

Impact of Use of Social Media on Adolescent's Mental Health in a Tier 2 City—A Cross-Sectional Study

Arpit Sohane¹ Pawan Ghanghoriya¹ Asha Tiwari¹

¹Department of Paediatrics, NSCB Medical College, Jabalpur, Madhya Pradesh, India

Address for correspondence Arpit Sohane, MBBS, MD, Department of Paediatrics, NSCB Medical College, Jabalpur 482003, Madhya Pradesh, India (e-mail: arpit.sohane09@gmail.com).

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Abstract

Background Social media has been defined as a form of electronic communication that is used for communication and expression of thoughts. It is a boon for the young generation as it has a lot of positive impacts like global connectivity, easy/inexpensive communication, and sharing of information; however, it is associated with serious adverse effects/imprints on the mental health of adolescent's developing brain.

Method This was an observational, cross-sectional study on 200 students from two government schools. After obtaining consent from parents and teacher, students were asked to fill a preprinted form containing a 12-point survey questionnaire, Beck Depression Inventory for assessment of depression, and a 12-item General Health Questionnaire (12-item GHQ) for the assessment of common mental health disorders. Obtained data was analyzed among social media users and nonusers.

Results The study included 200 adolescents, 84 (42%) were of 11th standard and 116 (58%) were of 12th standard. Eighty-five adolescents (42.5%) were males and 115 (57.5%) were females; median age was 14 years. The mean Beck Depression Inventory score among users was 11.47 ± 7.54 as compared with 6.702 ± 6.67 among nonusers, $p = 0.0005$, significant. The mean 12-item GHQ score among users was 7.631 ± 5.37 as compared with 7.05 ± 5.79 among nonusers, $p = 0.5589$, insignificant. About 82.8% students used WhatsApp, 39.8% used Facebook, 40.4% used Instagram, 26.9% used Snapchat, and 17.17% used YouTube.

Conclusion Majority of adolescents are using social media nowadays and are found to have various mental health problems in this study. This highlights the importance of awareness among parents, teachers, and adolescent health-care providers.

Keywords

- social media
- adolescents
- mental health
- depression
- BDI
- 12-item GHQ

Key Practitioner Message

- Association of social media use with mental health problems has been found in many studies conducted worldwide.

- Present study gives findings of impact of social media on adolescents' mental health in a tier 2 city of central India.
- Majority of adolescents using social media are found to have various mental health problems in this study.

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- This article highlights the importance of awareness about social media use in adolescent health-care providers as a cause of mental health problems.

Introduction

Social media has been defined as forms of electronic communication (such as Web sites for microblogging and social networking) that is used for communication and expression of thoughts.¹ Adolescence (10–19 years) is a period of change in attitude/behavior, development of heightened emotionality/outlook/ interests pattern/roles, which is highly influenced by the social media due to a prominent participation among adolescents.² It is a boon for the generation as it has a lot of positive impacts like global connectivity, easy/inexpensive communication, and sharing of information; however, it is associated with serious adverse effects/imprints on the mental health of adolescent's developing brain.³ In 2015, the Office for National Statistics found that there is a clear association between the time spent on social media and mental health problems on ~27% for those who are on the sites for 3 or more hours a day as compared with only 12% among those who are not on social media platforms.² Much has been

investigated about the impact of social media on adolescents' mental health in Western countries and metropolitan cities, while its impact in tier 2 and tier 3 cities remains uninvestigated.⁴ This prompted us to evaluate the impact of social media on adolescents' mental health in a cohort of school students in a tier 2 city.

Materials and Methods

This was an observational, cross-sectional study conducted by Department of Pediatrics and Psychiatry in a Government Medical College of Central India. The institutional ethics committee approval was duly obtained. The students of 11th and 12th standards from two government schools located in the city were included. Consents of the parents and the teachers were obtained after explaining the purpose of the study. Apart from information related to their basic demographics, a 12-point questionnaire was used to do the survey. The 12-point questionnaire was prepared by three experts of associate professor rank and above from the study departments (► **Table 1**). Additionally, their assessment was done using 12-Item General Health Questionnaire (12-item

Table 1 Responses of the 12-point questionnaire on use of social media

S No	Question	N (%)	N (%)	N (%)
1	Do you use social media? (n = 200)	Yes	No	
		163 (81.5%)	37 (18.5%)	
2	Type of device (n = 163)	Mobile	Laptop	Both
		100(61.5%)	26(16%)	37(22.5%)
3	Duration of social media use (n = 163)	< 1 h	1–2 h	>3 h
		96(58.8%)	52(31.9%)	15(9.2%)
4	Do you feel social media negatively affects your behavior? (n = 163)	Always	Often	Never
		16(9.8%)	58(35.5%)	(54.6%)
5	How did you start using social media? (n = 163)	Through friends	Through family	Others
		120(73.6%)	35(21.4%)	8(4.9%)
6	How do you feel if you can't use social media for some reason? (n = 163)	No effect	Uncomfortable	Very uncomfortable
		110(67.4%)	48(29.5%)	5(3.1%)
7	Do you take off from social media (Social Media Holiday)? (n = 163)	Regularly	Occasional	Never
		82(50.3%)	51(31.2%)	30(18.4%)
8	Do you think social media promote violence? (n = 200)	Completely agree	Don't agree	I don't know
		136(68%)	46(23%)	18(9%)
9	For how many hours do you use social media before sleeping ?(n = 163)	< 1 h	1–2 h	>2 h
		110(67.4%)	26(15.9%)	27(16.5%)
10	Do you ever think about stopping social media use?(n = 163)	Always	Often	Never
		32(19.6%)	70(42.9%)	61(37.4%)
11	For how many hours do you normally sleep? (n = 200)	<6 h	6–9 h	>9 h
		63(31.5%)	117(58.5%)	20(10%)
12	How do you feel after waking up ?(n = 200)	Fully refreshed	Somewhat sleepy	Often can't wake up and miss school
		126(63%)	54(27%)	20(10%)

GHQ, ≥ 12 was considered abnormal) and Beck Depression Inventory (BDI, ≥ 17 was considered abnormal).^{5,6} The responses were kept anonymous, and students were asked to fill a preprinted form available in their vernacular language over a period of 1 hour.

The information was compiled in Microsoft Excel data-sheet Version Windows-10 and used for analysis, which was done on SPSS version 20. Categorical variables were tabulated in frequency with percentage distribution and continuous variables were summarized in mean \pm standard deviation. Chi-squared analysis and/or Fisher's exact were applied to compare 2×2 contingency tables as appropriate. Two independent means were compared using the student *t*-test. The critical levels of significance of the results were considered at 0.05 levels ($p < 0.05$ for statistically significant).

Results

The study included 200 adolescents, in which 84 (42%) were of 11th standard and 116 (58%) were of 12th standard. Eighty-five adolescents (42.5%) were males and 115 (57.5%) were females, and median age was 14 years (range: 12–16 years). Twenty-one adolescents (10.5%) belonged to single parent and 127 (63.5%) to nuclear family. One-hundred sixty-three (81.5%) adolescents were social media user in some or the other form. Among social media users, 135 adolescents (82.8%) used WhatsApp, 65 adolescents (39.8%) used Facebook, 66 adolescents (40.4%) used Instagram, 44 adolescents (26.9%) used Snapchat, 18 adolescents (11%) used Twitter, 37 adolescents (22.6%) used TikTok, and 28 adolescents (17.17%) used YouTube.

The results of the 12-point questionnaire are shown in **Table 1**. The majority of students used mobile phone for social media visits, of duration < 1 hour, came to know about its use through friends, and had social media holiday. The majority of students were unaffected negatively by use of social media, had no effect if they did not have access to social media, thought that social media promotes violence, and thought about stopping its use. However, 31.5% had reduced duration of sleep and 37% had disturbances due to inadequate sleep after waking up.

The mean 12-item GHQ score among users was 7.631 ± 5.37 as compared with 7.05 ± 5.79 among nonusers, $p = 0.5589$, insignificant. The 12-item GHQ score was ≥ 12 in

41 (25.1%) among users as compared with 15 (40.5%) among non-users, $p = 0.059$, insignificant. The mean BDI score among users was 11.47 ± 7.54 as compared with 6.702 ± 6.67 among nonusers, $p = 0.0005$, significant. The BDI score was ≥ 17 in 26 (15.9%) among users as compared with 3 (8.2%) among nonusers, $p = 0.22$, insignificant (**Table 2**).

Discussion

The health of youth has rapidly emerged as an issue requiring urgent attention in global development. Because mental health problems often begin in childhood or during adolescence, improving adolescent mental health remains a challenge for most societies.^{7–9} Approximately one-fourth of youth have experienced a mental disorder in an year and one-third will across their lifetime.¹⁰ The 2013 Global Burden of Disease study showed the significant burden of mental disorders among adolescents for both genders, with anxiety and depressive disorders among the top 10 causes of years lost to disability.¹¹ Investigators, therefore, agree that it is highly important to identify risk factors of depressive symptoms in adolescence.¹²

Emotional distress correlates with known risk and protective factors from adolescents' social environment. However, during adolescence, teens are not only starting to use social media, they are also facing various developmental changes, such as the struggle for independence and autonomy. As a result, adolescents' mental health is particularly at risk during this stage of life; 13% of European teens report symptoms of anxiety and depression.¹³ Consistent with previous articles on psychological well-being and emotional distress, time spent on social media was correlated with greater symptoms of anxiety and depressed mood.² However, a very limited evidence reporting the mental health problems in adolescents is available in India and is mainly from tier 1 cities.¹⁴ Much has been investigated about the impact of social media on adolescents' mental health in Western countries and metropolitan cities, while its impact in tier 2 and tier 3 cities remain uninvestigated.⁴ This formed the basis of our investigation in a cohort.

In the present study, based on the results of the 12-point questionnaire it can be inferred that there is social media use of restricted duration (majority used for < 1 hour) or none had any signs of addiction, and majority wanted to leave its

Table 2 The distribution of BDI among users and nonusers

Beck Depression Inventory (BDI) score	User(163) n (%)	Nonuser (27) n (%)
Normal (1–10)	102 (62.5%)	22(81.4%)
Mild mood distress (11–16)	35(21.4%)	12(44.4%)
Borderline depression (17–20)	7(4.2%)	0
Moderate depression (21–30)	17(10.4%)	3(11.1%)
Severe depression (30–40)	2(1.22%)	0
Extreme depression (> 40)	0	0

use. Though there was no negative impact of social media on their personality, however the majority thought that it promotes violence, which would have been one of the reasons of their disinterest despite them being users. This is in contrast to previous findings that show that social media addiction is found in one-third of adolescents using social media.¹⁵ However, there was a surprise finding in our cohort of reduced duration of sleep (<6 hours) in 31.5% and disturbances due to inadequate sleep after waking up in 37%. On their subgroup analysis, it was found to be equal between users and nonusers. We also found that WhatsApp and Facebook was used by 77% and 39% adolescents, respectively, that are supposed to have high malicious content and like to negatively impact young mind.¹⁶

We found 28% adolescents were diagnosed as having a common mental health problem on 12-item GHQ. Moreover, 29 adolescents (14.5%) had some form of depression according to BDI score (3.5% had borderline depression, 10% had moderate depression, and 1% had severe depression). This amounts to a significant mental health problem and needs a prompt addressal. The majority of adolescents in the study were social media user (81.5%); however, the relation of mental disorder with the use of social media was not alarming. There was no evidence to suggest that the use of social media has a statistically significant impact on their common mental problems (as assessed by 12-item GHQ), but there was a significantly more problems of mental health (particularly depression) among users (as assessed by BDI, $p < 0.05$). This higher finding of mood disturbances/depression among users needs further investigation as it cannot be attributed to social media use with this limited data; however, it does raise an alarm for the parents, teachers, and health professionals. To ascertain the etiology of mental health problems in the form of mood disturbances or various forms of depression, a well-planned study is needed. The unique feature of social media is particularly relevant to sleep quality for two reasons. First, incoming alerts during the night have the potential to disturb sleep, as most of the adolescents' sleep with their phone in the bedroom often under their pillow or in their hand. Second, constant incoming alerts create considerable pressure to be available 24/7 and contribute to a fear of missing out.¹⁷

Adolescents consider the posts in social media to be trustworthy and honest, thus reducing their critical evaluation, and have a significant impact on their mental health.¹⁸ While several researchers have pointed to the critical role that parents play in their adolescents becoming digitally literate and empowered, there is little understanding of parental views and drivers of parental views on social media influences and means by which they mediate their adolescents' exposure to social media. As this phenomenon of social media usage is new, therefore more awareness is needed among parents, teachers, and the adolescent health-care providers.¹⁹

The findings in the present study are based on a small cohort of a group of schools and lack representative information of a larger section. However, it is one of the few studies done on the impact of social media use on mental health of adolescents in a tier 2 city. This subject lacks

extensive evidence from developing world and largely the evidence is from tier 1 cities.^{4,20,21} Therefore, the association of mental health problems with social media use still needs to be ascertained. Moreover, more structured and randomized studies in future can throw more light on this issue.

Conclusion

Our study provides a bird's eye view on use of social media among adolescents and its impact on mental health of adolescents. Majority of adolescents are using social media nowadays and are found to have various mental health problems in this study. This highlights the importance of awareness among parents, teachers, and adolescent health-care providers.

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Conflict of interest

None to declare.

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