

Original Research Article

Social media addiction and its impact among the school students during COVID-19 lockdown in an urban area of Western India: a cross-sectional study

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ABSTRACT

Background: Reports indicate significant increase in number of social media users. Teenagers are among the most prolific users of social media. Subsequently, questions and controversies emerge about its positive and negative effects, including their safety, academics and inter-personal relationships. This study will help in identifying teenagers at risk and implications of social media addiction on students.

Methods: A cross sectional study conducted among school students of randomly selected schools of Surat city. Social media addiction scale-student form was used for data collection. Data entry in Microsoft excel and analysis was done by Epi-info. Univariate analysis was done to calculate mean and standard deviation while bivariate analysis for chi square test.

Results: With 434 students of grade 9-12, mean age was 15.70 ± 1.20 years. The prevalence of social media addiction was 23.5%. Girls were significantly associated with social media addiction. Overall, 26% of the students agreed that they were eager to go on social media, 14% of the students agreed that a life without social media becomes meaningless for them and 14.3% of the students agreed that they were unhappy when they are not on social media. Overall, 21.5% agreed that their productivity has decreased due to social media use and 12% had physical problems because of social media use.

Conclusions: Risk factors for addiction were younger age group (13-15 years), female gender and students of standard 9. The academics was hampered for all the students irrespective of their age. There was a negative effect on their inter-personal relationships, mental and physical health.

Keywords: Social media addiction, School, Students

INTRODUCTION

Social media are interactive computer-mediated technologies that facilitate the creation or sharing of information, ideas, career interests and other forms of expression via virtual communities and networks.¹ Social media websites allow individuals to construct profiles in which they can maintain and create social networks, circulate details about their daily lives and respond to posts written by others.² Teenagers are among the most

prolific users of social network sites (SNS). Emerging studies find that youth spend a considerable portion of their daily life interacting through social media. Subsequently, questions and controversies emerge about the effects SNS have on adolescent development.³ Systematic review and meta-analysis of the prevalence of internet addiction among college students in the Indian setting which was conducted in 19 states of India estimated the prevalence of internet addiction as 19.9-40.7%. The included studies had a prevalence for

moderate addiction in a range of 7.4-48.2%. Prevalence for severe addiction was 0.3-39.5%.⁴ An extensive literature review suggests many studies have been carried out among college students regarding internet addiction but there is a dearth of study about social media addiction among school students. Thus, there is a gap in the knowledge regarding social media addiction among school students.

Aim and objectives

This study aims to document the influence of social media among school students of Surat city and to estimate the extent of social media addiction among school students. Further, this study will help to determine effects of social media addiction on academic performance and health status among the study participants.

METHODS

Place of study

This is a cross-sectional observational study conducted in four randomly selected English medium schools namely Vanita Vishram, Vidyabharati school, RSM Poonawala Sarvajanic experimental school and Smt. Lilaba Dahyabhai Vajeram Kanya Vidhyalaya all situated in Surat city.

The duration of the study was from March'2021-June'2021.

As for the inclusion and exclusion of study participants, those students belonging to class 9, 10, 11 and 12 who gave their consent were included in the study. Those students who were absent on the day of study were subsequently excluded from the study.

Sample size calculation

The prevalence rate of social media addiction among pre-university students of urban Bengaluru was reported to be 36.9%.⁵ Based on this prevalence, the sample size was drawn using the formula $4pq/L^2$ with 5% allowable error and 95% confidence level. Taking the prevalence as 36.9% i.e., $p=0.369$, $q=1-p=0.631$. Allowable error (L) is 5%. The sample size is $\{4 \times 0.369 \times 0.631\} / 0.05^2 = 372$. Allowing 15% non-responders, final sample size was 434.

Methods of data collection

Prior written consent was obtained from the gatekeeper (Principal of each school) for all the students belonging to grades 9, 10, 11 and 12. Then all the schools were visited one by one. Most of the time, the survey was performed in early morning and sometimes in late afternoon to facilitate the participation of students without hampering their regular class schedule. The

survey had an important component of administering a questionnaire. At every school, prior appointment was taken for briefing which was around 15 minutes and in between the fill up of the questionnaire too, the students were supervised and helped if they had any query. Meeting was called at every school for students and information was given about social media addiction and its preventive measures and the questionnaire was explained. A pre-tested, semi structured questionnaire was used, which collected information on socio-demographic characteristics along with filling of the 'social media addiction scale-student form.' This scale is developed for students aged 12 to 22 years studying in high and secondary schools. The higher score suggests that the student perceive himself/ herself as "social media addict".⁶

Statistical analysis

Data collected was entered in Microsoft excel and analysed using Epi-info. Univariate and bivariate analysis of all normally distributed data was carried out and presented as mean and standard deviation as well as parametric test were applied. Non parametric test like chi square test were applied for categorical data. Arbitrarily a $p < 0.05$ considered to be statistically significant.

RESULTS

A cross-sectional study was conducted among the school students belonging to grades 9, 10, 11 and 12 from four randomly selected English medium schools of Surat city with the aim of documenting the influence of social media among them. Study was carried out on all the students present on the day of interview, which came to 434 students. The study group comprised of 267 (61.52%) boys and 167 (38.48%) girls. The mean age of the students was 15.70 ± 1.20 years. The mean age of boys was 15.65 years while girls had 15.78 years. Majority of the students 402 (92.63%) were Hindu. Almost half the students, 243 (55.99%) were from joint family. The prevalence of social media addiction among the students was found to be 23.5%. A total of 26.03% of the participants agreed that they are eager to go on social media with 28.6% agreeing that their eagerness to go on social media made them look for internet connectivity wherever they go. More than half (65.7%) of the participants stated that going on social media was not the first thing for them after waking up in the morning. This corroborates with the finding that for 58.8% of the participants, a life without social media was meaningful. Overall, 56.9% of the participants preferred not to use social media when there are some people around them, with is reiterated by 43.3% stating that they prefer spending time on social media when they are alone. One third (30.6%) of participants had preference of communicating with people via social media. However, almost half (53%) of the participants preferred going out rather than virtual communication on social media. For 20% of participants' social media activities had a strong

hold on their everyday life, 27% of students were excited when they are on social media and 44.7% of participant used social media to keep themselves informed regarding about the happenings around them. While exploring the reasons for them to go to social media, the significant reasons were found to be staying informed about the things their social media groups are sharing (33.2%) and to keep a track of the information related to their course/studies (43.3%). Among 15-17 years, 29.4% of students agreed of looking for internet connectivity everywhere to remain active on social media while 26.1% and 43.8% of students of 13-15 and 17-19 years agreed to this statement respectively. The preference of not using social media in the presence of people around them was 59.1% among 15-17 years while 52.8% among 13-15 years. More than half (50.5%) of students of 13-15 years of age disagreed that they prefer to make friends on social media than in real life while 68.2% of students of 15-17 years disagreed to it. Around 46% of students from 13-15 years disagreed that they are as they seem on social media while 33.3% of students of 15-17 years disagreed to it. Almost 18.7% of students of 13-15 years of age agreed that they cannot give up social media even their family frown upon while 11.2% of students of 15-17 years of age agreed to it. Only 6.2% of the students belonging to 17-19 years agreed to it. A total of 22.7% of students belonging to 13-15 years agreed that social media activities lay hold on their everyday life while 18.6% of students belonging to 15-17 years agreed that social media activities lay hold on their everyday life. Only 6.2% of the students from 17-19 years agreed to it. Only about 18.7% of the 13-15 years' students agreed that they don't even notice that they are hungry or thirsty when they are on social media, while only 15.3% of 15-17 years' students agreed on it. Only 12.5% of students of 17-19 years agreed to it. As high as 41% of students belonging to 13-15 years agreed that they spend more time on social media to see some special announcements while the agreement in 15-17 years' age group was 30.6% (Table 1).

The younger age group was more prone to spend time on social media to see some special announcements. Girls (29.3%) agreed that they are more eager to go to social media than boys (23.9%). About thirty percentage 30% of the girls agreed that they look for internet connectivity everywhere to remain active on the social media than boys (16.5%). Almost equal number of boys (61.7%) as well as the girls (61.6%) preferred friendship in real life

than social media. As high as 43.1% of boys did not prefer social media for communicating with people while only 27.1% of girls did not prefer social media for communicating with people. There was a strong disagreement by 36.7% of having physical problems due to social media use compared to 33.5% of girls for their strong disagreement on it. Around 73.6% of girls were not seem as they are on social media while it was 69.7% for boys. A total of 35.2% of boys agreed to spend time on social media when they are alone while 56.3% of girls agreed to it. The agreement on using social media usage for keeping themselves informed about the latest happenings around them was 41.2% and 50.3% among boys and girls respectively. The time spent on social media to see some special announcements was more among girls (44.3%) than boys (29.2%). More than half (53.3%) of girls were active on social media to keep themselves informed regarding their study purpose/course while only 37.1% of boys were active in social media for this purpose. Their reason for activeness in social media to get instant information regarding their kith and kin was disagreed by 53.6% of boys and 46.7% of girls (Table 2).

A total of 53.7% of class 9 students stated that a life without social media is meaningful for them. This statement was accepted by 60.3% of class 11 and 68.4% of class 12 students. The students of class 9 are significantly associated with a thought that life without social media is meaningless to them (χ^2 : 24.456, DF=12, $p=0.018$). Overall, 54.2% of students of class 9 agreed that they can give up social media when their family frown upon it. The consent for this statement among students of grade 10, 11 and 12 were 60%, 69.5% and 75.4% respectively. The students from class 9 are significantly associated with unable to give up social media use even their family frown upon (χ^2 : 38.091, DF=12, $p=0.000$).

Score of "social media addiction scale-student form" ranges from 29-145. Among 13-15 years, 23.29% of the students had a social media addiction score of ≥ 81 and among 15-17 years, 16.11% of the students had a score of ≥ 81 and 12.5% of students of 17-19 years had a score of ≥ 81 (Table 3).

Similarly, among boys, 17.22% of them had a score of ≥ 81 , while among girls, 21.55% of them had a score of ≥ 81 (Table 4).

Table 1: Association of significant parameters of social media addiction scale with the age group of participants.

Sub-domain	Parameters	Age group (Years)	Agree, n (%)	Neutral, n (%)	Disagree, n (%)	χ^2 (Df)	P value
Virtual tolerance	Looking for internet connectivity everywhere so as to go on social media	13-15	46 (26.1)	54 (30.7)	76 (43.2)	16.982 (8)	0.030
		15-17	71 (29.4)	44 (18.2)	127 (52.4)		
		17-19	7 (43.8)	3 (18.7)	6 (37.5)		

Continued.

Sub-domain	Parameters	Age group (Years)	Agree, n (%)	Neutral, n (%)	Disagree, n (%)	χ^2 (Df)	P value
Virtual communication	Preference of using social media even though there are some people around them.	13-15	34 (19.2)	49 (27.8)	93 (52.8)	16.082 (8)	0.041
		15-17	52 (21.5)	47 (19.4)	143 (59)		
		17-19	2 (12.5)	3 (18.7)	11 (68.7)		
	Preference of making friends on social media than in real life.	13-15	41 (23.3)	46 (26.1)	89 (50.6)	30.309 (8)	0.000
		15-17	41 (16.9)	36 (14.9)	165 (68.2)		
		17-19	1 (6.2)	1 (6.2)	14 (87.5)		
	As they are as they want to be seen on social media.	13-15	41 (23.3)	54 (30.7)	81 (46)	15.572 (8)	0.049
		15-17	83 (34.3)	77 (31.8)	82 (33.9)		
		17-19	5 (31.2)	4 (25)	7 (43.7)		
	Not giving up social media even their family frowns upon.	13-15	33 (18.7)	44 (25)	99 (56.2)	22.072 (8)	0.005
		15-17	27 (11.1)	49 (20.2)	166 (68.5)		
		17-19	1 (6.2)	4 (25)	11 (68.7)		
	Social media activities lay hold on their everyday life.	13-15	40 (22.7)	51 (29)	85 (48.3)	15.655 (8)	0.048
		15-17	45 (18.6)	66 (27.3)	131 (54.1)		
		17-19	1 (6.2)	2 (12.5)	13 (81.2)		
Virtual problem	Insensibility to hunger or thirst when they are on social media	13-15	33 (18.7)	41 (23.3)	102 (57.9)	16.730 (8)	0.033
		15-17	37 (15.2)	39 (16.1)	166 (68.5)		
		17-19	2 (12.4)	1 (6.2)	13 (81.4)		
	Noticing that their productivity has decreased due to social media	13-15	27 (15.3)	47 (26.7)	102 (57.9)	24.063 (8)	0.002
		15-17	59 (24.4)	61 (25.2)	122 (50.4)		
		17-19	7 (43.7)	1 (6.2)	8 (50)		
Virtual information	Spending time on social media to see some special announcements.	13-15	72 (40.9)	38 (21.6)	66 (37.5)	18.393 (8)	0.018
		15-17	74 (30.5)	67 (27.7)	101 (41.8)		
		17-19	6 (37.4)	5 (31.2)	5 (31.2)		

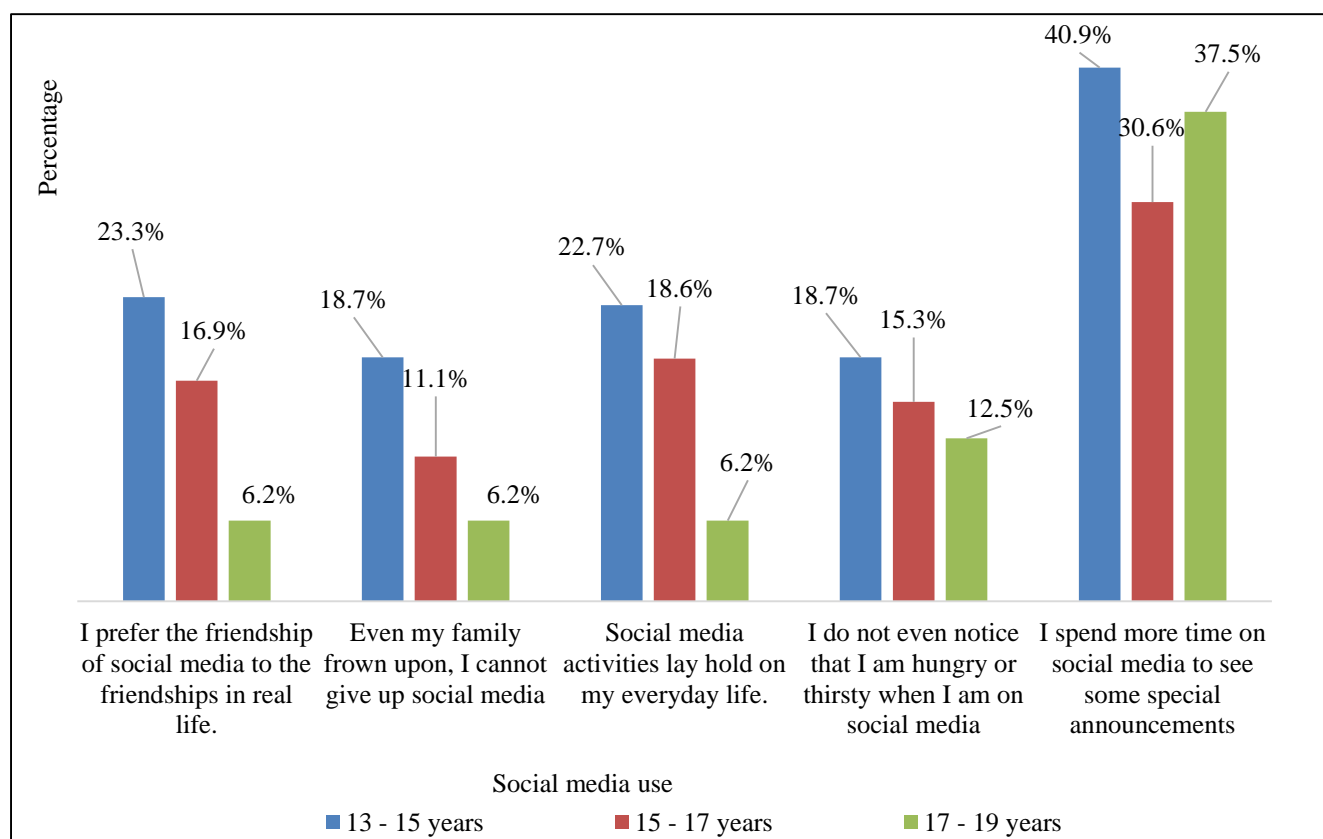


Figure 1: Age wise distribution of students according to their affirmative response in using social media.

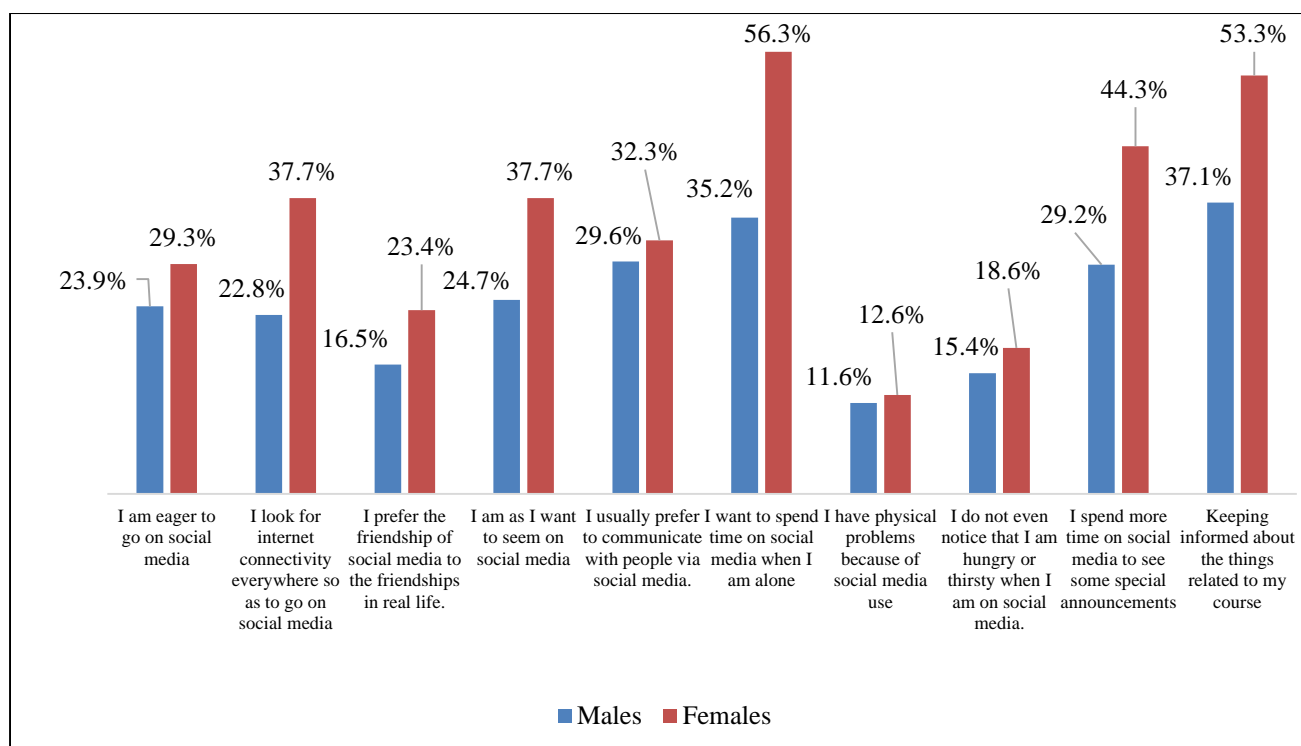


Figure 2: Gender wise distribution of students on social media addiction scale.

Table 2: Association of different parameters of social media addiction scale with gender of participants.

Sub-domain	Parameters	Gender	Agree, n (%)	Neutral, n (%)	Disagree, n (%)	χ^2 (df)	P value
Virtual tolerance	Eagerness to go on social media	Boys	64 (24)	82 (30.7)	121 (45.3)	19.012 (4)	0.001
		Girls	49 (29.4)	76 (45.5)	42 (25.2)		
	Looking for internet connectivity to go on social media	Boys	61 (22.9)	65 (24.3)	141 (52.8)	16.492 (4)	0.002
		Girls	63 (37.7)	36 (21.5)	68 (40.6)		
Virtual communication	Preferring friendship on social media than in real life	Boys	44 (16.5)	58 (21.7)	165 (61.8)	12.737 (4)	0.013
		Girls	39 (23.3)	25 (14.9)	103 (61.7)		
	Preferring social media to communicate with people	Boys	79 (29.5)	73 (27.3)	115 (43)	12.861 (4)	0.012
		Girls	54 (32.4)	67 (40.1)	46 (27.6)		
	Not being able to give up social media even their family frown upon	Boys	47 (17.6)	65 (24.3)	155 (58.1)	12.936 (4)	0.012
		Girls	16 (9.6)	34 (20.3)	117 (70.1)		
Virtual problem	Spending time on social media when-ever they are alone.	Boys	94 (35.2)	73 (27.3)	100 (37.4)	14.603 (4)	0.006
		Girls	94 (56.2)	29 (17.4)	44 (26.4)		
	Physical problems due to social media use	Boys	31 (11.5)	50 (18.7)	186 (69.6)	13.986 (4)	0.007
		Girls	21 (12.6)	23 (13.8)	123 (73.6)		
	Not noticing regarding hunger or thirst when on social media	Boys	41 (15.4)	61 (22.8)	165 (61.8)	13.682 (4)	0.008
		Girls	31 (18.5)	20 (11.9)	116 (69.4)		
Virtual information	Preferring social media to keep informed	Boys	110 (41.1)	62 (23.2)	95 (35.5)	15.117 (4)	0.004
		Girls	84 (50.3)	41 (24.6)	42 (25.2)		

Continued.

Sub-domain	Parameters	Gender	Agree, n (%)	Neutral, n (%)	Disagree, n (%)	χ^2 (df)	P value
	immediately regarding latest updates						
	Spending time on social media to see some special announcements.	Boys	78 (29.1)	60 (22.5)	129 (48.3)	12.502 (4)	0.014
		Girls	74 (44.3)	50 (29.9)	43 (25.8)		

Table 3: Age-wise classification of the score of social media addiction scale.

Age group (Years)	Score of social media addiction scale				
	27-54	54-81	81-108	108-145	Total
13-15	30 (17.04)	105 (59.65)	35 (19.88)	6 (3.41)	176 (40.55)
15-17	60 (24.79)	143 (59.09)	36 (14.87)	3 (1.24)	242 (55.76)
17-19	3 (18.75)	11 (68.75)	2 (12.5)	0	16 (3.69)
Total	93 (21.43)	259 (59.68)	73 (16.82)	9 (2.07)	434 (100)

Table 4: Gender wise classification of the score of social media addiction scale.

Gender	Score of social media addiction scale				
	27-54	54-81	81-108	108-145	Total
Boys	70 (26.22)	151 (56.55)	41 (15.35)	5 (1.87)	267 (61.52)
Girls	23 (34.33)	108 (64.67)	32 (19.16)	4 (2.39)	167 (38.48)
Total	93 (21.43)	259 (59.68)	73 (16.82)	9 (2.07)	434 (100)

DISCUSSION

Social media addiction is a new form of addiction and diagnostic and statistical manual of mental disorders (DSM) V recognizes internet gaming disorder (IGD) as a separate entity. The social media addiction which comes under the broad umbrella of internet addiction is widely prevalent in the population particularly among the youths. With the initiative of 'Digital India programme' launched by government of India and new indicator of number of internet users in national family health survey (NFHS)-5 data, the use of internet and digitalisation has been given a boost. Furthermore, the impact of lockdown and COVID-19 has changed the scenario of learning among the students with more focus given to online learning platforms, smartphone use, social media applications etc. In the 21st century era of digital world, the students devote most of their leisure time in social media and other apps rather than going out and have physical activities.⁷ The screen time in social media have considerably increased since past few years which is evident from the systematic review and meta-analysis done among children and adults during COVID pandemic.⁸ The untreated and undiagnosed social media addiction among students pose a great risk to the overall development of the student to its full potential. Firstly, this study helped in documenting the magnitude of social media addiction among the school students particularly during the COVID-19 period and thereby helping in early identification of the at-risk students who may succumb to

social media addiction. Secondly, this study helped in identifying the students who are already been addicted to

social media; necessary health intervention can be planned for these students.

The prevalence of social media addiction among the students was found to be 23.5%. Systematic review and meta-analysis of internet addiction among college students in the Indian setting which was conducted in 19 states of India estimated the prevalence among males was 2.2-67.7%. The prevalence among girls was 3.3-43.8%.⁴ A study done among 8th and 11th standard students of five schools of Vadodara (Gujarat, India) had a prevalence of internet addiction to be 8.7% while prevalence of internet use was 98.9%.⁹ Another study among students from 16-19 years of age from schools and colleges on smartphone addiction in Karamsad, Gujarat found 37% prevalence in smartphone addiction among the participants.¹⁰ This discrepancy of results in Vadodara and Surat may be because of different time frame in the conduct of study. The present study was carried out during COVID-19 lockdown and all the schools were turning to online mode of education. Thus, the results obtained regarding social media use and in turn addiction was higher than that of Vadodara (Gujarat). However, our result was at par with the prevalence of social media addiction among the high school students of urban Bengaluru (19.96%).¹¹ A total of 66.67% of the students who had a score of 108-145 in 'social media addiction scale-student form' were from 13-15 years of age while 33.33% belonged to 15-17 years of age. A study conducted by Sumen et al regarding social media addiction among the high school students with its relationship with sleep quality and psychological problems in Turkey initiated with the fact that according to digital 2021: global overview report, time spent on

social media has increased by 1½ times in last 5 years. The use of social media has increased by 11.1% in last one year in Turkey and 10.3% of the participants who considered themselves as 'social media addict' of 14-15 years, which at par with our study result of 13-15 years.¹² A study conducted by Henzel et al on problematic social media use and associations with mental distress and addictive disorders among Swedish general population found that highest percentage of problematic social media users were from younger age group and those individuals finishing the high school have the highest percentage of social media addiction (7.2%) (Figure 1).¹³

A selective literature review done by Geisel et al on non-substance addiction in childhood and adolescence found that female adolescents are more often affected towards social networking than male (7.1% versus 4.5%) and this gender distribution is statistically significant. Similar study results were found by Lian et al where females had higher social networking site addiction than males.^{14,15} A study conducted in Gaza strip, Palestine among the school students aged 6-18 years during COVID-19 pandemic showed that Facebook was the most common social media platform used among students and among them, females had higher likelihood of using it and females were also significantly more psychologically affected than males by it.¹⁶ Similar results were obtained in our study where females had more health issues compared to males (Figure 2).

Students belonging to grades 9 and 10 had stated that a life without social media were meaningless to them thus showing a significant impact of social media on their life. Concordant results were obtained in another study conducted by Aydin et al on effects of social media addiction among adult population (18-62 years) of Turkey found that the adolescents were at highest risk to experience social media addiction i.e. belonging to school and early college students.¹⁷ Every 2 out of 3 students belonging to 13-15 years had a total score of 108-145 category. Similarly, every 1 out of 3 students of 15-17 years had a score of 108-145 category. This signifies that the prevalence of social media addiction was more in early age group compared to older ones. The onset of problematic and addictive use of social media sets in at an early age. Similar results were obtained by the study conducted by Henzel et al among the high school students where a higher prevalence of social media addiction was seen among the younger age group.¹³ Higher proportion of the students of younger age group (i.e. 13-15 years) prefer friendship of social media than in real life. Students of this age group cannot give up social media even their family frown upon. In this younger age group, social media activities had a strong hold on their everyday life. Similar results were obtained by a study done by Tan et al among high school students of China from grade 7 to grade 9 where the grade 7 students were significantly more addicted to social media than other participants.¹⁸ This corresponds to the younger age of participants who are getting addicted to social media.

Indulgence in problematic social media use in looking for internet connectivity to go on social media was more in 15-17 years than that of 13-15 years. This discrepancy can be attributed to COVID-19 and due to higher online education, that was prevalent during the time of study. Social media addiction among girls was found to be higher as compared to boys. This was in accordance with various studies in literature search.^{14-16,19-22}

Limitations

A semi structured self-reported questionnaire was used. So, it is likely to be influenced by social desirability bias. The study was carried out among English medium school students only so, the results should be interpreted with caution for other medium school students. The proportion of students from each class/ standard were not equal due to non-availability of sufficient students as a result of COVID-19 lockdown.

CONCLUSION

The present study concluded that the prevalence of social media addiction among the students was found to be 23.5%. The prevalence of social media addiction was higher among girls of 13-15-year age group. Social media has hampered their academics. There was also a negative effect on their mental and physical health. It was also seen that as the age increases, their productivity has decreased due to problematic social media use.

Thus, the right time to intervene for prevention of digital addiction is in the younger age group children, especially among the females. If the habit of sensible use of digital devices is inculcated from younger age, we are likely to deal with the emerging issue of digital addiction in a better way.

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