



Social Media Platforms to Combat COVID-19 Pandemic in Ethiopia

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

The aim of this study was to assess social media platforms to combat coronavirus pandemic in Ethiopia for need-based communication to address COVID-19 information and to control infodemic information. A mixed research design was used. Self-administered questionnaires, interviews and document analyses were used to gather relevant data from active social media users and healthcare workers that were selected by a simple random sampling technique. The social media integrated theory model to evaluate social media platforms were used. Ministry of Health and Ethiopian Public Health Institute addressed need-based information for 46.75 million people in SMS in 3-6 days intervals, 22 million virtual societies and 7 million social media platform users. The study revealed that the participants used social media platforms: Facebook (83.1%), telegram (59.3%), YouTube (33.9%), web (13.6%), Twitter (11.9%) actively in a moderate way to grasp and

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share information related to COVID-19. Ministry of Health and Ethiopian Public Health Institute used as a center of COVID-19 information, and it helps to control the infodemic information that arises with the de-central source of information. They were using the World Health Organization communication protocol and strategies to combat the pandemic. Ministry of Health (MOH) and Ethiopian Public Health Institute (EPHI) used social media platforms actively to combat the pandemic. The platforms enabled the public to express their feelings, needs and develop their awareness about COVID-19. The health institutions established the pandemic communication units from the federal to woreda level to disseminate the information and the materials to combat the virus. Yet, the health communication units were politicized.

Keywords: COVID-19; communication strategies; infodemic information; need-based communication; MOH and EPHI; social media.

ABBREVIATIONS

EPHI : Ethiopian Public Health Institute;
MOH : Ministry of Health;
WHO : World Health Organization.

1. INTRODUCTION

Social media covers a wide variety of web-based technologies that enable users to contribute as well as consume information [1]. The social media platforms are the most important and widely used source of information in the world [2]. It is the easy and inexpensive medium to access information, and it is effective to disseminate information to large, heterogeneous, and dispersed audiences in short period of time. It has a potential to reach to the mass audience, and simultaneously in the form of mass-self communication [3] as well as one-many and one-one communication. Health organizations are using social media platforms to disseminate health related messages to the people, and they use it to improve the health workers social networks, develop their knowledge, and build relationships with the online public [1]. It is a tool that develops health literacy. Social media platforms are the solution to unmet social needs [4]. Beside to this, it helps to build intentional virtual communities of common concerns and convictions [5].

In the 21st century, social media played enormous roles in communication [6], Education [7], economy [8], business [9], politics, health, socialization. It can address the messages based on personal needs. It use for HIV/AIDS prevention and education [10], yellow fever education, health extensions programs and pandemics [11]. At this time, the worldwide spread of the COVID-19 infectious disease resulted with a pandemic that has threatened millions of lives. Coronavirus disease (COVID

19) has become a sever public health issue worldwide. It is caused by severe acute respiratory syndrome coronavirus [12], (SARS-CoV-2), a novel coronavirus that emerged from China in December 2019 [13]. The World Health Organization (WHO) declared that COVID-19 can be characterized as a pandemic [12]. The pandemic has created a global healthcrisis [14].

Now-a-time, social media are important platforms that have been playing a major role in fighting the coronavirus pandemic because it can provide timely, accessible, and credible local and global health information [15]. Most of the health organizations, research institutions and health experts use social media platforms to combat COVID-19. In the world, media have experience and powerful forces to shape how we experience the world and ourselves. Hybrid media are adopted to control the coronavirus in most of the world [16]. Social media can address need-based health information to create awareness about COVID-19 and change the public behavior. Social media platforms are also help to maintain public communication with friends, relatives and communities, and create socialization in the form of chat-room. In lockdown, social media helps the people to prevent anxiety, long-term distress, and reduce the psychological impact [17]. In addition, it serves to disseminate of the coronavirus pandemic protocols, at regional, national, and international levels [18]. Sharing the WHO COVID-19 communication protocols about treatment, personal protection equipment, allocation of prevention medical resources are the basic means to feel the gap that creates in case of pandemic. These communication channels promote the adaptive responses to foster positive health attitudes and adherences to preventive measures. It can covey the sense of unity reaching large audiences in social integrative form.

The online news consumers' behaviors of the people are high globally. Social media platforms are highly influential when it comes to acquiring news stories for majority of the people. The platforms also help to fight the misinformation about the pandemic, social stigma, social discrimination, stereotype, treated separately, and the anxiety of the diseases. The dark side of social media is also transmitted fake and unreliable news about COVID-19. False information is a problem across social media platforms [19], and it creates confusion and panic [20] anxiety and negative emotion during COVID-19 pandemic [21]. As WHO Director General, Tedros Adhanom stated at the Munich Security Conference on Feb 15, 2020 [22] various researchers and news outlets were tackled the rising of infodemic [23] issues and presented real life case studies with detailed actual examples [24]. Due to the misinformation, they tend to panic and respond to it in several ways, which includes drinking high *Zingiber officinale* (ገንጅብ), *Lapidium sativum* (ፈጣ), *Ruta chalepensis* (ጠፍቆም), eating *Brassica nigra* (ሰናፍቆ), *Capsicum frutescens* (ሜሞላ), washing with cold water in night, drinking high amount of alcohols, and making a panic purchase and trying out excessive or harmful drug regimens [25].

However, social media had a good experience to fight international pandemics occurred in the last ten years, like H1N1 (swine flu) pandemic, the Ebola epidemic and the Zika outbreak. There must be caution for using the platforms to prevent the spread of infodemic and rumors [26]. Distributing fast, accurate, and reliable information that addresses critical issues of infection control is significant [27].

The use of wireless and mobile technologies for developmental purposes like health (tele-health and tele-medicine), education (tele-education), communication (e-mail) and business and community development (e-commerce) are highly regarded ITU [28]. It is a need based communication that facilitates need-based information. Need-based communication is a communication method for individuals, business and organizations [29] use depends on their interest. This method of communication helps the people to express their thinking, feeling, needs and values freely and ethically. It is effective to develop the communication skills of the people, and it helps to express the peoples real own voices [30]. The platforms help the people express their feelings, experience and activities

freely in their day to day life. It has the significant deal with difficult situations with efficiency and friendless, give and receive feedback in learning environment, communicate directly to get a result people need, find the most efficient strategies to succeed at what you do, focus on core needs, values, and qualities, build a happy and healthy team or community, and enhance confidence and well-being (Dervin and Nilan, 1986).

Social media platforms are crucial source of information to provide potential real-time content. Public health institutes acknowledge the platforms to address and to answer COVID-19 and related information quickly [31]. During COVID-19 pandemic, social media platforms have offered immediate related information to exchange among the people in real-time depend on the personal-need [20]. The social media strategies help to create, develop, build and manage the social media presence while simultaneously training the team to be up to speed on the ins and outs of social media. It is a means to training for the emergency care and humanitarian activities. It helps to address the key messages to the target audiences in consider of the goal of the organization. It creates a stage for information sharing, engagement and influence in the form of creating strong and trust networks and relations [32].

In Ethiopia, currently there is 118, 464 total cases, 1818 deaths, and 97,969 recovery [33]. The COVID 19 cases increase at the mid of August (1800 cases in average daily). In Ethiopia, the public awareness about the pandemic is low. It reflected on the people's actions which are not following the preventive mechanisms such as social distancing, wearing face mask, washing hands with soaps, and stay at home. It happened because of the lack of full understanding about COVID 19 among the public, their attitude towards the disease seems unbalanced. Most of the people have different perception about COVID 19; some of them tried to prevent it by traditional medicine, some of them tried to prevent it in religious method, some of them also tried to protect themselves in their philosophy. However, the government announces state of emergency to prevent the spread of COVID 19, but the people are gathered in religious institution, and various local associations. The people also didn't use the prevention mechanisms, because of lack of awareness. The people undermine the impact of COVID-19. To fight this, social media platforms will the best methods in the form of creating

awareness and serve for public communication campaigns to create awareness about the pandemic.

Based on the problems stated above, MoH and EPHI started the COVID-19 communication campaigns by using the popular social networks: Facebook, YouTube, Tweeter, Webs, Telegram and SMS to address the latest, accurate and need-based COVID-19 information. This study aimed to assess communication-persuasion mechanism and communication campaign tools that were used to combat COVID-19 in Ethiopia. Therefore, the study attempted to (1) assess the communication strategies of COVID-19 pandemic, (2) evaluate social media platforms for need-based communication to address COVID-19 information, and (3) identify the mechanisms used to control infodemic information that arises on de-centralization source of information.

2. THEORETICAL UNDERPINNING

Social media integrated theory model is important to examine one-to-many communication networks and change the communication paradigm. Web-2 enables an individual to be transmitter and receiver of accessible for interactive social media platforms that radically changed the communication paradigm [34]. The exposure, feedback, engagement and exchange nature of social media platforms provides essential global information. It enables the connection with the majority virtual public through the engagement approach in two way interaction process [35]. It addresses information within short period of time, and increase information literacy [34] in the community and bring behavioral change because it enables creation of new, attractive, and innovative ways of message development to communicate with the virtual communities. Social media platforms are the free market of ideas, information and commodities to the virtual societies [36].

3. METHODS

The study aimed to explore the trends of social media platforms usages and strategies to combat coronavirus pandemic in Ethiopia. Mixed research design was used to investigate the social media platforms which are used to protect the community from coronavirus. In order to achieve the intended research objectives by gathering valid, relevant and reliable information

from the pertinent sample of the target population, the researchers employed and used three tools of data collection: interview, document analysis and questionnaire. They were used to gather relevant data from samples of the research drawn from the social media users through simple random sampling technique, particularly the lottery method. The online Google questionnaire survey form were prepared and distributed for 255 active social media users in three regions. For the document analysis, 45 texts which were posted from June-December 2020 of MOH and EPHI were selected, and 25 active social media users and healthcare workers were chosen for online interview due to time constraints. The data obtained from these instruments were analyzed quantitatively and qualitatively.

4. RESULTS AND DISCUSSIONS

In this study, 255 individuals were participated in the online questionnaires, and MoH and EPHI social media platforms analytics which was disseminating information related to COVID-19 from June 01-December 30, 2020 were arranged for analysis.

4.1 Demographic Data

As shown Fig. 1, the respondents of this study was 77.4% male found in the age of 25-36 (82.5%). 88.9% who lived in the urban area had first and second degree and 58.7% of this population married. Social media platforms (Facebook, Tweeter, YouTube, Telegram and Webs) were also the subjects of this study which were dominantly used by MOH and EPHI (Table 4-7). Federal Minister of Health andEthiopian Public Health Institute Facebook, YouTube, Telegram, Tweeter, and Webs were used as the subject of the study.

4.2 Need-Based Communication to Address COVID-19 Information

Need-based communication in its pragmatic simplicity enhances connection and understanding (1) to express their own feelings and needs authentically, and (2) to listen the feelings and needs of the others emphatically [37].Need-based communication is transforming intensity that changes the people who are in change process. The process helps to guide the people consciousness to a new awareness [38].

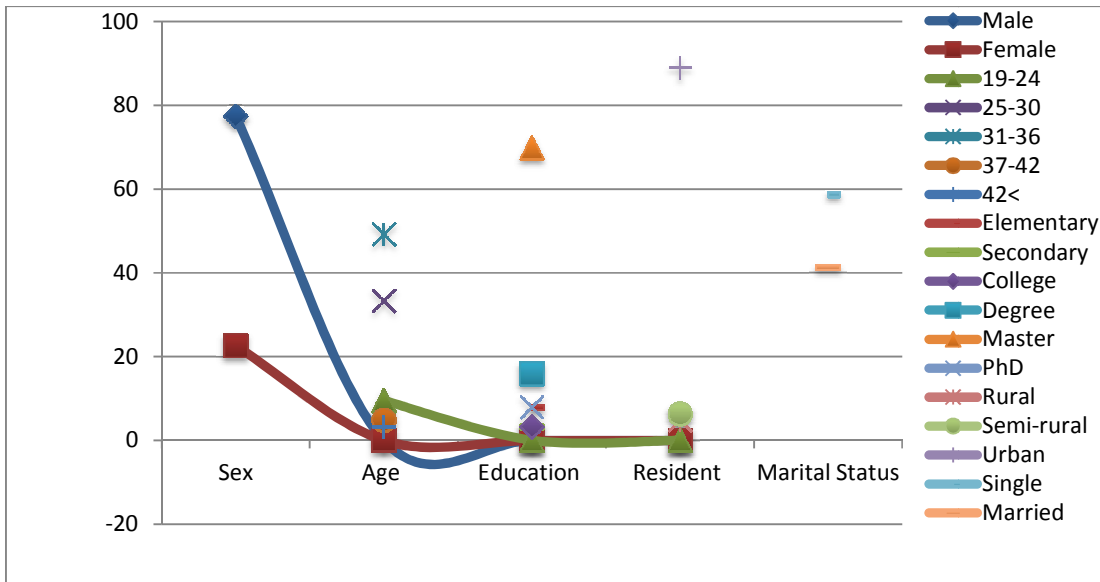


Fig. 1. Demographic data of the respondents

In Ethiopia, there were more than 22 million virtual societies that used social media platforms (7 million) for their day to day activities. Ethiopian Government planned to use these media to combat COVID-19 under MoH and EPHI.

As shown in (Fig 2), the respondents used Facebook (83.1%), telegram (59.3%), YouTube (33.9%), Web (13.6%), Tweeter (11.9%), LinkedIn, Imo, WhatsApp, Instagram and other mainstream media to grasp information about

COVID-19 at the local or global level. They had moderate social media usages concerning the pandemic. 57.2% of them spent up to 2 hrs./day; 31.7% of them spent 3-4hrs./day. The others spent 5 and above hrs./day on social media platforms to grasp the information based on their interest (Table 1). As they testified, they used the platforms to express their feelings, needs and listen to others desire and experience related to COVID-19.

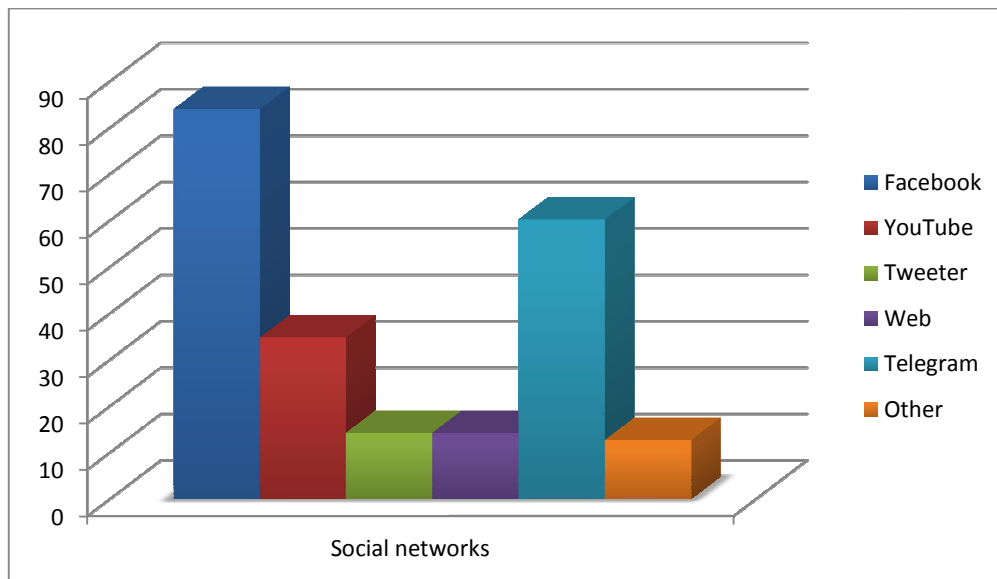


Fig. 2. Types of social networks to grasp information about COVID-19 at local or global level

As they stated, ARS-CoV-2 transmitted from people to person through direct and indirect close contact with infected people through secretions from respiratory droplets in the form of coughs, sneezes, talks or sings. Besides, the contaminated materials were also the means to transmit the disease. The respondents found and shared different scientific information focused on COVID-19.

As stated in Table 1, the respondents social media usages with their friends/peers/relatives during the outbreak of the pandemic were moderate (50.8%) and high (36.5%). They spent their time in reading, watching and listening (92.1%), chatting (20.6%), like and sharing (12.7%), commenting (11.1%), and posting (9.5%) on social networking. It indicated that they dedicated their time on consuming the overflow of information that seems the real experiences of the infected individuals and health organization experts. It helps to transform intensity and changes them within the change process the information that help to guide the public consciousness to a new awareness.

As indicated in Fig. 3, most of the respondents were the member of MOH and EPHI social networks. They have got COVID-19 and related information from Ministry of Health Facebook page (61.9%), Public Health Institute Facebook page (20.6%), MoH tweeter (15.9%), and MOH telegram chat group (19%); however, 33.3% of the respondents were not the member of the MoH and EPHI platforms. Even if they were not a member, they were visited the platforms to grasp the information and update themselves. They confirmed that Federal Minister of Health and Ethiopian Public Health Institute has always sent medical information on social media platforms related to COVID-19, but pages were not integrated with social team members, and gave a response based on the members' inquiry. The chat-rooms were responded with automated information concern to COVID-19 protection mechanism, daily case reports, and symptoms of COVID-19. Nevertheless, the frequency of health

organizations to spread updated COVID-19 information had limitations to develop the awareness of the people. Most of the time, they were posted the daily cases and death reports.

Health organizations and experts tried to disseminate information which lacks coherences and clarity in main stream media at the beginning. However, as the respondents confirmed, 55.6% of their social media friends shared their experiences of social distancing, wearing a facemask, and washing hands regularly to protect from COVID-19.

4.3 Mechanisms to Control Infodemic Information

Different local information was disseminated to develop human immune system like eating and drinking *Capsicum annum*, *Capsicum frnstescens*, *Zingiber officinate*, *Lepidium sativum*, *Brassica nigra*, *Allium sativum*, *Ruta chalpensis*, compose of leaf Coffee, and spa with lippie *Lippia adoensis*, *Eucalyptus globulus*, *Ocimum lamiifolium*, and washing with cold water. The traditional folk medicines were taken in the day-to-day lives of people when they were caught by common cold; however, the overdoses of these local medicines affected their health. But, health organizations sometimes guided how a person can boost his/her immune system like doing physical exercise, eating balanced diet and stay at home.

MOH and EPHI tried to prepare the platforms to control the de-centralized information and tried to speak with one voice (Fig. 7). Social media platforms are the alternative means of addressing COVID-19 information for the educated virtual society. These societies have public acceptability and they can persuade the society easily. Health experts and health organizations sometimes sent messages through social media when the people need any kind of help, but the messages did not satisfy the need as it was not supported with enough research based argument.

Table 1. Social media usages

Time spent on social media platforms		Social media usage to contact with people		Activity do on social networks	
1hr.day	15.9%	High	36.5%	Reading/watching/listening	92.1%
1-2hrs.day	41.3%	Moderate	50.8%	Commenting	11.1%
3-4hrs.day	31.7%	Low	9.5%	Like/share	12.7%
5-6hrs./day	11.1%	Very low	1.6%	Posting	9.5%
6 and above	0%	Never	1.6%	Chatting	20.6%

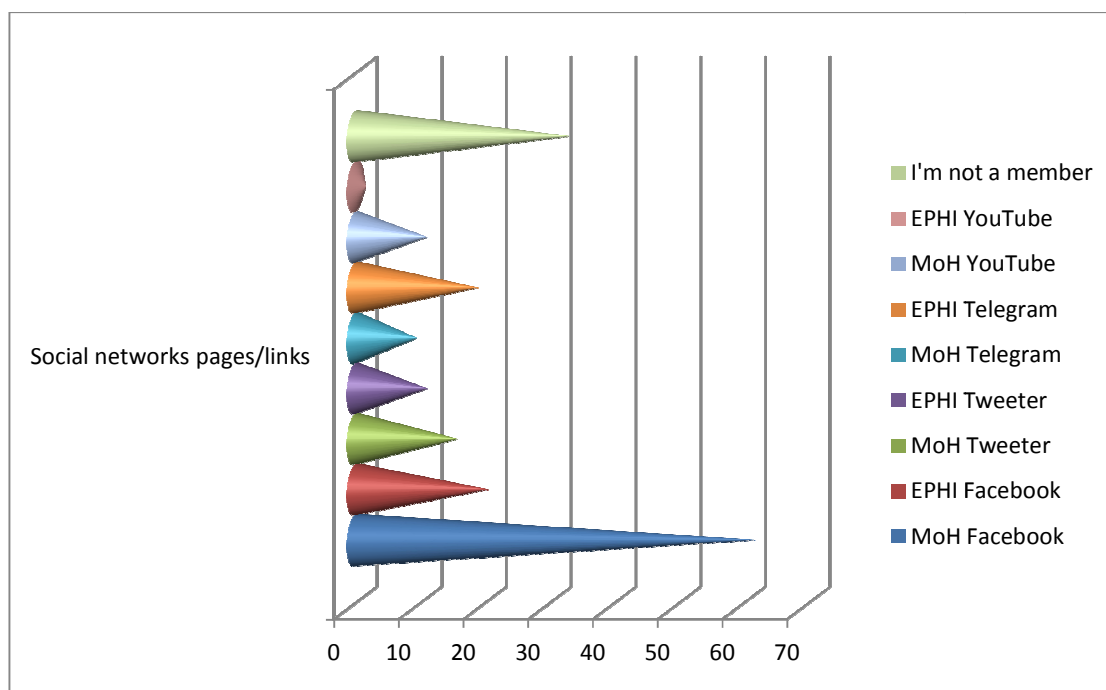


Fig. 3. Members of social networks pages or links of ministry of health and Ethiopian public health institute

Table 2. COVID-19 information accessibility on social media

#	Never	Occasionally	Sometimes	Often	Always
1. MoH and EPHI have sent medical information on social media platforms related to COVID-19.	0	12.9%	27.4%	27.4%	32.3%
2. The frequency of health organizations spread updated COVID-19 information.	1.6%	11.1%	36.5%	25.4%	25.4%
3. Health organizations guided how to boost your immune system.	12.7%	22.2%	38.1%	20.6%	6.3%
4. Health experts and health organizations sent messages on social media if you need any kind of help.	15.9%	23.8%	33.3%	14.3%	12.3%

Table 3. Social media functions during COVID-19 pandemic

#	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1. MOH and EPHI do effectively to combat COVID-19 in social networks.	32%	46%	25.4%	12.7%	12.7%
2. Social media platforms are suitable to combat infodemic information.	13.1%	49.2%	19.7%	11.5%	6.6%
3. Social media platforms are possible means to fill the communication gaps during COVID-19 pandemic.	38.3%	46.7%	5%	5%	5%

As stated in Table 3, Ministry of Health and Ethiopian Public Health Institute were disseminated COVID-19 and related information with hybrid media to combat coronavirus. Due to this, 78% of the respondents agreed that the MoH and the EPHI do this job effectively to combat COVID-19 in Ethiopia even if they had limitations. As 85% of the respondents also confirmed, the message disseminated through the health institutions enables the institutions to create a good awareness of the COVID-19 prevention mechanism in the public. And also,

62.3% of the respondents confirmed that social media platforms were suitable to combat infodemic information (an overabundance of information) to combat COVID-19.

MoH and EPHI used different mechanisms to control misinformation messages in subject matter context additions (52.7%), scan-and-suggest features (47.5%), and virality circuit breakers (11.9%) to fight misinformation or disinformation in Ethiopia.

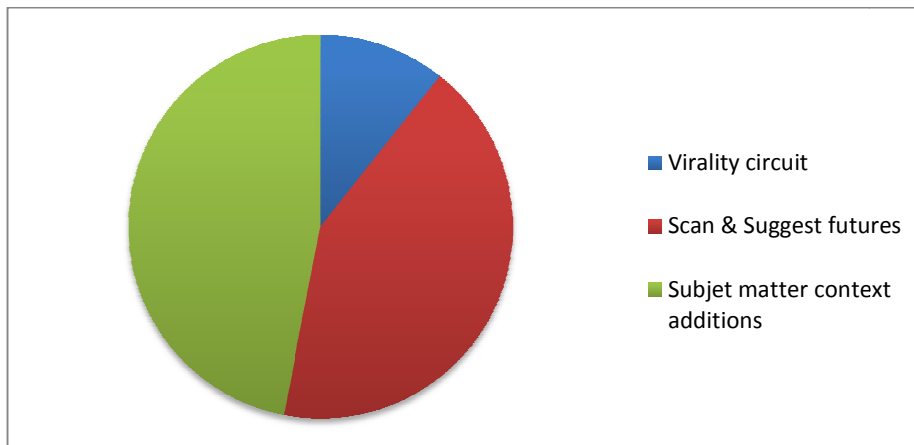


Fig. 4. The mechanism of public health organizations to fight misinformation related to COVID-19

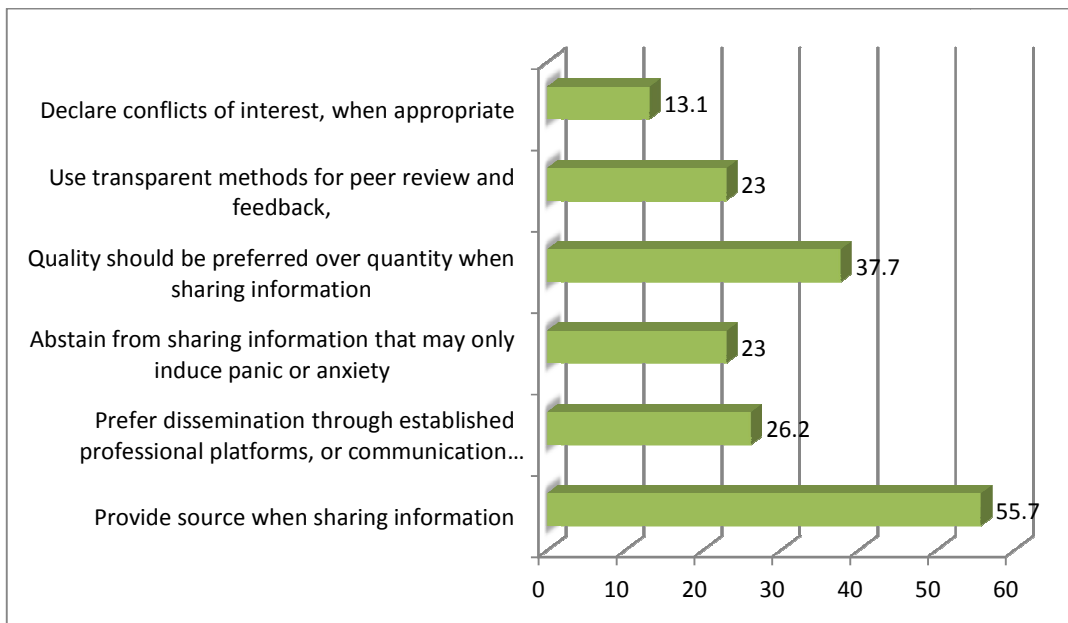


Fig. 5. Criteria for the responsible use of the information disseminated on social media platforms

As indicated Fig. 5, the health institutions set the criteria for information screening and to disseminate information on the social media platforms. The health institutions social media platforms were responsible in the use of information dissemination by providing source (55.7%). The quality of the message is preferred over the quantity when they sharing the information (37.7%). They were prefer to disseminate with professional communication groups (26.2%), and they prepared the message with transparent methods (23%). On the other hand, they abstain to share information that may induce panic or anxiety (23%).

4.4 Communication Strategies for COVID-19 Pandemic

WHO prepared communication protocol for COVID-19 based on the lesson learned from the past health crises [39]. It was prepared by considering the University of British Colombia the five democratic health communication strategies [40]. Most of the states adopted the WHO health communication strategies [41] to fight the virus. Ethiopian government was established the crisis communication group from different minister offices in the state level, and MOH assigned to lead the team. MoH and EPHI took the lion share to create the communication structure, communication manual, and communication medium. The communication strategy is institutionalized and autonomous because Ministry of Health and Ethiopian Public Health Institute established the communication protocol. The spread of the virus and the capacity of the health institutions were not balanced to address the message as Ethiopia has over 85 languages which are spoken in different nations and nationalities. MOH and EPHI used WHO

communication strategies during COVID-19. Research based information were disseminated depend on the society emotions, shared values and narratives to build trust and make health information reliable. The Ministry offices were planned to use the platforms, especially YouTube, Facebook, Tweeter, Telegram, and webs as a communication means for COVID-19 disease. Based on the YouTube analytic, Facebook insight, tweeter analytic and telegram analytic, the data are stated below.

As indicated above; YouTube analytic data (Table 1), Facebook insight data (Table 2), Tweeter analytic data (Table 3), and Telegram analytic data (Table 4), MoH and EPHI had the four major social media platforms and they had high amount of subscribers/followers/ likes to access health information.

As the data shows, MoH and EPHI review what is being done internationally and locally (42.4%), define which behaviors need to be changed and by whom (44.1%), monitor, evaluate, and share lessons (28.8%), develop a unifying national brand (27.1%), review what is known about the drivers of risk behaviors and rapidly fill in knowledge gaps (23.7%), and produce a creative brief and theory of change (21.8%). Based on these, all calls were changed in to COVID-19 information that was announcing what was done in national and international level daily. They tried to educate the public in one voice at national level. Besides, they prepared and disseminated the manuals for screening protocol, sample collection methods and testing with the suspected patents, specimen collection and shipment and patents management messages in local languages.

Table 4. Youtube analytic data

#	Platforms	Uploads	Subscribers	Video viewers	Avg. post/week
1.	MoH	388	5.8k	384,012	1.1
2.	EPHI	46	195	1591	0.15

Source: summery/ user statics for Ministry of Health-Ethiopia and Ethiopian public health Institution (20/12/31-2021-01-29)

Table 5. Facebook insight data

#	Platforms	Total page likes	Post in a week	Avg. engagement in a week	People follow this	People like this	People checked here
1.	MOH	869.6k	21	117.7	1,314,601	869,593	2,913
2.	EPHI	118.2k	23	2.1k	128,205	118,218	400

Source: MoH and EPHI Facebook Page insight of Jan 29, 2021

Table 6. Twitter analytic data

#	Platforms	Tweets	Followers	Following	Followers ratio	listed	Replies	Tweet with #	Tweet with @mention	Retweets	Tweet with links	Tweet with media
1.	MOH	3169	113,957	241	472.85	140	0	26/100	5/100	1	80/100	34/100
2.	EPHI	1426	34037	266	127.96	58	0	61/100	0	0	98/100	55/100

Source: Federal Ministry of health ETH and Ethiopian Public Health Institute analytics of twitter-30 Jan 2020-29 Jan 2021

Table 7. Telegram analytic data

#	Platforms	Subscribers	Growth	Total reach	Avg. post reach	Avg. post/week
	MoH	11.9k	+2	14.1k	1.6k	42
	EPHI	8k	+2	13.2k	4.2k	35

Source: MoH-Ethiopia and EPHI telegram analytic report of 01/29/2021

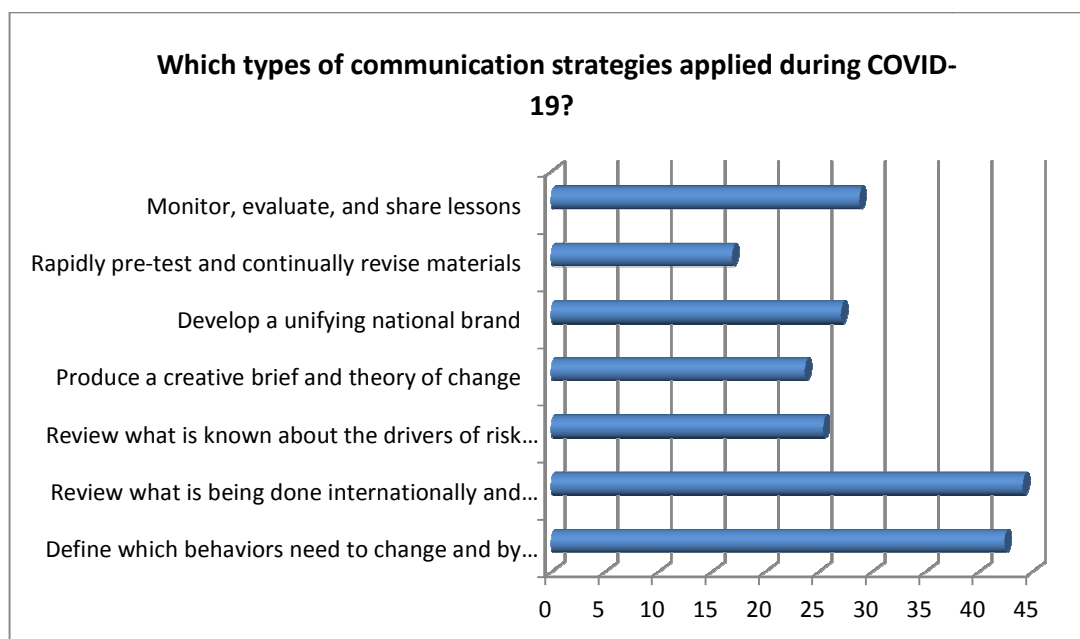


Fig. 6. Communication strategies during COVID-19

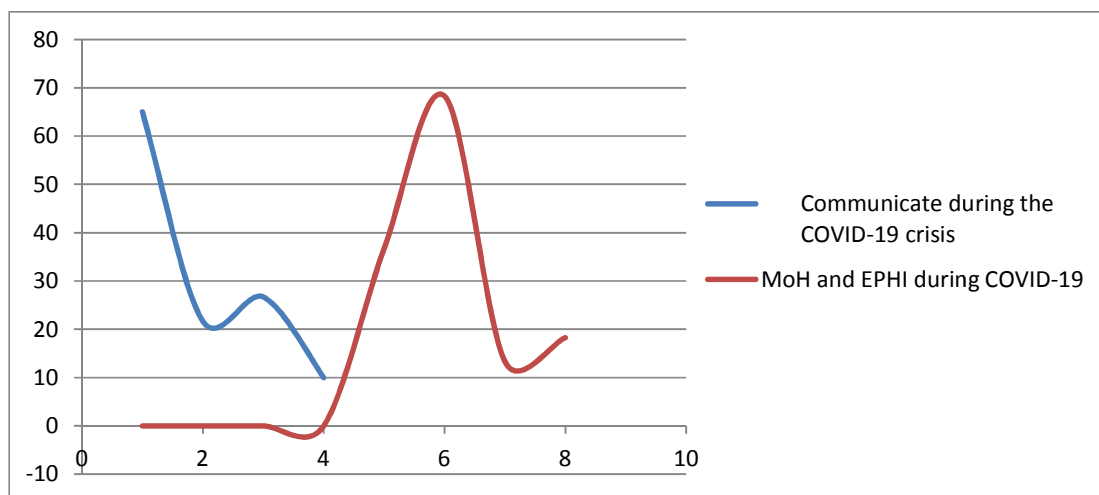


Fig. 7. Communication tactics of MOH and EPHI

In line with the above saying, the respondents communicated different issues during the COVID-19 crisis; they were talking who was affected and what was being done (65%), they communicated problems without solutions

(26.7%), they delivered bad news in clear, definitive terms (21.7%), and they did not over-promise (10%). To create a clear understanding, MoH and EPHI during COVID-19 tried to coordinate (67.9%), speak with one voice

(35.7%), prepare well (16.1%), and ready for media wars (10.7%). It enabled them to practice effective democratic health communication. The messages were hand washing, physical distancing, facemask wearing, stay at home, and use hand sanitizers repeatedly during time of emergency. As 83.9% of the respondents confirmed, social media platforms were the possible means to fill the communication gaps during COVID-19 crisis in Ethiopia.

5. CONCLUSION

MOH and EPHI used social media platforms such as Facebook, Tweeter, YouTube, Telegram and Webs to combat COVID-19 in Ethiopia. The need-based communication tried to address COVID-19 information. The respondents of this study had a moderate social media usage to grasp COVID-19 information and to interact with their friends. The platforms enabled the virtual society authentically expressed their feelings and needs and emphatically listen the feelings and needs of the others. The platforms, which were set by MOH and EPHI, sent medical information to create awareness about COVID-19. Besides, the platforms help to straggle the infodemic and unscientific information that arise from de-central source of information in anonymous source. MOH and EPHI made polls and suggest features to control the spread of COVID-19 because they set the criteria for information screening and dissemination.

Most of the information disseminated by Dr. Liya Tadesse, Federal Minister of Health kept the communication protocol and strategies of WHO. The information was trusted and credible in the autonomy of the Minister to empower the people what they do and don't. The messages were central, contextual, and it respects the cultural values of the people. Governments and NGOs were engaged in the public awareness rising in the form of a pandemic communication unit, but the health communication units were politicized.

6. RECOMMENDATIONS

As the respondents stated, the disseminated messages were cliché, ambiguous, and inaccessibility. The authors also recommended that MOH and EPHI ought to prepare the messages in consideration of the people's native language, culture, norms, traditions and ways of practices to be effective to combat COVID-19. Thus, MOH and EPHI need modification

concerning their message so that messages create good awareness about COVID-19.

CONSENT AND ETHICAL APPROVAL

This study was approved by the research ethics committee of Debre Tabor University, Guna Tana Integrated Field Research and Development Center (Ref. No. DTU/Guna/433/2021). The objective of the study was explained to the respondents and written informed consent obtained from all of them before distributing the data. All the participants of this study were participated voluntarily. All the data were collected and kept confidential.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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