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ARTICLE

COVID-19 Bulletin: A Timely & Credible Communicative Tool to Address 'Infodemic'

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ABSTRACT

The coronavirus pandemic has affected the human population all over the world. And also created a dearth of authentic information along with the unprecedented global crisis related to livelihood and health management. Scientific awareness about virus transmission, containment and precautionary measures is very much needed. At the same time, authentic and right kind of information is also essential because social media platforms are overloaded with fake and unscientific information. This 'infodemic' or misinformation is creating panic among the people in society and unscientific claims of medical remedies.

Social media can help combat or contribute to the spread of misinformation. The COVID-19 bulletin of CSIR covers the latest research reports; technological innovations, Questions and Answers, Myths versus Facts, Dashboard and the weekly update on the contributions of various CSIR laboratories in the fight against the #CoronavirusPandemic.

The research aims to study the impact of disseminating information to the scientific community in specific as well as the general public through the publication of bulletin. The study also highlights the relevance, credibility, timeliness and social behaviour change brought about by this platform. The audience has well appreciated the content and opined that the news items should be backed up by some CSIR experts through their viewpoint or a quote. The respondents felt that the audience data bank should be widened. In the interest of the scientific community and society in general, the COVID-19 information should be made available in such a manner that it is easily accessible and readily available.

Keywords: COVID-19 Bulletin, infodemic, Over-the-top, Science Communication, SARS-CoV-2, pandemic, CSIR-NISCAIR

Introduction

When any disease outbreak is confined to a small region of a few countries, it is known as an epidemic but if the outbreak affects almost the whole world, then it is named a pandemic. COVID-19, the infectious disease caused by SARS-CoV-2, has crossed all the geographical boundaries and reached almost the entire world. Till 6 December 2020, over 15 lakh people have died around the world due to COVID-19, of which 1.4 lakh are reported from India. The pandemic has created a dearth of authentic information along with the unprecedented global crisis related to livelihood and health management. It has badly impacted the vulnerable community.

Scientific community of the countries is endeavouring to make drugs and vaccines which can combat this virus. Indian scientists are also doing research tirelessly in the same direction. Here the scientific awareness about virus transmission, containment and precautionary measures is very much needed. At the same time, authentic and right kind of information is also essential because social media platforms are overloaded with fake and unscientific information about COVID-19. This 'infodemic' or misinformation is creating panic among the people in society.

Social media acted as double edge sword, it helped in combating and at the same time contributed to the spread of misinformation during the COVID-19 pandemic. The general public switched over to social media to understand the virus, receive updates, and learn what can be done to stay safe. According to Mark Dredze1, Computer Scientist, "It's critical to use social media to understand what kind of information is being shared and what people believe in order to ensure effective policy."[4]

On the social media spectrum, three types of information are being shared. One being informed with the valuable information, like that of social distancing, sanitisers, wearing mask, etc. The other type would be actively harmful misinformation, which may be incorrect and not evidence-based. For example; the claim that the government is using a diluted version of COVID-19 vaccine. The third is disinformation when people purposely share information that they know is false in an effort to scare people[4].

Although a bit late, like other countries India has not been left untouched by this pandemic. To provide authentic and scientific information, CSIR-National Institute of Science Communication and Information Resources (NISCAIR) came up with a weekly bulletin focused on COVID-19. This bulletin covers the latest research reports; technological innovations related to COVID-19, Question and Answers, Myths versus Facts, COVID-19 Dashboard and the weekly update on the contributions of various CSIR laboratories in the fight against the #Coronavirus Pandemic.

CSIR-NISCAIR (now NIScPR) started the weekly COVID-19 Bulletin soon after the lockdown was announced. Understanding the gravity of the situation, the Institute mooted the idea to set up a platform for sharing authentic data, research outputs, technological advancements, viewpoints and information. CSIR-NISCAIR collated and disseminated the information through this bulletin. The very first issue of this specific bulletin was brought out on 2 May 2 2020. The Bulletin was uploaded on the NISCAIR website for the general public and posted to the scientific community and Institutes through Facebook, Twitter and Whatsapp platforms. To make people scientifically aware, the weekly COVID Bulletin has been proven as a timely and wise decision. This COVID Bulletin is seen as a useful tool to all the stakeholders of society.

Several new media technologies have been introduced in the recent past. Apple began selling music through iTunes in 2003; Facebook started in 2004, Twitter came into existence in 2006, smartphones debuted in 2007; OTT streaming video services were launched in 2008. WhatsApp came into being in 2009, and the iPad was introduced in 2010. The growing demand for internet connectivity shows that the number of active social media users in India[1] stood at 330 million in 2019 and is expected to reach 448 million by 2023. The increasing diversity in media from newspaper to radio and now a podcast, television channel to OTT (Over the Top) platforms are reflecting the new wave of change; offering new opportunities and challenges for all stakeholders.

Science and technology-based channels like Discovery, Syfy, Knowledge Network, Canal D, Docu Box, Da Vinci kid, etc. started disseminating content using the OTT platform. In India,

the OTT based science channel "India Science" began in 2019 by the Department of Science and Technology Govt of India[6]. Besides these, there are several science YouTube channels like Vsauce, Science show, Minutes physics, The Science Asylum, PBS Spacetime, Scientific American, Dr Physics A, Sci Show Space that are very popular and have millions of subscribers[4&7].

SAGE publications have come out with a variety of books on COVID-19. The broad categories include; Most recent COVID-19 research; Healthcare, Diseases and Inequalities; Working, living and educating during a pandemic; Effects on National/ International infrastructure; Strategies for containment and health security; Pandemics: Past, present and future considerations; Being mindful and managing stress and anxiety; Workplace management, crisis management and the role of human resources; Effects on entrepreneurship and Special issue, collects and podcasts on COVID-19[5].

A book "*Till we Win*" on the fight against COVID-19 by AIIMS Director Randeep Guleria along with Public Policy and Health Systems Expert Chandrakant Lahariya and renowned vaccine researcher and virologist Gagandeep Kang was released during the COVID-19 period. The book focuses on "inner strength and unity" amongst people. It shows how India has put forward its best foot in its fight against this deadly virus. It deals with questions, like "How long do we need to wear the masks?", "Do we need to wear a mask even after being vaccinated" or "What is an alternative, if there is no effective treatment against COVID-19?".

Literature Review

Media plays a key role in disseminating information to the general public, be it print or electronic media. Similarly, social media plays an increasingly important role in spreading both accurate information and misinformation. Studies carried out during the first phase of the pandemic while searching PubMed, Scopus, Embase, PsycInfo and Google Scholar databases found that between 0.2% and 28.8% of social media posts about COVID-19 could be classified as misinformation. Although misinformation is not a new phenomenon, today it can spread rapidly on social media and potentially reach more than half the world's population. The study,

published in Bull World Health Organ (WHO), proposed six main ways of tackling COVID-19-related misinformation: (i) disseminating trustworthy information; (ii) addressing, containing or debunking misinformation; (iii) increasing social media users' health literacy; (iv) officially supervising media in general; (v) introducing policies and regulations for social media; and (vi) increasing research on the topic. These suggestions have been included in published proposals for managing infodemics.

During the pandemic, WHO launched social media chatbots in Rakuten Viber and WhatsApp to provide accurate information about COVID-19. Several studies confirm that health professionals and public health authorities should have come out openly by debunking misinformation and providing true information. The WHO also created a specific webpage for correcting misinformation about the disease. A way out to control is by introducing regulations for social media. But it is a sensitive topic because both measures can conflict with freedom of the press and the principle of free speech. In fact, several large social media companies have introduced policies and measures to control false or manipulated information.

The review found that COVID-19-related misinformation and lack of information is an important issue, both in terms of the amount of misinformation in circulation and the consequences for people's behaviour and health. The impact of COVID-19-related misinformation could be reduced by: (i) social media users, who should avoid spreading it; (ii) social media platforms, which should identify it, label it as misinformation or remove it; and (iii) public health authorities and health providers, who should increase their presence and COVID-19-related activities on social media[2].

The first original research article in any Emergency Medicine journal was published on 2 March 2020, which is reported to be 58 days after the first WHO-confirmed case of COVID-19. The median (IQR) and mean (SD) lag times between preprint publication and EM journal publication is reported to be 26 days (16, 36) and 25 days (13). The median and mean lag times between article submission and publication within EM journals is observed to be 23 days (11, 39) and 27 days (19). Of the 351 COVID-19-related articles published from 1 January 30 June

2020, in the 20 top EM journals, 191 (54.4%) were commentaries, 83 (23.6%) were original research, 49 (14%) were reviews, and 28 (8%) were case reports. In all, the primary author affiliations were mostly from the United States (40.7%), Italy (13.7%), and Canada (10.3%). Of the 83 original research articles, the top three study designs were observational-other (41 [49.4%]), cohort (13 [15.7%]), and survey (8 [9.6%]). And, only one (1.2%) clinical trial (non-randomised) was found. Nine (10.8%) of the original research publications were previously published on preprint servers, and 67 (80.7%) had article original submission dates publicly available.

In a review of 125 top such peer-reviewed general medicine and EM journals, rapid and robust response to meet the need for original research and other vital medical information during the first six months of 2020 was noted. It was found that remarkably short publication lag times at the early stage of the COVID-19 pandemic, indicating that journal editors and reviewers responded appropriately to the need for vital information. Yet with over 13,000 worldwide COVID-19-related deaths per day on average in January 2021, editors and journal managers should seek to streamline review and publishing processes even further. If the speed of the peer-review process has reached its ceiling, preprint publications may serve to bridge the critical need for relevant information during times of medical crisis[3].

Methodology

NISCAIR's weekly COVID-19 Bulletin as well as other similar communication literature were reviewed. Based on the literature review and understanding gained, an attempt was made to formulate a questionnaire to seek wider feedback from the readers and the society before recommending any suggestive strategy for improvement and implementation.

A questionnaire comprising multiple choices and open-ended questions for suggestions were circulated to understand the feedback on the bulletin. The Google feedback form was categorised into 4 sections; General Information about the respondent, about the bulletin, its utility and suggestions to improve upon the quality. Some of the points covered under the bulletin details included; appropriateness, area of coverage, language,

sequence and presentation. Regarding its utility, the respondents were asked to revert with their view on the level of information, replication, further dissemination, clarity on issues and summation of COVID information. Feedback was sought on Content, Reach Out, Presentation, Missing item and Frequency of Publication under the open-end segment. The feedback form along with a copy of the bulletin was circulated to over 700 ICMR scientists, 100 Science Communicators, around 200 odd scientists, staff, research scholars of all CSIR labs, 100 filmmakers and 100 friends and general public. In all, over 1200 messages were sent out through emails and WhatsApp. Despite regular follow-ups and reminders, only 52 responded. The feedback form was circulated during mid-October and the feedback was collected till November first week.

Analysis

General Information about the respondents

Out of the 52 respondents, 21 were of the age group less than 35 years and 31 of them fell in the age group of 36 to 74. This may attribute towards the reading habit of seniors from a credible source like CSIR. Regarding the affiliation with CSIR, around 8 Scientists (15.4 %), 2 Staff (3.8%), 8 Research Scholars (15.4 %), 13 Students (25%) and 21 Public persons (40.4 %) participated through the Google feedback form. Gender wise, the respondents comprised 59.6% Males (31) and 40.4 % Females (21).

A good number of 28 people received the Bulletin through WhatsApp friends (53.8%), five on Facebook (9.6%), seven of them on Email (13.5 %), only 12 of them browsed the CSIR Website (23.1%) and none saw it on their campus Notice Board. Most of them were able to flip through the bulletin on WhatsApp or email for the first time, which was sent along with the Google form for feedback. In all, 11 states were represented, of which 18 were from Delhi, 12 from Madhya Pradesh, 9 from Uttar Pradesh, two each from Jharkhand, Chhattisgarh, Tamil Nadu, Karnataka and Kerala and one each from West Bengal, Bihar and Maharashtra.

About the COVID Bulletin

Overall, the content of the Bulletin has been appreciated by all the respondents. On the appropriateness of Content 50 % of

people (26) termed it to be Very Good, 40.4 % stated it to be Good (21) and only three, one each was referred to as Average, Poor and Scope for improvement respectively. On the area of coverage front, 16 responded to it to be Very Good (30.8%), 30 of them stated it to be Good (57.7 %), five mentioned it as Average (9.6%), one as Poor and none suggested for any Scope for improvement.

Regarding the language, around 92.3% were satisfied, as 48.1 % quoted it as Very Good (25) and 44.2% terming it as Good (23) and only 7.7% referred to it as Average. Sequence wise, over 37 people (69.2%) termed it as good and 21.2% as Very Good (11), only three considered it as Average. The design & presentation was appreciated by almost 96.1% or 40 respondents (Very Good 51.9% and Good 44.2%), and only one each mentioned it as Average and Poor.

Utility of Bulletin

Although 92.1% appreciated the level of information, the response for replication purpose and utility for further dissemination was not very encouraging. Regarding the level of information, 18, 28 and 4 people responded as Very Good (36.1%), Good (56%) and Average (8%) respectively, and in fact, two cases preferred not to Respond. On replication purpose 16, 28 and 6 responded it as Very Good (30.8%), Good (55.8%) and Average (11.5%).

For further dissemination 12, 30 and 7 felt it to be Very Good (23.5%), Good (58.8%) and Average (13.7%). In all, 17,26 and 8 people felt as Very Good (33.3%), Good (51%) and Average (15.7%) respectively with regard to the clarity on issues. Summation of COVID was felt by 13,29 and 9 as Very Good (25%), Good (55.8%) and Average (17.331%) respectively.

Suggestions for Improvement

Regarding the Content, almost everyone felt it to be overall good and appreciated the efforts of collating the relevant news items from credible sources. Some suggested brief snippets, health education, localised stories, appealing for laymen and a few more background details. The breaking news items should be

backed up by some prominent scientists or CSIR experts through their viewpoint or a quote. Some felt it to be a copy-paste or mere replication too.

On Reach Out, the respondents felt the data bank should be widened. It was opined that the CSIR website alone will not solve the purpose. Although it was also posted on Facebook, Twitter and WhatsApp, it had a limited audience. Majority of them felt that the bulletin should go viral and more emphasis be made on platforms like Facebook, Twitter, WhatsApp and similar modes for circulation. Flyers, links and other windows of publicity should be engaged to widen its base of readers. Bulk emails to the known scientists, communicators, science agencies be made for wider outreach.

Its design, presentation and packaging were valued by all. Some felt, since it's a bulletin, it could be simplified a bit or localised in the Indian context. Some of the missing items mentioned by the respondents included; Index missing, publicity needed, not readily available, limited readers and lack of background lab stories before the breakthrough news items. Browsing the website now and then is not feasible. Every research story should have a conclusion by an expert. The bulletin as a whole or the major stories should go viral on different media platforms. Frequency of publication was preferred as weekly.

Discussion

Any bulletin breaking the news that a vaccine has been invented against COVID-19 would be the best science bulletin of the year, or for that reason the best one of this century. There are currently more than 40 candidate vaccines against COVID-19 being tested on humans, with a handful in the most advanced Phase 3 trials. Every bulletin, news channel are eagerly waiting to break the news, but the audience will value the most credible institute like WHO and CSIR for authenticity.

During this pandemic time, several news channels have earmarked specific times, on a daily basis, to carry health news, especially on COVID-19. NDTV is airing a programme on a daily basis "*Afwah banam Haqiqat*" during prime time to clear the layman's doubts and myths with the help of an expert doctor.

This Phone-in programme has helped the common man to understand the corona in a better manner, its precautions, aftermaths and the way forward.

The leading English Daily, *Hindustan Times* has been coming out with a special column "COVID-19: What you need to know today" on a regular basis for the past 205 days (till 17 November 2020). It reflects upon an issue dealing with corona in the editorial format by an expert along with any new findings of the day. For example, in its 204th dispatch, it talks about the fourth round of antibody tests in Delhi, results of which were made public in the course of a court hearing recently. The findings said that 25.5% of the approximately 15,000 people tested possessed COVID-19 antibodies. Along with the news item, it carried two box inserts stating, "The antibody debate" and "Sero survey findings". The daily has a readership that runs into crores across the country.

The Lancet changed its editorial policy after the row over publishing a study that stated that COVID-19 patients who received the drug hydroxychloroquine were dying at higher rates. As per the new policy, more than one author on a paper must directly access and verify the data reported in the manuscript[10]. Simultaneously, the Lancet has set up a COVID-19 Resource Centre for clearing doubts and airing relevant information.

With all these channels, books, newspapers, bulletins, etc. in place, there is no shortage of information on COVID-19. Social media is flooded with Do's and Don'ts, local curative advises and all sorts of publicity materials. All sorts of information, misinformation and disinformation are in the air. What stands out is the source of information, and credibility plays a key role. The authenticity of the information being carried in the COVID-19 bulletin is to be credited for its source being a reputed organisation like CSIR, which is known for its scientific innovations. Established in 1942 by the Government of India, CSIR is one of the largest research and development organisations in the country. CSIR stands out as a credible organisation, functioning under the Ministry of Science and Technology. With over 2971 patents internationally, CSIR was awarded the National Intellectual Property (IP) Award 2018 in

the category "Top R&D Institution/Organisation for Patents and Commercialisation by Indian Patent Office.

Prof. Sai Baba of NIA opines that a high-quality product of CSIR like this needs wider dissemination through various media channels. And, it will help to overcome the myths around and facilitate the popularisation of scientific approaches.

Conclusion

This bulletin is addressing the virus, vaccine, preventive measures, myth busters and significant question and their answers. The idea is to keep unlikely and noncritical cases out of high-risk areas. From creating a website dedicated to providing accurate and up-to-date information about COVID-19 to making technology that lets providers more accessible with their colleagues, and a culture of collaboration would be the key to its circulation and existence.

Any information on CSIR Website will pay off, but in the interest of the scientific community and society in general, the COVID-19 information should be made available in such a manner that it is easily accessible and readily available. The data bank of the audience needs to be widened by engaging and reaching out to many more through the social media channels like Facebook, WhatsApp and Twitter and posting bulk emails. Like the telehealth service, where the doctors are reaching out to needy patients, the bulletin is a good tool to reach out to the community with a lot of credible information. A good compilation of science news items could be shared with many more for a wider social and communicative impact. Responding to COVID-19 is a long-haul operation. Even though it has started as a sprint, it is really a marathon.

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