

Assessment of hashtag Covid in social media

Dharmaraj Rock Britto¹, Neethu George^{2*}, Soundararajan Rajasekar³, Abdul Malik Shagirunisha Rizvana⁴, Ramya Baskaran⁵, Priyamvada Ramakrishnan⁶, Swesthika Ramesh⁷, Selvakumar Ramamoorthy⁸, Mohamed Ibrahim⁹, Roshini Rabindran¹⁰, Renupriya Palanivel¹¹

¹Associate Professor, Dhanalakshmi Srinivasan Medical College Hospital, Perambalur, Tamilnadu, India

²Assistant Professor, Dhanalakshmi Srinivasan Medical College Hospital, Perambalur, Tamilnadu, India

³Postgraduate Students, Dhanalakshmi Srinivasan Medical College Hospital, Perambalur, Tamilnadu, India

⁴Postgraduate Students, Dhanalakshmi Srinivasan Medical College Hospital, Perambalur, Tamilnadu, India

⁵Interns, Dhanalakshmi Srinivasan Medical College Hospital, Perambalur, Tamilnadu, India

⁶Interns, Dhanalakshmi Srinivasan Medical College Hospital, Perambalur, Tamilnadu, India

⁷Interns, Dhanalakshmi Srinivasan Medical College Hospital, Perambalur, Tamilnadu, India

⁸Interns, Dhanalakshmi Srinivasan Medical College Hospital, Perambalur, Tamilnadu, India

⁹Interns, Dhanalakshmi Srinivasan Medical College Hospital, Perambalur, Tamilnadu, India

¹⁰Interns, Dhanalakshmi Srinivasan Medical College Hospital, Perambalur, Tamilnadu, India

¹¹Interns, Dhanalakshmi Srinivasan Medical College Hospital, Perambalur, Tamilnadu, India

Received: 26-11-2021 / Revised: 30-12-2021 / Accepted: 05-01-2022

Abstract

Introduction: The time of Covid pandemic had mandated most of the people to be distanced individually and connected through social medias. The social medias serve as a medium to communicate about covid related issues without any barriers and assures maximum reachability. **Objectives:** The objectives of this study were to evaluate the pattern of posts which is shared via covid-related posts and to assess the characteristics of the posts under hashtags about this worldwide pandemic among three social media platforms, namely, Twitter, Instagram, and Facebook. **Methodology:** This was a cross-sectional study which analysed# covid posts in Instagram, Facebook, and Twitter. Public posts related to that were searched and assessed separately. Source, popularity, credibility, type, background and other characteristics were assessed about each post was assessed. **Results:** Out of 3600 posts, 3120(86.7%) were related to the study. Instagram displayed more of individual posts (40.2%) and more popular (50.4%) with positive perception (42.1%) and more credible (45.4%) compared to other social media. Also, Instagram posts were more frequent (54%) and related with the subject (42%) in comparison to other social medias. Among the credible posts 79.4% were sourced by individual, 87.5% with positive perception, 80.7% awareness related and 81.3% were images. **Conclusion:** The study showed that the subject covid pandemic were supported and promoted by social media mainly through images and most of the posts were popular with credibility. Also, the posts were mostly related to awareness and positively perceived by the viewers. Instagram showed more popular, individual sourced, credible, positively perceived, awareness related posts among the related posts in the study.

Keywords: Covid, Facebook, Hashtag, Instagram, Twitter

This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

Introduction

A hashtag is a word or phrase preceded by the pound symbol (#). On social media, it acts an indication for users as a piece of content that relates to a specific topic or category. It helps to discover content in any on-platform searches and reaches more people effectively[1]. In India, hashtags are used in almost all widely used social media platforms like Facebook, WhatsApp, Twitter, and Instagram and YouTube (video-only platform). Hashtag is used as a tool in social media for sharing contents and gaining more popularity. Nowadays, health sector is additionally using hashtag as a medium for propagating their agenda for health-related campaigns[2].

The first case of COVID 19, an infectious disease caused by a newly discovered corona virus, was reported in late 2019 at Wuhan, China. The infection has then spread to many countries worldwide and it was declared as a pandemic by WHO. The information and reports about COVID 19 were published rapidly and shared on various social networking sites within the first few months of 2020[3].

*Correspondence

Dr. Neethu George

Assistant Professor, Dhanalakshmi Srinivasan Medical College Hospital, Perambalur, Tamilnadu, India.

E-mail: neethumampuzha@gmail.com

Strict lockdown measures were imposed to prevent the outbreak of Covid-19 pandemic which made people follow social distancing and resulted in increased participation on social media platforms[4]. Social media apps have also emerged as an efficient medium to assist the efforts put in situ by mankind. As per the results of a review on the effect of the coronavirus (COVID-19) pandemic on media usage across India, there was a spire in usage of social networking applications in the first phase of the nation-wide lockdown where the average hours were above 4 hours. Even though it stabilized in the subsequent weeks the individual users reported an average 3 hours and 37 minutes on social media in the last week of June 2020[5]. Messaging across Facebook, Instagram and WhatsApp has increased 50% in countries hardest hit by the virus. In Twitter, 23% more daily users happened in comparison to that of a year ago[6].

In the dawn of the COVID-19 pandemic, people are utilising social media more than usual routine because they depend on news sources from online sources to pursue health information for themselves and their loved ones. Social media platforms' usage has become a welcome relief in the health disaster and global crisis during the ongoing COVID-19 pandemic[7-9]. This is where we need to warn about the dark side of social media for its role in spreading fake news. Platforms have been slow in acknowledging their responsibility in

helping its users distinguish fake news from facts, but they are taking steps in the right direction[7].

A dedicated ‘Coronavirus (Covid-19) Information Centre’ has been launched by social media giant Facebook, which claims to serve “all the info” about the pandemic “in one place”. Facebook has also encouraged the users to flag suspicious post and prioritize the newsfeed to favor more credible sources such as WHO[10]. Moreover, WhatsApp has launched COVID 19 information hub; Instagram promotes self-isolation and social distancing through hashtags, stickers, and banning adverse effects; YouTube removes advertisements for virus related contents; Twitter has banned many tweets that could impact the spread of the virus and it also keeps a check on fake news by offering an option to directly surf through tweets from Indian authorities, including the Prime Minister’s Office and the Ministry of Health and Family Welfare[10,11].

This random usage would create confusion among public about the righteousness of information and will affect the effectiveness of the campaign eventually. The related studies in this regard, are only few which have been conducted worldwide using hashtagassessment related to health and its pattern in social medias[2,12-15]. This study aims to evaluate the pattern of posts which is shared via covid-related campaigns and to assess the characteristics of the posts under hashtags about this worldwide pandemic.

Methodology

Study samples were selected from three social media platforms- Facebook, Instagram, and twitter from the February 2020 to July 2021. The post was selected in a consecutive way with whichever preceded by #hashtag covid. The study samples were collected in language of English, Tamil and Hindi and was analyzed for the aspects which is represented in table/figure 1.

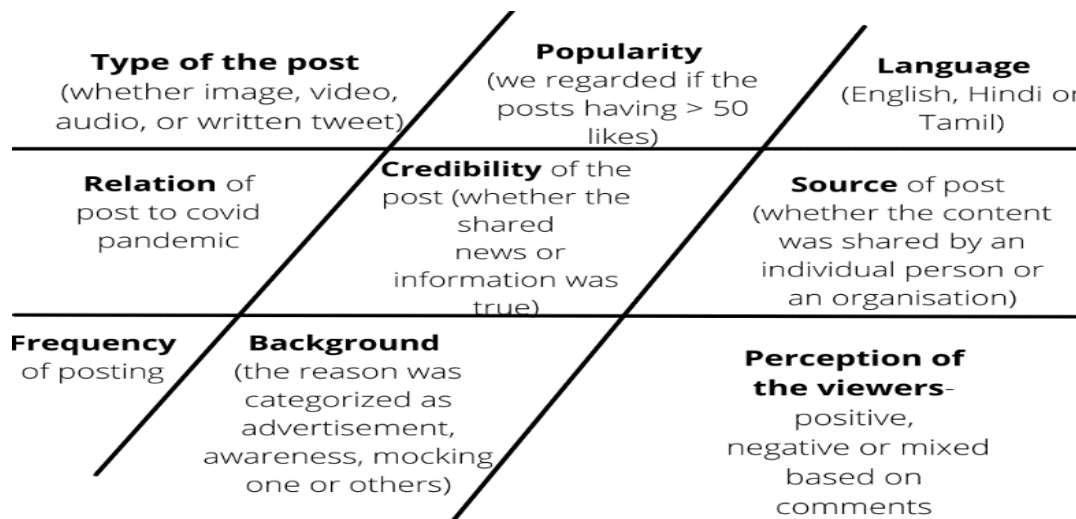


Fig 1: Aspects of hashtag covid

The data were entered into the Microsoft Excel software and analyzed using SPSS for frequencies, percentages, and associations. Two-tailed P < 0.05 was considered statistically significant.

Results

The study collected 3600 posts from Facebook, twitter, and Instagram from the period of February 2020 to July 2021. Among the posts 910(25.3%) from the Facebook, 1325(36.8%) from twitter and 1365(37.9%) from Instagram were collected. The profile of posts during different time periods across three social media is depicted in the below figure (Figure 2)

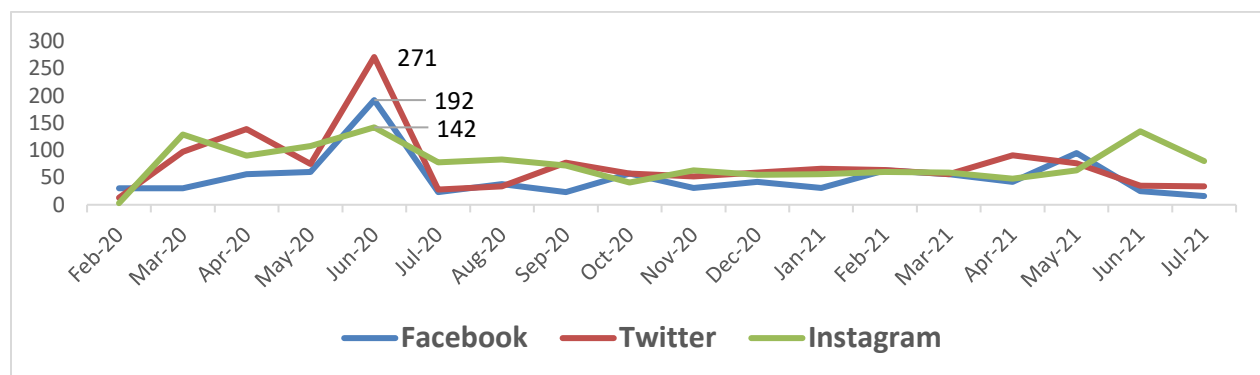


Fig 2: # covid posts across various social media during different time periods

Characteristics of the posts

Among the posts, 2178(60.5%) images, 842(23.4%) videos, 331(9.2%) audios and 249(6.9%) were written posts. The source of the posts showed that 2313(64.2%) were posted by individuals and 1287(35.8%) were posted by organizations. The popularity of the post

showed that 2238(62.2%) were popular and 1362(37.8%) were not popular. According to the perception of viewers 2270(63.1%) posts were having positive perception, 895(24.9%) were negative and 435(12%) were mixed perception. Among the posts 2744(76.2%) were in English, 675(18.8%) were in Tamil and 181(5%) were in

Hindi. The credibility of post showed that 2728(75.8%) were credible and 872(24.2%) were not credible. The background of the post showed that 1080(30%) were advertisement, 1624(45.1%) were awareness posts, 785(21.8%) were sarcastic posts and 111(3.1%) were other posts like polls or surveys. About the frequency of posts 2178(60.5%) posts were frequent and 1422(39.5%) were not frequent.

The relation of the post with covid 3120(86.7%) posts were related to the subject and 480(13.3%) were not related.

Characteristics of posts in specific to social media

The characteristics of post in relation to social media is depicted in the table below (table/ figure 3).

Table 3: Characteristics of posts in relation to social media(n=3600)

Characteristics	Facebook	Twitter	Instagram	p value	
Type of post	Images	470(21.6%)	637(29.2%)	1071(49.2%)	<0.001
	Videos	185(22%)	367(43.6%)	290(34.4%)	
	Audios	134(40.5%)	197(59.5%)	0	
	Written	121(48.6%)	124(49.8%)	4(1.6%)	
Source of the post	Individual	537(23.2%)	846(36.5%)	930(40.2%)	<0.001
	Organization	373(29%)	479(37.2%)	435(33.8%)	
Popularity of the post	Popular	427(19.1%)	683(30.5%)	1128(50.4%)	<0.001
	Not popular	483(35.3%)	642(47.1%)	237(17.4%)	
Perception of viewers	Positive	506(22.3%)	809(35.6%)	955(42.1%)	<0.001
	Negative	299(33.4%)	450(50.3%)	146(16.3%)	
	Mixed	105(24.1%)	66(15.2%)	264(60.7%)	
Language	English	750(27.3%)	854(31.1%)	1140(41.5%)	<0.001
	Tamil	123(18.2%)	423(62.7%)	129(19.1%)	
	Hindi	37(20.4%)	48(26.5%)	96(53%)	
Credibility	Yes	543(19.9%)	947(34.7%)	1238(45.4%)	<0.001
	No	367(42.1%)	378(43.3%)	127(14.6%)	
Background of the post	Advertisement	251(23.2%)	462(42.8%)	367(34%)	<0.001
	Awareness	397(24.4%)	400(24.6%)	827(50.9%)	
	Sarcastic	244(31.1%)	449(57.2%)	92(11.7%)	
	others	18(16.2%)	14(12.6%)	79(71.2%)	
Frequency of the post	Frequent	468(21.5%)	533(24.5%)	1177(54%)	<0.001
	Not frequent	442(31.1%)	792(55.7%)	188(13.2%)	
Relation of post with covid	Related	770(24.7%)	1040(33.3%)	1310(42%)	<0.001
	Not related	140(29.2%)	285(59.4%)	55(11.5%)	

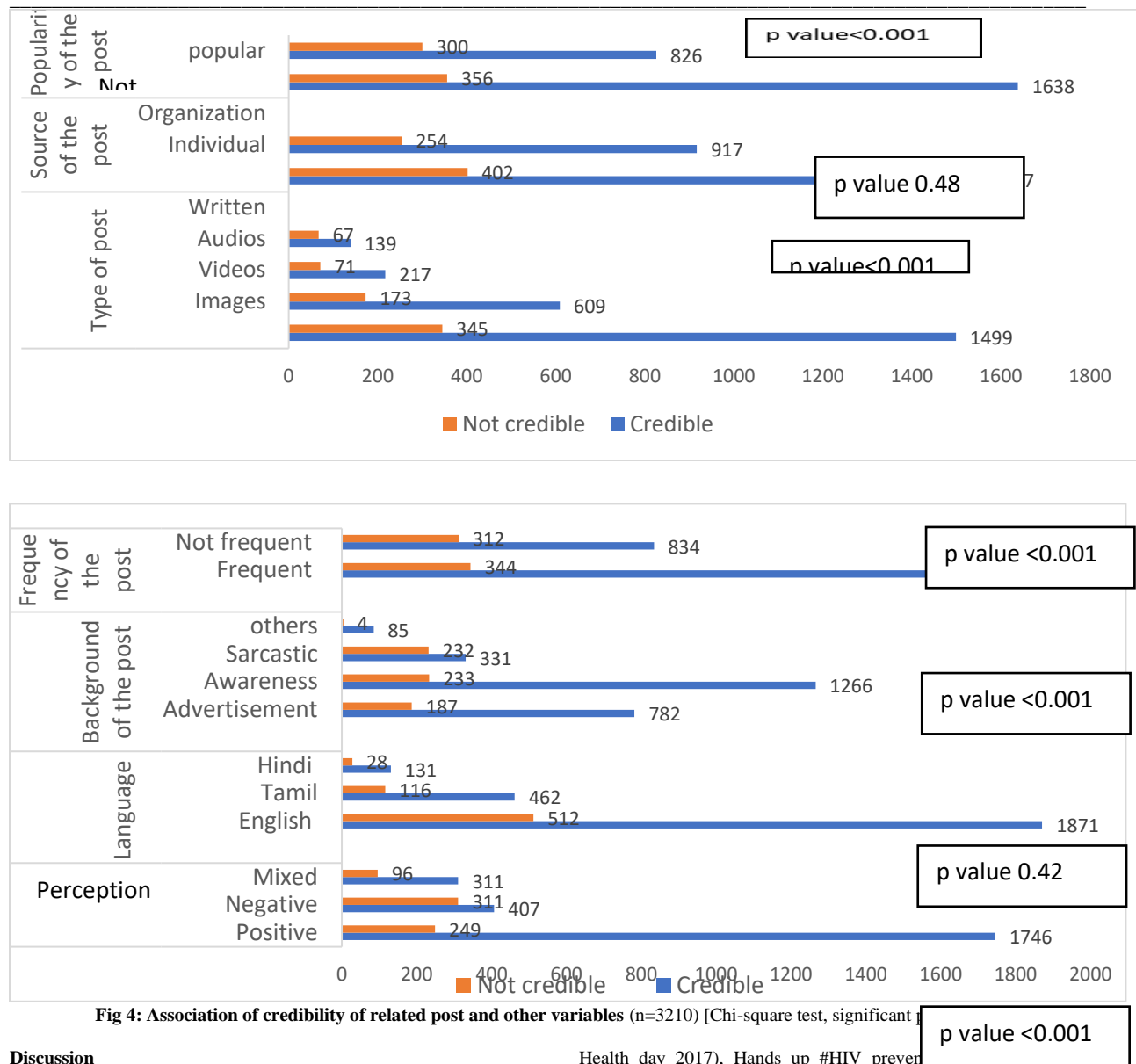
Chi-square test, significant p value<0.05

The study showed that images were displayed more by Instagram (49.2%), whereas videos (43.6%) audios (59.5%) and written (49.8%) posts about covid were displayed more by twitter. Also, Instagram displayed more of individual posts (40.2%) about the subject whereas twitter displayed more posts from organizations (37.2%). Instagram posts were more popular (50.4%) with positive perception (42.1%) and more credible (45.4%) compared to other social media. Also, Instagram posts were more frequent (54%) and related with the subject (42%) in comparison to other social medias.

Among the study 3210 posts were related to the study subject # covid. In the study, 84.62% of posts on Facebook were related to the purpose of the study. Out of the related posts, 45.6% were photographs, 80.4% were in English, 64.2% were credible, 48.6% were popular, 54.8% with positive perception from viewers, 53.4% were from an individual source, and 46% were awareness related.

Among Twitter posts, 78.49% were related to the study. Among the related posts, 45.4% were photographs, 63.9% were in English,

73.8% were credible, 50.3% were popular, 60.4% with positive perception from viewers, 62.4% were from an individual source, and 33.6% were awareness related. Among the 1365 Instagram posts, 95.97% were related to the study. In the related posts, 77.9% were photographs and 83.9% were in English. Among the studied posts, 91.8% posts were credible and 83.7% were popular. Among the Instagram posts, 72.1% with positive perception from viewers, 67.9% were from an individual source, and 60.8% posts were to create awareness among readers. The table/ Figure 4 showed the association of credibility of related post and other variables. The figure shows that credible posts were more popular (82.1%), frequent (82.6%), sourced by individual (79.4%), with positive perception (87.5%), awareness related (80.7%) and images (81.3%). Even though not significant 79.9% posts in Tamil language were credible in comparison to 78.5% posts in English.



Discussion
 In this study, posts related to covid is shown with specific highlights to various characteristics of posts in different social media. The study showed that images were displayed more by Instagram, whereas videos audios and written posts about covid were displayed more by twitter. Also, Instagram displayed more of individual posts about the subject whereas twitter displayed more posts from organizations. Instagram posts were more popular with positive perception and more credible compared to other social media. Also, Instagram posts were more frequent and related with the subject in comparison to other social medias. The below details are about few studies done on social media information about health-related events. Fung et al. assessed contrasts amid Instagram and Pinterest in displaying photographic information about zika virus and suggested that Pinterest and Instagram serve as comparatively similar platforms for the purpose of zika virus prevention communication[15]. In a study by George N et al the Facebook posts were more related, authenticated, popular, and verified. Twitter posts were unpopular and more related to awareness creation. Instagram posts were least authenticated and credible. The study compared various health related campaigns [#let's talk (World

Health day 2017), Hands up #HIV prevention (World AIDS Day 2016), and #No tobacco (World No Tobacco Day 2017)] in different social media[13]. In a study about analysis of 331 TikTok COVID-19 videos showed dance videos were more popular in the TikTok community due to their audience-centered trait. Also, users were more probable to engage in videos stating risk information of COVID-19 and response efficacy of safety measures as the information helps reduce their insecurity and increase their trust during the challenging time. (16)Seltzer et al. evaluated the content on Instagram and Flickr to identify debate about Ebola and found that Instagram images were mainly funny images. Flickr images mostly portrayed health-care workers and other professionals[14]. A study done on various features of posts related to selected health issues (#dengue, #dengue virus, #zika, and #zika virus) in Facebook, Twitter, and Instagram showed that Facebook posts were having higher popularity and were having more posts from verified accounts[2]. Among the related posts 64.2% post in Facebook were credible, 73.8% posts in twitter were credible, and 91.8% posts in Instagram were credible. The study showed that credible posts were mostly sourced by individuals, were awareness related and images. The

proportion of credible posts in Tamil language was more in comparison to that of English language posts. The study showed a much higher proportion of posts with credibility because the subject is a novel concept, and the evolution of hoax or rumors were not present due to the recent discoveries regarding the subject Covid pandemic. In a study by George N et al about hashtag health related campaigns showed that credible posts in Facebook, twitter and Instagram were 90.01%,98.89% and 90.32% respectively.(13)In a study about hashtag assessment of selected diseases in case of credibility, nearly 1087 (90.6%)posts in Twitter had high credibility, followed by Facebook1072 (89.3%) and Instagram 535 (56.6%)[2]. N.Jenkins et al reviewed the message and source credibility across different platforms for health communication differed depending on the social media platform. Factors observed to influence credibility included language used online, expertise heuristics (post from expert source), and bandwagon heuristics (increased number of likes, followers, retweets and friends)[17]. A study by Yilmaz and Johnson which reviewed how language use (e.g., personalized against depersonalized language) and modality (e.g., tweets against Facebook status updates) influence source credibility interdependently. The result showed that users perceive depersonalized tweets (facts and data) as more credible than depersonalized status updates posted on Facebook. On the other hand, personalized status updates on Facebook generate higher credibility judgments than personalized tweets[18].

Limitations

The study is limited by not segregating the types of posts about covid based on the various aspects like prevention, control, and treatment aspects. Interpretations was made by more than one individual which would have made a bias in the results. The disparities in number of posts from each social media may affect the direction of results.

Conclusion and recommendation

The study showed that the subject covid pandemic were supported and promoted by social media mainly through images and most of the posts were popular with credibility. Also, the posts were mostly related to awareness and positively perceived by the viewers. Instagram showed more popular, individual sourced, credible, positively perceived, awareness related posts among the related posts in the study. The study showed that credible posts were more popular, frequent, individual sourced, with positive perception, awareness related and images. The proportion of credible posts in Tamil language was more in comparison to that of English language posts. The study shows the importance of social media in propagating various health related events and the reach of such posts in difficult times. Not like other times covid had created a situation where people where individually distanced but socially gathered so such medias are apt to circulate and implement necessary information to the subjects. The social medias can separately pin the hashtags to post apt and accurate information directly relating to health events and can equip health workers to access and post credibly as individuals. The posts related indirectly to the health events can be posted without the hashtags so that only the directly related posts appear before the viewers while searching. Also, the social medias should create a unique hashtag for each health event which can be uniformly adopted so that the ambiguity regarding the hashtags can be removed.

Source of funding

Nil

Ethics approval

IECHS/IRCHS no: 79,February 23,2021-Dhanalakshmi Srinivasan Medical College Hospital.

Conflict of interest

Nil

References

1. How to Use Hashtags in 2021: A Quick and Simple Guide for Every Network [Internet]. [cited 2022 Mar 11]. Available from:

2. <https://blog.hootsuite.com/how-to-use-hashtags/>
3. Rock BD, George N, Prabhu R, Jayanth MK, Nethaji V, Shree J. Hashtag usage and its pattern on selected health problems in social media. *Int J Med Sci Public Heal*. 2018;7(3):203–9.
4. Laca JEM. #COVID19: Hashtags and the power of social media. *J Public Health (Oxf)* [Internet]. 2021 Jun 25;fdab242. Available from: <https://pubmed.ncbi.nlm.nih.gov/34173668>
5. Imran M, Castillo C, Diaz F, Vieweg S. Processing Social Media Messages in Mass Emergency: Survey Summary. In: Companion Proceedings of the The Web Conference 2018 [Internet]. Republic and Canton of Geneva, CHE: International World Wide Web Conferences Steering Committee; 2018. p. 507–511. (WWW '18). Available from: <https://doi.org/10.1145/3184558.3186242>
6. India: COVID-19 impact on social media app usage 2020 | Statista [Internet]. [cited 2021 Nov 3]. Available from: <https://www.statista.com/statistics/1114459/india-coronavirus-impact-on-weekly-usage-time-of-social-networking-apps/>
7. Petersen K, Gerken JM. #Covid-19: An exploratory investigation of hashtag usage on Twitter. *Health Policy*. 2021 Apr;125(4):541–7.
8. Li Y, Lin X, Hajli M. Seeking and sharing health information on social media: A net valence model and cross-cultural comparison. *Technol Forecast Soc Change*. 2018 Jan 1;126:28–40.
9. Zhong B,Liu Q. Mental health toll from the coronavirus: Social media usage reveals Wuhan residents' depression and secondary trauma in the COVID-19 outbreak. *Comput Human Behav*. 2021 Jan;114:106524.
10. de Calheiros Velozo J, Stauder JEA. Exploring social media use as a composite construct to understand its relation to mental health: A pilot study on adolescents. *Child Youth Serv Rev*. 2018 Aug 1;91:398–402.
11. Here's what social media apps are doing to fight Covid-19 - The Hindu BusinessLine [Internet]. [cited 2021 Aug 29]. Available from: <https://www.thehindubusinessline.com/info-tech/social-media/heres-what-social-media-apps-are-doing-to-fight-covid-19/article31411805.ece>
12. Gunduz U. Stayhome Hashtag: Sentiment Analysis on Twitter During the Covid-19 Pandemic. *Eur Sci J ESJ*. 2020;16(34):62–79.
13. Kadam AB, Atre SR. Negative impact of social media panic during the COVID-19 outbreak in India. *J Travel Med*. 2020 ; 27(3).
14. George N, Britto DR, Krishnan V, Dass LM, Prasant HA, Aravindhan V. Assessment of hashtag (#) campaigns aimed at health awareness in social media. *J Educ Health Promot* [Internet]. 2018 Sep 14;7:114.
15. Seltzer EK, Jean NS, Kramer-Golinkoff E, Asch DA, Merchant RM. The content of social media's shared images about Ebola: a retrospective study. *Public Health*. 2015 Sep;129(9):1273–7.
16. Fung IC-H, Goff ME, Mullican LA, Chan KC, Saroha N, et al. Zika-Virus-Related Photo Sharing on Pinterest and Instagram. *Disaster Med Public Health Prep*. 2017;11(6):656–9.
17. Li Y, Guan M, Hammond P, Berrey LE. Communicating COVID-19 information on TikTok: a content analysis of TikTok videos from official accounts featured in the COVID-19 information hub. *Health Educ Res* [Internet]. 2021 Jul 12;36(3):261–71.
18. Jenkins EL, Ilicic J, Barklamb AM, McCaffrey TA. Assessing the Credibility and Authenticity of Social Media Content for Applications in Health Communication: Scoping Review. *J Med Internet Res* [Internet]. 2020 Jul;22(7):e17296.
19. Yilmaz G, Quintero Johnson JM. Tweeting Facts, Facebooking Lives: The Influence of Language Use and Modality on Online Source Credibility. *Commun Res Reports* [Internet]. 2016 Apr 2;33(2):137–44.