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Exploring health communication strategies to reduce the risk of contracting COVID-19 in health centers in Ethiopia

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Abstract

This study explored how health communication strategies were applied to health centers in Ethiopia to address the risks of COVID-19. To explore this issue, the theory of health communication was used as a lens to explore the strategic efforts of health centers and the problems they encountered when applying risk-minimization health communication strategies. Accordingly, a qualitative research approach was used to explore the issues of the pandemic in this study. Moreover, qualitative data were explored through in-depth interviews and group discussions. The participants were selected purposely to meet the purpose of the study. The main findings indicate that to play their role, the health centers in Bahir Dar town used a half-hazard communication system. The majority of practitioners are non-health communication professionals who need to improve their communication knowledge and skills. During an outbreak, health communication plays a role in interventions during the pandemic, but the government and health organizations are currently diverting their attention to other transmissible diseases, ethno-political conflicts, and current market inflation. We suggest that health centers revisit the current strategies used to minimize the risk of COVID-19.

Introduction

The COVID-19 pandemic has progressed through a series of stages of development and methods of transmission since its emergence was first disclosed in Wuhan, China. It has eventually led to global crises, affecting the social, political, cultural, and economic systems (Adesokan, 2022; Tatkare et al., 2021). Scholars posit that crises are dynamic in nature, typically involving pressure, complexity, ambiguity, and a lack of boundaries. System dynamics is a method used to fully understand the nonlinear behavior of complex systems over time (Abdel-Latif et al., 2022). However, several factors, including social media and communication, knowledge, leadership, governance, information technology, strategic planning, and professional activities, affect crisis management in dynamic systems (Hazaa et al., 2021). Although stakeholders have attempted to develop various methods, they have been unable to entirely control the crisis (Adesokan, 2022; Tatkare et al., 2021).

To date, COVID-19 has influenced relatively little or had no impact on the human lives of some countries.Others, such as Ethiopia, has reduced their previous prevention strategies. The necessity of public attention to prevention and the dissemination of risk messages have still required critical attention. The fundamental motivations of this study, thus, are to understand the current prevention practices in Ethiopian health centers. Moreover, the challenges of the pandemic have also required more attention to alleviate the impact.Therefore; the aim of the current study was limited to exploring how health centers and health workers in Bahir Dar city manage the risk of COVID-19 and thereby address its impact in Ethiopia.

Theoretical Frameworks

This study was guided by the integration of systems theory and crisis communication theory. As it provides us with insightful strategies for information dissemination during crises, communication theory is an essential theory for a holistic approach to analyzing the impact of the crisis.

Systems theory

A system is a complex process of interacting elements in all disciplines to find principles that are valid for organizations (Abdel-Latif et al., 2022). Elements include the integration of the organization, staff, and stackholders. In the Ethiopian context, the elements of the systems are structured from top to bottom and include the Ministry of Health (MoH),

Regional Health Bureaus (RHB), Zonal Health Directives (ZHD), Woreda Health Offices (WHOs), hospitals, health stations, and NGOs that support the implementation of health strategies.

Thus, in such complex structures, crisis management has become one of the major empirical applications of system theory, especially in the communication field (Abdel-Latif et al., 2022). This means that the health communication system in the public health organization plays a vital role in making sense of understanding the participation of various stakeholders and analyzing how they could contribute to managing the health crisis in the sociological context. The practice and regular interaction of elements depend on the interdependent relationships of different branches of an organization. Additionally, preventive communication for the pandemic also depends on established subsystems of organizational health communication. Communicating using a system creates awareness by providing information for members.

Therefore, according to Littlejohn (2001), system communication theory plays a significant role in defining and sustaining a system. It is also helpful for communicating messages effectively and receiving feedback from receivers via a feedback loop. The communication system must be inclusive and participatory for the achievement of strategic communication in any specialized field of communication. The communication system of an organization might be an open or closed system. The systems communication approach assists communication researchers in focusing on behavioral perspectives (Luthans & Stewart, 1977). In this study, systems theory was particularly used to investigate the behavioral perspectives of health communication's role in the pandemic control strategies of both health communicators and the general public. To achieve this, health organizations must have constant engagement through continuous interaction with the community about the causes, symptoms, and preventive measures of pandemics.

Crisis communication theory

A crisis can be defined as a major catastrophe that may occur either naturally or as a result of human error, intervention, or malicious intent (Argenti, 2013). It is imperative that such crises lead to human, material, and financial consequenses. The COVID-19 pandemic has shown a considerable loss of life, psychological distress and economic instability, along with persistent uncertainties globally (Wodak, 2021). The success of crisis management depends on effective crisis communication. This means that pandemic crisis prevention requires effective communication both within the organization's structural management systems and with the

community.

A crisis such as the COVID-19 pandemic has highlighted the need for effective information and communication as well as the active participation of society in collecting, processing and sharing relevant information with concerned stakeholders or the local community. The objectives of crisis communication depend on the stages of the crisis. If there is no pre-informed society about the crisis, there will be an emotional response that evokes reactions from partners and stakeholders. Therefore, any conversation during a crisis should be managed carefully and intelligently rather than communicated at any time. This is because people face mental stress and develop emotional responses that affect their understanding and perceptions (Hyer & Covello, 2007). Most research findings recommend that health organizations prepare a crisis communication plan and implement the strategic plan using participatory and collaborative approaches in the community.

Methods

The methods used are a qualitative research design involving a fundamental method and systematic investigation that could be used to understand human behavior and its surroundings in relation to the COVID-19 pandemic (Shank, 2002; Creswell, 2009). This method helps to understand attitudes, beliefs, perceptions, and applications of health communication strategies to control the pandemic. Qualitative data-gathering tools are employed to gain deep insight into health communication problems. Accordingly, this study was designed to investigate the application of health communication strategies, the participation of health professionals, and the interpretation of preventive messages from the COVID-19 pandemic in Bahir Dar city.

The sample size of the study was selected from the entire population using a purposive sampling technique (Sharma et al., 2019). The study conducted in-depth interviews with six (6) respondents and focus group discussions (FGDs) with six (6) respondents, all of whom were health communicators from six health centers. Additionally, of the 63 health extension workers, six (6) in-depth interviews and 12 FGD members were selected using a purposive sampling technique. This means that in each health center, there were three (3) in-depth interviews and five (5) FGD discussion members in six health centers. In other words, 18 in-depth interviews with respondents and six FGDs were conducted to obtain valid and reliable data. In total, in the Bahir Dar City Administration, of the six health stations purposely selected, 18 key in-depth interviews and 30 FGD

respondents were purposively and conveniently selected from the total population. However, the in-depth interviews were conducted until data saturation occurred at each of the health stations. If there were new ideas, opinions, or views, the interviews would continue, and the vast amount of data would be organized into categories.

Document analysis is a systematic procedure for reviewing or evaluating both printed and electronic documents, similar to other methods of data collection in qualitative research (Glenn, 2009). The data must be examined and interpreted to obtain meaning, gain understanding, and develop empirical knowledge (Corbin & Strauss, 2008). The study purposely used the document analysis method to access strategic health communication manuals, systematically designed health communication manuals, and pandemic preventive program documents from organizations.

Results

Ethiopia has implemented an aggressive expansion of health services in both rural and urban areas to provide primary health services and apply health extension communication programs for more than a decade. However, this may not be as effective as expected due to several factors, including a war in the Amhara and Tigray regions (Zikargae, 2020; Zikargae, 2022). Several health centers were destroyed due to the conflict. In addition, the pandemic crisis began in 2019 across the country. Therefore, an effort was made to investigate and analyze the data collected from six health centers in the Bahir Dar town administration to assess how the health centers   addressed the impacts of the pandemic. The analysis was based on the themes that emerged from previous conceptual, theoretical, and data-driven frameworks.

The analysis provides a detailed qualitative thematic analysis that was carried out on the data collected from health centers in Bahir Dar, the capital town of Amhara Regional State. Several themes emerged from the concepts, theories, and data of the study. These include strategy, knowledge, skills, information access, sources, perception, diffusions of innovation systems, and the role of health communication, behavioral change communication, participatory communication, and the implementation of health communication strategies. The discussion focused on analyzing the COVID-19 preventive strategic document, the communication policy for health extension, and social health communication strategies. This study addressed the effectiveness and challenges of the COVID-19 pandemic prevention process in the health

centers of Bahir Dar.

Demographic background of the respondents

Investigating the data and interpreting the context of the perceived reality depend strongly on respondents' understanding of their demographic background. Among the socio-demographic information of the study participants, the total number of interviewees and FGDs issummarized in tabular format. The data include age, sex, level of education, field of study, work experience, kebeles, and health centers represented in this study. The socio-demographic background of an individual is the determining factor that influences effective communication and critically interprets communicated messages. The effective planning, implementation, and evaluation of pandemic preventive communication strategies depend on the socio-demographic characteristics of the communicators and the community at large. To provide information on the results of the study related to the role of health communication, the socio-demographic information of the study participants is presented in Table 1.

Table 1

Socio-demographic Information of the Respondents

Demographic Var.s	Demographic Categories	Participants	Frequency	Valid Percentage (%)
Age	From 25-30 Years	48	16	33.3
	From 31-35 Years	48	16	33.3
	From 36-40 years	48	6	12.5
	From 41-45 Years	48	4	8.3
	From 46-50 Years	48	3	6.3
	From 51-55 Years	48	3	6.3
	Total	48	48	100.0
Sex	Male	48	10	20.8
	Female	48	38	79.2
	Total	48	48	100.0
Level of Education	Able to read & write	48	6	12.5
	Grade 8th Complete	48	3	6.3
	Grade 10th Complete	48	5	10.4
	Grade 12th Complete	48	5	10.4
	Diploma	48	10	20.8
	1st Degree & Above	48	19	39.6
	Total	48	48	100.0
Field of Study	HO	48	10	20.8
	BSC Nurse	48	6	12.5
	Clinical Nurses	48	20	41.7
	MPH	48	3	6.3
	Non Health Related	48	9	18.8
	Total	48	48	100.0
Work Experience	<5 Years	48	4	8.3
	5-10 Years	48	29	60.4
	11-15 Years	48	10	20.8
	> 15 Years	48	5	10.4
	Total	48	48	100.0
Resident (Kebeles)	Abay (Kebele 11)	48	8	16.7
	Bahir Dar Health Centre (Kebele 3)	48	8	16.7
	Dagmawi-Minilik (Kebele 14)	48	8	16.7
	Han Health Centre (Kebele 7)	48	8	16.7
	Shimbt Health Centre (Kebele 13)	48	8	16.7
	Shumabo Health Centre (Kebele 8)	48	8	16.7
	Total	48	48	100.0
Religion	Orthodox Christian	48	41	85.4
	Muslim Believers	48	7	14.6
	Total	48	48	100.0
occupation/ Employees Positions	Social Health Communicators	48	12	25.0
	Health Extension Workers	48	18	37.5
	Model Health Communication Participants (MHCP)	48	18	37.5
	Total	48	48	100.0

Note: *The demographic background is the baseline to indicate the participants' level of knowledge and understanding of the COVID-19 pandemic.*

The demographic background data presented above (Table 1) from a total of 16 interview respondents and FGD discussants showed that 33.3% were 25-40 years old. The majority of health communicators were energetic young adolescents. However, a small number of health communicators (social health communicators and health extension workers) and model health communication participants were older individuals. According to the results of the in-depth interviews with the Health Extension Workers (HEWs), this discrepancy is due to their prominence and because the community gives more credibility to older people than to young people. However, only 10 (20.9%) of the total study participants met these criteria.

According to the data, 38 (78.2%) of the respondents were women, and only 10 (20.8%) were men. The interviewed respondents from the Social Health Communicators (SHC) and HEWs explained that the health extension communication policy declares that health communicators must bewomen who can communicate and consult in midwifery activities. During the COVID-19 pandemic, the government argued that women are a more vulnerable group and at greater risk than men. In terms of religion, 41 (84.5%) of the health communicators were Orthodox Christians who tried to communicate using religious principles. Few (7 or 14.6%) of the health communicators were Muslim believers. In-depth interviews and FGDs explained the causes, symptoms, means of transmission, and preventive and controll mechanisms in churches and mosques among religious members. Furthermore, they provided support to poor community members and educated believers or their followers.

The results of this study indicated that 19 (39.6%) of the respondents had a first degree or higher. Ten (20.8%) of the participants were diploma holders in health communication from the six health centers, with specialization in clinical nursing (41.7%), health officer (20.8%), non-health-related fields (18.8%), and BSc nursing (12.5%).

The results also revealed that 29 (60.4%) had 5–10 years of medium experience and 10 (20.8%) had 11–15 years of moderate experience in health communications without baseline concepts of public communication. However, they practiced health communication through their long-term experiences. Only five (10.4%) had served for more than 15 years. It is believed that experience can be one means of acquiring knowledge, but it should be supported by academic, theoretical, and conceptual knowledge to have comprehensive understanding and technical applications of communication. The views of the respondents show that theories and principles are the basis for effective practices and the

achievement of the objectives and goals of health centers in controlling the COVID-19 pandemic.

A proportional sample size of respondents was selected from six health centers. Of the 48 samples, 18 (37.5%) were from the HEWs and Model Health Communication Participants (MHCP) of the public to the same extent, and 12 (25%) were from the SHC in the health centers in Bahir Dar town. When examining their role and extent of participation in control of pandemic communication activities, the SHCs played passive roles as they were not directly involved in the communication process. Their only role was to act as a link between strategic communication designers (health directives) and HEWs who interacted directly with the local community. This type of relationship depends on the established communication systems from the Ministry of Health (MoH) down to the family level at the grass roots level.

Discussion

Understanding of the COVID-19 pandemic

The public and communicator knowledge, skills, and perceptions were found to be crucial in health communication to minimize the risks of the pandemic. Health communication aims to help and inspire people, communities, decision-makers, healthcare providers, special interest groups, organizations, and societies (Zakaria & Azad, 2016).

The public knowledge of the COVID-19 pandemic

The knowledge of health communicators began with the study of COVID-19 variants and their characteristics. They explored two basic variants (SARS and MERS) before the outbreak of the pandemic. The SHCs and HEWs have identified the current variant called Omicron. However, they did not mention the former variants (Alpha, Beta, Gamma, and Delta). These variants were not clearly differentiated based on symptoms, severity, transmissibility, immune evasion, rate of recovery, or neutralization of viral constructs. The study revealed that the public's knowledge was very low and they were not critically investigating the messages revealed about the COVID-19 pandemic. As the FGD discussants argued, health communicators had limited communication and, similarly, the community heard but left the messages uninterpretable. The community never understood the clinical nomenclature, and health communicators intentionally used professional jargon to confuse the community. This shows that "unclear communication with the public led the masses into confusion" and that "misunderstanding resulted in

ineffective health communication."

The study results showed that the level of understanding and perception of COVID-19 was described by the level of understanding and perception of symptoms, means of transmission, and preventive mechanisms. In the town of Bahir Dar, the community had little knowledge about the symptoms, causes, and preventive techniques of the pandemic. Although they understood the symptoms, they were not worried about the indicating that no attempt was made to save their lives from the pandemic. Furthermore, they did not clearly identify the preventive mechanisms and did not apply them effectively. This shows that both the health communication strategy and its implementation had a gap in controlling the COVID-19 pandemic.

In the pre-crisis phase, preventive and controlling techniques were rigorously applied by the government and the community collaboratively. The government declared a state of emergency and forced the community to apply controlling mechanisms. Both the government and society in Bahir Dar town or in Ethiopia generally, currently diverted their attention to resolving ethnic conflicts and inflation problems. The results of both the in-depth interviews and FGD respondents demonstrated that the community and government did not pay adequate attention to preventing and controlling the pandemic. Only health organizations, specifically health centers, had made efforts to control the spread of the COVID-19 pandemic. Most of the respondents agreed that the six health centers used non-collaborative health communication approaches and non-participant communication to control the pandemic.

Regarding the knowledge and understanding of COVID-19, the findings of this study were different from those of previous studies, which revealed that society had high or medium knowledge of the pandemic. However, they did not apply preventive techniques due to negligence and factors affecting their daily lives. Specifically, the MHCP explained that their knowledge was too limited and that they did not use it daily.

However, social health communicators (SHCs) and health extension workers (HEWs) were responsible for this, as they had enough knowledge of the pandemic. They politicized and sought personal gain rather than serving the community whenever they communicated the causes, symptoms, and preventive techniques to the local community.

Their response ensured that "the government used the COVID-19 pandemic as a tool for political intervention and to weaken political participation or grievances." This means that it was used as a propaganda tool to mislead society to sustain the existing power. The community

viewed the pandemic from a political perspective rather than a health perspective. The local community completely connected the pandemic with the political, religious, and cultural aspects of society. They misunderstood preventive mechanisms, including vaccines, which they ignored at the household level. Most of the respondents agreed that "the community perceives it makes females non-pregnant and kills them." Religiously, they connected it with antireligious groups such as 'western religions' like Sixty six (666) which defused through their lives. In addition to this, they wrongly perceived the vaccine, claiming that they were forced to change their religion, either from Orthodox Christianity or Islam to devilish or paganism.

The findings of this study indicate that the local community had little knowledge and a poor perception of pandemics and preventive techniques. This indicated that the pandemic prevention strategy and the efforts made to control the disease were not effective. In response to the research question: "Do you think COVID-19 is a health problem in your locality?" the study revealed that the COVID-19 pandemic was not the first health problem at the local community level. Most of the participants considered the most lethal pandemics to be pneumonia, malaria, liver disease, or other disease rather than the COVID-19. The pandemic was considered the most severe and deadly during the outbreak stage. However, society believed that there was currently no COVID-19 pandemic in Bahir Dar town, in Ethiopia, or throughout the world.

Publics' perception of the COVID-19 vaccine

The Ethiopian community, particularly people who lived in the capital of the Amhara Regional State, had a negative perception of the COVID-19 vaccine. These studies indicate that the community was hesitant to use the vaccine. It was not perceived to have a positive impact on human health, but rather a negative impact on religion and reproductive capacity. Most of the community perceived the vaccine in relation to colonialism, westernization, religion, and indigenous cultural liquidation. Similarly, Abegaz et al. (2020) reported that the Bahir Dar urban community had less knowledge, willingness, and intake capacity for the COVID-19 vaccine due to misunderstanding and politicization of the vaccine, which is produced by the developed world and associated with the sense of colonization of the developing world or the periphery.

The interviews with health communicators revealed that "the community requested us to take the vaccine in front of him/her before he/she took it, as they wrongly perceived the health organizations, including the WHO, FMoH, ANRSHB, HC, and NGOs." The reason

behind this is that the government was highly politicizing health organizations and made the goals of vaccination campaigns unattainable at the local, regional, national, and global levels. For example, they provided empirical evidence for the causes of deaths of individuals and the effects of contraceptive pills over the last 30 years in Ethiopia, specifically in the Amhara region, in relation to the national health policy and strategy affiliated with political scenarios (in-depth interviews and FGDs from May 6–30, 2022). The study concluded that COVID-19 vaccination campaigns were not effective at the local level and that the total number of incorrect perceptions reflects the uncontrolled nature of the pandemic. The study revealed that there was a high level of resistance to the COVID-19 vaccine in the local community.

Diffusion of innovation and vaccine perception

As indicated in the theoretical framework of diffusion of innovation theory (Rogers, 2003), health centers follow the process of innovation adoption in the dissemination of vaccine information and other new technological preventive techniques. New ideas are produced by individual health professionals or organizations around the world. Then, the WHO verifies these ideas and new products through testing and retesting following scientific procedures, which is the innovation stage.Once we determine if the ideas are workable and the technologies are valuable in controlling pandemics, the next step is awareness creation using health communication systems. These systems may include organizational communication, mass communication, or public communication utilizing both internal and external communication.

According to Scott and McGruin (2017), new technology does not necessarily mean the invention of machinery or sophisticated technologies. Rather, new technology refers to any new ideas, channels, systems, or ways of interaction that may be used in the communication process, including interpersonal, group, mass, or public communications. In this context, the World Health Organization, governmental health organizations, and nongovernmental organizations (NGOs) would disseminate new ideas or information to the community.

At the local level, health communication organizations or experts are primarily responsible for educating the community about innovative ideas or technologies in the preventive process. Recently, these processes have been used to create awareness of new ideas or technologies such as social distancing, washing hands with water and soap, and using face masks, sanitizers, and vaccines.

First, health communicators received messages and adopted new technologies, and later, they started to communicate with the local community. However, with respect to the vaccine, even experts did not accept it and simply advocated that the messages were speculated by the highest authorities. This refers to the Ethiopian health communication systems, which have followed the top-to-bottom approach of communication systems. Health communicators and the general public did not trust health communication and innovation organizations or the overall health communication systems (Rogers & Shoemaker, 1971).

As indicated in the diagrammatic flow of information (see Figure 1), there was no trial at the national, regional, or local health organization level. The society has been denied the opportunity to have new ideas and technologies to prevent COVID-19, particularly messages communicated by health organizations. Finally, the majority of the community lost trust and rejected content and technologies. However, this does not mean that all communities rejected them.

A small number of the community accepted and interpreted health-related communication messages after receiving them from health communicators. FDREMH (2017) indicated that "fewer people trust pandemic-related messages and vaccines around the world, especially in third-world countries." This indicates that the public did not trust the government systems in Ethiopia. This study showed that building trust and maintaining the credibility of health organizations or centers at the local level were essential for developing pandemic prevention strategies. In fact, health communication played a vital role in producing credible messages and building positive attitudes or trust in health centers or new technologies that encouraged receivers to interpret them in their daily lives.

Health communicators' knowledge and communication skills

Health policy inEthiopia has placed emphasis on health information, education, communication (IEC), and health education, with a high level of community mobilization (FDREMH, 2016). Health educators carry out healtheducation, communication, and community mobilization activities. The responsibility is already delegated to health centers, particularly for Social Health Communicators (SHCs) and Health Extension Workers (HEWs), because of their direct interaction with the local community. This study revealed results similar to those of Eshete's thesis in 2021; health extension workers (HEWs) were at the bottom line of the organizational structure of health communication. They educate, persuade, mobilize, and compel the local community to use pandemic prevention techniques.

Specifically, SHCs andHEWs are health educators in health centers and advocate the implementation of a COVID-19 pandemic preventive strategy. They are communication specialists at health centers, as the health communicator believed, and they learn to approach patients or the general public. As the HEWs' interview results revealed, they created friendly relationships with the community and effectively taught the community how to protect themselves from the pandemic. "We went to the community and explained that the disease is contagious; we taught them how to avoid the COVID-19 pandemic. We prepared hand-washing water and advised them that frequent washing saves their lives" (HEWs' interview, 2022).

However, Social HealthCommunicators (SHCs) and Health Extension Workers (HEWs) effectively applied health communication principles in addition to relatively good COVID-19 pandemic prevention techniques, such as using masks, sanitizers, maintaining social distance, washing hands, and other mechanisms while meeting with the community.

Nevertheless, the results ofthe FGD discussion were controversial, as the results from the MHCPs were on their side. There was a communication gap between the HEWs and the community. They cited the reason that they simply focused on their agenda rather than understanding the social, political, and economic problems of the community. This shows that there was a gap in knowledge in understanding the socio-psychological problems of society. Understanding the socio-psychological problems of society requires the ability to critically think about the shroud and the systems in which it exists.

Health organizational communication and controlling pandemics

The FDREMH prepared a response to the pandemic communication immediately after 23 March 2019, seeking to take preventive or control measures. Similar to other countries around the world, Ethiopia prepared a national pandemic prevention plan with the support of its pandemic communication and prevention team. The results could help the government take preventive measures and save the lives of society.

The Ethiopian Health Promotion Strategic Plan advocates that the nation must have a pandemic prevention plan at the national, regional, and local levels. The local community had more collaborative implementation of the plan at the health centers. The interview and FGD results show that local municipalities had to work with health centers to effectively control the COVID-19 pandemic.

The sample health centers did not consider these procedures; rather, they waited for the direction of their immediate boss or authorities on the

health directives of the administration. To disseminate the message, they mostly used interpersonal or group communication techniques involving house-to-house supervision.In contrast to this; the best method of communication is to use mass media with a high level of prioritization for both advocacy and persuasive communication for the implementation of pandemic prevention and control. The direct words of the study participants indicate that "I do not believe that there is a communication problem, but we believe that our communication is ineffective and ignored by the community. We think that our communication might be missing the context or losing the power of persuasion" (IHEW-DM5, 2022). These findings indicate that health communication was not effective in controlling the pandemic. It was basically a paradoxical interpretation of the message by the community. To some extent, health extension workers failed to understand the living context of the community.

Systems formulation and communication

The results of the study show that the health communication systems was once designed by the Federal Ministry of Health (FMoH) following the federal, regional, zonal, woreda, and kebele government structures in Ethiopia. This shows that health organizations were politically structured based on hierarchical order and geographical boundaries. In the study area, the health centers were structured according to the structure of the town's administrative structure at the kebele level. For example, the name of the health center refers to the name of the kebeles, except for the name of the health institution owned by the project.

The communication system was mostly unidirectional, which means that it flew from top to bottom and from the health center to the community. In addition, MHCPs rarely traveled to the health centers, at least in quarterly review meetings. The health communication system was mostly rigid, and the evaluation system was fixed in quarterly, biannual, and annual review meetings. The assigned communicators are the clinical nurses, HOs, and MPH specializations, which seemed more liberal, but there was no specialization in health communication in Ethiopia. The strategy also had a flaw in that it did not specify who the health communicators are or what knowledge and skills were required to work as practitioners. The overall health communication system   might have been an open or closed system based on the interaction between the organization and the environment. Health communication was full of uncertainty and requires frequent feedback from the public through active participation (Littlejohn, 2001). The health communication system might have been open or adaptable and closed to control the pandemic.

Open systems

This study further examined why the health centers did not use public feedback and effectively used communication systems to reduce uncertainty. Health organizations interacted with the social system and the external environment. It had to exist in a state of flux and was open to participating in society at large.

> As per the healthextension, workers and social health communicators in each of the health centers reflected that "the health centers prepare annual meetings and present the report to the people who are members of the system. Few older individuals or representatives of youth and women participated in the meeting. This indicates that there is limited community participation in health center programs, including those related to the COVID-19 pandemic (ISHCs & IHEWs interviews, 2022).

In addition, a smallnumber of community members participated in pandemic preventive campaigns and the interpretation of the messages distributed using different communication platforms. The present study simulated the federal structure of the FDREMH and the participatory development and democracy program with that in mind. The health communication system in Ethiopia was more symbolic. However, the feedback collected from such health communicators and planners might not have been used as an impetus for the next pandemic prevention program.

Two of the healthcommunicators also explained that health communication in Ethiopia was artificially led by politicians and dominated by their political points of view. Even SHC and HEW recruitments were made with political membership and support in mind. Additionally, the MHCPs were selected based on the same criterion instead of focusing on achieving health program goals. They explored that "in the health communication system, politics was everything, and health communication programs are advocates of political ideology" (Interview with HEWs, 2022). They argued that health services, communication, and any other developmental organizations and programs must be alienated from the political system of the government.

To ensure theindependence of health organizations in general and health centers in particular, the health communication system must be open and adaptive to the external environment. It should be multidirectional: from health organizations to the community, from

stakeholders to the community, from the community to health centers, and to the stockholders.

Closed systems

Health communication inthe study area sometimes followed a closed system.The pandemic preventive programs were designated by the Ministry of Health, and training was provided following thehierarchy from top to bottom through vertical communication. Internally, health centers reported tasks after their accomplishment from bottom to top without participation from the general public. The interview results demonstrated that the closed system communication process can be explained as follows: "The vaccine campaign is mostly designed by the Ministry of Health and distributed downward to the regional offices. Similarly, the offices distribute it to the health departments and hospitals. Then, the directives are distributed to the health centers, and a campaign might be held accountable to administer the vaccine. The reverse is true in the reporting system of the accomplishment or failure of health programs."

As explained above, thehealth communication system was not fully open or participatory. In the FGD discussion, HEWs argued that all health programs were not open to all sections of society, specifically vaccines. For example, the COVID-19 vaccine was designated for people aged 6 to fifty-five years. However, the polio vaccine was only for children under 15 years. These special health treatments did not mean that they were communicated only to these sections of the community. It is recommended that if information is communicated to the masses and members of the community who are outside of the categories, they need to share the information and encourage others to use the vaccine. It is a special privilege for such groups, and their awareness of others helps them participate in the communication process. In one way or another, health communication should be free and open to society, and health centers should receive feedback from the external environment. Additionally, health communicators and institutions should be used as examples for the next plan or program. In Ethiopia, the process of health communication is cyclical and progressive. Therefore, health communication practitioners must understand the nature of health communication. The same was true during the crisis and throughout the pandemic communication process.

Half hazard (mixed) systems

The study revealed thatthe local health centers used a mixed system of OHC. This means that it is necessary to have a mix of open and closed systems of communication with the community and its representatives.

Health organizationswere reported to employ open communication systems; "one of the branches of the health organizations wasaffected by other departments or branches of the organization." The health communicationmessage flow system followed a rigid structure only in the organizational framework.

The health centers inBahir Dar town followed open and closed systems, which are referred to as half-hazard or mixed systems. The health centers used interactive and one-way approaches. The interview and FGD data revealed that Bahir Dar and the surrounding health service delivery centers are currently implementing this mixed approach. This means that they used an open system and received feedback from the community during the preventive and control campaign for the COVID-19 pandemic; however, they only reported to the next hierarchy, and it continued to the highest ultimate decision-makers to be incorporated as a part and parcel of re-planning. Nonetheless, most of the study respondents agreed that the top hierarchy was not incorporated into the re-planning stage of the health strategy. Furthermore, public participation in preventive or combative strategies against the pandemic was symbolic and passive. According to the literature, any organization's feedback loop must be active and participatory to effectively control pandemics in the community.

The willingness and positive attitude of the community toward the program or strategy also play a significant role in the application of the health communication strategy. Specifically, the COVID-19 pandemic control strategy needs an active and participatory approach with high engagement from the local community at the local level. However, the local community remained active, non-participatory, and unengaged in the implementation of the COVID-19 preventive and control strategy. As a result, the pandemic remained uncontrolled or highly spread at the community level in Ethiopia.

Sources of information

There are differentsources of information on COVID-19 pandemic prevention and control techniques, symptoms, causes, and effects on human health conditions. These sources can be credible or incredible, depending on the type of communication. As stated in the National Health Education and Promotion Guide, understanding the social health problems of the community is half the way to solving them and fulfilling facilities.

Gathering information from health centers to distribute to the community is essential. As the data revealed, most of the sources of COVID-19 information were institutional sources from health and government officials (FGD, 2022). During the pandemic outbreak, many

sources were political elites from the government and top officials of health organizations. They frequently used mass media communication platforms, and the audience or receivers understood the political perspectives, resulting in every message being politicized.

Institutional source

The above informationflow loop indicates that the source of information for health centers and health communicators was from the top hierarchical institutions. For example, regional health offices, FDREMH, referral hospitals, zone and town administrations, health directives, Woreda offices, and health centers, as well as the WHO and other foreign organizations, served as information sources for FDREMH.

Most of the information came from health institutions at the top of the hierarchy and close to the political system. The results of the interviews with health communicators indicated that communication with health institutions was mostly instructional and involved a delegation of responsibility. Because the WHO declared an emergency and directed the preventive strategy, the media was also considered an institutional source. Media organizations accessed information and strategic documents, which they used to inform the local community and direct health institutions and the public in general. Such sources were mostly used during the outbreak, but the media was no longer a reliable source of information for the community. In practice, they framed and set political and market inflation agendas more than they did during the COVID-19 pandemic.

Policy documents

Government policymakers can provide essential guidelines for health workers, and health communicators can use them as guiding principles. In Ethiopia, public health intervention policies have focused on preventive measures rather than controlling the pandemic (Nigussie, 2021). The primary source of information demonstrates how pandemic health communicationshould be carried out at the health center level. Policy documents such as the WHO COVID-19 Preventive and Control Strategy, the Ethiopian National COVID-19 Pandemic Preventive Strategy (ECPPS), the WHO COVID-19 Vaccine Strategy (WHOCVS), the Ethiopian Health Extension Communication Strategy (EHECS), and other national and international health-related and pandemic-related documents have been used as sources of information for health communicators.

Health communicationpractitioners and the community were affected by the policy and the daily communication governed by the policy documents. The FGD discussion shows that the job descriptions of

the SHCs and HEWs were the basic governing documents of health communication during the pandemic. However, the directions given by top authorities are immediately implemented and communicated to the public. In general, policy documents are the governing rules for health communication practices. Their weaknesses and strengths are also evaluated based on guidelines, specifically strategic documents for health communication.

Political elites

The study respondents argued that health communication and events were led by politically assigned elites or the COVID-19 preventive and control task force. Task force members were not selected solely from health communication, health experts, or health organizational leaders (FGD, 2022).

> Most of the information is sourced from the training provided to us by the government. The training was conducted by the Amhara National Regional Health Bureau (ANRSHB) and a few nongovernmental organizations (NGOs) that are working with the bureau (Interview with SHCs & HEWs, 2022).

The training was primarily led by political leaders as well as experts in the field. It focused on health communication, pandemic management, and technical and skill-based aspects of the COVID-19 vaccine. Political agendas were heavily reflected in the training, and none of the health communicators were more involved. Political elites who led health centers believed that the most valuable pandemic control mechanism was vaccine delivery to the community. We largely ignored the educational communication aspects of pandemic control, which were the most effective means of changing the attitudes, beliefs, and behaviors of the study society.

Non-governmental organizations

The findings indicate that nongovernmental organizations (NGOs) placed greater emphasis on vaccines, medication, and case treatment in health centers than on financial and kit funding. However, they did not prioritize communication and education activities on causes, symptoms, or preventive measures. According to Kalam and Zakari (2016), NGOs should pay more attention to communication with health communication workers, including SHCs, HEWs, and MHCPs, in local health centers. Even if they support health communication activities, they create events that are directelly by the government or a regional health bureau. The

findings also reveal that NGOs' coronavirus pandemic interventions were led by the government with the agreement of procedural guidelines.

However, in some cases, they were used as a source of knowledge and skills in health communication to provide training to health extension and communication practitioners. NGOs generally supported the government's pandemic prevention and control programs and supplemented the gaps that were not filled by the government (SHC interviews, 2022). Therefore, collaborative efforts must be made to make the COVID-19 pandemic control strategy effective in the study area.

Expertise

Experts in each field were rarely used as sources of information to explain cases, symptoms, and preventive strategies in media briefings and campaigns. As the study interviews and FGD participants discussed, the community believed that the guests or experts from higher institutions had more authority than the SHC, HEW, and MHCP. The reason behind this was that the community in and around Bahir Dar believed that prominent strangers were health communicators.

At the time of the rapid spread of the COVID-19 pandemic during the outbreak, there was a preventive strategy based on the personal perceptions of individuals. The preventive strategy was strict and highly applicable at the stage of its outbreak. Most of the participants agreed that the applicability of preventive and pandemic strategies was stronger than that of the current application.

Most of the experts freely provided their views and thoughts to the community. However, they have currently reduced their involvement in the process of controlling the pandemic. Due to laboratory experiments, medical experts are the first and most reliable sources of knowledge and information on COVID-19. The laboratory tested the genesis and variants, symptoms, means of transmission, and all identified characteristics.

Furthermore, the number of cases was recorded and reported to communication practitioners and media organizations. Thus, we recommend reporting and identifying the unique characteristics of the virus, creating awareness, educating the public, and designing new preventive strategies at the local level.

**The implementation of the COVID-19 preventive strategy**

The initial stage of the preventive strategy was planning and preparing for the pandemic. The preparation included an analysis of the health communication gaps. After identifying the gaps in implementation, the COVID-19 task force provided directions, and the health centers

responded to the activities. The findings of the study indicated that early implementation of the strategy in the local community created the possibility of controlling the pandemic.

However, the six sample health centers did not communicate about or implement the COVID-19 preventive strategy. They were waiting for the top-level health organizations to direct and provide instructions on how to implement the strategy. They also received financial and material support from the top hierarchy of health institutions, such as the Federal Democratic Republic Ministry of Health (FDREMH), Amhara National Regional State Health Bureau (ANRSHB), Bahir Dar Town Administration Health Directives (BDTAHD), and Woreda Health Offices (WHOs). In addition, they received directions, toolkits, training, and any necessary support from NGOs and the government.

This shows that pandemic prevention and control require collaborative work with stakeholders. The strategy would be implemented through joint venture applications from health centers, nongovernmental organizations, and the government. The literature has demonstrated that the implementation of health communication and pandemic prevention strategies depends on the established system. However, system-based collaborative task force teams must have shared responsibility and create consensus among members to implement a common pandemic prevention strategy (Ellingson, 2002).

At the Bahir Dar health center, however, health communicators were not working in a team spirit and had differentiated their hierarchy of authority and responsibility. SHCs were responsible for receiving pandemic-related messages from health directives and training or sending them to HEWs. HEWs were primarily responsible for implementing and contacting MHCPs and engaging directly with the community. The process of implementing the COVID-19 pandemic strategy was considered a cyclical process.

Figure 1
The Cycle of COVID-19 Strategic Communication
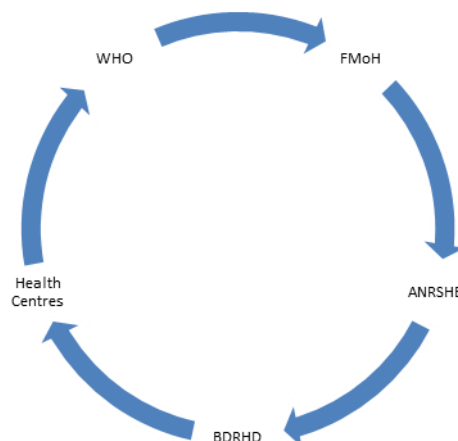
The above figure shows that the COVID-19 pandemic prevention plan began when the WHO declared it an international problem and was implemented throughout the world. In the first cycle, the WHO planned prevention and control strategies. Then, they trained and dispersed to different countries, preparing the national prevention plan based on the geopolitical context. The FDREMH then provided training to the regional task forces and representatives of the regional bureau. The regional health bureaus adopted the national strategy for the regional context. Subsequently, the plan is sent to the zone Administrative Town Health Directives (ATHD) and Woreda Health Offices (WHOs) in the country. Finally, woredas and administrative towns send their products directly to health centers and implement them at the lower level.

The public's information access to the pandemic preventive strategy

According to the FGD findings, the public learned about the COVID-19 pandemic strategy directly from HEWs' advocacy from house to house. In addition, health centers provided training on MHCPs at the community level. The MHCPs, on behalf of the community, interacted with health communicators and rarely provided feedback, participated in pandemic prevention campaigns, and mobilized others. Sometimes, community volunteers participated in the pandemic prevention process and improved the entire community for the effective implementation of prevention strategies (FGD, ISHCs, 2022).

However, the community used media organizations as a means of accessing information about pandemic prevention strategies (Interviews with MHCPs, 2022). The FGD discussion also revealed that most of the urban community had access to television sets, which were used as a source of strategic information for the COVID-19 pandemic. Additionally, social media sites such as Facebook, YouTube, Twitter, and WhatsApp were the second most common sources of health communication policy and strategy. Furthermore, the findings revealed that the third source of information was radio, and these individuals negligently looked for implementation.

It is obvious that access to information helps the community make informed decisions and guides them on how to use preventive techniques. However, the interpersonal face-to-face communications made by the HEWs were perceived as a means of searching for business rather than receiving and implementing knowledge and understanding. They misunderstood and veered toward political and personal interests. Despite having access to or receiving the pandemic prevention strategy, the majority of the general public did not interpret the COVID-19 prevention and control strategy. Rejection and misinterpretation are the results of political, religious, and cultural connotations.

Health extension-assisted communication (HEAC) and control

The existence of health extension communication workers (HEWs) is an opportunity to control malaria in the local community. Similarly, the existing social health communicators (SHCs) and health extension workers (HEWs) were seen as an opportunity to combat or control the COVID-19 pandemic in the town of Bahir Dar. The pandemic primarily requires a high level of participatory communication and house-to-house follow-up (Adesokan, 2022; Tatkare et al., 2021).

They accessed preventive and communication strategies for pandemic communication purposes and advocated for the local community. The HEWs played an advocacy and mobilization role in the community at the grassroots level. Another role was to gather public opinion and send it to the next highest authority, namely health centers and health directives. This shows that HEWs served as a bridge between health centers and the community in the study area.

One of the responsibilities of HEWs is pandemic prevention and control before it occurs in the community. After the pandemic outbreak at the local level, first-hand information was relayed to government bodies through reports, and they continued

communicating with the affected community. They primarily delivered Primary Health Care (PHC) services to the community, and whenever intervention was needed, they referred cases to health centers or hospitals (Amina et al., 2013, p. 15).

As a result of the study, health communicators served as information providers for decision-makers, political leaders, and experts in the center. Therefore, we can conclude that HEWs were the foundation for implementing pandemic intervention and control strategies. Another significant advantage was the existence of a map-based health communication army at each of the health stations. After the similes of the 2018 political reform, it had yet to be properly organized and functional (Interview with HEWs, 2022). Other focuses included family health, hygiene and environmental sanitation, and providing health education and communication. The interviews and FGDs revealed that the most valuable job for HEWs was pandemic prevention and control through the use of health education and communication.

Role models in health communication

The research defined them as Model Health Communication Participants (MHCPs) who were disintegrated and not functional in and around Bahir Dar in six health centers. According to Keat and Xian (2022), athletes and women were role models for applying and supporting COVID-19 prevention and control strategies.

> Prominent older and religious persons were used as role models in health communication and pandemic control processes (Interview with HEWs, 2022). The health communication role models in the community are selected based on their good behavior, public standing, and leadership, role within the community, perseverance, and discipline.

The HEWs organized them for the effective application of health communication strategies, including pandemic prevention and control strategies. The media also used these individuals as sources of information, and their prominence made news. Preventive campaigns, advocacy campaigns, and mobilization campaigns were at the forefront of the community. However, the MHCPs in groups one to five were destabilized and not functional due to the political affiliation of their establishment. Older religious people, artists, athletes, football players, and other leaders of public associations were still used as actors in the pandemic communication process in the town of Bahir Dar. This has

continued since the outbreak of the pandemic, which is the reason for the persistent nature of the pandemic in the urban community of Bahir Dar.

Participatory health communication

Health communication programs cannot be implemented solely by health institutions; they require the participation of the public and stakeholders. The results of the study revealed that in the administrative city of Bahir Dar, which has six health centers, public participation is very low. This was the case not only for pandemic prevention but also for any social health program, including family health, environmental hygiene and sanitation, and health education and communication programs.

In Ethiopia, the COVID-19 pandemic prevention and control strategy involved the participation of various stakeholders for effective control. Educational institutions (schools), agriculture bureaus, financial institutions (including transportation and savings institutions), media organizations, NGOs, and other government or private institutions were typically the first stakeholders. In addition, religious institutions, civic organizations, political parties, and community associations must participate in the implementation of pandemic prevention and control strategies.

However, qualitative data from health communicators revealed that stakeholder participation was very low and ineffective in the last three years since the outbreak (both interviews and FGDs, 2022). Health communication must be participatory and motivate people to apply pandemic prevention strategies. Health promotion involves two basic approaches: artistic techniques and behavioral influence (changing the public's attitude) toward the intended goals of controlling the pandemic.

On the other hand, health communication used a participatory approach. It facilitated collaborative health education and reflected the needs and preferences of the local community (Amina et al., 2013). In contrast, this research revealed that the health communication approach in Bahir Dar was non-participatory and focused on simply delivering messages without contextualizing them. They did not use motivational, technical, or artistic approaches. Most of the time, the communicated message did not achieve its goals and objectives when evaluated according to WHO standards.

The study revealed that current market inflationor economic factors affect community participation in health or pandemic prevention or control programs. This indicates that the Bahir Dar community strived to meet its economic needs while ignoring the influence of the pandemic on their lives. In fact, health communication is perceived as artificial or

symbolic in the Bahir Dar urban community. The most influential factors were political influence in each village and misinterpretation of COVID-19-related messages.

Health communication campaign during the COVID-19 pandemic

According to Atkin and Rice (2009), one of the basic health communication perspectives that focus on the influence of attitudes, beliefs, and behaviors of the affected community is health communication campaigns and advocacy. A campaign in health communication is a phase-by-phase concerted transmission of messages aimed at solving social health problems such as pandemics. It may be utilized in the design stage, practical implementation, monitoring, and evaluation management processes. Here, advocacy is also the way in which health communication techniques influence public opinion or correct incorrect perceptions of the community about the pandemic.

> At the stage of its outbreak, the media and health centers' communication content included advocacy and campaign-based pandemic preventive messages. For example, the causes, symptoms, means of transmission, and preventive techniques were recommended to the community. Furthermore, the government declared a state of emergency and restricted social, political, economic, and cultural events. During the emergency, health communication and mass media messages were campaigns intended to achieve the goals and objectives of the emergency declaration (SHCs, HEWs, MHCPs interviews & FGDs, 2022).

According to the findings of the study, the campaign, advocacy, social mobilization, and collaborative health communication strategies were effective. However, these elements of health communication were only effective at the time of the COVID-19 outbreak, and currently, they are not being applied in the local community.

The current spread of the COVID-19 pandemic requires a health communication campaign that introduces new omicron variants and preventive strategies. It makes communication more persuasive and changes the views of the community. The campaign, social mobilization, and collaborative communication induced the local community to be concerned about and prevent the pandemic. Advocacy health communication also influences the perceived negative attitudes, beliefs, and behaviors of the local community. In Ethiopia in general and the administration of Bahir Dar in particular, an enforcement, preventive, and

control strategy for the COVID-19 pandemic is essential to save people's lives.

Therefore, campaigns, advocacy for pandemic prevention and control, social mobilization, and collaborative and participatory health communication should be implemented in Ethiopia for effective control of the pandemic. In general, both health institutions and the community must be free from any political interference and neutrally enforce the preventive strategy. Understanding the current socioeconomic conditions of society is necessary. Therefore, the pandemic may have been controlled in the study area or in Ethiopia.

Behavioral change communication for COVID-19 pandemic control

According to the FDREMH (2020) Strategic Plan, communication about behavioral change required the most valuable effort in health communication during the COVID-19 pandemic in 2020.

Pandemic communication focused on the attitudes, beliefs, and behavioral changes of the local community. In this case, most interpersonal communication influenced the behavior of individuals. As noted above, health extension communicators behave in a friendly manner and create family relationships with the community. Through their communication, HEWs influenced the misconceptions of community members. As part of the HEW communication process, most of the content communicated is educational and persuasive rather than merely providing information for interpretation.

> The study revealed that the government exerted forced compliance by changing community perceptions and behavioral change communication with society. The process of behavioral change is more covert and resistant than in the case of the COVID-19 pandemic. The intervention of health communication must be analyzed based on public opinion and feedback from the community. The HEWs are educating the community, as the coronavirus is an infectious and deadly pandemic. They only receive and impart information to the community, but the community itself interpreted and consumed the pandemic messages (Interviews of the HEWs, 2022).

In addition, in a heated debate, the FGD discussants disclosed that public communication employs persuasive and behavioral changes. Discussions or arguments indicated that there was no effective communication about behavioral change in the health sector in the study area. The community connected its perception of the pandemic with

political, religious, and cultural perspectives. They were more ignorant than those who accepted the severity, impact, and capacity to take the vaccine and participate in the campaign. The local community has restrictive attitudes, beliefs, and behaviors toward the pandemic itself and the vaccine. It required highly affective and persuasive communication to change the negative behaviors of individuals in the community. In their opinion, the first contact of the health communicator must be with older people, religious leaders, leaders of community associations, and prominent individuals. Then, we had to use them to persuade their families and neighbors. Lastly, members of the community were affected by other members' behavioral changes, and health communication became successful (FGDs, 2022).

The findings show that health communication played a role in changing incorrect perceptions to positive perceptions and encouraging people to use prevention strategies and take the pandemic vaccine. In general, health communication promoted positive behavioral change to enable the prevention of the COVID-19 pandemic in the community.

The gap in health communication in the study area was that health communicators themselves had negative perceptions of the COVID-19 vaccine and the severity of the pandemic. The reality is that SHCs, HEWs, and MHCPs came from the community; hence, they had the same negative or incorrect perceptions about the pandemic, and they did not clearly communicate with the community. They acted similarly to the community when they were in the local area and changed when they were in health centers. To this end, health communication reform should start with the health communicators themselves, and employees must be specialists in the health communication field.

Conclusion

The COVID-19 pandemic was a worldwide pandemic that has spread to almost all countries around the world and caused millions of deaths. The pandemic rapidly spread and changed its variants from time to time. The variant prevalent when this study was conducted was Omicron, which was widespread in Ethiopia. However, the local community had little knowledge about these variants. However, each of the variants had a different level of severity, infectious nature, transmissibility, impact on human immunity, and vaccine resistance. Moreover, the community perceives that there is no COVID-19 pandemic, and they negligently observed its spread. Furthermore, in Bahir Dar, the vaccine intake capacity was only 10%, and the vaccine was rejected based on political, religious, and cultural affiliations. The community was considered a laggard and

hesitated to accept the vaccine and other new ideas related to pandemics. Furthermore, the study revealed that health communicators and the general public were unaware of these variants and their characteristics. Although health communicators provide knowledge and awareness to the community about the pandemic, they have little knowledge and understanding of SARS and MERS, the former of which were identified in the outbreak stage. In this situation, health communication can be used as an education and communication tool to fill these knowledge and awareness gaps. It played an intervention role and includes providing information, education, and persuasion; changing attitudes, beliefs, and behaviors; and solving community health problems. Consequently, health centers used a mix of closed and open health communication systems called the half-hazard system and use linear and interactive approaches. The closed system used in the pandemic preventive and control strategy flew from the Federal Ministry of Health to the health centers, and vice versa for the reporting systems. Prevention and control strategies became available to the public at any level of the health organization and received feedback from the public. Similarly, at the bottom line of communication, health extension workers and model health communication participants in the community collected public opinions and reported them to the next hierarchy. Then, the middle hierarchy of the health organizations reported to the ultimate highest decision makers to be incorporated as a part of the pandemic prevention plan or strategy. Health centers were institutions where the pandemic strategy was implemented directly in the local community. Campaigns, advocacy, social mobilization, and collaborative health communication strategies were effective. However, currently, they are not used by health centers.

Strengths and limitations of the study

One of the strengths of this study was that it explored health communication strategies to address the risks of COVID-19 in health centers in Ethiopia, which is important for the scientific community who may seek to investigate the situation partly in a country that has a very vulnerable healthcare system. The limitation of this study was the lack of inclusiveness from the community since it has focused on health professionals in health centers. Moreover, professionals from hospitals were not included in the study.

Declarations
Consent

This research study was performed in accordance with the principles stated in the Declaration of Helsinki, and ethics approval was not obtained because the participants willingly shared their experiences based on oral consent before the data were collected. Additionally, proper anonymization of the study's participants was provided, and oral informed consent was also sought at the time of the first data collection. The Amhara region health office provided consent to open access the research setting, which was also carried out in accordance with the office regulations. Above all, the Department of Journalism and Communication at Bahir Dar University granted permission to conduct the research.

Conflict of interest

The authors declare that there are no conflicts of interest.
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