



## Effect of Health Education Vis Digital Media during COVID-19 Pandemic in India

Subhash Kumar<sup>1</sup>, N. K. Singh<sup>2</sup>, Aravinda Jagadeesh<sup>3</sup>, Leena Singh<sup>4</sup>, Bijay Patni<sup>5</sup>, Abhijeet Gupta<sup>6</sup>,  
Anjali Vijay<sup>7</sup>, Sumita Kumari<sup>8</sup>

<sup>1</sup>Diabetologist, Diabetes & Obesity Care Center, Patna, Bihar, India

<sup>2</sup>Diabetologist, Diabetes and Heart Care center, Dhanbad, Jharkhand, India

<sup>3</sup>Aravinda Diabetic Center, Bangalore, Karnataka, India

<sup>4</sup>Shaheed NirmalMahato Medical College, Dhanbad, Jharkhand, India

<sup>5</sup>Diabetologist, Kolkata, West Bengal, India

<sup>6</sup>Gorakhpur, Uttar Pradesh, India

<sup>7</sup>Jaipur National University, Jaipur, Rajasthan, India

<sup>8</sup>Sr. Dietician, Diabetes & Obesity Care Center, Patna, Bihar, India

### ABSTRACT

**Objective:** The main purpose of the study to evaluate effect of digital media education by various medical professionals to population who are frightened and misinformed during lock down.

**Methods:** This was an observational data collection survey study by using digital media. Any patients who are habituated to use social media or having system like android mobile or a computer to be connected digitally and also confused or misguided regarding COVID-19 pandemic and look forwards for a guidance from medical experts were included in this study. A verbal questionnaire were used to understand the need of the patients followed by a short intensive yet public friendly lectures by various medical professionals and at the end another verbal questionnaire used to understand the effect of the lecture.

**Results:** Total 1000 participants were evaluated in this study. Table 1 depicted the participants' demographic characteristics. The average mean age of the participants were  $37.8 \pm 18.6$  years. 43% of the participants were male and rest 57% were female. 21% patients were having smoking history. Majority of co-morbidity among the participants were diabetes (74%), followed by dyslipidemia (51%) and hypertension (48%). The mean PSS score for the 1000 participants was  $18.6 \pm 4.9$ , indicating moderate perceived stress in the month prior to the interview. Participants indicated negative impacts (either mild, moderate, or severe) of COVID-19 related mental issues like concern for health, difficulties of concentration, concern on hygienic parameters, change in living environment and as well as depressive thoughts. Before the initiation of lectures and post lectures, there was a significant statistical difference in the knowledge of COVID-19 among the study participants.

**Conclusion:** A combined effort by multiple consultants on distant digital platform is useful in not only helping population getting the right education during pandemic but also help them to fight against removing negative thoughts and implementing positive ones.

**KEYWORDS:** Community, COVID-19, Digital media, interpersonal communication, Pandemics

### INTRODUCTION

Since SARS outbreak in 2003 [1], an insurmountable public health challenge were indulged by the scourge of COVID-19 pandemic that ravaged the psycho-social resilience of the society and has been the biggest ultimatum. In late 2019, COVID-19 was initially reported in China and later spread to 13 countries by January 24, 2020 [2] and now captured the whole globe. WHO World Health Organisation on 11 March 2020 declared it a global pandemic [3]. Due to the outbreak of unmitigated virus, several epidemic and mathematical models to predict and warn the precipitous increase in fatality rate used by the scientist across the world [4,5].

COVID-19 implies critical psychological impacts on human societies in addition to wrecking human health with fatal consequences because of travel & commuting limitation, quarantine, fear of suffering from the disease, restriction on social



gathering and meek witness to sufferings and death among kith & kins.

To protect themselves and their families from the new coronavirus disease (COVID-19), All around the world, people are taking necessary steps, to support their communities, and prevent the spread of the outbreak. Unfortunately, about the virus and how to protect against it, while many people are sharing information, not all of it is correct [6-11]. A lack of information and misinformation during a health crisis can spread stigma, fear and paranoia which further result in people not being protected or doing things that can hurt themselves and others. The outbreak has also left many people stressed, lonely, isolated and feeling worried. Zhai and Du [12] found that due to the pandemic people have developed mental health issues that include anxiety and panic attacks [13]. Despite the open conduct of epidemiological research and other scientific work on COVID-19, misinformation and spreading of non scientific rumors has introduced confusion among the public in terms which sources of information are trustworthy [14].

Till the conduct of the research, very little evidence was available regarding the influence of continuous medical awareness by the clinician over long period of time to patients confidence and belief. The main purpose of the study to evaluate effect of digital media education by various medical professionals to population who are frightened and misinformed during lock down.

## METHODS

This was an observational data collection survey study by using digital media. Any patients who are habituated to use social media or having system like android mobile or a computer to be connected digitally and also confused or misguided regarding COVID-19 pandemic and look forwards for a guidance from medical experts were included in this study. Any patients who were not well versed with electronic media or in remote places or physical or mental disability to be connected were excluded from this study.

Zoom meetings was weekly conducted for almost 20 weeks at fixed time and day as per the inclusion criteria various patients were invited to attend the session and the survey. Invitations and reminders were sent via email, text message, facebook messenger or what's app message. Eminent speakers from various fields of science and medicine were delivered lecture with pictorial presentation and video to address the patients confusion and enlighten them with proper scientific knowledge. Speakers generally highlighted subjects like Preventive measures during COVID-19, Recommended routine for the public as well as high-risk patients, meditation & Yoga, effects of Positive thinking, Dietary regulations, and many medical specialities lectures were covered in the weekly meetings. The speakers also shared their personal experiences of encountering COVID-positive patients. The meetings conducted aimed at removing negative thoughts and implementing positive ones. A team of research assistants (lead by Dr. Anjali Vijaya and Mr. Chaitanya Kumar) was engaged who were proficient in both the local language and english language and they record the enters survey and lectures for the proper tabulation of data and further interpretation.

A verbal questionnaire were used to understand the need of the patients followed by a short intensive yet public friendly lectures by various medical professionals and at the end another verbal questionnaire used to understand the effect of the lecture. The outcome expected from the survey questionnaire was to know know their awareness regarding the pandemic and also to the knowledge and self-care activities level. Upon verbal consent, participants were voluntary asked to respond to a predesigned questionnaire verbally regarding their demographic information such as age, gender, current smoking status and existing comorbid diseases. Perceived Stress Scale were used to determine the level of stress Amon the participants [15,16].

To analyse data for this study we combined both descriptive and inferential statistics. We made use of simple percentages among the descriptive statistics along with mean and standard deviation. At 0.05 level of significance, we made use of hierarchical multiple regression and *t*-test. With the use of Statistical Package for Social Sciences (SPSS) version 22, all the analyses were done.

## RESULT

Total 1000 participants were evaluated in this study. Table 1 depicted the participants' demographic characteristics. The average mean age of the participants were  $37.8 \pm 18.6$  years. 43% of the participants were male and rest 57% were female. 21% patients



were having smoking history. Majority of co-morbidity among the participants were diabetes (74%), followed by dyslipidemis (51%) and hypertension (48%).

**Table 1:** Participants’ demographic characteristics.

<b>Variables</b>	<b>Participants (N=1000)</b>
Age (years)	37.8 ± 18.6
<b>Gender, n (%)</b>	
Male	430 (43%)
Female	570 (57%)
<b>Smoking status</b>	
Smokers	210 (21%)
<b>Education Level</b>	
High School or bellow	20 (2%)
Graduate	680 (68%)
Post Graduate	280 (28%)
Doctoral /Professional	20 (2%)
<b>Having comorbidities</b>	
Hypertension	48%
Diabetes	74%
Dyslipidemia	51%
Asthma	24%
Other disease	26%

Most of the participants were having the basic information regarding COVID-19 pandemic while almost 25% patients were not aware regarding the severity of the infection. Figure 1 illustrated the Pie chart showing knowledge levels.

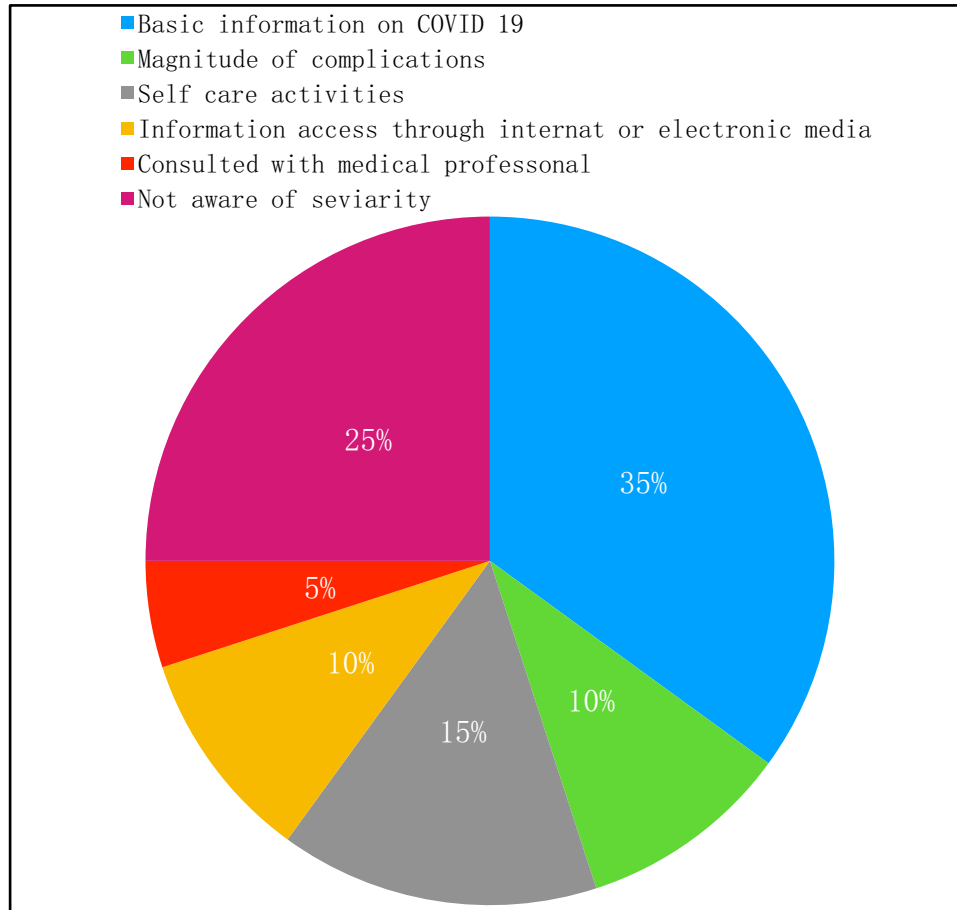


Fig. 1: Pie chart showing knowledge levels

For measuring the perception of stress, most widely used psychological instrument is the Perceived Stress Scale (PSS) [15]. As confirmed by Cohen et al. (1988) [16], it is a measure of the degree to which situations in one’s life are appraised as stressful. The mean PSS score for the 1000 participants was  $18.6 \pm 4.9$ , indicating moderate perceived stress in the month prior to the interview (Table 2).

Table 2: Mean score for each of PSS items

PSS items	Score, mean (SD)
In the past month, how often have you felt upset because of something that happened unexpectedly?	2.2 ± 0.9
In the past month, how often have you felt that you were unable to control the important things in your life?	2.2 ± 1.0
In the past month, how often have you felt nervous and “stressed”?	2.8 ± 0.9
In the past month, how often have you dealt successfully with irritating life hassles?	1.5 ± 0.9
In the past month, how often have you felt that you were effectively coping with important changes that were occurring in your life?	1.5 ± 0.9



In the past month, how often have you felt confident about your ability to handle your personal problems?	1.3 ± 0.9
In the past month, how often have you felt that things were going your way?	1.9 ± 0.8
In the past month, how often have you found that you could not cope with all the things that you needed to do?	1.8 ± 1
In the past month, how often have you been able to control irritations in your life?	1.5 ± 0.9
In the past month, how often have you felt that you were on top of things?	1.9 ± 1
Overall PSS (Perceived Stress Scale-10) scores	18.6 ± 4.9

Participants’ ratings on mental health aspects in an order of negative impacts (mild, moderate, and severe) were illustrated in figure 2. This analysis also revealed that participants indicated negative impacts (either mild, moderate, or severe) of COVID-19 related mental issues like concern for health, difficulties of concentration, concern on hygienic parameters, change in living environment and as well as depressive thoughts.

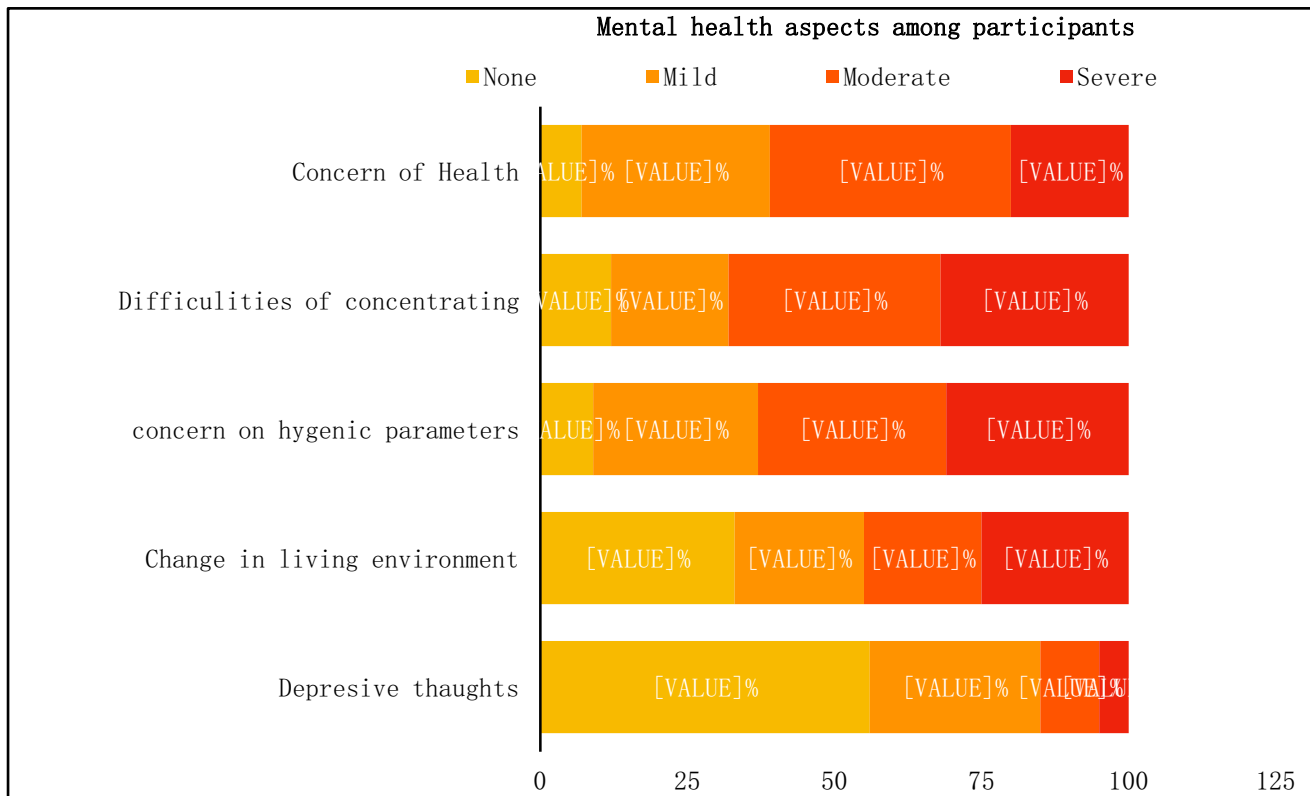


Figure 2: Participants’ ratings on mental health aspects in an order of negative impacts (mild, moderate, and severe).

Furthermore, we observed that before the initiation of lectures (Time 1) and post lectures (Time 2), there was a significant statistical difference in the knowledge of COVID-19 among the study participants and there was a significant change in score. Therefore, the result of the study showed that through interpersonal communication, communities are exposed to information on COVID-19 from expert health care person it is likely to result to an improvement in their knowledge level of the pandemic and helped them to gather mental strength.



**Table 3:** Hierarchical regression analysis of the moderating effect of source credibility on the effect of interpersonal communication on behaviour related to COVID-19

Parameters	Score out of 10			
	Time 1	Time 2	R square change	P value
Worry about families and relatives with higher vulnerabilities	1.5 ± 0.9	6.8 ± 2.2	0.074	0.001
Worry about themselves being infected	1.6 ± 0.7	5.2 ± 1.1	0.452	0.001
Lack of accountability and motivation	1.5 ± 0.8	4.9 ± 1.4	0.071	0.001
Distracted by social media, internet, and rumours	1.5 ± 0.9	7.2 ± 1.3	0.771	0.001
Lack of interactive learning environment	1.2 ± 0.8	5.3 ± 2.3	0.064	0.001
Loneliness	6.7 ± 1.2	4.8 ± 2.1	0.047	0.001
Overthinking	7.4 ± 1.2	3.1 ± 1.2	0.512	0.001
Fear from insecurity	6.2 ± 1.2	2.4 ± 1.6	0.081	0.001

**DISCUSSION**

Indian patients who were confused or misguided regarding COVID-19, is considered particularly vulnerable to mental health concerns. The findings of this study bring into focus the effects of continuous medical awareness regarding the disease, safety concerns and as well as the pandemic-related transitions on the mental health and well-being of this specific population. In the midst of the pandemic, by conducting online expert lectures along with pictorial presentation, awareness related videos and mass interaction, we found that a majority of the participants were experiencing increased stress and anxiety due to COVID-19 which also supported by the results of the PSS. Donovan A et al [17], recently conducted a PSS based survey among UK population and found mean PSS score  $19.79 \pm 6.37$  which is also in line with our findings [ $18.6 \pm 4.9$ ].

Worries about one’s own health and the health of loved ones is the most prominent among the effects of the pandemic identified followed by difficulty concentrating are in line with recent studies [18,19]. Largely due to limited physical interactions with their families and friends a vast majority of the participants noted changes in social relationships as found during this study. This finding also in line with previous study conducted in china [20] and in US [21].

In current study, authors has noted majority of participants were having moderate (41%) concern regains their health during this pandemic. Mild, moderate and even severe depression levels were also noticed during survey which is also observed in few recent studies suggest an uptick in pandemic-related depressive symptoms among peoples [22-24].

Effect of source credibility on the influence of interpersonal communication on health behaviour was another interesting finding of the study. Like our finding few previous studies also established the fact that credibility of the source plays a role in determining the effectiveness of the message [25-27]. Thus use of interpersonal communication trough a serious of lectures and interaction with various medical experts has successfully create awareness about the Coronavirus pandemic as well as improve knowledge about the disease. In line with our observation, a recent Italian study [28],also suggest that, to plan for necessary support mechanisms, it is essential to assess the population’s stress levels and psychosocial adjustment.

At this important juncture, there are many people, in this time of the coronavirus, who need to be followed up and safeguarded. Our study also suggest that proper attention and caution in this regard are wanted.



Survey based approaches and more effective documentation of stress levels and outcomes were few major limitation of our study. At the time of survey administration no validated questionnaires for believability of COVID-19 misinformation existed. To overcome this follow up and research in this area can be planned to further, for more intense study of these effects.

## CONCLUSION

A combined effort by multiple consultants on a distant digital platform is useful in not only helping population get the right education during pandemic but also help them to fight against removing negative thoughts and implementing positive ones. The findings of our study strongly highlight the urgent need to develop interventions and preventive strategies to address the mental health of the populations during this COVID-19 pandemic.

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