

## Original Research Article

DOI: <https://dx.doi.org/10.18203/2394-6040.ijcmph20234144>

# Effects of internet shutdown among medical students of a tertiary care hospital in Imphal, Manipur: a cross-sectional study

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Received: 16 November 2023

Revised: 13 December 2023

Accepted: 16 December 2023

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## ABSTRACT

**Background:** The internet shutdown has become a global issue affecting the academic activities of medical students. Due to civil unrest in Manipur, a Northeastern state in India, the internet has been shut down for the past several months. Therefore, the study was undertaken with the objective to determine the magnitude of the effects of the internet shutdown among the medical students of a tertiary care hospital in Manipur.

**Methods:** A cross-sectional study was conducted in July 2023 among 135 medical students of a tertiary care hospital using a convenience sampling method. Data were collected by using a self-administered structured questionnaire. Data analysis was done by using SPSS software version 26.

**Results:** The mean age of the participants was  $21 \pm 1.8$  years. The study found that the majority (93.3%) of medical students opined that the internet shutdown affected their daily activities. Most of the participants (83.7%) stated that their study was affected by the current internet shutdown. Only (39.2%) of participants faced problems in submitting online forms. Most of the participants (71.1%) had a bad experience during the internet shutdown.

**Conclusions:** The internet shutdown affected most of the participants in their daily activities. Most of the participants felt they were missing out on information and opportunities. Most of the participants rate their overall experiences as bad during the internet shutdown.

**Keywords:** Internet shutdown effects, Medical students, Tertiary care hospital

## INTRODUCTION

An internet shutdown may be defined as an intentional disruption of internet or electronic communication rendering them inaccessible or effectively unusable for a specific population or within a location, often to exert control over the flow of information.<sup>1</sup>

The internet is a global network that connects millions of people worldwide. The internet makes the world small as people can connect with others who are far away from them. It's the easiest and cheapest way of communication. Internet is used for getting the latest information, learning, connectivity, communication,

sharing, address, mapping, Banking, billing, shopping, selling, donations, funding, entertainment etc.<sup>2</sup>

Over the past few years, millions of people across the globe have been socially, economically, and psychologically affected by the internet shutdown. Thus, the issue of digital shutdown has become an important concern, particularly in a democratic country. The first ever internet shutdown happened during the Egypt revolution in 2011. After the disruption of the internet in Egypt for a week in 2011, the incident of internet shutdown started gaining attention globally. Globally, 3 incidents of internet shutdowns were reported in 2012, 5 instances were recorded in 2013, 6 cases were reported in

2014, 14 instances were recorded in 2015, and 31 cases were recorded in 2016. In 2017, 70 instances of internet shutdowns were reported in 2017. There were 134 cases reported in 2018 of internet disruptions. In the past few years, India has become the world's capital of Internet shutdowns as 106 cases of internet shutdowns were reported alone in 2019. As far as the year 2020 is concerned, 61 instances have been reported till the end of September month. A total of 439 instances of internet shutdowns have been reported since 2012 to till 30<sup>th</sup> September 2020. It is imperative to note that 67 percent of the world's internet shutdowns in 2018 were seen in India.<sup>3</sup>

Internet shutdown is generally practiced by Indian states as a precautionary measure in conflict situations. It has been observed that national security has been a major concern for the government during the internet shutdown. Some people spread rumours and false information in such situations, so the internet shutdown becomes the first step to be taken by the government to control the situation. In Manipur there were multiple instances when the internet was shutdown: December 2016, July 2018, September 2018, February 2019, March 2020, November 2020, February 2021, and a recent one from 3<sup>rd</sup> May 2023 till date. The present shutdown has been going on for the past 7 months due to social unrest in the state. The study findings could be a reference for further studies because only a few studies have been done regarding internet shutdown impacts in India. The present study can also act as a baseline for the government in framing policies and planning regarding imposition of internet shutdown.

## METHODS

### **Study design and setting**

This was a cross-sectional study. The study was conducted in a tertiary care hospital in Imphal, Manipur. The institute has a yearly student intake of 125 MBBS students and 50 BDS students respectively. At present, the college has a total number of 594 MBBS students which comprises 127 students from phase I, 129 students from phase II, 129 students from phase III part 1, 117 students from phase III part 2, and 92 interns. BDS students consist of 50 students from 1<sup>st</sup> year, 40 students from 2<sup>nd</sup> year, and 41 students from 3<sup>rd</sup> year. This study was conducted from 1<sup>st</sup> July to 30<sup>th</sup> July 2023. MBBS and BDS students of a government tertiary care hospital were enrolled in this study.

### **Inclusion criteria**

Students who have been residing in the institute hostel for the last 2 months during the internet shutdown and students who agreed to participate were included.

### **Sample size calculation**

Sample size was calculated using the formula:

$$N = \frac{Z^2 P Q}{L^2}$$

Where, Z=1.96 at a 95% confidence interval, P=21% (Taken from a previous study conducted by Upadhyay SK et al<sup>6</sup> where P is the prevalence of feeling isolated due to Internet shutdown), Q=79% (100-P), L=8% (allowable margin of error). Adding a non-response rate of 10%, the final sample size was 113.

### **Sampling method**

Convenience sampling was used sampling method to select the participants.

### **Operational definition**

The scores of the students' responses on the "Effects of Internet Shutdown" survey were given in a 3-point Likert scale and converted to a corresponding percentage from the 3-point Likert scale.

### **Data collection**

A self-administered structured questionnaire comprising sociodemographic variables and the effects of the internet shutdown was used to collect the data. Before data collection, permission was sought from the Dean (Academics) of the college. Informed verbal consent was taken from the participants after explaining the purpose of the study.

### **Statistical analysis**

Data were checked for completeness, consistency and analyzed in IBM SPSS V.26. Descriptive statistics like mean, percentage, frequency, and standard deviation etc., were used to summarize the data.

### **Ethical issues**

Ethical approval from the Research Ethics Board, RIMS, Imphal was taken before the conduct of the study. No names or any kind of personal identification information were taken. Participation was completely voluntary, and confidentiality was maintained at all levels. Data was kept safely in a locker/password protected and accessible only to the researchers.

## **RESULTS**

The total number of participants in the study was 135. The mean age of participants was 21±1.8 years. The minimum age and maximum age were 18 years and 27 years, respectively. Table 1 represents the sociodemographic characteristics of the participants. Female participants were higher in number as compared to male participants. Almost half (48.1%) of the participants belong to the state of Manipur.

**Table 1: Socio-demographic characteristics of participants (n=135).**

Variables	Frequency (N)	Percentage
<b>Sex</b>		
Male	63	46.7
Female	72	53.3
<b>State</b>		
Arunachal Pradesh	2	1.5
Manipur	65	48.1
Meghalaya	6	4.4
Mizoram	7	5.2
Nagaland	12	8.9
Sikkim	13	9.6
Tripura	30	22.3

**Table 2: Responses of the participants to the statements on the effects of internet shutdown (n=135).**

Statement	Frequency (N)	Percentage (%)
<b>1. Internet shutdown affects your daily activities</b>		
Agree	126	93.3
Neutral	8	6.0
Disagree	1	0.7
<b>2. I feel isolated due to internet shutdown</b>		
Agree	70	51.9
Neutral	43	31.9
Disagree	22	16.2
<b>3. I feel missing out on information and opportunities</b>		
Agree	127	94.1
Neutral	7	5.2
Disagree	1	0.7
<b>4. Internet shutdown increases physical activities (Sports, walking, jogging, cycling, etc.)</b>		
Agree	48	35.6
Neutral	64	47.4
Disagree	23	17.0
<b>5. Internet shutdown gives you more time for social interaction (with families, friends, and relatives)</b>		
Agree	66	48.9
Neutral	45	33.3
Disagree	24	17.8
<b>6. Internet shutdown gives you more time for your hobbies</b>		
Agree	51	37.8
Neutral	60	44.4
Disagree	24	17.8
<b>7. Your expenditure decreases due to internet ban (no online shopping, no quick online transactions)</b>		
Agree	63	46.7
Neutral	38	28.1
Disagree	34	25.2

The majority (93.3%) of the participants agreed that the internet shutdown affected their daily activities. More

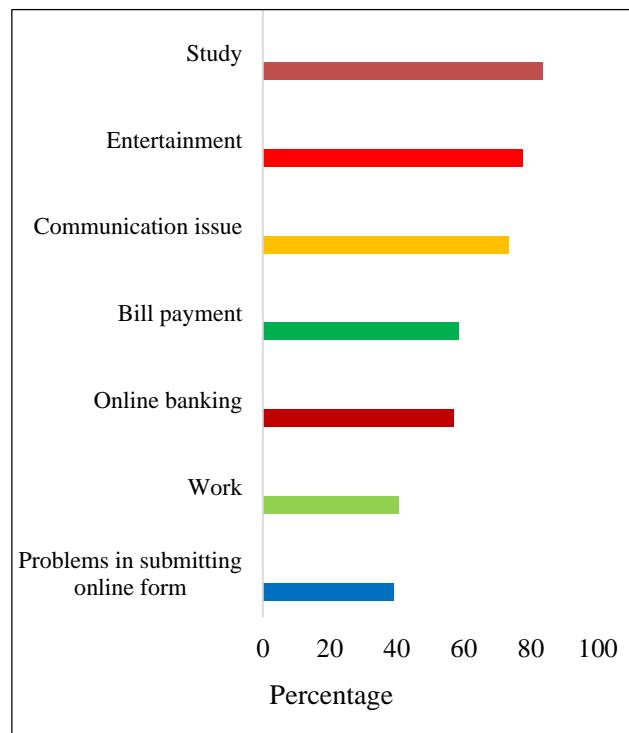
than half of the participants (51.9%) also agreed that the internet shutdown made them feel isolated. Most of the participants (94.1%) felt that they were missing out on information and opportunities. Only one third of the participants agreed that the internet shut down increases their physical activity. Nearly half (48.9% agreed that internet shutdown gave more time for social interaction and 37.8% agreed that they had more time for their hobbies. Nearly half of the participants (46.7%) agreed that internet shutdown has decreased their expenditure on online shopping and quick online transactions (Table 2).

Table 3 shows the overall experience of the internet shutdown given by the participants. Most of the participants (71.1%) had a bad experience during the internet shutdown.

**Table 3: Distribution of participants in response to the question, "How do you rate your overall experiences during internet shutdown?".**

Rating	Frequency (N)	Percentage (%)
<b>Bad</b>	96	71.1
<b>Fair</b>	32	23.7
<b>Good</b>	7	5.2
<b>Excellent</b>	0	0

Figure 1 shows the aspects where participants were affected by the internet shutdown. The majority (83.7%) of the students thought that the internet shutdown had affected their studies. Only (39.2%) of participants faced problems in submitting online forms.

**Figure 1: Aspects where participants are affected (multiple answers are allowed).**

## DISCUSSION

The current study highlights the magnitude the effects of internet shutdown among the medical students of a tertiary care hospital in Manipur. The study also shows the importance of internet-based information in the academic activities of medical students. In this era of global health, digital health is also a learning platform for medical students and internet shutdown has made a difficult time for them to acquire all the online based medical knowledge and skills.

In the present study, it was seen that 93.3% of the participants agreed that internet shutdown has affected their daily activities whereas in studies conducted by Borgohain et al in Guwahati, Assam and Upadhyay et al in Ranchi, Jharkhand showed that 22% and 26.2% of the students had lost their interest in daily activities respectively.<sup>5,6</sup> The reason for this dissimilar finding could be because of differences in characteristics of the participants. In a study conducted by Upadhyay et al around 21.3% of the university and college students of Jharkhand stated that they feel isolated during the period of internet shutdown and in our study 51.9% of medical students agreed that internet shutdown has made them feel isolated.<sup>6</sup> In a previous study conducted by Borgohain et al around 51% of the nursing students could not update their studies due to internet shutdown.<sup>5</sup>

In the present study, 83.7% of the medical students stated that their studies were affected by the internet shutdown, and it was comparable to a study conducted by Misgar et al in Kashmir and Upadhyay et al in Ranchi, Jharkhand where 74.04% and 75% of the participants stated that their research work could not be done due to sudden internet shutdown.<sup>8,6</sup> In a study conducted by Borgohain et al showed that 29% of the nursing students could not get news due to internet shutdown whereas in our study 94.1% of the participants agreed that they felt missing out on information and opportunities.<sup>5</sup>

In the current study, 17.8% of the medical students disagreed that internet shutdown has increased their interaction with their friends and this finding was not comparable to a study conducted by Borgohain et al in Guwahati, Assam where 46% of the nursing students stated that they had lost connectivity with their friends due to internet shutdown.<sup>5</sup> In our study, 46.7% of the participants agreed that internet shutdown has decreased their expenditure on online shopping and 12% of the participants faced problems in online food order due to internet shutdown as reported by a study conducted by Borgohain et al in Guwahati, Assam.<sup>5</sup> Around 77.7% of the medical students stated that they could not enjoy the entertainment programmes due to internet shutdown and it was dissimilar to a study conducted by Upadhyay et al in Ranchi, Jharkhand where 51.2% of the students said that internet shutdown has affected their entertainment activities.<sup>6</sup>

The findings of this study could be used as a baseline for further studies in the future. The limitation of the study is the deployment of convenience sampling and medical students are from Northeastern states which leads to lesser generalizability. However, the selection of medical students from each phase including both MBBS and BDS students shows the representativeness of the target population in similar settings.

## CONCLUSION

Internet shutdown affected most of the participants in their daily activities. Half of the participants felt isolated due to internet shutdown. Most of the participants felt they were missing out on information and opportunities. Most of the participants rate their overall experiences as bad during the internet shutdown. Most of the participants found that the study is most affected during internet shutdown.

### **Recommendations**

Further studies with qualitative study design should be done to explore the impacts of internet shutdown among medical students. Policy makers should find alternative means of providing internet access to medical students during the period of any ongoing crisis.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Research Ethics Board, RIMS, Imphal*

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**Cite this article as:** Laishram J, Singh KS, Huyam Y, Akojam BS. Effects of internet shutdown among medical students of a tertiary care hospital in Imphal, Manipur: a cross-sectional study. *Int J Community Med Public Health* 2024;11:313-7.