

The Contributions of Social Media in COVID-19 Awareness: A Systematic Review

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Abstract: *Coronavirus is an infectious disease of public health concern. There is a need for dissemination of timely and accurate information to the public for proper awareness of the disease characteristics, prevention strategies and to discredit the erroneous information in circulation. Social media like Facebook, WhatsApp, Twitter, Instagram, and YouTube are often seen as fast and effective platforms of receiving information either by internationally searching or passively coming across the information. Studies have shown that social media dependence as sources of COVID-19 information and awareness creation increased more than dependence on conventional media during the initial period of the pandemic. The role of social media in information dissemination and awareness creation cannot be over emphasized. **Objectives:** The main objective of this article is to systematically review studies that investigated the role of social media in creation of COVID 19 awareness among the public and how much they trusted social media information. **Material and Methods:** Publicly available studies on PubMed websites, online journals and other science websites were searched for studies between late 2019 to 2021. A total of 2290 studies relating to this review topic were found, after screening based on their title, abstract and duplicates, 70 studies were selected for full text screening and 22 studies were selected for the review based on inclusion criteria. 'Yes' or 'Not reported' was used in this review to indicate roles found in each of the studies. Each of the studies covered a wide range of topics on the role of social media in covid-19 awareness creation, for this review they were articulated under three terms: 'Social media exposure for covid-19 awareness, misinformation tool and the mental impact associated with the awareness. **Results:** The total sample size ranges from 128 to 6329, Mean 1480.43, Interquartile range 1617 (Q1= 378, Q3=1995) and median. The systematic study reported high social media exposure for covid-19 awareness (86.36%), 22.72% of misinformation and 40.90% of emotional and mental impact.*

Keywords: COVID-19, SARS COV2, social media, Social Platform, Awareness, Exposure, Information, Role and Influence

1.Introduction

Coronaviruses are a large family of viruses that cause disease from mild cases of common cold to more severe conditions like Middle East Respiratory Syndrome (MERS-COV) and Severe Acute Respiratory Syndrome (SARS-COV). The current coronavirus is the most recent strain identified in humans⁽¹⁾. The recent strain currently known as coronavirus disease 19 (COVID-19) was first discovered in late December 2019 in Wuhan city of China. Since the discovery of COVID-19 it has spread to many countries across the globe. The World Health Organization declared the outbreak a pandemic requiring immediate public health attention in March 2020 and it became the priority of national and international governments to prevent further spread of the disease⁽²⁾. According to the Worldometer report of 3rd September 2021, more than 200 million people have been infected with COVID 19 around the globe with more than 4 million deaths reported and cases keep rising on daily basis⁽³⁾. The pandemic has not only created a burden on medical and public health facilities, it has also caused economic, scientific, political and financial hardships around the globe especially in under-developed and developing countries⁽⁴⁾. Information is a crucial part of human day to day activities and has been identified as a necessary part of human activity ranging from Knowledge acquisition, decision-making to avoidance of errors. In the wake of COVID-19 outbreak the public desired timely and

reliable information about disease symptoms and preventive measures⁽⁵⁾. The use of smart mobile phones and availability of internet services provided easy and quick access to all forms of information from business to Health news. Social media applications and web-pages like Facebook, WhatsApp, You-Tube, twitter, Instagram have also become tools for information spread and these became apparent during the early stage of COVID-19 pandemic when countries around the globe were under lockdown and in a state of confusion⁽⁶⁾.

2.Objectives

Social media has become part of our everyday life and is easily accessible on the go. The main objective of this article is to systematically review studies that investigated the role of social media in creation of COVID 19 awareness among the public and how much they trust social media information.

3.Literature Review

Tyrell and Bynoe in 1996 categorized Coronaviruses for the first time as enveloped, positive single-stranded large RNA viruses that infect humans and a wide range of animals. They cultivated and studied the viruses from patients with common colds⁽⁷⁾ According to their structural appearance, the viruses presented as spherical virions with a core shell

and surface projections similar to a solar corona, thus the name coronaviruses meaning crown-like in Latin. The genome size is from 26 kilobyte to 32 kilo base⁽⁸⁾. The four genera of the virus include: Alpha, Beta, Delta, and Gamma coronavirus. Alpha coronavirus- originates from mammals especially bats and causes asymptomatic or mildly symptomatic infections, on the other hand, beta-genus also originates from mammals but it has the ability to cause severe disease and fatalities. Gamma- and delta-viruses originate from pigs and birds. SARS-CoV-2 belongs to the B lineage of the beta-coronaviruses and is closely related to the SARS-COV virus⁽⁸⁾⁽⁹⁾. Coronavirus is majorly characterized by fever, dry cough, dyspnea, headache and pneumonia. The onset of the infection gradually leads to respiratory failure due to destruction of the respiratory alveolar and may even lead to death⁽¹⁰⁾.

Social Media: Social media is a category of computer-based technology that facilitates the communication of ideas, opinions, messages, and information through virtual networking and communities. Social media technology is Internet-enabled and provides quick electronic communication of information such as official information, personal information, documents, videos, and photos⁽¹¹⁾⁽¹²⁾. Since the introduction of the first type of social media, different social media tools have been developed and are currently used by many people daily. More than 4.5 billion people currently use the internet, while social media users have exceeded 3.8 billion marks⁽¹³⁾. In our world today, social media applications and web-pages like Facebook, WhatsApp, Twitter, Instagram, YouTube are perceived as fast and effective means for searching, sharing, and distributing all manner of information in the world⁽¹⁴⁾. Social media has empowered people to find and track events around the globe in real-time, to connect and stay in touch with people around the world. It also provides unlimited information at our fingertips⁽¹⁵⁾,⁽¹⁶⁾. However, this method of distributing information is sometimes crowded with erroneous information, misleading reports and as all types of fake or non-existing information⁽¹⁷⁾. The spread of false or incorrect information in the forms of rumors or unreliable news can lead to misunderstanding among the people and ends up heightening the already-existing issues as critical as COVID-19 pandemic, there should be application of caution with usage of social media pages or sites as any misinformation creates chaos and panic among the general population.⁽⁹⁾ The 2019-nCoV pandemic and associated responses have been crowded with massive infodemic (an over-abundance of information, some accurate and some not) that creates confusion and lack of guidance to proper and trusted sources of information when the need arises⁽¹⁶⁾. Dr. Tedros Adhanom, Director-General of the World Health Organization (WHO), called this war against “trolls and conspiracy theories.” Misinformation does not create confusion alone but it also spreads fear, panic and hinders the expected positive response towards the outbreak. Coronavirus misinformation may become the most disastrous thing about the disease⁽¹⁷⁾⁽¹⁸⁾. To prevent the menace and encourage positive use of social media some health-care organizations have social media application standards for their members. For example, the social media guidelines issued by the UK Nursing and Midwifery Council, a

supplement to professional guidelines that highlight the need for appropriate use of social media and social networking sites⁽¹⁹⁾. The professional guidance is also supported and monitored by local organizational policies in some places like Salisbury National Health Service Foundation Trust's social media policy and guidance which stated as follows “Do not post, upload, forward or post a link to chain mail, junk mail, cartoons, jokes or gossip.” The use of social media for any public health crisis requires complete consideration and dedication⁽²⁰⁾. To further buttress the implication of misinformation a review by Tsoa et.al, found that misinformation about health can result in unnecessary and undesirable outcomes such as fear, anxiety, and misunderstanding of the disease⁽²¹⁾⁽²²⁾. To mitigate this impact, WHO created dedicated WhatsApp and Facebook messaging services in Arabic, English, French, Hindi, Italian, Spanish and Portuguese languages to provide safe and reliable information about coronavirus, this covers about 2 billion people, and gives WHO direct access to those in need of information⁽²³⁾. The World Health Organization has been working tirelessly to track myths and rumors of COVID19 as different forms and degrees of lockdown measures were imposed to control the coronavirus outbreak which increased people's dependence on social media as a tool for information and staying connected to the world⁽¹⁷⁾⁽²⁰⁾. In a global study of digital crisis interaction among Gen Z and Millennials conducted by Wunderman Thompson and published on WHO website March 2021 When asked what COVID-19 information (if any) they would likely post on social media, 43.9% of respondents, both male and female, reported they would likely share “scientific” content on their social media⁽²⁴⁾. A study conducted in South Korea to determine the impact of social media on risk perception during MERS outbreak reported a positive correlation between social media and risk perception of MERS⁽²⁵⁾. In a related study on Ebola conducted in south- western Nigeria, 51.6% reported that social media is effective in information spread among the youth⁽²⁶⁾. The role of social media in information dissemination and awareness creation cannot be over emphasized, however there is a need for timely availability of accurate and concise information to the public from authorized institutions. While researchers have made several efforts to understand the role social media played during infectious disease outbreaks. This systematic review looks at the contributions of social media during COVID19 outbreak around the globe, especially in the area of awareness creation, for the effective use of social media by authorized bodies for timely spread of accurate information.

4. Material and Methods

Publicly available studies on PubMed websites, online journals and other science websites were searched for studies between late 2019 to 2021. A total of 2290 studies relating to this review topic were found, after screening based on their title, abstract and duplicates, 70 studies were selected for full text screening and 22 studies were selected for the review based on inclusion criteria. ‘Yes’ or ‘Not reported’ was used in this review to indicate roles found in each of the studies. Each of the studies covered a wide range of topics on the role of social media in covid-19 awareness creation, for this review they were articulated

under three terms: ‘Social media exposure for covid-19 awareness, misinformation tool and the mental impact associated with the awareness.

The following search keywords and search combination terms were used: COVID19, SARs COV-2 AND social media, Social Platform, Awareness, Exposure Information, Role Influence.

Table 1: Eligibility Criteria

	Inclusion criteria	Exclusion Criteria
1	Online quantitative studies on COVID19 information sources	Studies that investigated social media as tools for medical consultations, diagnosis, and prescription
2	Studies related to COVID19 and social media	Systematically reviewed articles
3	Quantitative studies	Studies on social media as business tool during the pandemic
4	Publicly accessible studies from late 2019 to 2021	COVID19 vaccine related studies

Screening Guidelines: The Preferred Reporting Items for Systematic Meta-analysis (PRISMA) protocol was employed as a guide to record the review process⁽²⁷⁾. The selected research articles’ abstracts were reviewed to ascertain their eligibility inclusion. The selected work title

and citation was copied and stored as a separate word document and the full text screening was further done for the selected studies for the availability of full study results and fulfillment of the inclusion criteria. A total of 22 was selected at the end of the full text screening.

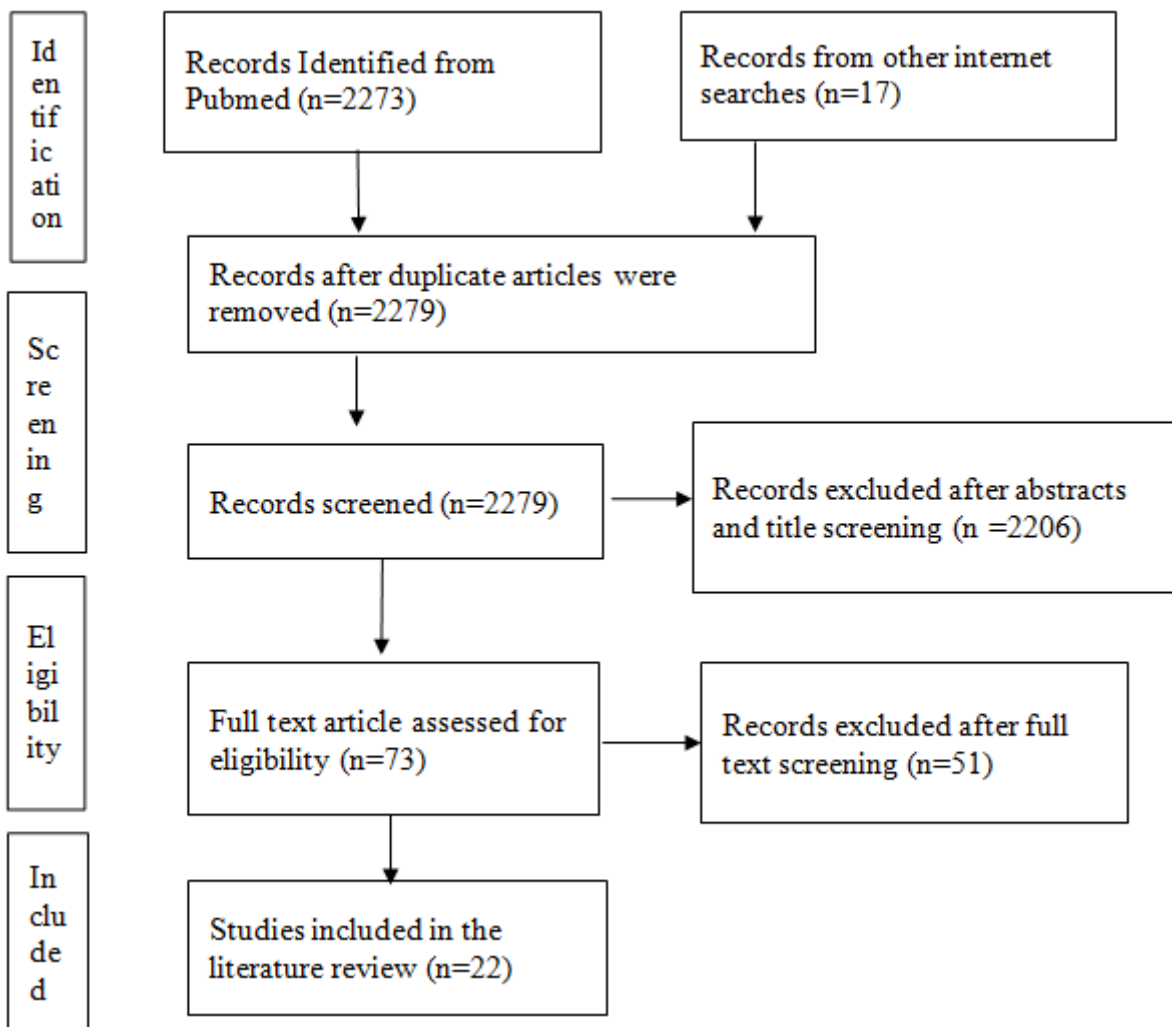


Figure 1: Flow chart based on PRISMA guideline indicating the steps for selection of studies for social media role in covid 19 awareness creation

5. Results

Table 2: summary of the studies, their major findings on the role of social media during covid-19 outbreak and the countries

Study Title	Major findings	Country	Sample size	Reports of SME for awareness role	Reports of Misinformation role	Reports of emotional and Mental impact

						role
(28) Hong e.tal 2021	The findings showed that there was SME to COVID-19-related information among the college students. However, the exposure did not directly predict psychological distress among the students	China	439	Yes	NR	Yes
(29) Ahmad e.tal	The study reported that fake news and misinformation had a massive impact on individuals during the pandemic, it also showed a positive statistical correlation exists between social media and panic about COVID19. (r=.8701)	Iraqi-Kurdistan	516	NR	26.6% Yes	40.2% Yes
(30) Lin e.tal	The most common reasons to use social media were to obtain information about prevention and over one-third of university students reported moderate-to-severe anxiety.	China	2086	51.1% Yes	NR	38.1 Yes
(31) Hammad e.tal	64% of the participants reported that they used social media frequently during the pandemic while 42% reported emotional distress.	Saudi Arabia	371	64% Yes	NR	47.27 Yes
(32) Riehm e.tal	The study reported moderate increase in social media and traditional media exposure during the pandemic increased which invariably had an impact on the mental health of the participants, 71.2% had no mental distress, 17.6% had mild mental distress, 6.9% had moderate mental distress, while 4.4% had severe mental distress.	United State	6, 329	Yes	NR	Yes
(33) Zhong e.tal	10% of the participants reported they experienced moderate-to-severe anxiety, and 9.8% of the participants reported they experienced mild anxiety symptoms	China	2185	NR	NR	20% Yes
(34) Islam e.tal	Creative social media use stimulates knowledge of Covid-19 precautions online	Bangladesh	265	Yes	NR	NR
(35) Al-Dmour e.tal	Result showed exposure to social media platforms significantly increased public health awareness and public behavioral change	Jordan	2555	Yes	NR	NR
(36) Wang e.tal	Greater percentage of Taiwan people relied on the internet and social media for COVID-19 information	Taiwan	1904	80% Yes	NR	NR
(37) Alnasser e.tal	Although they used social media for covid19 information, the respondents reported the official government social media platform as the most common source of information	Saudi Arabia	3, 204	(83.6%) Yes	NR	NR
(38) Alshareef e.tal	Most of the respondents relied on social media to obtain information related to COVID-19, another common source reported is MOH	Saudi Arabia	3358	Yes	NR	NR
(39) Zeballos e.tal	387/886 reported they source COVID19 information often Covid19 information almost always or always"	Bolivia	886	(43.7%) Yes	NR	NR
(40) Neely e.tal	762 of respondents stated that they have depended on social media at least a little to source information. While 594 of respondents reported that they read information about COVID-19 on social media at least once in a week.	United State	1003	76% Yes 59.2%	NR	NR
(41) Bala e.tal	483 (63%) out 767 of the participants used social media to search for news related to COVID-19 during the pandemic while 43.3% believed that covid-19 news from social media created panic among the public	India	767	63.0% Yes	Yes	43.3% Yes
(42) Luo e.tal	Result from the two country survey of	China	504	Yes	Yes	Yes

	1793 respondents in the U.S. and 504 participants in China suggested that the respondents perceived others to be vulnerable to the impact of misinformation of COVID-19 on social media; anger and anxiety demonstrated this influence of misinformation.	United States	1793			
(43) Almotawa et.al	More than 54% of the respondents reported that MOH website was the main source for pandemic-related information while 57% confirmed that WhatsApp and twitter were the second and third most popular social media platforms used for COVID19 information, respectively.	Saudi Arabia	343	Yes	NR	NR
(44) Saud e.tal	When asked the question “did social media help in covid19 awareness creation” 67.5% stated they agreed to the question and 34% reported that they are satisfied with the information from social media	Indonesia	348	67.5% Yes	NR	NR
(45) Ankamah et.al	75% of the respondents reported the internet as their source of health information while 37.5 reported social media as their source of health information during the pandemic	Ghana	128	(37.5%) Yes	NR	NR
(46) Bapaye e.tal 2021	31.22% (355) sought their information about Covid19 through WhatsApp and 57.78 (657) demonstrated a certain level of trust in COVID 19 Related WhatsApp Messages	India	1137	Yes	NR	NR
(47) Yas et.al 2021	A good number (n =170) of the participants reported the usage of social media to source for COVID19 information. However, 155 of the participants agreed that the spread of rumors about the virus through social media made the virus severity appear worse.	Malaysia	360	Yes	Yes	NR
(48) Apuke et.al 2021	The study tested the relationship between “the news find-me perception and fake news sharing related to COVID19 among social media users in Nigerians and found a positive relationship between the two variables ($\beta = 0.622$, $p < 0.001$)	Nigeria	385	Yes	Yes	NR
(49) Şentürk e.ta 2021	The study reported that 57.3% of the respondents had exposure to positive COVID19 social media information while 46.8% had exposure to negative COVID19 social media information. However, the anxiety level of the participant due to COVID19 information was decreasing because of trust in COVID19 post from official media accounts	Turkey	1516	Yes	Yes	NR

SME (Social Media Exposure) NR (Not Reported) CRWMs (COVID related WhatsApp messages)

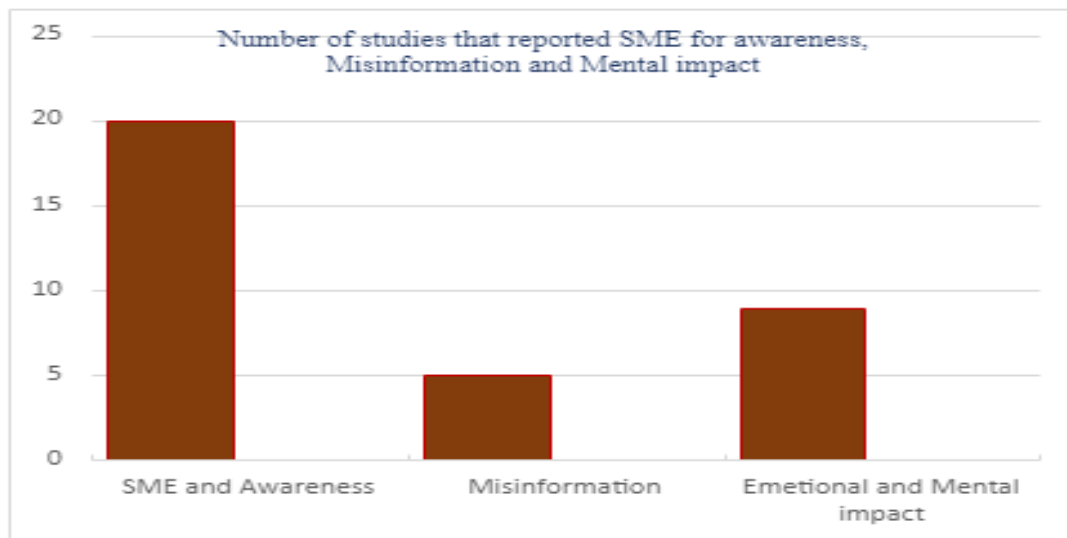


Fig 2: Chart for studies on SME for awareness, Misinformation and Emotional and Mental impact

Results

The summary of the studies, their major findings on the role of social media during covid-19 outbreak and the countries where the studies were conducted are presented in table 2 above. Out of the 22 studies 5 were conducted in China, 3 in the United States, 3 in Saudi Arabia, 2 in India and 1 each in Bolivia, Jordan, Taiwan, Indonesia, Nigeria, Ghana, Turkey and Malaysia. One of the studies was a binational study conducted among United States citizens and Chinese. Most of the studies were conducted online; one combined online survey with house-to-house distribution of questionnaires. Out of the total article reviewed, 20 studies showed social media played a positive role in awareness creation only, 6 reported misinformation roles only and 9 reported mental health impact only. 4 of the studies reported awareness role and emotional and mental impact, 3 reported awareness and misinformation, 2 reported misinformation, and mental impact while 3 studies indicated all the three roles. The total sample size ranges from 128 to 6329, Mean 1480.43, Interquartile range 1617 (Q1= 378, Q3=1995) and median =886.

6. Discussion

The study reported high social media exposure for covid-19 awareness (86.36%) which agrees that people rely on social media to access relevant information during disease outbreak⁽⁵⁰⁾. Despite this positive outcome, it is worthy of note that this review also indicated that 22.72% of the information on social media is coated with wrong messages, this is in line with the report that poor comprehension or inaccurate or false information in the format of rumors or unreliable news can lead to misunderstanding in the society, and which may worsen the situation if not properly managed^[15]. However, 40.90% of the reviewed articles reported that people developed emotional and mental health issues of various degrees from social media covid-19 information exposure.

7. Conclusion and Recommendations

The Advancement in technology and various social media platforms in our world today has made the spread of information or communication very easy. Information dropped on one social media platform can spread like a wild fire in a matter of minutes to hours to several other social media platforms. It has become a necessity for approved international and national health institutions to have active and reliable social media accounts that they dedicate as a tool to spread timely and accurate information to the public. Social media organizations and governments of countries should have stipulated guidelines to monitor health information on social media.

More studies on social media contributions to health sectors and policies that mitigate its negative use in the health field is a necessity.

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