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# Social media effects among freshman medical students during COVID-19 lock-down: An online mixed research

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## Abstract:

**BACKGROUND:** Lockdown was imposed as a preventive measure for coronavirus disease pandemic. Social media was the most common tool available for the masses, including the 1<sup>st</sup> year medical students during the lockdown. The objectives of the present study were to determine the extent of use of social media and the effects on mind-body and social distancing.

**MATERIALS AND METHODS:** It was mixed research conducted on 1<sup>st</sup>-year medical students using convenience sampling. The quantitative aspect of E-survey was administered through Google forms sent via E-mail, and structured telephonic interview was conducted as a qualitative aspect on randomly selected 10 students based on predecided interview questions. This study was reported as per the Checklist for Reporting Results of Internet E-Surveys. The analysis was performed using percentages and paired *t*-test with significance at  $P < 0.05$ , Chi-square test with Yate's correction. Qualitative responses were analyzed using coding and categorization.

**RESULTS:** The response rate was 88%. Time spent on social media for >4 h increased from 1.1% to 47.72% during lockdown. Forty three (48.86%) of the students reported increased mood fluctuations. The relation between mood fluctuations and time spent on social media of >4 h was significant  $\chi^2 = 6.41$  with  $P < 0.05$ . Average hours of sleep after using social media before lockdown increased significantly from 6.68 h to 8.10 h during lockdown using paired *t*-test, where "*t*" was 6.84. There was a positive impact on communication with friends and family.

**CONCLUSION:** Due to the increased extent of use of social media during lockdown, negative mind-body effects have surfaced but emerged as boon in terms of communication.

## Keywords:

Coronavirus, coronavirus disease-19, medical students, pandemic, sleep disturbances, social media

## Introduction

Electronic communication means, such as websites for social networking and microblogging through which users create online communities to share information, ideas, personal messages and other contents like videos are included under the term "social media."<sup>[1]</sup> This also includes What's App, telegram, blogs, microblogs like Twitter, content communities like youtube, social networking sites such as Facebook,

virtual game worlds, and virtual social worlds.<sup>[2,3]</sup>

Social media is used for online sharing of knowledge and information,<sup>[3]</sup> but almost everything in this world can have positive and negative aspects.<sup>[4]</sup>

The scenario changed in the wake of the World Health Organization declaring the emergence of coronavirus disease-19 (COVID-19) as a pandemic in March 2020.<sup>[5]</sup> In India, the nation-wide lockdown was declared from March 25, 2020

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to break the chain of infection and stressed on “social distancing.”

There are increased chances of rise in mental health issues during this pandemic, especially in school children, adolescents.<sup>[6]</sup>

Social media at this time of lockdown can be a boon in disguise or a double-edged sword. There is sparse literature on the use of social media and their effects during the lockdown among the medical students. Hence, this online mixed research was undertaken to quantitatively analyze the extent of use of social media before and during the lockdown, to find the effect of social media on mental-physical health and social distancing during the lockdown. In addition, a qualitative approach was used to unearth the measures to enhance the utility of social media during the COVID-19 pandemic.

## Materials and Methods

The present study being a web-based survey is reported as per the Checklist for Reporting Results of Internet E-Surveys (CHERRIES).<sup>[7]</sup>

### Design

It was an online survey encompassing mixed research (Sequential Transformative Design). The E-survey was part of the quantitative data collection method.

The qualitative method included structured telephonic interviews, using an interview guide validated by experienced faculties on randomly selected 10 students. It consisted of a list of the open-ended questions which could be asked in any sequence. The documentation of responses was written down verbatim.

A convenience sampling method was used to include 1<sup>st</sup>-year MBBS (Bachelor of Medicine and Bachelor of Surgery) students of 2019 batch (100 students). Students who consented were included in the study.

The survey was started after obtaining permission from the Institute Ethics Committee. The form had informed consent document in the beginning and only those who consented could access the form or else were taken directly to the “submit” option. Confidentiality was maintained through-out the process as no personal information was collected.

### Development and pretesting

The face validity of the questionnaire was established by experts in the department. The survey questionnaire was pilot tested on 20 students who were not a part of

this survey. Appropriate changes were made based on the feedback.

### Survey administration

The e-survey was prepared as Google form questionnaire and sent through e-mail.

Fifty questionnaire items were spread over five screens with six items having sub-questions.

Completeness was ensured by marking the questions as mandatory. Nonresponse option like “can’t say” was also incorporated.

### Response rates

Eighty-eight participants completed the survey from the sample frame of 100 (response rate 88%). One did not give consent.

Preventing multiple entries from the same individual was ensured by selecting the option of single entry at the time of survey administration.

### Analysis

Only completed questionnaires were analyzed ( $n = 88$ ) using descriptive statistics like percentages. Inferential statistics included a two-tailed paired  $t$ -test with significance at  $P < 0.05$ ; Chi-square test with Yate’s correction with significance at  $P < 0.05$ . Qualitative responses were analyzed using coding and categorization.

## Results

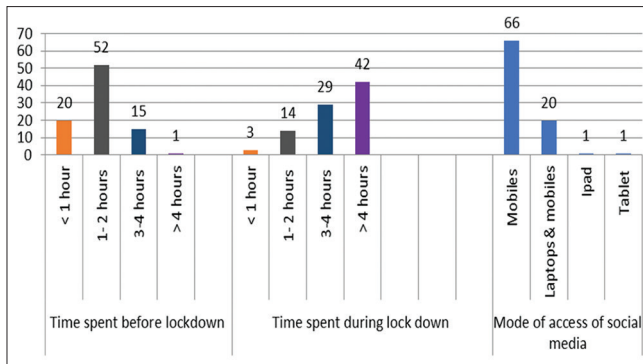
### Section A: Demographic details

Eighty-nine students responded to the questionnaire out of 100. Eighty-eight students gave consent to participate in the study; the response rate being 88%. Out of 88 students, 57 (64.77%) were male. The age range was from 18 to 23 years.

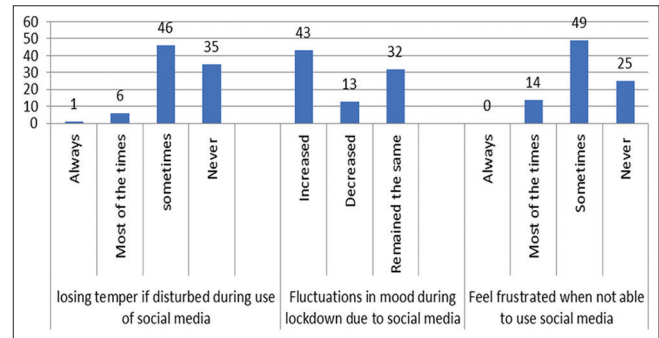
### Section B: Extent of use of social media before and during lock-down

Time of use of social media among students before lock-down was at evening ( $n = 32$ , 36.36%), late at night ( $n = 24$ , 27.27%), both evening and late at night ( $n = 13$ , 14.77%) followed by throughout the day ( $n = 10$ , 11.36%). Time of use of social media among students during lock-down increased to “throughout the day” ( $n = 61$ , 69.31%).

Fifty-nine students (67.04%) responded “yes,” 22 students (25%) responded “can’t say” and 7 students (7.95%) responded “no” when asked whether social media has helped to gain “authentic” knowledge regarding COVID-19 pandemic.



Graph 1: Extent of use of social media before and during the lock-down



Graph 2: Effects of social media on mental health during the lockdown

Table 1a: Excerpts from structured telephonic interviews

## Open ended questions

How has social media influenced your lifestyle during the COVID-19 lockdown?

## Positive impact

"I can connect with friends through video calls"  
 "There are various videos on social media, like if you are interested in a specific thing or hobby, you can take its help and improve your skills"

What do you think are the effects of social media on mental health during the lockdown?

## Positive impact

"Online jokes and games refresh my mind. I feel happy. There is time, so I am getting to use it. Its use is pleasant"  
 "It's kind of euphoria"  
 "It has prevented 'physical distancing' from becoming 'social distancing'"

What do you think are the effects of social media on physical health during the lockdown?

## Decrease in physical activity

"Not much effect. Initially also during college hours whole day we used to sit in classess, now we are sitting for online classes and watching social media"  
 "Social media has severe effects on health because we keep using it while lying down on couch or on bed, which do make us lazy and we aren't really motivated to do any physical activity as we keep ourselves busy in using social media or phone"

## Effects on sleep wake cycle

"My sleep cycle is altered. I sleep at odd times in the night and wake up only because I've classes to attend and this is not healthy"  
 "It has affected my sleep wake cycle. I sleep late after checking my social media and the first thing I do in morning is to check my account"

## Excerpts

Depending upon situation of use of social media

"It depends how much time we waste on social media there is excess use in lockdown"

"Whole day we are on mobiles. There is something or the other from 9.30 am onwards"

## Negative impact

"Sometimes many things circulate often. We first think it is true and later it turns out to be fake. That increases stress and we are able to trust again"

"Since morning there are online lectures through mobiles and laptops. Stress has increased. It feels like throwing the phone sometimes"

"The negative impact is that it can lead to inferiority complex. If a friend of mine solves some challenge and if I am unable to do it, this can cause a feeling of failure in me"

## Increase in physical activity

"In my view effects are positive because I happened to get more time now in lockdown and am motivated to try different exercise routines"

## Overall physical health

"Physical health is going bad. There is facial dullness, lethargy, feeling thirsty often along with the environment that is hot and humid"

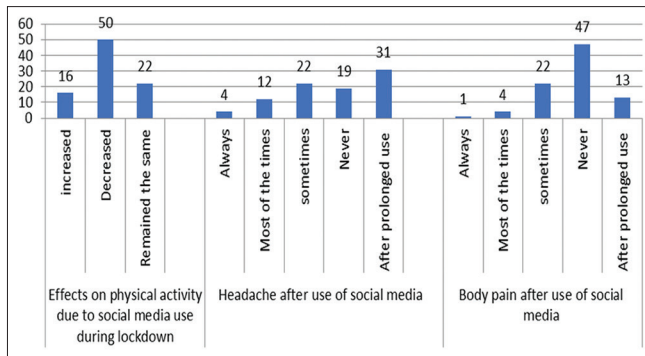
"I frequently feel headache and pain in my eyes"

### Section C: Effects of social media on mental health during the lock down

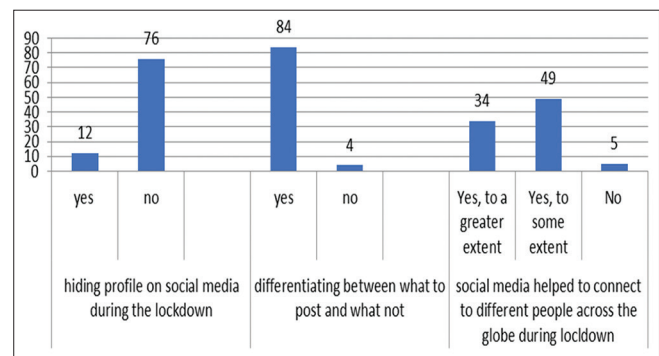
Forty-eight (54.54%) students responded "yes," 25 (28.40%) students responded "can't say" and 15 (17.04%) responded "no" when asked whether the use of social media elevates your mood when it is down during the lock-down.

Sixty-two (70.45%) responded that the use of social media is influencing their academics. This was further explored using qualitative structured interviews.

Seventeen (19.31%) responded that they feel to inflict self-harm due to lock-down.



Graph 3: Effects of social media on physical health during the lockdown



Graph 4: Effects of social media on social distancing during the lockdown

Table 1b: Excerpts from structured telephonic interviews

## Open ended questions

What is the impact of social media on your academics?

Positive impact

"There is a beneficial impact with sharing of power points, videos etc. Now maximum activities are occurring on social media only"  
 "I am connected to my teachers"  
 "I am exploring e-books for my studies"

Depending upon situation of use of social media

"I guess social media isn't really a threat or has really affected my academics. It is not like that I skip my studies and use social media. I just use the social media whenever I don't feel like studying. Grossly, It has no impact on my study"

## Excerpts

Negative impact

"Now I am at home, social media has decreased my study time and concentration time"  
 "In my opinion, with the excuse of messages regarding study purpose and college purpose, we use to see the random stories of friends, their messages, celebrity stories. As we didn't bring our books we have excuse of ebook reading and as I don't have a habit of e-book reading, I spend little time to read and further indulge in Instagram and Whats app"  
 "There are distractions and after studying for 45 min or so I feel the need to take a break and duration of the break goes unmonitored and I tend to stay away from studies for hours"

How did you bridge the gap of face-to-face interaction with the help of social media during the lockdown?

"Since we can't go out of our homes, social media played a vital role"

"yes, social media has great impact on bridging the gap between face to face interaction. I used to take advantage of social media apps like zoom, video calls to interact with my friends. Now it is more needed during lockdown because we can't talk face-to-face with our families and friends"

How do you think can we enhance the utility of social media during the COVID-19 lockdown?

"By promoting authentic information and spreading awareness regarding COVID-19"

"Social organizations can't reach everywhere. We can inform regarding the location where help is needed and also regarding the requirements"

"We need to mentally prepare ourselves that how much we are getting in this lockdown is much more than enough with respect to studies and lectures and in respect to mental health, we have to take proper sleep"

"Our teachers are already taking online classes so it is helping us"

"We have academic groups on What's app in which we can clarify our doubts"

"According to me, self-determination and motivation is most important to exercise and to be physically healthy"

"Professors in medical colleges should form a COVID related group with students to provide authentic information that we can pass it on to our families"

"We should practice self-control as we have taken medical profession by choice"

"There are few apps that monitor the task time and that can control the time spent on social media"

COVID-19=Coronavirus disease- 19

Chi-square test with Yate's correction was used to assess the association between mood fluctuations during lock-down due to the use of social media and >4 h time spent on social media during lock down. The relation between these variables was significant  $\chi^2 = 6.41$  ( $P < 0.05$ .) Fluctuations in mood is increased in time spent on social media of >4 h.

### Section D: Effects of social media on physical health during the lock-down

Average hours of sleep after using social media before lockdown was 6.68 h, which increased to 8.10 h during

lockdown. The result was statistically significant based on two-tailed paired  $t$ -test ( $t = 6.84$ ,  $P < 0.05$ ).

The reasons for the increase in physical activity were given as daily workout, learning new exercises online, using apps for exercise, online yoga, dance classes, and motivational videos.

### Section E: Effects of social media on social distancing during the lock-down

When enquired whether they initiate any response in their group on social media related to COVID-19 pandemic,

48 (54.54%) responded that sometimes they initiate the response whereas 27 (30.68%) never initiated any response.

38 (43.13%) responded that most of the time, they prefer to use social media for interacting in place of face-to-face conversation during the lock-down, whereas 5 (5.68%) do not.

79 (89.77%) students responded that they never faced a setback during the use of social media during the lockdown. Nine (10.22%) students who suffered a setback mentioned about the fake news regarding the donations, inadvertent fights with friends, and fake IDs.

Fifty-four (61.36%) were satisfied with their interactions on social media during the lockdown. 16 (18.18%) were not satisfied, and 18 (20.45%) responded that they “can’t say” about it.

Verbatim response to telephonic interview is as follows:

## Discussion

Social distancing and isolation play a negative effect on mind-body and is a major trigger for mental ailments.<sup>[8]</sup> In India, lockdown was imposed to curtail the infection cycle of COVID-19 along with social distancing. Isolation, though reduces risk of infections, but with the reduction in access to friends, family members, and social help systems, can induce loneliness and thence mind-body diseases<sup>[9]</sup> directly or indirectly in the present and in future.<sup>[6]</sup> In this pandemic, social media has emerged as a media to promote social interactions beyond the limitations of social distancing and have virtually connected people together, especially those separated by distance.<sup>[10]</sup>

Previous studies on social media have shown that the average time spent on social media is 2 h a day.<sup>[11]</sup> In the present study, before lockdown 52 (59.09%) students spent 1–2 h on social media. This was in accordance with Bhola and Mahakud,<sup>[12]</sup> where 78% spent 2–4 h on social media. In the present study, the time of use increased to >4 h during lockdown, indicating an inclination toward addictive processes to social media due to the intrinsic activation of the reward system of the brain due to social media use<sup>[13]</sup> [Graph 1].

Majority of the students (36.36%) before lockdown utilized social media in the evening followed by late night (27.27%). This is in accordance with Bhola and Mahakud which inclines toward the need of privacy while browsing social media.<sup>[12]</sup> In the present study due to lockdown, the use of social media had increased throughout the day (69.31%) followed by afternoon, evening, and late night [Graph 1].

Majority of the students in the present study accessed social media through mobiles (smartphones) (75%). Similar findings were obtained by Raj *et al.* in which smartphones (75.7%) were used mostly to access social media sites<sup>[14]</sup> [Graph 1].

Our study is in support of the previous study done by Zhou *et al.*<sup>[9]</sup> which correlates isolation with mental health issues. In our study, it is evident that social media use during the lockdown had a wide range of mental effects from fluctuations in mood during lockdown due to the use of social media (48.86%) to frustration when not able to use social media (55.68%) to elevation of mood (54.54%) when got access to some interesting post or media [Graph 2]. This is in accordance with Bhola and Mahakud<sup>[12]</sup> and Grover *et al.*<sup>[15]</sup> This sometimes progresses from normal to challenging phases of social media use and coupled with a decrease in self-control, ultimately lands in addictive behavior.<sup>[11,16]</sup> Negative social and psychological effects surface out of excessive social media use and increased communications known as “Internet paradox.”<sup>[17]</sup>

In this study, 70.45% of students’ academics were affected by the use of social media, similar to as reported by Raj *et al.*<sup>[14]</sup> This is due to the diversion of attention toward social sites instead of curriculum oriented books during the use of social media.<sup>[14,18]</sup> Regular exposure to media regarding information about a pandemic like COVID-19 can also trigger stress responses.<sup>[19]</sup> The anxiety created culminates into further “media consumption” leading to exacerbation of stress and a vicious cycle that is difficult to shatter.<sup>[20]</sup>

Though it is said that excess use of social media is associated with sleep disturbances,<sup>[21,22]</sup> after carefully analyzing the data from the interview, it was evident that the students were awake late in the night and sleep more during morning hours causing disturbance in the sleep cycle. The high levels of artificial blue light emitted by the mobiles disturbs sleep cycles<sup>[23]</sup> and exposure during nighttime disrupts circadian rhythm leading to suppression of sleep producing chemical “melatonin.”<sup>[24]</sup>

Physical activity of 56.81% of students [Graph 3] decreased due to the use of social media during the lockdown, the reasons being mentioned in Table 1a. This is reportedly more than Grover *et al.*<sup>[15]</sup> stressing the fact of sedentary behavior being inversely associated with physical activity.<sup>[25]</sup>

The majority of the responders agreed that the use of social media in lockdown has helped them connect to different people globally [Graph 4] and most of the time they prefer to use social media for interacting in place of face-to-face conversation (43.13%). In this

pandemic where lockdown and social distancing were mandatory, social media did play a vital role as a means for interaction, communication, and sharing of resources as evident by the excerpts.

In the excerpts from interviews held, it was noticed that students narrated both the positive as well as negative aspects of social media [Table 1a and b]. They internalized that excess use is harmful at the same time applauding the positive aspects of use.

## Conclusion

In this COVID-19 pandemic induced lockdown, the duration of the extent of use of social media majorly accessed by mobiles has increased to throughout the day. It has led to increase in fluctuations in mood, frustrations when not being able to use social media, disturbed sleep wake cycle though the average sleeping hours have increased, decreased physical activity, and negative effects on academics. However, social media has also emerged as a boon in terms of connecting with friends and family, sharing resources and hobbies where people cannot step out of their homes. It was suggested that practicing self-control and using social media judiciously will enhance its utility in this testing time of lockdown due to COVID-19.

The strength of the present study was that it assessed the effects of social media on physical, mental health, and social distancing in COVID-19 lockdown in a holistic manner and is a blend of the quantitative and qualitative study. The limitation of our study was that it was conducted in a single medical college and while generalizing the study findings, caution is required.

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## Conflicts of interest

There are no conflicts of interest.

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