Section: Miscellaneous

Original Research Article

A COMPARATIVE STUDY OF MENTAL HEALTH STATUS AMONG ADOLESCENTS WITH HIGH AND LOW SOCIAL MEDIA USAGE

Diksha Choudhary[1], Rutuja Chavan[2], Rupayan Kapri[3], Neha Dalal[4], Amisha Rathee[5], Sumedha[6], Rajesh Bareja[7]

[1]Assistant Professor, Department of Community Medicine, Pt. Neki Ram Sharma Government Medical College, Bhiwani, Haryana, India.
[2]Assistant Professor, Department of Community Medicine, N C Medical College & Hospital, Israna, Panipat, Haryana, India
[3]Assistant Professor, Department of Community Medicine, Manipal Tata Medical College, Jamshedpur, Jharkhand, India.
[4]DNB Cardiology, Dr l.H. Hirandani Hospital, Hill side Avenue, Hirandani gardens, Powai Mumbai, Maharashtra, India
[5]PG Department of Pharmacology, Maharaja Agrasen Medical College, Agroha, Hisar, Haryana, India.
[6](MBBS), International School of Medicine, Bishkek, Kyrgyzstan
[7]Professor, Department of Microbiology, WCMSRH, Gurawar, Jhajjar, Haryana, India.

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Corresponding Author:
Dr. Rupayan Kapri,
Assistant Professor, Department of Community Medicine, Manipal Tata Medical College, Jamshedpur, Jharkhand, India.
Email: its.rupayan@gmail.com

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ABSTRACT

Background: Social media has become an important part of daily life among adolescents, influencing communication, learning, entertainment, and social interaction. However, excessive social media usage may be associated with adverse mental health outcomes such as depression, anxiety, stress, sleep disturbance, reduced concentration, and poor psychosocial functioning. Adolescents are particularly vulnerable because this period is marked by emotional, psychological, and social development. The aim of the study was to compare the mental health status among adolescents with high and low social media usage at a tertiary care hospital.

Materials and Methods: A hospital-based comparative cross-sectional study was conducted among 260 adolescents at a tertiary care hospital. The participants were divided equally into two groups: 130 adolescents with high social media usage and 130 adolescents with low social media usage. Data were collected using a structured questionnaire that included socio-demographic variables, social media usage parameters, and mental health-related assessment items. Social media usage was assessed based on average daily duration, frequency of checking, night-time use, number of platforms used, use during study hours, and difficulty controlling use. Mental health status was assessed in relation to depressive symptoms, anxiety, stress, sleep disturbance, self-esteem, concentration, academic impact, irritability, and social interaction.

Results: Both groups were comparable in terms of socio-demographic variables. High social media users showed significantly greater night-time use, use during study hours, multiple platform use, and difficulty controlling use than low users. Moderate-to-severe depressive symptoms were present in 63 high users (48.46%) compared with 26 low users (20.00%). Moderate-to-severe anxiety was found in 64 high users (49.23%) and 29 low users (22.31%), while moderate-to-severe stress was observed in 52 high users (40.00%) and 21 low users (16.15%). Poor overall mental health status was significantly higher among high users, 57 (43.85%), compared with low users, 24 (18.46%).

Conclusion: High social media usage was significantly associated with poorer mental health status among adolescents. Healthy digital habits and early screening for excessive social media use are recommended.

Keywords: Adolescents; Social media usage; Mental health; Depression; Anxiety.

INTRODUCTION

Adolescence is a critical developmental phase marked by rapid biological, psychological, emotional, and social changes. During this period, individuals develop personal identity, emotional regulation, peer relationships, autonomy, and coping skills. Mental health during adolescence has long-term implications because psychological problems beginning in this age group may continue into adulthood and affect education, relationships, productivity, and overall quality of life. In recent years, the adolescent environment has changed considerably due to the rapid expansion of smartphones, internet access, and social media platforms. Social media has become a major part of adolescents' daily routine, influencing communication, learning, entertainment, self-expression, and peer interaction. However, its increasing use has also raised concern regarding its possible influence on mental health and psychosocial well-being.[1] Social media platforms provide adolescents with opportunities for social connection, creativity, information sharing, emotional expression, and peer support. They may help adolescents maintain friendships, access health-related information, and participate in communities that provide a sense of belonging. At the same time, these platforms may expose adolescents to social comparison, cyberbullying, unrealistic body images, fear of missing out, online conflicts, harmful content, privacy concerns, and excessive peer evaluation. The effect of social media on adolescents is therefore complex and may vary according to duration of use, purpose of use, type of engagement, quality of online interactions, and individual vulnerability.[2] High social media usage may affect mental health through several pathways. Prolonged online engagement may reduce time available for sleep, study, physical activity, face-to-face communication, and family interaction. Frequent checking of notifications, online feedback, and continuous scrolling may contribute to distraction, poor concentration, emotional dependence, irritability, and reduced academic focus. Night-time social media use may disturb sleep patterns, which in turn can worsen mood, anxiety, stress tolerance, and cognitive functioning. Adolescents are also developmentally sensitive to peer approval; therefore, likes, comments, online exclusion, or negative comparison may influence self-esteem and emotional stability.[3] Mental health problems commonly observed among adolescents include depressive symptoms, anxiety symptoms, stress, low self-esteem, emotional instability, sleep disturbance, poor concentration, behavioural difficulties, and reduced social adjustment. These problems may remain unnoticed because adolescents may hesitate to express emotional distress or may present with non-specific complaints such as irritability, academic decline, disturbed sleep, headache, fatigue, or social withdrawal. In a tertiary care hospital setting, adolescents may attend outpatient or inpatient services for different reasons, providing an important opportunity to screen for mental health concerns and identify behavioural factors associated with psychological difficulties.[4] The relationship between social media usage and adolescent mental health is not limited to the amount of time spent online. Recent literature emphasizes that the nature of social media use is equally important. Passive browsing, repeated comparison, problematic or compulsive use, emotional dependence, and inability to control use may have different effects compared with purposeful, limited, or supportive use. Thus, dividing adolescents into high and low usage groups allows better understanding of whether increased exposure and problematic usage patterns are associated with poorer mental health status.[5] A comparative assessment between adolescents with high and low social media usage is useful because it helps identify differences in psychological well-being, depressive symptoms, anxiety, stress, sleep-related issues, self-esteem, academic functioning, and social interaction. Such comparison may also help clinicians, parents, teachers, and public health professionals recognize high-risk adolescents and plan early counselling, digital hygiene education, sleep guidance, and mental health screening. In hospital-based adolescent health services, assessment of social media habits can be incorporated as part of routine psychosocial evaluation.[6]

MATERIALS AND METHODS

A hospital-based comparative cross-sectional study was conducted to assess and compare the mental health status among adolescents with high and low social media usage at a tertiary care hospital. The study was designed to evaluate whether the level of social media usage was associated with differences in psychological well-being, emotional problems, stress, anxiety, depressive symptoms, sleep-related issues, and selected socio-demographic variables among adolescents. The study was carried out in the outpatient and inpatient adolescent health-related departments of a tertiary care hospital. Participants were recruited from eligible adolescents attending the hospital for routine consultation, follow-up, or accompanying family members, after confirming that they fulfilled the inclusion criteria. The study included a total of 260 adolescents. Based on their social media usage pattern, the participants were divided into two groups: adolescents with high social media usage and adolescents with low social media usage. Each group consisted of 130 participants. Adolescents were classified into high and low social media usage groups according to their average daily time spent on social media, frequency of use, night-time use, and overall social media engagement.

Inclusion Criteria

Adolescents aged between 13 and 19 years who were willing to participate in the study and whose parents

or guardians provided consent were included. Participants who had access to social media platforms and were able to understand and respond to the questionnaire were considered eligible for the study.

Exclusion Criteria

Adolescents with a known history of severe psychiatric illness, intellectual disability, neurological disorders, chronic debilitating medical conditions, or those currently receiving psychiatric treatment were excluded from the study. Participants who were unwilling to provide assent or whose parents or guardians did not provide consent were also excluded.

Methodology: A total sample size of 260 participants was selected for the study. The participants were divided equally into two groups, with 130 adolescents in the high social media usage group and 130 adolescents in the low social media usage group. A purposive sampling technique was used to recruit eligible adolescents from the tertiary care hospital until the required sample size was achieved:

Study Variables: The independent variable of the study was the level of social media usage, categorized as high and low usage. The dependent variables included mental health status, depression, anxiety, stress, emotional well-being, sleep disturbance, irritability, concentration problems, academic impact, and social interaction. Socio-demographic variables such as age, gender, education level, place of residence, socioeconomic status, type of family, parental education, parental occupation, and daily screen time were also recorded.

Assessment of Social Media Usage: Social media usage was assessed using a structured social media usage questionnaire. The questionnaire included parameters such as average daily time spent on social media, number of social media platforms used, frequency of checking social media, purpose of use, night-time use, use during study hours, emotional dependence on social media, difficulty controlling use, and impact on sleep and academic activities. Based on the total usage pattern, participants were categorized into high and low social media usage groups.

Assessment of Mental Health Status: Mental health status was assessed using a standardized and validated mental health assessment scale suitable for adolescents. The assessment focused on symptoms of depression, anxiety, stress, emotional problems, peer relationship issues, behavioral difficulties, self-esteem, sleep quality, concentration, irritability, and overall psychological well-being. Higher scores indicated poorer mental health status, while lower scores indicated better mental health status, according to the scoring guidelines of the selected tool.

Statistical Analysis: The collected data were entered into Microsoft Excel and analyzed using IBM SPSS Statistics version 27.0. Descriptive statistics such as frequency, percentage, mean, and standard deviation were used to summarize socio-demographic variables, social media usage patterns, and mental health scores. The chi-square test was used to assess associations between categorical variables. The independent sample t-test was used to compare mean mental health scores between adolescents with high and low social media usage. A p-value of less than 0.05 was considered statistically significant.

RESULTS

[Table 1] Distribution of participants according to socio-demographic variables

[Table 1] shows the socio-demographic distribution of adolescents in the high and low social media usage groups. In relation to age, the majority of participants belonged to the 16–17 years age group, comprising 103 adolescents (39.62%) of the total sample. In the high usage group, 54 adolescents (41.54%) were aged 16–17 years, followed by 44 adolescents (33.85%) in the 18–19 years age group and 32 adolescents (24.62%) in the 13–15 years age group. In the low usage group, 48 adolescents (36.92%) were aged 13–15 years, 49 adolescents (37.69%) were aged 16–17 years, and 33 adolescents (25.38%) were aged 18–19 years. The difference in age distribution between the two groups was not statistically significant, with a p-value of 0.082, indicating that both groups were comparable with respect to age. With regard to gender, the study included an equal number of males and females overall, with 130 males (50.00%) and 130 females (50.00%). In the high social media usage group, 62 participants (47.69%) were male and 68 participants (52.31%) were female. In the low usage group, 68 participants (52.31%) were male and 62 participants (47.69%) were female. The gender distribution was almost equal between the two groups, and the difference was not statistically significant, as shown by a p-value of 0.457. Regarding place of residence, 146 adolescents (56.15%) belonged to urban areas, while 114 adolescents (43.85%) belonged to rural areas. In the high usage group, urban adolescents were more common, with 79 participants (60.77%), compared to 51 participants (39.23%) from rural areas. In the low usage group, 67 participants (51.54%) were from urban areas and 63 participants (48.46%) were from rural areas. Although urban adolescents appeared to have slightly higher social media usage, the difference was not statistically significant, with a p-value of 0.134. In terms of socio-economic status, 131 adolescents (50.38%) belonged to the upper or middle socio-economic group, while 129 adolescents (49.62%) belonged to the lower socio-economic group. Among high social media users, 71 adolescents (54.62%) belonged to the upper or middle socio-economic group and 59 adolescents (45.38%) belonged to the lower socio-economic group. Among low users, 60 adolescents (46.15%) belonged to the upper or middle group and 70 adolescents (53.85%) belonged to the lower socio-economic group.

[Table 2] Distribution of participants according to social media usage parameters

[Table 2] describes the pattern of social media usage among adolescents in both groups. A clear and statistically significant difference was observed between high and low social media users for all social media usage-related parameters. Regarding average daily social media use, most adolescents in the high usage group used social media for more than 4 hours per day. In this group, 89 participants (68.46%) reported using social media for more than 4 hours daily, 38 participants (29.23%) used it for 2–4 hours, and only 3 participants (2.31%) used it for less than 2 hours. In contrast, among low users, 94 participants (72.31%) used social media for less than 2 hours daily and 36 participants (27.69%) used it for 2–4 hours, while none reported usage of more than 4 hours per day. This difference was statistically highly significant, with a p-value of <0.001. Frequency of checking social media also showed a significant difference between the groups. In the high usage group, 79 adolescents (60.77%) checked social media very frequently or constantly, 46 adolescents (35.38%) checked it several times per day, and only 5 adolescents (3.85%) checked it occasionally. In contrast, among low users, the majority, 75 adolescents (57.69%), checked social media occasionally, 47 adolescents (36.15%) checked it several times per day, and only 8 adolescents (6.15%) checked it very frequently or constantly. Night-time use of social media was more common among high social media users. In the high usage group, 98 adolescents (75.38%) reported using social media at night, whereas only 31 adolescents (23.85%) in the low usage group reported night-time use. Conversely, night-time use was absent among 99 adolescents (76.15%) in the low usage group compared to 32 adolescents (24.62%) in the high usage group. This difference was statistically significant, with a p-value of <0.001, suggesting that high social media usage was strongly associated with night-time use.

[Table 3] Comparison of mental health status between high and low social media usage groups

[Table 3] compares depressive symptoms, anxiety symptoms, stress symptoms, and overall mental health status between adolescents with high and low social media usage. Depressive symptoms were more severe among adolescents in the high usage group. In the high usage group, only 38 adolescents (29.23%) had normal depression scores, compared to 78 adolescents (60.00%) in the low usage group. Mild depressive symptoms were seen in 29 high users (22.31%) and 26 low users (20.00%). Moderate depressive symptoms were observed in 36 high users (27.69%) compared to 20 low users (15.38%), while severe depressive symptoms were found in 27 high users (20.77%) compared to only 6 low users (4.62%). The difference between the two groups was statistically significant, with a p-value of <0.001, showing that high social media usage was associated with greater severity of depressive symptoms. Anxiety symptoms were also higher among adolescents with high social media usage. In the high usage group, 35 adolescents (26.92%) had normal anxiety scores, whereas 74 adolescents (56.92%) in the low usage group had normal scores. Mild anxiety was present in 31 high users (23.85%) and 27 low users (20.77%). Moderate anxiety was found in 39 high users (30.00%) compared to 22 low users (16.92%), while severe anxiety was observed in 25 high users (19.23%) compared to only 7 low users (5.38%). Stress symptoms followed a similar pattern. Normal stress scores were observed in 44 adolescents (33.85%) in the high usage group and 85 adolescents (65.38%) in the low usage group. Mild stress was present in 34 high users (26.15%) and 24 low users (18.46%). Moderate stress was seen in 33 high users (25.38%) compared to 16 low users (12.31%), while severe stress was found in 19 high users (14.62%) compared to 5 low users (3.85%). The difference between the groups was statistically significant, with a p-value of <0.001.

[Table 4] Comparison of mean mental health scores between high and low social media usage groups

[Table 4] presents the comparison of mean scores for depression, anxiety, stress, sleep disturbance, self-esteem, and total mental health problem score between high and low social media usage groups. The mean depression score was 12.84 ± 5.62 among high social media users, compared to 8.46 ± 4.71 among low users. The t-value was 6.81, and the difference was statistically significant with a p-value of <0.001. The mean anxiety score was also higher in the high usage group. High users had a mean anxiety score of 11.96 ± 5.18, while low users had a mean score of 7.74 ± 4.32. The t-value was 7.13, with a p-value of <0.001. The mean stress score among high social media users was 13.42 ± 5.74, compared to 8.92 ± 4.85 among low users. The t-value was 6.83, and the difference was statistically significant with a p-value of <0.001. Sleep disturbance score was also significantly higher among high users. The mean sleep disturbance score in the high usage group was 8.38 ± 3.16, whereas in the low usage group it was 5.21 ± 2.74. The t-value was 8.64, and the p-value was <0.001.

[Table 5] Comparison of selected psychosocial and functional parameters

[Table 5] shows the comparison of selected psychosocial and functional problems between the high and low social media usage groups. Sleep disturbance was reported by 92 adolescents (70.77%) in the high usage group, compared to 42 adolescents (32.31%) in the low usage group. Sleep disturbance was absent in 38 high users (29.23%) and 88 low users (67.69%). The difference was statistically significant, with a p-value of <0.001. Poor concentration was also more frequent among high social media users. In the high usage group, 80 adolescents (61.54%) reported poor concentration, compared to 36 adolescents (27.69%) in the low usage group. Poor concentration was absent among 50 high users (38.46%) and 94 low users (72.31%). The association was statistically significant, with a p-

value of <0.001. Irritability was reported by 75 adolescents (57.69%) in the high usage group, compared to 39 adolescents (30.00%) in the low usage group. Irritability was absent in 55 high users (42.31%) and 91 low users (70.00%). The difference was statistically significant, with a p-value of <0.001. Academic performance was affected in 69 adolescents (53.08%) in the high usage group, compared to 28 adolescents (21.54%) in the low usage group. Academic performance was not affected among 61 high users (46.92%) and 102 low users (78.46%). This difference was statistically significant, with a p-value of <0.001. Reduced face-to-face interaction was more common among high social media users. In the high usage group, 77 adolescents (59.23%) reported reduced face-to-face interaction, compared to 32 adolescents (24.62%) in the low usage group.

[Table 6] Association of high social media usage with adverse mental health outcomes

[Table 6] shows the association between high social media usage and adverse mental health outcomes. Moderate-to-severe depressive symptoms were present in 63 adolescents (48.46%) in the high usage group, compared to 26 adolescents (20.00%) in the low usage group. The odds ratio was 3.76, with a 95% confidence interval of 2.17–6.52, and the p-value was <0.001. This means that adolescents with high social media usage had approximately 3.76 times higher odds of having moderate-to-severe depressive symptoms compared to low social media users. Moderate-to-severe anxiety symptoms were present in 64 adolescents (49.23%) in the high usage group, compared to 29 adolescents (22.31%) in the low usage group. The odds ratio was 3.38, with a 95% confidence interval of 1.97–5.78, and the p-value was <0.001. This indicates that high social media users had about 3.38 times higher odds of having moderate-to-severe anxiety symptoms compared to low users. Moderate-to-severe stress symptoms were found in 52 adolescents (40.00%) in the high usage group and 21 adolescents (16.15%) in the low usage group. The odds ratio was 3.46, with a 95% confidence interval of 1.93–6.21, and the p-value was <0.001.

Table 1: Distribution of participants according to socio-demographic variables

Parameter	Category	High usage (n=130)	Low usage (n=130)	Total (N=260)	p-value
Age group (years)	13–15	32 (24.62%)	48 (36.92%)	80 (30.77%)	0.082
	16–17	54 (41.54%)	49 (37.69%)	103 (39.62%)	
	18–19	44 (33.85%)	33 (25.38%)	77 (29.62%)	
Gender	Male	62 (47.69%)	68 (52.31%)	130 (50.00%)	0.457
	Female	68 (52.31%)	62 (47.69%)	130 (50.00%)	
Residence	Urban	79 (60.77%)	67 (51.54%)	146 (56.15%)	0.134
	Rural	51 (39.23%)	63 (48.46%)	114 (43.85%)	
Socio-economic status	Upper/middle	71 (54.62%)	60 (46.15%)	131 (50.38%)	0.172
	Lower	59 (45.38%)	70 (53.85%)	129 (49.62%)	
Type of family	Nuclear	84 (64.62%)	75 (57.69%)	159 (61.15%)	0.252
	Joint	46 (35.38%)	55 (42.31%)	101 (38.85%)	
Education level	Middle school	36 (27.69%)	51 (39.23%)	87 (33.46%)	0.115
	High school	61 (46.92%)	55 (42.31%)	116 (44.62%)	
	Higher secondary	33 (25.38%)	24 (18.46%)	57 (21.92%)	

Table 2: Distribution of participants according to social media usage parameters

Parameter	Category	High usage (n=130)	Low usage (n=130)	Total (N=260)	p-value
Average daily social media use	<2 hours	3 (2.31%)	94 (72.31%)	97 (37.31%)	<0.001
	2–4 hours	38 (29.23%)	36 (27.69%)	74 (28.46%)	
	>4 hours	89 (68.46%)	0 (0.00%)	89 (34.23%)	
Frequency of checking social media	Occasionally	5 (3.85%)	75 (57.69%)	80 (30.77%)	<0.001
	Several times/day	46 (35.38%)	47 (36.15%)	93 (35.77%)	
	Very frequently/constantly	79 (60.77%)	8 (6.15%)	87 (33.46%)	
Night-time social media use	Present	98 (75.38%)	31 (23.85%)	129 (49.62%)	<0.001
	Absent	32 (24.62%)	99 (76.15%)	131 (50.38%)	
Number of platforms used	1 platform	7 (5.38%)	61 (46.92%)	68 (26.15%)	<0.001
	2 platforms	38 (29.23%)	54 (41.54%)	92 (35.38%)	
	≥3 platforms	85 (65.38%)	15 (11.54%)	100 (38.46%)	
Use during study hours	Present	86 (66.15%)	24 (18.46%)	110 (42.31%)	<0.001
	Absent	44 (33.85%)	106 (81.54%)	150 (57.69%)	
Difficulty controlling use	Present	74 (56.92%)	18 (13.85%)	92 (35.38%)	<0.001
	Absent	56 (43.08%)	112 (86.15%)	168 (64.62%)	

Table 3: Comparison of mental health status between high and low social media usage groups

Parameter	Category	High usage (n=130)	Low usage (n=130)	Total (N=260)	p-value
Depressive symptoms	Normal	38 (29.23%)	78 (60.00%)	116 (44.62%)	<0.001
	Mild	29 (22.31%)	26 (20.00%)	55 (21.15%)	

	Moderate	36 (27.69%)	20 (15.38%)	56 (21.54%)	
	Severe	27 (20.77%)	6 (4.62%)	33 (12.69%)	
Anxiety symptoms	Normal	35 (26.92%)	74 (56.92%)	109 (41.92%)	<0.001
	Mild	31 (23.85%)	27 (20.77%)	58 (22.31%)	
	Moderate	39 (30.00%)	22 (16.92%)	61 (23.46%)	
	Severe	25 (19.23%)	7 (5.38%)	32 (12.31%)	
Stress symptoms	Normal	44 (33.85%)	85 (65.38%)	129 (49.62%)	<0.001
	Mild	34 (26.15%)	24 (18.46%)	58 (22.31%)	
	Moderate	33 (25.38%)	16 (12.31%)	49 (18.85%)	
	Severe	19 (14.62%)	5 (3.85%)	24 (9.23%)	
Overall mental health status	Good	34 (26.15%)	76 (58.46%)	110 (42.31%)	<0.001
	Fair	39 (30.00%)	30 (23.08%)	69 (26.54%)	
	Poor	57 (43.85%)	24 (18.46%)	81 (31.15%)	

Table 4: Comparison of mean mental health scores between high and low social media usage groups

Parameter	High usage Mean ± SD	Low usage Mean ± SD	t-value	p-value
Depression score	12.84 ± 5.62	8.46 ± 4.71	6.81	<0.001
Anxiety score	11.96 ± 5.18	7.74 ± 4.32	7.13	<0.001
Stress score	13.42 ± 5.74	8.92 ± 4.85	6.83	<0.001
Sleep disturbance score	8.38 ± 3.16	5.21 ± 2.74	8.64	<0.001
Self-esteem score	17.63 ± 4.92	20.41 ± 4.68	-4.67	<0.001
Total mental health problem score	46.60 ± 14.58	30.33 ± 12.26	9.74	<0.001

Table 5: Comparison of selected psychosocial and functional parameters

Parameter	Category	High usage (n=130)	Low usage (n=130)	Total (N=260)	p-value
Sleep disturbance	Present	92 (70.77%)	42 (32.31%)	134 (51.54%)	<0.001
	Absent	38 (29.23%)	88 (67.69%)	126 (48.46%)	
Poor concentration	Present	80 (61.54%)	36 (27.69%)	116 (44.62%)	<0.001
	Absent	50 (38.46%)	94 (72.31%)	144 (55.38%)	
Irritability	Present	75 (57.69%)	39 (30.00%)	114 (43.85%)	<0.001
	Absent	55 (42.31%)	91 (70.00%)	146 (56.15%)	
Academic performance affected	Present	69 (53.08%)	28 (21.54%)	97 (37.31%)	<0.001
	Absent	61 (46.92%)	102 (78.46%)	163 (62.69%)	
Reduced face-to-face interaction	Present	77 (59.23%)	32 (24.62%)	109 (41.92%)	<0.001
	Absent	53 (40.77%)	98 (75.38%)	151 (58.08%)	
Parent/family conflict due to mobile use	Present	58 (44.62%)	21 (16.15%)	79 (30.38%)	<0.001
	Absent	72 (55.38%)	109 (83.85%)	181 (69.62%)	

Table 6: Association of high social media usage with adverse mental health outcomes

Outcome	High usage n (%)	Low usage n (%)	Odds ratio (95% CI)	p-value
Moderate-to-severe depressive symptoms	63 (48.46%)	26 (20.00%)	3.76 (2.17–6.52)	<0.001
Moderate-to-severe anxiety symptoms	64 (49.23%)	29 (22.31%)	3.38 (1.97–5.78)	<0.001
Moderate-to-severe stress symptoms	52 (40.00%)	21 (16.15%)	3.46 (1.93–6.21)	<0.001
Poor overall mental health status	57 (43.85%)	24 (18.46%)	3.45 (1.97–6.05)	<0.001

DISCUSSION

In the present study, both groups were comparable for major socio-demographic variables, as age group, gender, residence, socio-economic status, type of family, and education level did not show statistically significant differences. The majority of participants were in the 16–17 years age group, with 103 adolescents (39.62%), and the sample had equal gender distribution, with 130 males (50.00%) and 130 females (50.00%). This comparability is important because it reduces the possibility that differences in mental health status were due to background imbalance rather than social media use. Kreski et al. (2021) also highlighted the importance of controlling for baseline risk factors while studying social media and depression among adolescents, and they reported that daily social media use was not a strong or consistent predictor of depressive symptoms after risk stratification. In contrast, the present hospital-based study showed clear group differences in mental health outcomes despite socio-demographic comparability, suggesting that high usage pattern may be a relevant associated factor in this sample.[7] The pattern of daily social media use showed a marked difference between the two groups. In the present study, 89 adolescents (68.46%) in the high usage group used social media for more than 4 hours per day, while none of the low users reported more than 4 hours of use. In comparison, Sampasa-Kanyinga et al. (2015) studied 753 adolescents in Ottawa, Canada, and reported that daily social networking site use for more than 2 hours was independently associated with poor self-rated mental health, high psychological distress, and suicidal ideation. The present study showed an even higher exposure level among high users, as more than two-thirds used social media for more than 4 hours per day, supporting the view that prolonged social media exposure may be linked with poorer psychological

functioning among adolescents.[8] Frequency of checking social media and night-time use were also significantly higher among high users. In this study, 79 adolescents (60.77%) in the high usage group checked social media very frequently or constantly, compared with only 8 adolescents (6.15%) in the low usage group. Similarly, night-time social media use was reported by 98 high users (75.38%) compared with 31 low users (23.85%). Hamilton et al. (2021), in a nationally representative sample of 4,153 adolescents aged 12–17 years, found that more frequent social media checking was associated with higher daytime sleepiness (B=0.76, p<0.001), and more frequent posting was also associated with higher daytime sleepiness (B=0.70, p<0.001). These findings are comparable to the present study, where frequent and night-time use were prominent among high users and may explain their higher sleep disturbance and mental health problem scores.[9] Depressive symptoms were significantly higher among adolescents with high social media usage. In the present study, moderate-to-severe depressive symptoms were seen in 63 high users (48.46%) compared with 26 low users (20.00%), and severe depressive symptoms were present in 27 high users (20.77%) compared with only 6 low users (4.62%). Kelly et al. (2019), using data from the UK Millennium Cohort Study, reported that compared with 1–3 hours of daily social media use, use for 3 to <5 hours was associated with a 26% increase in depressive symptom scores among girls and 21% among boys, while use for ≥5 hours was associated with a 50% increase among girls and 35% among boys. The present study similarly observed a higher burden of depressive symptoms among high users, indicating that greater daily social media exposure may be associated with increased depressive symptom severity among adolescents.[10] Anxiety, stress, and overall mental health status also showed significant differences between the two groups. In this study, moderate-to-severe anxiety symptoms were present in 64 high users (49.23%) compared with 29 low users (22.31%), and moderate-to-severe stress symptoms were present in 52 high users (40.00%) compared with 21 low users (16.15%). Poor overall mental health status was also higher among high users, with 57 adolescents (43.85%) affected compared with 24 adolescents (18.46%) in the low usage group. Skogen et al. (2023), in the LifeOnSoMe study of 3,253 Norwegian adolescents, reported that 74.50% had experienced at least one negative social media experience, and such experiences were associated with case-level anxiety (OR 2.16; 95% CI 1.74–2.69), case-level depression (OR 2.26; 95% CI 1.67–3.04), and lower mental well-being (OR 0.57; 95% CI 0.49–0.66). The present study is consistent with these findings, as high usage was associated with poorer emotional and psychological outcomes. [11] The mean mental health scores further supported the categorical findings. In the present study, high users had significantly higher mean depression score (12.84±5.62 vs. 8.46±4.71), anxiety score (11.96±5.18 vs. 7.74±4.32), stress score (13.42±5.74 vs. 8.92±4.85), sleep disturbance score (8.38±3.16 vs. 5.21±2.74), and total mental health problem score (46.60±14.58 vs. 30.33±12.26). They also had lower self-esteem score (17.63±4.92 vs. 20.41±4.68). Woods et al. (2016), in a study of 467 Scottish adolescents, reported that adolescents who used social media more overall and at night had poorer sleep quality, lower self-esteem, and higher anxiety and depression levels. The present findings are in agreement with that study, as high social media users had worse mental health scores and lower self-esteem than low users.[12] Sleep disturbance was one of the major functional problems observed in the present study. Sleep disturbance was reported by 92 high users (70.77%) compared with 42 low users (32.31%), and the mean sleep disturbance score was also higher among high users. Lafontaine-Poissant et al. (2024), using data from 12,557 Canadian adolescents aged 11–17 years, found that intense social media use was associated with greater odds of poor sleep health indicators, with adjusted odds ratios ranging from 1.09 to 2.24, while problematic social media use showed even higher odds, ranging from 1.67 to 3.24. The higher sleep disturbance in the present high usage group is consistent with this evidence and may be related to late-night use, frequent checking, emotional arousal, and delayed bedtime.[13] Psychosocial and functional problems were also more common among high users in the present study. Poor concentration was reported by 80 high users (61.54%) compared with 36 low users (27.69%), academic performance was affected in 69 high users (53.08%) compared with 28 low users (21.54%), and reduced face-to-face interaction was reported by 77 high users (59.23%) compared with 32 low users (24.62%). Parent or family conflict due to mobile use was also higher among high users, affecting 58 adolescents (44.62%) compared with 21 adolescents (16.15%) among low users. Boer et al. (2021), in a three-wave longitudinal study of 2,109 secondary school adolescents, reported that social media use problems predicted decreased mental health one year later and were also linked with increased upward social comparison, cybervictimization, decreased subjective school achievement, and less face-to-face contact. The present findings are similar, as high users showed poorer concentration, academic difficulties, reduced direct interaction, and family conflict.[14] The association analysis in the present study showed that high social media usage was significantly associated with adverse mental health outcomes. High users had 3.76 times higher odds of moderate-to-severe depressive symptoms, 3.38 times higher odds of moderate-to-severe anxiety symptoms, 3.46 times higher odds of moderate-to-severe stress symptoms, and 3.45 times higher odds of poor overall mental health status compared with low users. Mougharbel et al. (2023), in a representative sample of 6,822 Ontario adolescents, reported that 48.00% used social media for 3 or more hours per day and 43.70% had

moderate-to-severe psychological distress; heavy social media use was associated with increased odds of severe psychological distress (OR 2.01; 95% CI 1.59–2.55).[15]

CONCLUSION

The present study concluded that adolescents with high social media usage had significantly poorer mental health status compared to those with low social media usage. High usage was associated with increased depressive symptoms, anxiety, stress, sleep disturbance, poor concentration, irritability, academic problems, and reduced face-to-face interaction. The findings highlight the need for early screening of excessive social media use among adolescents. Promoting healthy digital habits may help improve psychological well-being and overall functioning in this age group.

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