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Abstract: Misinformation, in most cases, is the reconfigured content using basic tools. Fake information related to casualties, infections, contacts, lockdowns, investments, exam schedules, and immigration, leads to confusion, fears, phobophobia, discrimination, harassment, physical injuries, deaths, financial damages, reputational losses, and many more long-lasting side effects.

Objective: The aim of this article is to provide an overview of the many ways in which misinformation and information leakage related to COVID-19 can influence the stakeholders, such that it gives policymakers and citizens a greater understanding of both direct and indirect risks and harms when assessing the challenges their countries are facing.

Methods: An extensive literature review was done on the prevalence of the COVID-19 related misinformation and its associated significant psychological, reputational, physical, and societal implications on Indians. The novel and possible approaches to fight against the misinformation are described.

Keywords: COVID-19, misinformation, psychological impacts, security, social media, stress.

1. INTRODUCTION

The COVID-19 crisis coordination in India has become a dynamic and complex activity, as it not only must reach 1.3 billion people, but it must also carry out personalized strategies for all states and sectors of society, particularly the weak and oppressed. As of 12 July 2020, 08:00 IST, there were 292258 Active Cases, 534620 Cured/Discharged, 1 Migrated, and 22,674 Deaths in India [1]. While the advisories are taking all necessary steps to fight against the pandemic of COVID-19, implementing the advisories issued by the Ministry of Health and Family Welfare in preventing the Virus spread is very challenging. The efficacy of any crisis management plan, particularly in the event of public health crises, depends equally on the quality and inclusiveness of the information disseminated.

2. BACKGROUND

Social media being the predominant platform for fast, direct, end-to-end crisis communication, also is responsible for the spread of the disinformation in the current crisis [2]. Different forms of misinformation are being created from several sources, making several different statements. While false information leads to speculative concerns, false perceptions have a significant effect on actions and assistance from the authorities. Be it accidental or deliberate, the misinformation that is being circulated on many social networking apps and websites within and beyond the society has a lot of concerns, all leading to significant short-term or long-term consequences.

While currently there are no therapies proven to prevent or treat COVID-19, misinformation, false news, hoaxes, myths, rumors, claims, insensitive and communal comments related to the origin, lifetime, vaccines, and immunity boosters directly or indirectly cause difficulties in coping with the harmful infectious diseases keeping people’s health at further risk, leading to even more complex decisions in the crises [3, 4].

3. IMPACTS OF MISINFORMATION

Many incidents happening in the country [5-10] illustrate how misinformation is affecting psychological well-being and heightening perceptions of danger. Misinformation, in most cases, is the reconfigured content using basic tools. Fake information [11] related to casualties, infections, contacts, lockdowns, investments, exam schedules, immigrations is leading to confusions, fears, phobophobia, discrimination, harassments, physical injuries, deaths, financial damages, reputational losses, and many more long-lasting side effects [12].

Currently, India is mainly concerned about misinformation videos reflecting religious beliefs associated with
COVID-19. False videos quickly went viral on social media resulting in discrimination, racism, deepest disbeliefs, changed attitude, fears, clashes, verbal and physical attacks, loss or damaged social relationships with friends and neighbors, the consequences of which cannot just remain lasting, but also persist over decades. Race-related trauma [13] is a slightly stronger risk factor than psychiatric distress. Racism also affects children in true and profound ways. Not only does it hurt their well-being, but it damages their chances of a healthy and prosperous future. Racism and its consequences can contribute to persistent stress in adolescents, triggering significant changes in hormones, particularly in the children of immigrant families. Emotions often extend through communities, including the participants who did not partake in the initial incident, which caused anger. Individuals often take riskier actions while they are in communities than when they are isolated. Nevertheless, people are still unaware of the impact the group has over their behavior [14].

When many people across India are under quarantine [15] due to suspected exposure to the COVID-19 virus, leakage of information on their identity via official sources, later circulated across WhatsApp community groups, poses several concerns regarding infringements of privacy and stigmatization [16]. A user-generated Google Map of a city’s home-quarantine residents is based on data available publicly [17]. The sensitive data disclosure contributed to tremendous psychological stress, impacting the well-being. There are incidents in many places, where citizens themselves clicked a picture on watching an official putting a quarantine notice sticker [18] at the neighbor’s door, circulated to the community suggesting not to visit them. There are also examples of WhatsApp messages going viral, with identifying information of those who tested positive. Accessing confidential data without the permission of the person [19] is resulting in chronic stress, emotional distress, vulnerability, increased perception of threat, preference for protection over rights, a re-evaluation of confidence in public institutions, and support for strong policies [20, 21].

Rumors on continuous surveillance of patients and people using mobile apps and signals exacerbate panic and anxiety, intensify risk feelings, and have a detrimental effect on mortality [22]. Misinformation related to the wrong accusation has emotional, physical, reputational, social, and security harm on the victims, which leads to fear, stress, depression, loss of self-confidence, and trust in others. Anxiety caused by a cognitive victimization risk assessment contributes to the development of defensive or avoidance behaviors. A woman after rumor mongered and victimized, saying that she fled leaving her infected husband, has left the entire family deeply stressed.

Myths and rumors create unnecessary fear and eventually lead to wrong choices that are much more dangerous in crises. A rumor on Twitter [23] trending “#NoMeat NoCoronaVirus”, along with Facebook and WhatsApp posts conveying misinformation that only those who consume meat are likely to be contaminated with COVID-19, has resulted from a decline in egg prices, driving millions of small poultry farmers across the country into stressful situations [24]. On the other hand, misinformation about Chinese products [25] that could transmit coronavirus, resulted in a decline in the sales of goods that caused damage to some Indian traders’ business.

The academic fraternity, on the other hand, is worried about the rumors related to exam schedules and new examination modes, which, in turn, is resulting in anxiety, distress, dissatisfaction, reduced learning skills, and concentration rates [26]. Apart from concerns about their parent’s salaries, with rumors on immigration, students are also tensed about their job and higher studies opportunities, leading to sleeplessness, hormones imbalance, and low immunity.

4. IMPACTS OF CONFIDENTIAL INFORMATION LEAKAGE

The conventional way of quarantine monitoring and contact tracing is by humans, which is very much time-consuming and resource-intensive. With the occurrence of new COVID-19 cases developing continuously, the authorities started harnessing apps and the cell phone location databases for monitoring isolation, social distancing, and behavioral changes in the war against the spread of the new coronavirus. Usage of personal digital devices, installation of software apps, aggregation of Bluetooth, GPS, and mobile signals is a must in the current scenario. All these technologies assist the authorities in updating the real-time data automatically in a central server at a fast rate, at different scales. The data includes new COVID-19 cases, proximity contacts, social distancing, and quarantine status along with the location histories. A variety of apps based on different technologies were developed with respect to COVID-19 in a span of just 6 months by different authorities, private companies, and researchers. While some mobile networks do not give options to the users for their consent to collect their location data, most of the apps ask user permission to track their location history. Some sneaky apps track the locations without the users’ knowledge. Therefore, though the smartphone surveillance might seem like a good solution to tracking the COVID-19 spread, it is far from guaranteed to work and have many data protection and privacy issues and concerns, some of which are listed below:

- Enable unwanted corporate surveillance.
- Apps that collect locations feed this data to marketing companies and are paid to do so.
- Some apps use the information to serve the user more relevant advertisements and content.
- Data more often serves private profit such as advertising.
- Inherent loss of privacy, highly invasive
- Location tracking apps reveals sensitive information about everything from political dissent to journalists' sources to extramarital affairs.
- Sacrifice of freedom still causes anxiety, despite the clear public interest.
- May sometimes do more harm than good.
- Apps might sometimes sow unnecessary alarm or confusion.
Possibility of privacy threats from contacts, snoopers, and the authorities.
- Announcing the infected people’s identities stirs up public shaming and rumour mongering.
- Incorrect information might encourage risky behavior, leading to a false sense of security.

5. HOW TO FIGHT AGAINST MISINFORMATION

Approaches to fight with disinformation and tackling the spread of misinformation is complex and is not just the responsibility of the advisories, but involves many entities apart from every individual’s effort. Here are a few guidelines for multiple entities as to how to fight misinformation.

5.1. Administration
- Emphasize on the information epidemic in parallel as it is spreading faster than the virus itself and take the measures to curb the menace.
- Boost the visibility of credible sources of information at different social media platforms and websites. Arrange digital display panels in residential areas to make public service announcements and to constantly remind the Law and punishment, for those who spread rumors and misleads by fake news.
- Take the support of local community leaders, celebrities, and school teachers to improve digital literacy among the general public and educate the people on verifying the authenticity of news or information, and to get aware of the punishable laws on finding guilty for spreading misinformation.
- Develop standards for patrolling social media and quality of fact-checking software [27-29].
- Highlight the impacts of misinformation of other countries, or criminal prosecutions by pushing messages in WhatsApp, Facebook, YouTube, Google, Instagram, etc.
- Enhance research funding for tackling misinformation.
- Provide social media data to the researchers to carry out extensive analysis and generate tools to encounter the effects of misinformation.
- Issue information correction orders for the spread of online falsehoods.

5.2. Social Media
- Limit the number of messages forwarding related to COVID-19 misinformation.
- Moderate and remove misinformation.
- Use chatbots to address misinformation.

5.3. News Organizations
- News organizations should refrain from broadcasting fake news, remind the people to be socially responsible and not to create panic, request citizens not to speculate and share unofficial information.
- Make the truth louder to combat the rumors.
- The news organizations should reduce financial incentives for fake news, and support investigative journalism, and promote strong norms on professional journalism.
- Halt fearmongering and debunk the rumors in the form of interviews and FAQs with health authorities, experts, government officials, and celebrities.

5.4. Individuals

Individuals should educate themselves to stay informed about the information which is credible and reliable (WHO/CD/Government websites), familiarize oneself with the basics of the disease as well as the most common misconceptions, dismiss misinformation, verify the source, resist the urge to share, ask oneself if the information is truthful, is it necessary to share, how does the sharing impact others actions and opinions, learn to judge new sites. It is the responsibility of individuals in the communities to organize awareness campaigns, mobilize a movement, and commit themselves to fight against misinformation.

6. HOW TO FIGHT AGAINST INFORMATION LEAKAGE

The implications of utilizing location histories data obtained digitally are significant, but they could also be the best chance we have currently at limiting the spread. Here are some recommendations for the authorities and the app developers:

- Administrators should review the protocols to find the right “balance” between health measures and individual privacy.
- Ensure trust and privacy principles.
- Keep location data private.
- Avoid surveillance.
- Points of contact between users without precise location histories can be exposed.
- Allow one-way private data publication only.
- Encryption of carriers’ information can be done before saving and publication.
- Apps should opt-in and should not last beyond a time of crisis.
- No data records should link back to an individual.
- Any personal data should not leave a device.
- Data itself, though, must be uniquely identifiable.

7. DISCUSSION

All these incidents show that people are experiencing catastrophic real-world impacts from a flood of virus-related misinformation and leakage of information online. Although some people think logically and analyze the rumors, others
respond instinctually. While the misinformation related to discrimination is in the front row, causing psychological and physiological impacts leading to emotional and social separation. Individuals with previous experiences of victimization, women, and individuals with lower social status and less confidence in their abilities show higher levels of fear [30].

While beating misinformation and completely stopping data leakage is not possible, people should practice ignoring the suspicious content and refrain from further sharing. Further, reporting to the social media platform, referring to experts and trusted sources, verifying the facts using fact-checking Apps [31] is recommended. Both politicians and celebrities are suggested not to confuse facts with their interpretations, perceptions of justice, values, beliefs, and attitudes, as they attract a large majority of people. In both decision making and communication processes, the degree of trust that is responsible for reacting to the misinformation should be addressed by the authorities. Apart from labeling the fake posts [32-36], disabling likes, shares, and retweets, removing and restricting the unreliable content and apps, banning the users [37-44] who repeatedly misinform others, rejecting of expert advice and fraudulent therapies, researchers and social media platforms, such as Google, Facebook, WhatsApp, Twitter, and YouTube, should focus on developing intelligent systems that can accurately discriminate the real and fake news at a fast rate, to tackle COVID-19 related misinformation.

With different apps for different countries, one thing most of the apps facilitate is tracking. To save lives during an extraordinary crisis, many advisories are willing to overlook privacy implications. While dealing with the pandemic, public interests are often given more importance than human rights. However, the advisors should take measures to explain to the citizens how the apps works, what it gathers, for how long, when it is disposed, and for what purpose such that users can weigh the trade-off between their individual privacy risk posed by sharing information with the system and the ongoing risk from the pandemic poses.

CONCLUSION

By offering an overview of the many ways in which misinformation can influence the stakeholders, it gives policymakers and citizens a greater understanding of both direct and indirect risks and harms when assessing the challenges their countries are facing. The misinformation and its effects have significant psychological, reputational, physical, and societal implications. Individuals, if he or she can engage in healthy attitudes and behaviors intentionally and voluntarily, becomes the preventive measure, leading to the successful reduction of risks due to misinformation during the pandemic.

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