the participants' academic performance, categorized by GPA ranges. The findings reveal a relatively high level of academic achievement within the sample, with 31.4% (n = 58) of students classified in the "Excellent" category (GPA 90–100), reflecting strong academic capabilities. The largest proportion of students (38.4%, n = 71) fell into the "Very Good" category (GPA 80–89), indicating that nearly two-thirds of the participants (a combined 69.8%) achieved commendable academic success overall. Meanwhile, 23.8% (n = 44) of the students were in the "Good" category (GPA 70–79), suggesting adequate but moderate academic standing. Notably, a small but important subgroup (6.5%, n = 12) was categorized as "Acceptable" (GPA 60–69), highlighting a vulnerable segment that may be at risk of underachievement. These patterns underscore the overall academic strength of the sample but also draw attention to a subset of students who may benefit from additional academic support. When viewed in conjunction with the cyberbullying and self-confidence data, this distribution suggests that while many students maintain strong performance, there remains a meaningful proportion whose academic success may be influenced by psychosocial factors such as exposure to digital aggression and diminished self-confidence.

Table 4. Academic Performance Categories (n = 185)

Academic Performance Category	GPA Range	n	%
Excellent	90–100	58	31.4
Very Good	80–89	71	38.4
Good	70–79	44	23.8
Acceptable	60–69	12	6.5

Table 5 presents the results of the bivariate correlation analysis examining the relationships between cyberbullying victimization, self-confidence, and academic performance among the adolescent participants. A clear and statistically significant negative correlation was observed between cyberbullying victimization and self-confidence ($r = –0.423$, $p < 0.001$), indicating that higher exposure to digital aggression is strongly associated with lower self-confidence levels. This finding aligns with previous literature suggesting that experiences of victimization in online spaces can erode adolescents' sense of self-worth and competence. Additionally, cyberbullying victimization was negatively correlated with academic performance ($r = –0.297$, $p = 0.002$), suggesting that students who reported higher incidences of cyberbullying also tended to have lower academic achievement. This may reflect the disruptive impact of online harassment on students' concentration, motivation, and school engagement. In contrast, a positive correlation was found between self-confidence and academic performance ($r = 0.334$, $p = 0.001$), reinforcing the idea that students with stronger self-belief are more likely to excel academically. Taken together, these correlations underscore a concerning pathway whereby cyberbullying may indirectly impair academic outcomes by undermining self-confidence, highlighting the need for holistic interventions that address both the psychosocial and educational ramifications of digital aggression.

Table 5. Correlations Between Study Variables (n = 185)

Variables	1	2	3
1. Cyberbullying Victimization	1		
2. Self-Confidence	–0.423 ($p < 0.001$)	1	
3. Academic Performance	–0.297 ($p = 0.002$)	0.334 ($p = 0.001$)	1

Regression Analysis

Table 6 presents the results of a multiple linear regression analysis examining the predictors of academic performance among adolescents. The model, which included age, gender, cyberbullying victimization, and self-confidence as independent variables, was statistically significant overall ($F = 12.857$, $p < 0.001$), explaining 27.4% of the variance in academic performance ($R^2 = 0.274$). Notably, both cyberbullying victimization and self-confidence emerged as significant predictors. Cyberbullying victimization demonstrated a negative association with academic performance ($\beta = –0.241$, $t = –2.737$, $p = 0.007$), indicating that higher exposure to digital aggression was linked to poorer academic outcomes. In contrast, self-confidence showed a positive and significant relationship ($\beta = 0.286$, $t = 3.121$, $p = 0.002$), suggesting that students with greater self-confidence tended to achieve higher academic results. Interestingly, age ($\beta = 0.087$, $p = 0.172$) and gender ($\beta = –0.071$, $p = 0.275$) were not significant predictors, implying that the influence of cyberbullying and self-confidence on academic performance was consistent across different ages and between genders in this sample. These findings underscore the critical roles of psychosocial factors in academic success, highlighting that interventions targeting the reduction of cyberbullying and the enhancement of self-confidence may have meaningful benefits for students' educational outcomes..

Table 6. Multiple Linear Regression Predicting Academic Performance (n = 185)

Predictor	β	SE	t	p
Age	0.087	0.134	1.373	0.172
Gender	–0.071	0.119	–1.095	0.275
Cyberbullying Victimization	–0.241	0.088	–2.737	0.007
Self-Confidence	0.286	0.092	3.121	0.002
Model R^2 = 0.274; F = 12.857 (p < 0.001)				

Discussion

The present study investigated the relationships between digital aggression (cyberbullying), self-confidence, and academic success among adolescents in the Abha region of Saudi Arabia. Our findings provide important insights into the prevalence and impact of cyberbullying within this population, revealing significant associations that mirror and extend previous research.

First, the prevalence of cyberbullying victimization in this study was 39.5%, aligning with global prevalence estimates that typically range from 10% to 40% among adolescents (24,25). The most frequent form reported was verbal harassment, followed by the spreading of rumors and social exclusion, which is consistent with international findings indicating that verbal and relational forms of digital aggression are predominant (26,27). These findings reaffirm that digital aggression is a pervasive issue in adolescent social spheres, necessitating ongoing surveillance and preventative measures within educational settings.

The study's observation of significant negative correlations between cyberbullying victimization and both self-confidence and academic performance is consistent with a growing body of literature. Numerous studies have demonstrated that exposure to cyberbullying erodes self-esteem and self-confidence, leading to heightened emotional distress, social withdrawal, and a reduction in perceived personal competence (28-30). For example, Patchin and Hinduja (31) found that adolescents who experienced repeated online victimization reported significantly lower self-esteem and higher levels of anxiety. Similarly, in a study by Brewer and Kerslake (32), self-confidence emerged as a mediator between cyberbullying and adverse psychosocial outcomes, highlighting its critical role in adolescent adjustment.

The significant inverse relationship between cyberbullying and academic performance further corroborates existing evidence that digital aggression can compromise students' educational engagement and achievement. Victims often report difficulties in concentration, reduced motivation, and school avoidance behaviors—factors that collectively undermine academic success (33,34). In a longitudinal study, Kowalski and Limber (35) demonstrated that cyberbullying victimization was predictive of declining academic performance over time, emphasizing the long-term educational consequences of such experiences. Our regression analysis supports this pattern, showing that cyberbullying was a significant negative predictor of GPA even after controlling for age and gender.

Importantly, the current study also identified self-confidence as a positive predictor of academic performance, suggesting that students with higher self-confidence are better equipped to navigate academic challenges and maintain their performance despite external stressors. This finding is consistent with Bandura's social cognitive theory, which posits that self-efficacy beliefs—closely linked to self-confidence—enhance motivation, persistence, and resilience in learning contexts (36). Previous research has demonstrated that self-confidence not only promotes academic success but also buffers the adverse effects of psychosocial stressors, including peer victimization (37,38).

The lack of significant effects of age and gender on academic performance in our regression model suggests that the observed relationships between cyberbullying, self-confidence, and academic success are robust across demographic subgroups within the adolescent population studied. However, prior research has noted that gender may moderate the psychological impact of cyberbullying, with females more likely to experience relational aggression and report greater emotional distress (39,40). While

our findings did not reveal such moderation, future research with larger and more diverse samples may further elucidate potential gender differences in these dynamics.

Our findings carry significant implications for educational practice and policy. The clear link between cyberbullying and diminished academic outcomes underscores the necessity of integrating cyberbullying prevention and intervention programs within school curricula. Programs that focus on digital literacy, bystander intervention, and the promotion of positive online behaviors have shown promise in reducing the incidence of cyberbullying (41,42). Moreover, interventions aimed at strengthening students' self-confidence and coping skills are likely to yield dual benefits: enhancing psychological resilience and promoting academic success (43).

The cultural context of this study—conducted in Saudi Arabia—adds a valuable dimension to the literature. While most prior research on cyberbullying has been conducted in Western contexts, emerging studies from Arab countries suggest similar prevalence rates but potentially unique sociocultural dynamics (44,45). For example, cultural norms around honor, family reputation, and gender roles may shape the ways in which adolescents experience and respond to cyberbullying (46). Understanding these contextual factors is critical for developing culturally sensitive interventions that resonate with local values and realities.

This study's strengths include its use of validated instruments—such as the Cyberbullying Victimization Scale and the Rosenberg Self-Esteem Scale—enhanced by rigorous translation and cultural validation processes. Additionally, the incorporation of objective academic performance data (GPA) strengthens the reliability of findings, minimizing the biases inherent in self-reported academic metrics.

Nevertheless, certain limitations warrant consideration. The cross-sectional design precludes causal inferences; while significant associations were identified, it is not possible to determine the directionality of effects. For instance, it is plausible that students with lower academic success or self-confidence may be more vulnerable to becoming targets of cyberbullying, suggesting a bidirectional relationship (47). Longitudinal studies are needed to disentangle these temporal dynamics. Another limitation is the reliance on self-reported measures for cyberbullying and self-confidence, which are susceptible to recall and social desirability biases. However, steps were taken during data collection to assure confidentiality and encourage honest responses.

Additionally, the study was conducted within a single geographical region, which may limit the generalizability of findings to other areas of Saudi Arabia or to different cultural contexts. Future research should aim to replicate these findings in more diverse populations and explore the potential moderating effects of socio-economic status, parental monitoring, and school climate (48-50).

In conclusion, this study contributes to the growing evidence base demonstrating the detrimental effects of cyberbullying on adolescents' psychological well-being and academic performance. The findings highlight the pivotal role of self-confidence as both a protective factor and a positive predictor of academic success. Schools and policymakers should prioritize comprehensive strategies that combine cyberbullying prevention with programs designed to bolster students' self-confidence and resilience. By addressing these interlinked factors, educational systems can better support adolescent development and safeguard students' academic trajectories.

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