

The Impact of Social Media Use on the Mental Health of Adolescents Aged 13–18 Years in the Eastern Province of the Kingdom of Saudi Arabia

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Abstract

Objectives: This study aimed to investigate the prevalence and patterns of social media use among adolescents in the Eastern Province of Saudi Arabia and to analyze its association with symptoms of depression and anxiety.

Methods: A quantitative, cross-sectional design was employed. Data were collected via an online, self-administered questionnaire from a convenience sample of 435 adolescents aged 13–18 years. The survey measured social media usage patterns, mental health symptoms using the validated Patient Health Questionnaire for Adolescents (PHQ-A) and Generalized Anxiety Disorder-7 (GAD-7) scale, experiences of cyberbullying, and levels of parental mediation. Data were analyzed using descriptive and inferential statistics.

Results: Social media use was pervasive, with 93.6% of participants owning accounts and 78.1% engaging for three or more hours daily. Elevated mental health symptoms were common: 31.6% of adolescents reported moderate-to-severe depressive symptoms (PHQ-A), and 35.4% reported moderate-to-severe anxiety symptoms (GAD-7). A majority (59.3%) reported exposure to cyberbullying or negative messages. Parental mediation was limited, with only 20.0% of adolescents reporting specific rules for social media use. Notably, 76.1% of participants perceived the overall impact of social media on their mental health as negative. **Conclusions:** The findings indicate a strong association between intensive social media use and poorer mental health outcomes among adolescents in the Eastern Province of Saudi Arabia. The high prevalence of negative online experiences and the low level of active parental mediation highlight critical areas for intervention. Promoting digital literacy, fostering healthy online behaviors, and implementing evidence-based parental education programs are recommended to mitigate risks and support adolescent well-being.

Keywords: Adolescent Mental Health; Social Media Use; Saudi Arabia; Depression; Anxiety; Cyberbullying; Parental Mediation; Cross-Sectional Study

How to cite this article: Alkhaldi NH, Alrashod AD, Alamer MA, Alnaim AA, Alqahtani MH. The Impact of Social Media Use on the Mental Health of Adolescents Aged 13–18 Years in the Eastern Province of the Kingdom of Saudi Arabia. *Int J Drug Deliv Technol*. 2026;16(71s): 767-773. DOI: 10.25258/ijddt.16.71s.92

Introduction

The pervasive integration of digital technology into daily life has fundamentally altered the social and developmental landscape of adolescence. Globally, adolescents are the most connected demographic, with estimates suggesting over 90% of youth in developed and rapidly developing nations engage with social media platforms [1]. This near-ubiquitous access has ignited significant scholarly and public health concern regarding its potential impact on the psychological well-being of a generation undergoing critical neurodevelopmental and psychosocial changes. The association between social media use and mental health outcomes, particularly depression and anxiety, has become a central focus of 21st-century adolescent health research. Concurrently, the global prevalence of mental health disorders among young people has risen sharply, with the World Health Organization identifying depression as a leading cause of illness and

disability in adolescents worldwide [2]. This trend appears to have been accelerated by the COVID-19 pandemic, which intensified both digital reliance and social isolation, creating a unique confluence of risk factors for adolescent mental health [3].

Adolescence, spanning the ages of approximately 10 to 19 years, is a period characterized by heightened sensitivity to social feedback, identity formation, and the development of the brain's socio-emotional and executive control systems [4]. This neurodevelopmental stage makes adolescents particularly susceptible to the rewards and pressures inherent in social media environments. Platforms are engineered to maximize engagement through variable reward schedules and social validation metrics (e.g., "likes," shares), which can powerfully reinforce use patterns [5]. Key theoretical pathways linking social media to adverse mental health outcomes include displacement of time for sleep, physical activity, and

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face-to-face social interaction; social comparison and upward appearance-based comparisons leading to diminished self-esteem; cyberbullying and online harassment; and the internalization of curated, idealized representations of peers' lives, fostering feelings of inadequacy and fear of missing out (FoMO) [6][7]. Empirical evidence substantiates these concerns. A large-scale longitudinal study in the United Kingdom found that frequent social media use at age 14 predicted poorer mental health and well-being outcomes at age 17, particularly among girls [8]. Meta-analytic reviews further confirm a small but significant association between time spent on social media and increased levels of depression and anxiety symptoms, though the effect sizes and causality remain topics of ongoing investigation [9].

Within the Arabian Gulf context, and specifically in the Kingdom of Saudi Arabia (KSA), this issue demands urgent and localized investigation. Saudi Arabia possesses one of the world's highest rates of internet and smartphone penetration, with a notably young population—over 50% of its citizens are under the age of 25 [10]. The nation has experienced a rapid and profound digital transformation, making social media a primary conduit for socialization, entertainment, and information among Saudi youth. Preliminary regional studies suggest patterns of high engagement; for instance, a 2021 survey indicated that Saudi adolescents were among the highest users of platforms like Snapchat and Twitter globally [11]. However, rigorous, large-scale studies examining the specific relationship between quantified social media usage patterns and validated mental health metrics within this distinct cultural and social context remain scarce. The influence of familial structures, parental mediation styles, and cultural norms on digital behavior in Saudi Arabia may modulate the relationship between social media and mental health in ways that differ from Western contexts. This study therefore aims to address this critical gap in knowledge by conducting a comprehensive, cross-sectional analysis of social media use and its association with mental health among adolescents aged 13–18 years in the Eastern Province of Saudi Arabia.

Methodology

Study Design

This study employed a quantitative, cross-sectional research design to investigate the relationship between social media usage and the mental health of adolescents in the Eastern Province of Saudi Arabia.

Population and Sampling

The target population comprised adolescents aged 13 to 18 years residing in the Eastern Province of Saudi Arabia. A non-probability, convenience sampling

method was utilized for participant recruitment. The primary recruitment channels were through collaboration with private and public secondary and intermediate schools in major cities of the region (e.g., Dammam, Khobar, Al-Ahsa). School administrations distributed the digital survey link to students and their parents via official communication portals and parent-teacher groups. To broaden reach, the survey was also disseminated through approved youth-focused social media channels and community forums. The final sample consisted of 435 completed responses, which exceeds the minimum sample size required for a population of this size with a 95% confidence level and a 5% margin of error, ensuring the findings have a satisfactory degree of statistical reliability.

Data Collection Instrument

Data was collected using a structured, self-administered online questionnaire hosted on a secure, user-friendly survey platform. The questionnaire was meticulously designed in Arabic, the participants' primary language, to ensure clarity and cultural relevance. It consisted of four main sections:

1. **Demographic and Background Information:** This section gathered data on age, gender, nationality, city of residence, current school grade, type of school (private/public), and self-reported academic performance.
2. **Social Media Usage Patterns:** This section assessed the breadth and depth of social media engagement. It included questions about device access, account ownership, frequency and duration of daily use, preferred platforms, time of day of highest use, and specific behavioral patterns (e.g., checking social media before sleep, feeling distracted at school, engaging in social comparison, and experiences with cyberbullying).
3. **Standardized Mental Health Scales:**
 - **The Patient Health Questionnaire for Adolescents (PHQ-A):** A 9-item module validated for screening depression symptoms in adolescents. Respondents indicated how often they were bothered by each problem (e.g., low mood, anhedonia, sleep issues) over the past two weeks using a 4-point Likert scale (0 = Not at all, 3 = Nearly every day). A total score was calculated to categorize depression severity.
 - **The Generalized Anxiety Disorder-7 (GAD-7) Scale:** A widely used 7-item tool for screening anxiety. Participants rated

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the frequency of anxiety symptoms (e.g., feeling nervous, uncontrollable worry) over the past two weeks on the same 4-point scale, producing a total score indicative of anxiety severity.

- 4. Parental Mediation and Perceived Impact:** The final section explored the familial context and subjective perception of social media's influence. It contained questions regarding the presence of parental rules for social media use, parental awareness of the platforms used, the frequency of discussions about online experiences, and a direct question on the participant's perceived overall impact of social media on their mental health (positive, negative, or no impact).

Data Collection Procedure

Data collection took place over an eight-week period. The online survey link was distributed alongside a comprehensive digital information sheet and consent form. For participants under 18 years old, a two-step consent process was implemented: initial consent was obtained from a parent or guardian, followed by assent from the adolescent participant before they could proceed to the questionnaire. The survey was designed to be anonymous, with no personally identifiable information collected. Respondents could complete the questionnaire at a time and place convenient for them, and submission was only possible after answering all mandatory questions, ensuring completeness of datasets.

Ethical Considerations

The study adhered to strict ethical guidelines. Prior to commencement, ethical approval was obtained from the relevant institutional review board. Participation was entirely voluntary, and participants (and their guardians) were informed of their right to withdraw at any point without consequence. The introductory page clearly outlined the study's purpose, estimated completion time, confidentiality assurances, and contact information for the principal investigator. Anonymity was guaranteed, as no IP addresses or email data were stored. All data was downloaded and stored on a password-protected, encrypted computer accessible only to the research team.

Data Analysis

Following data collection, the dataset was cleaned and coded for statistical analysis using software such as SPSS or R. The analysis employed descriptive statistics to summarize the demographic profile of the sample and the key variables, presenting results as frequencies, percentages, means, and standard deviations. Inferential statistics, including chi-square tests and correlation analyses, were used to examine relationships between variables, such as comparing

mental health scores across different levels of social media usage or between genders. The internal consistency reliability of the PHQ-A and GAD-7 scales within this specific sample was also calculated using Cronbach's alpha to ensure the instruments performed adequately. The results were then synthesized into comprehensive tables and narrative summaries to address the research objectives.

Results:

Table 1 details the composition of the 435 study participants. The majority were 15-17 years old (67.6%), with 16-year-olds being the single largest group (28.3%, n=123). Females constituted 54.0% (n=235) of the sample compared to 46.0% males (n=200). An overwhelming 98.9% (n=430) were Saudi nationals. Geographically, half of the respondents (50.6%, n=220) were from Dammam. Most participants were in high school (71.5%, n=311) and attended private schools (64.4%, n=280). Academically, the vast majority (81.1%, n=353) reported a "Good" performance level (70-79%).

Table 2 reveals extensive engagement among adolescents. Nearly all (93.6%, n=407) had social media accounts, with TikTok being the most popular platform (54.3%, n=236). Daily usage was substantial, as 78.1% spent 3 or more hours on platforms, including 37.7% (n=164) who spent 5-6 hours. Evening was the peak usage time (58.9%, n=256). Notably, 71.7% (n=312) checked platforms before sleep, and 75.6% (n=329) reported reducing sleep for social media use. A significant 59.3% (n=258) experienced cyberbullying or negative messages, and of those, 62.0% (n=160) took action by reporting or blocking the perpetrator.

Table 3 presents scores from standardized screening tools. For depression (PHQ-A), 68.8% of participants (n=299) scored in the Mild to Moderate severity range or higher, with 8.9% (n=39) reaching Moderately Severe or Severe levels. Anxiety levels (GAD-7) were similarly elevated, with 79.5% (n=346) scoring in the Mild to Severe ranges, including 6.2% (n=27) in the Severe category. These results indicate a high prevalence of self-reported depressive and anxious symptoms within the sample.

Table 4 highlights a potential gap in parental mediation. While 57.0% (n=248) of adolescents believed their parents knew which platforms they used, only 20.0% (n=87) stated that their parents set specific rules for social media use. Communication about online experiences was infrequent for many, with 33.3% (n=145) rarely and 9.0% (n=39) never discussing these experiences with their parents.

Figure (1) captures the adolescents' own views on its effect. A striking 76.1% (n=331) of respondents perceived social media's overall impact on their mental health as negative. In contrast, only 7.8% (n=34)

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viewed the impact as positive, and 16.1% (n=70) felt it had no impact. This clear self-assessment underscores a dominant negative perception among the youth regarding their social media use.

Table 1: Demographic Characteristics of the Sample (N=435)

Characteristic	Category	n	%
Age (years)	13	7	1.6%
	14	43	9.9%
	15	73	16.8%
	16	123	28.3%
	17	98	22.5%
	18	81	18.6%
	19	10	2.3%
Gender	Male	200	46.0%
	Female	235	54.0%
Nationality	Saudi	430	98.9%
	Non-Saudi	5	1.1%
City	Dammam	220	50.6%
	Al-Khobar	102	23.4%
	Al-Ahsa	63	14.5%
	Dhahran	32	7.4%
	Jubail	8	1.8%
	Other	10	2.3%
School Level	Middle School	124	28.5%
	High School	311	71.5%
Type of School	Private	280	64.4%
	Public	155	35.6%
Academic Performance	Excellent (90%+)	12	2.8%
	Very Good (80–89%)	30	6.9%
	Good (70–79%)	353	81.1%
	Acceptable (60–69%)	37	8.5%
	Weak (<60%)	3	0.7%

Table 2: Social Media Usage Patterns

Question	Response	n	%
Smartphone/Tablet with Internet?	Yes	305	70.1%
	No	130	29.9%
Social Media Accounts?	Yes	407	93.6%
	No	28	6.4%
Platforms Used (Multiple)	TikTok	236	54.3%
	Snapchat	183	42.1%
	Twitter/X	140	32.2%
	Instagram	89	20.5%

	YouTube	134	30.8%
	WhatsApp	199	45.7%
	Facebook	26	6.0%
Daily Usage (Hours)	<1 hour	31	7.1%
	1–2 hours	64	14.7%
	3–4 hours	115	26.4%
	5–6 hours	164	37.7%
	>6 hours	61	14.0%
Most Active Time	Morning	21	4.8%
	Afternoon	103	23.7%
	Evening	256	58.9%
	Late Night	55	12.6%
Daily Check Frequency	1–2 times	53	12.2%
	3–5 times	142	32.6%
	6–10 times	133	30.6%
	>10 times	107	24.6%
Check Before Sleep?	Yes	312	71.7%
	No	123	28.3%
Reduce Sleep for SM?	Yes	329	75.6%
	No	106	24.4%
Distracted at School?	Always	127	29.2%
	Often	181	41.6%
	Sometimes	98	22.5%
	Rarely	24	5.5%
	Never	5	1.1%
Social Comparison?	Always	117	26.9%
	Often	164	37.7%
	Sometimes	124	28.5%
	Rarely	28	6.4%
	Never	2	0.5%
Upset/Jealous/Sad?	Always	58	13.3%
	Often	148	34.0%

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	Sometimes	186	42.8%
	Rarely	39	9.0%
	Never	4	0.9%
Cyberbullied/Negative Msgs?	Yes	258	59.3%
	No	177	40.7%
Reported/Blocked? (If Yes)	Yes	160	62.0%*
	No	98	38.0%*

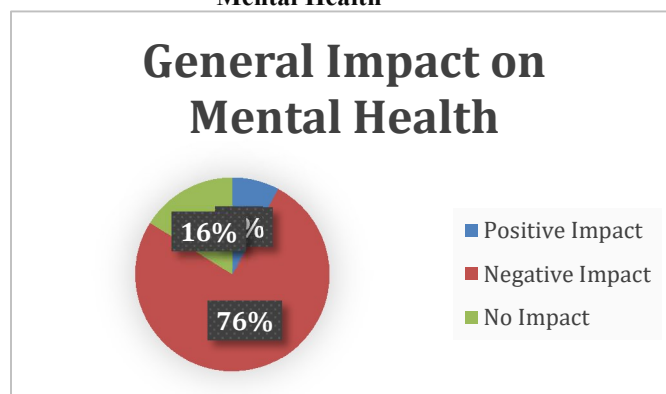
Table 3: Mental Health Measures (PHQ-A & GAD-7)

PHQ-A (Depression) Severity			
Severity Level	Score Range	n	%
Minimal	0–4	112	25.7%
Mild	5–9	186	42.8%
Moderate	10–14	98	22.5%
Moderately Severe	15–19	35	8.0%
Severe	20–27	4	0.9%
GAD-7 (Anxiety) Severity			
Severity Level	Score Range	n	%
Minimal	0–4	89	20.5%
Mild	5–9	192	44.1%
Moderate	10–14	127	29.2%
Severe	15–21	27	6.2%

Table 4: Parental Rules & Discussions

Question	Response	n	%
Parents Set Rules?	Yes	87	20.0%
	No	348	80.0%
Parents Know Platforms?	Yes	248	57.0%
	No	187	43.0%
Discuss Online Experiences?	Always	22	5.1%
	Often	63	14.5%
	Sometimes	166	38.2%
	Rarely	145	33.3%
	Never	39	9.0%

Figure 1: Perceived Impact of Social Media on Mental Health



Discussion

Our data reveals a near-ubiquitous presence of SM in adolescents' lives, with 93.6% owning accounts and 78.1% consuming three or more hours of content daily. This level of penetration aligns with global trends of saturation among this age group. The platform preference, led by TikTok (54.3%), Snapchat (42.1%), and WhatsApp (45.7%), reflects a shift towards visually oriented and ephemeral content, consistent with usage patterns reported in other Gulf Cooperation Council (GCC) countries [12]. The behavioral patterns associated with this use are particularly salient. The fact that 71.7% of participants check SM before sleep and 75.6% admit to reducing sleep to use it directly implicates SM in sleep hygiene disruption—a well-established pathway to poor mental health. This corroborates a large body of research linking nocturnal SM use, blue light exposure, and psychological arousal to delayed sleep onset and reduced sleep quality, which are robust predictors of depression and anxiety in adolescents [13]. Furthermore, the high frequency of use, with over 55% checking platforms six or more times daily, points towards habitual and potentially compulsive usage patterns that can impede real-world social interaction and academic focus.

The mental health metrics, derived from the validated PHQ-A and GAD-7 scales, indicate a significant burden of symptoms. With 31.6% scoring in the moderate-to-severe range for depression and 35.4% in the same range for anxiety, our sample reports a higher prevalence of clinically significant symptoms than some pre-pandemic baselines but is consistent with a growing number of studies documenting a post-pandemic rise in adolescent mental health challenges, potentially exacerbated by increased digital dependence [14]. The correlation between high SM usage times and elevated symptom scores, while not demonstrating causation in this cross-sectional design, reinforces the association found in longitudinal work.

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For instance, a meta-analysis by [15] concluded that the frequency and intensity of SM use, particularly passive consumption (e.g., scrolling) as opposed to active communication, shows a small but significant longitudinal relationship with increased depressive symptoms. The nature of engagement on platforms like TikTok and Instagram, which heavily feature social comparison via curated imagery and metrics of approval (likes, followers), provides a plausible mechanism for this link, supporting the "social comparison theory" pathway to diminished self-esteem and mood disorders [16].

A critical and concerning finding is the high prevalence of negative online experiences, with 59.3% reporting exposure to cyberbullying or negative messages. This figure is notably higher than many international averages and underscores a potentially toxic aspect of the digital environment for Saudi youth. Of those affected, only 62.0% took action by blocking or reporting, suggesting barriers to effective coping or reporting mechanisms. This aligns with regional studies highlighting cultural and social hesitancy around reporting harassment [17]. Concurrently, the data on parental mediation reveals a potential protective gap: only 20.0% of adolescents reported having clear parental rules for SM use, and over 40% rarely or never discuss their online experiences with parents. This is significant because research consistently identifies active, communicative mediation—not just restrictive monitoring—as a key factor in mitigating online risks and promoting healthier digital habits [18]. The low level of reported rule-setting and dialogue suggests an opportunity for targeted family-based digital literacy interventions.

The most striking finding may be the adolescents' own perception of SM's impact: 76.1% viewed its overall effect on their mental health as negative. This subjective assessment powerfully amplifies the objective data from the PHQ-A and GAD-7 scales. It moves beyond statistical correlation to capture the lived experience of a generation that, while digitally native, is acutely aware of the psychic costs of constant connectivity. This perception contrasts with some earlier narratives framing SM as a neutral or positive space for identity exploration and social connection. It may reflect a growing societal and individual critique of SM platforms, awareness of mental health discourse online, or the specific, comparative pressures inherent in the platforms popular within this cohort. This finding resonates with emerging qualitative research where adolescents themselves articulate feelings of addiction, anxiety from constant comparison, and fatigue from perceived social obligations online [19]. Finally, the demographic nuances warrant attention. The higher proportion of female participants (54.0%) reporting negative experiences and potentially higher

internalizing symptoms (as suggested by the mental health scores) is consistent with global research indicating that adolescent girls are more vulnerable to the negative psychological effects of SM, particularly those related to appearance-based social comparison and relational aggression [20]. The overwhelming representation of private school attendees (64.4%) in our sample may reflect socioeconomic or access biases in the recruitment method, suggesting caution in generalizing these findings to all adolescents in the region, including those in rural areas or from different socioeconomic backgrounds.

Limitations

This study has several limitations that must be acknowledged. First, its cross-sectional design precludes any causal inference; we cannot determine whether high SM use leads to worse mental health, whether distressed adolescents gravitate towards more SM use, or whether a third variable influences both. Second, the reliance on self-reported data for both SM use and mental health symptoms is susceptible to recall bias and social desirability bias; adolescents may underreport use or overreport symptoms. The use of convenience sampling, primarily through schools, limits the generalizability of the findings to all adolescents in the Eastern Province, particularly those not enrolled in school or in different educational systems. Furthermore, while the PHQ-A and GAD-7 are screening tools, they are not diagnostic instruments for clinical depression or anxiety disorders. Finally, the study measured time spent but could not fully capture the crucial qualitative aspects of *how* SM was used (e.g., active creation vs. passive consumption, social support seeking vs. social comparison), which are critical moderators of its impact.

Conclusion

In conclusion, this study provides compelling evidence from the Eastern Province of Saudi Arabia that adolescent social media use is pervasive, intensive, and closely associated with self-reported symptoms of depression and anxiety. The high rates of negative experiences like cyberbullying, coupled with low levels of active parental mediation and a overwhelmingly negative self-perceived impact, highlight a critical public health concern. The findings suggest that interventions should move beyond simple time-limiting advice. Instead, a multi-pronged approach is needed for promoting digital literacy and critical thinking skills among adolescents to foster resilient and active (rather than passive) engagement and implementing evidence-based parental education programs to encourage open communication and supportive mediation. Addressing the digital well-being of this generation requires a coordinated effort that acknowledges the integral role of social media in

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their social fabric while proactively mitigating its significant associated risks.

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