
ANNEXURE FORM ‘A’

Title of the Research:

A survey to determine knowledge of infodemics, its impact and coping strategies by doctors of Bharati Vidyapeeth hospitals of Mumbai, Pune and Sangli.”

INTRODUCTION: True information along with misinformation and disinformation have served to add oil to the fire of pandemic, in the form of an ‘infodemic’. The term infodemic, coined in 2003 by political scientist David Rothkopf in Washington Post, he mentioned it as a blend of 'Information' and 'Epidemic' and explained it as “an onslaught of speculations and overabundance of information that unraveled the menacing effect on human life.

” The Director – General of the WHO, Tedros Adhanom Ghebreyesus, cautioned the world in February 2020 by stating that “We are not just fighting an epidemic, we are also battling the trolls and conspiracy theorists that push misinformation and undermine the outbreak response. We are fighting an infodemic”

The infodemic serves to create havoc within an already existing pandemic. The diffusion of true and false information makes it extremely difficult for people to distinguish between the two and find reliable sources of information for guidance. The superimposition of an infodemic over a pandemic is rightly referred to as a ‘secondary virtual epidemic’ in the current internet-based society.

AIM: To gauge the current level of **knowledge** pertaining to the infodemic amongst healthcare workers, the **impact** of the infodemic on various aspects of their life, and the means of **countermeasures provided to them to combat the rising infodemic.**

OBJECTIVES: To determine the **knowledge** of infodemic, **impact** of infodemic and **coping strategies of doctors on infodemic** in hospitals working in Bharati Vidyapeeth hospitals of Mumbai, Pune and Sangli.

PRIMARY RESEARCH QUESTION-

Are the doctors working in Bharati Vidyapeeth hospitals of Mumbai, Pune, and Sangli aware of the COVID-19 infodemic, its impact, and coping strategies?

ANNEXURE “A”

Calculator Visualisation **Tabulate**

Input Values

Specify input values and click Calculate. Hover over the ? sign to obtain help.

Level of Confidence ?

Expected Proportion ?

Precision or Margin of Error ?

Absolute value

Note: You may adjust sample sizes for finite population, clustering and response rate by clicking the 'Adjust' button below.

Results and Live Interpretation

Assuming that 50% of the subjects in the population have the factor of interest, the study would require a sample size of:

1068

for estimating the expected proportion with 3% absolute precision and 95% confidence.

In other words, if you select a random sample of 1068 from a population, and determine that 50% of subjects have the factor of interest, you would be 95% confident that between 47% and 53% of subjects in the population have the factor of interest.

Reference: Dhand, N. K., & Khaikar, M. S. (2014). Statulator: An online statistical calculator. Sample Size Calculator for Estimating a Single Proportion. Accessed 16 February 2023 at <http://statulator.com/SampleSize/ss1P.html>

Note: You may adjust the calculated sample size for clustering, response rate or finite population by clicking [here](#) or the 'Adjust' button.

ANNEXURE "B"



FIG 1. Collection of data was done from the Bharati Vidyapeeth university which have Medical and Dental Hospitals in Navi Mumbai, Pune and Sangli.



FIG 2. Collection of data was done from the Bharati Vidyapeeth University Medical College and Hospital in Sangli.



FIG 3. Collection of data was done from the Bharati Vidyapeeth University Dental College and Hospital in Sangli.



FIG 4. Collection of data was done from the Bharati Vidyapeeth University Dental College and Hospital in Navi Mumbai.



FIG 5. Collection of data was done from the Bharati Vidyapeeth University Dental College and Hospital in Pune.



FIG 6. Doctors filling the questionnaire in Navi Mumbai Dental College and Hospital.

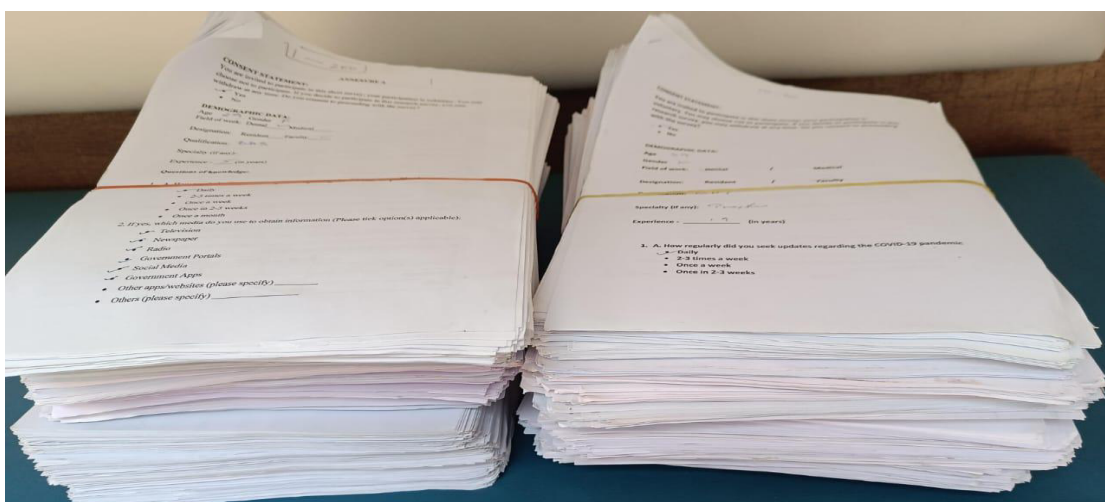


FIG 6. Questionnaire collected from Bharati Vidyapeeth Dental Colleges and Hospitals of Navi Mumbai Pune and Sangli.

ANNEXURE “C”**CONSENT STATEMENT:**

You are invited to participate in this short survey; your participation is voluntary. You may choose not to participate. If you decide to participate in this research survey, you may withdraw at any time. Do you consent to proceeding with the survey?

- Yes
- No

DEMOGRAPHIC DATA:

Age Gender

Field of work: Dental _____ Medical _____

Designation: Resident _____ Faculty _____

Qualification:

Specialty (if any):

Experience - ____ (in years)

Questions of knowledge:

1. A. How regularly did you seek updates regarding the COVID-19 pandemic
 - a. Daily
 - b. 2-3 times a week
 - c. Once a week
 - d. Once in 2-3 weeks
 - e. Once a month
2. If yes, which media do you use to obtain information (Please tick option(s) applicable):
 - a. Television
 - b. Newspaper
 - c. Radio Government Portals
 - d. Social Media
 - e. Government Apps
 - f. Other apps/websites (please specify) _____
 - g. Others (please specify) _____

3. In case of social media, which of the platforms did you use (Please tick option(s) applicable):
- WhatsApp
 - Facebook
 - Twitter
 - Instagram
 - Others (please specify) _____
4. What do you think was the nature of the information being provided to you?
- Always true
 - Mostly true, sometimes false
 - Mostly false, seldom true
 - Always false
5. Are you aware of the COVID-19-related ‘Infodemic’?
- Yes
 - No
 - Unsure
6. Do you think false information was being spread for political or economic gains, or to target specific classes of society?
- Yes
 - No
 - Not sure
7. Are you aware of any other measures taken by the government to tackle the circulating false information?
- Yes
 - No
 - Not sure

Questions on impact:

8. Which of the following media impacted you?

	Never	Rarely	Sometimes	Always
Television news				
Newspaper				
Radio				

	Never	Rarely	Sometimes	Always
Government portals				
Government Apps				
Social Media				
Others				

9. Were you able to distinguish between the myths and true information circulating online impacted you?
- Yes
 - No
10. How often did you cross-check the information that had an impact being provided?
- Always
 - Sometimes
 - Rarely
 - Never
11. What type of emotions did you experience after going through the information related to COVID-19? (Please tick option(s) applicable)
- Fear
 - Anxiety
 - Panic
 - Anger
 - Joy
 - Relief
 - Others (please specify) _____
12. What was the nature of the information that impacted you by your colleagues/faculty/hospital? Please tick whichever option(s) applicable
- Only verified facts and scientific evidences
 - Information from unverified sources which may be misleading or untrue
 - Realistic emotional support without over-reassurance
 - Exaggerated reassurance of the personnel to ensure they do not experience any adverse psychological effects from the pandemic

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- e. All of the above
 - f. None of the above
 - g. No communication or information presented
13. Did the government or your hospital make any countermeasures provisions to caution you about false information and enable you to identify it?
- a. Yes
 - b. No
 - c. Not sure
14. Did you have any representative in your hospital that was looked up to for providing reliable information regarding COVID-19?
- a. Yes
 - b. No
 - c. Not sure

Questions on coping strategies:

15. Was the official WHO, Government and health ministry websites/apps helpful in providing a reliable source of information?
- a. Yes
 - b. No
 - c. Not sure
16. Did you undergo any health literacy training programs that enabled you to distinguish between true and false information?
- a. Yes
 - b. No
17. Did you play your part in updating others with any valid information about the pandemic situation?
- a. Yes
 - b. No
18. If yes, how often did you verify the information before forwarding them?
- a. Always
 - b. Occasionally
 - c. Rarely
 - d. Never

PUBLICATIONS



INFODEMIC A RECENT HEARSAY FOR THE NEW WORLD AND ITS MANAGEMENT

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ABSTRACT

Infodemics has been considered as the double-edged sword, a perspective influencing the lives of common man. Human life has been affected by it, which caused derailment of normal functionality of human life. It has been considered as the blend of information and misinformation that affected the emotional status of the human beings affected by social media. In order to cope up with the rumours and myths, management of infodemics had to be dealt with alternate strategies like identifying and segregating the information from misinformation, identifying the mis endeavours of the state players and understanding the origin and the spread of the misinformation. It also dealt with the verification and spread of credible information and identifying the lapses in regards to the spread of information through proper sources and channels. To conclude, the devious nature of infodemics can throw the world into turmoil or help restore peace and serenity if is handled in proper method.

Keywords: Infodemics, information, misinformation, management of infodemics.

Infodemic is the new term coined to explain how much the information that is let out in the community settings through the use of print media or digital media can shape the outcome of perceptions of the society, community on the national or global scale¹. It is a term used to classify the information into good or bad communication made through any social media that is feed to the people which can have adverse or favourable impact on human life². Infodemic is a powerful term which can bring about chaos, anxiety, fear and totally derail the normality of people's life and create confusion and mistrust which in turn has a snowballing effect to cause the extension or lengthening of the recovery process after the post pandemic era³. The uncertainty that exists with the overwhelming information can put dents in the efforts made

by the health authorities due to the myths, rumours or the false perceptions of the community to accept them due to ambiguity of the information conveyed to them⁴.

WHAT IS INFODEMIC

The word infodemic was first used by David Rothkopf in the Washington post in year 2003 where he stated that during the SARS epidemic, the world was been confronted of another rising epidemic – the epidemic of information⁵. David Rothkopf was a political journalist and a scientist who expressed his concerns regarding the impending dangers of information that flowed on a global scale along with SARs pandemic which made it difficult for the health authorities to restrict the or contain the epidemic of SARS⁶. He also went forward to quote that infodemic was a blend of speculations and suppositions, which had the blend of uncertain but impacting rumours, which threatened the national and international economies into jeopardy as the new age of information resulted into social debacles. To summarise the word infodemic it is a blend of information and epidemic coined in 2003 and has been used by the world in 2020 since the COVID 19 epidemic⁷.

MANAGEMENT OF INFODEMIC

In order to curb the spread of infodemic, which has malicious intentions to spread disharmony in the public and hamper the efforts to build a secure world, tools and strategies have been devised which could be termed as infodemic management. The following points briefly highlight the infodemic management process through the foresaid techniques.

Understand and identify misinformation, disinformation and misinformation

The misinformation, disinformation and misinformation (MDM) harms the trust of the people and causes the global economies to suffer as a result of the chaos that results due to MDM⁸. Amplification of the false news due to deepfakes result in hampering the recovery process of global health. This can be managed by web monitoring. Use of the search engine optimization can limit the display of the content on the search engine tool like the google which can allow limited display of information on the screen. Another method is using answer engine optimization so only limited information can be conveyed to the user rather than the flow of misinformation that occurs through the search engine⁹.

Identify tactics employed by malicious actors to create misleading information

Mal information can be identified through some of the fake categories of news terms. Clickbait is the news that are incessantly flashed on social medias to create a ruckus attracting the whole lot of media frenzy people that give rise to web trafficking¹⁰. Propagandas spreading malicious news should be identified which are done for political gains which target the health agencies which are working for the betterment of the people.

Sham content creators deceives the newsreaders and impersonate the true news by creating the play actors to fool the public. State sponsored news or even the distorted headlines are spread to the public creating confusion and affecting the misbeliefs of the people¹¹.

Analyse the nature, origins and spread of misinformation

It can be extremely difficult to analyse the veracity of the information arising through the human or technical media. the solutions that need to be build have to apply in ways that are understandable and predictable for users and content creators, and compatible with the kind of automation that is required when operating services on the scale of the web¹². Making quality count in the ranking systems and counteracting the malicious actors and expanding support who are genuine content creators is a way to move forward.

Verify health information and visual content online

Visuals, such as pictures, drawings, charts, graphs and diagrams, can be important tools for providing good health information. Visuals can be an effective method to convince the people who are more drawn to visual information that is easy to comprehend and grasp. They can also reinforce written or spoken health messages.

Visual communication can benefit all audiences, especially people with lower literacy and numeracy skills. Remember, though, that visuals can't speak for themselves. People can interpret visuals, just as they do words, in different ways. Choose visuals that support the main message and have explicit headings, labels, and captions¹³.

Identify and spread credible health information

The social media platforms should identify the credible health information and try to spread it through social media companies. Superior quality information highlighting the real facts with substantiated research proving the credibility of the information should be disbursed to the broader audience through social and medical platforms¹⁴. The information provided should be competent with the culture of the community which is understandable and with the grasp of every individual. Intersectoral communication along the different strata of the digital world should provide much more health information than the mere status quo¹⁵.

Identify lapses in information and built robust attitude amongst the population

About 88 percent of the information that is circulated through the social media is misinformation. Although it is possible to intercept the messages that are transmitted through Facebook and WhatsApp, media companies and content moderators need to monitor the feed (MDM) that circulate and has to be validated to determine any lapses in information. Building a resilient attitude amongst the public, it is necessary to spread transparent communication amongst the communities and widespread use of social platforms authenticating the rights facts have to be communicated to the people which might build the right attitude amongst the people to perceive the right information¹⁶.

Conclusion

To summarize, although infodemic has been coined for about two decades, its usage in the existing post pandemic world had far reaching effects on the global scale. It has been an epidemic in its own terms and has been a detrimental factor in hampering world to cope with post pandemic recovery. One of the challenges the health authorities faced was to build strategies and firewall for the infodemic management and continues to do so due to the complexities of the digital spread. It stands out as a double edge sword, information of any kind or origin, without determining its authenticity infodemic can lead the way on path to recovery or put the world into chaos.

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Digital Literacy: A Counteractive Measure to Thwart the Fallacies of Infodemic

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ABSTRACT

Education and literacy provided through the recent media have been abundantly flowing information on the digital platforms. However, the so-called digital channels have been a source of misinformation, myths, misconceptions, creating chaos, and panic in the world. The same platforms can be utilised to counter the effects of infodemic through the multiple strategies like stagnating and filtering the misinformation, eliminating the stigmatic beliefs of the people through the use of social media and education. Scientific research and psychological help can be the strategies to cope with mental pressure and help in mentoring the traumatised individuals through the digital education.

Key Words: Infodemic, Digital literacy, Education.

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After the COVID-19 event, the world news was flooded with speculations and informations that paved the way for the policy-makers to make decisions and for the people to follow them.¹ For the strengthening of the health of the public, the policy-makers were supposed to provide a platform that could dissipate health literacy facts through the proper channels. However, the so-called social channels that were supposed to provide education proved to be the source for the spread of misinformation, myths, and misconceptions that snowballed the health market with false news and easy cures.²

Different cultural mediums with culturally-specific field and different modes of communication are truly responsible for conveying the information to the community.³ The lacunae in health literacy, the stigma, the deep-rooted beliefs, the customs, and the ignorance towards proper healthcare, can be specifically addressed through social media platforms. Proper use of audio-visual aids, for spreading health education, providing the substantiated information, providing the right numerical regarding the morbidity and mortality of the patients, and encouraging proper healthcare policies to be adopted through digital mediums could be the right step in revolutionising the healthcare world.⁴

Multiple health strategies in disseminating health-related facts could be done through brochures, videos, podcasts, radio handles, and blogs. Such integration and intertwining of the social modes could help the population to be educated and literate as well.⁵ Digital literacy is the burning issue post COVID times as different strategies and coping mechanisms can be used to reduce the level of stress and improve mental health. The predefined objective of this viewpoint was to project digital literacy as one of the coping mechanisms or strategies to reduce emotional and mental trauma rather than a self-inflicting medium giving rise to fear and panic.

Depending upon the advantages of digital information, different means could be proposed to spread digital health literacy which could reach the different factions of society.

Deceptive information is one of the biggest dangers to humanity. It can be uncertainty, the anxiety of unknown, and fear of death. COVID-19 was an event triggered by uncertainty, and one of the reasons that gave rise to the spread of false information, psychological depression, and all that was needed to stop the roots of misinformation at the given point. Various social media platforms like Facebook and Twitter could have been used to disseminate the right information.⁶ Health agencies in the city or community having their social account handle could be used to adopt proper health practices and counter the spreading myths. Online health-related brochures, addressing the concerns of the people along with feedback may be used to reach many people to eliminate any false circulation of information to help the communities to adopt healthy practices.⁷

Opposing besmirchment has to be enforced through appropriate government policies. COVID-19 was a pandemic that originated in the Wuhan district of China and the entire world was blaming

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the Eastern Asia for the havoc caused by the pandemic. Digital world or the new 21st century is currently in a state where stigmatisation of certain races, creeds, religions, or even regions can occur rapidly because of the technological advancements. Social media can be used as a platform to spread hate messages, and at the same times, digital platforms can be used to restrict or target certain groups. Anti-hate messages, proper audio and visual aids for education, counselling of the groups of communities on proper platforms, and rendering mental and psychological health can be achieved through these digital platforms.^{8,9}

Virtual counselling is an excellent approach to deal with panic, anxiety, and chaos. Vulnerability to fear always results in psychological depression or nervous breakdown. Certain sections of society like the elderly or mothers had to cope with the fear of health for which digital platforms would have been useful. Free helpline numbers could have been provided by the health agencies round the clock to provide phonic counselling or consultations for the vulnerable group. Addressing their fears, educating them, and providing relief from mental and psychological stress would have been an effective role of the digital media.¹⁰

Contributing to scientific research through digital media provides researchers an abundance of information at the click of a finger. Access to medical education, statistical and epidemiological studies, could be used to dissipate the right information to the researchers who can further use the accessed education material for the studies to serve the cause of humanity in the trying time of the pandemic. Use of the digital data for systematic analysis and meta-analysis could serve as a cornerstone of research.¹¹

Digital education assumed importance when the COVID-19 crisis put the whole world into slumber and behind shut doors; the digital world was rising like a Goliath. It became mandatory for humans to educate themselves and assimilate the knowledge of digitalisation. Social distancing and group learning were possible, and it paved the path for education through webinars and social conferencing.¹² Through global discussion platforms, discussions, and social conferences, negative or false information could be debunked. These social platforms which could reach geographically to a large extent could spread mass education through genuine straddles taken up by the proper educated mass media.¹³

Preparedness for the epidemic through digital literacy formed the mainstay of the fight against the pandemic in the years to come. It will form the backbone on which research shall be carried on, and it will also serve as the means of education for the future generations to come. The world population must be prepared to face the eventuality of this magnitude and the straws will be drawn from the digital literacy programmes which have evolved during the pandemic times.¹⁴

Laws governing digital literacy on media should be maintained by the local and government authorities. Time to time regulation of the digital material uploaded on the Cyber world should

be employed to avoid the dissemination of unnecessary information that might create panic.¹⁵ Strict actions should be taken against the factions responsible for false snowballing of information, and criminal prosecutions should be made against people who spread communal hatred or use infodemic as the means to cause chaos.

The disadvantages of infodemics can be staggered if not stopped by revising the government policies and the norms controlling digital education. When false information is discovered through scientific research and is disseminated online, serious measures and consequences should be taken. 'Knowledge is power' but digital literacy is a far more powerful and useful tool to educate individuals to get access to the right information. To combat slander and besmirchment, the justice department should promote social inclusion, justice, and unity. The spread of digital literacy will benefit a lot of sections of the community and also help in combatting misinformation or malicious information of any magnitude. Digital literacy is an effective tool to spread the anti-social elements circulating in the world of web but can also form a suitable platform for advancement of the health science and technology in the post-pandemic era.

COMPETING INTEREST:

The authors declared no competing interest.

AUTHORS' CONTRIBUTION:

SS: Substantial contribution to the conception of the work, acquisition and interpretation of data, drafting the work and revising it critically for important intellectual content.

KA: Provided the final approval of the version to be published.

All authors agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy and integrity of any part of the work are appropriately investigated and resolved.

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CERTIFICATES





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Virtual National Conference on Management & Technology (NCMAT 2022)

Certificate of participation & presentation

This is to certify that

Dr. Suyog Savant, Research Scholar, PAHER, Udaipur

Participated and Presented a paper entitled "Digital Literacy: A Counteractive Measure to Thwart the Fallacies of Infodemic" in NCMAT 2022 on the theme Leveraging Technologies Management Skills To Improve Economy During 'New Normal' held on 12th March 2022

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National Conference on Management & Technology (NCMAT 2023)

Certificate of Participation

This is to certify that **Dr. Suyog Savant, Research Scholar, Pacific Academy of Higher Education and Research University, Udaipur** had participated/presented a paper entitled "**Infodemic A Recent Hearsay For The New World And Its Management**" in National Conference on Management & Technology (NCMAT 2023) (Hybrid Platform) on the theme *Transcending Business Paradigms: A Way Forward* held on 25th March, 2023.

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