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ORIGINAL RESEARCH

Receptivity of Governmental Communication and Its Effectiveness During COVID-19 Pandemic Emergency in Vietnam: A Qualitative Study

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Abstract *Vietnam is considered as one of the countries with the earliest and most effective responses to the outbreak of 2019 novel coronavirus disease (COVID-19), a pandemic with acute respiratory syndrome caused by the new strain of coronavirus (SARS-CoV-2). An important contribution to the overall success is the effectiveness of the governmental communication strategy in achieving the desired cognitive, affective, and behavioral outcomes. Analysis of the qualitative data collected from twelve focus group discussions with a total of 60 participants revealed that due to the government's communication efforts, Vietnamese people have adequate information/knowledge about the COVID-19 pandemic, and majority of them experience low emotional levels of anxiety, fear, dread, stress, and panic. Moreover, the communication strategy has helped to form both health-promoting and safety-seeking behaviors among the community. Further, the characteristics of an effective communication strategy such as reliable sources of communication, usages of multiple social media channels, and transparent message contents in the form of infographic or video clips are identified.*

Keywords Channels · Communication strategy · COVID-19 · Messages · Qualitative perspective · Sources

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Introduction

Communication strategies play a critical role in health management that aims at providing sufficient knowledge, forming the right attitude and guiding appropriate behavior of people concerning health issues, particularly infectious diseases or epidemics (Glik 2007; Rimal and Lapinski 2009). Confronted with the worldwide COVID-19 epidemic, governments and public health organizations have recognized the importance of communications and implemented communication campaigns that aim at not only controlling but also preventing the outbreak of coronavirus disease. Communication activities are assessed as one of the most effective non-pharmaceutical interventions (Haug et al. 2020) that has been widely used to inform and educate the public about the pandemic and to guide behavioral changes on how to combat the resurgence of such worldwide epidemic (Bavel et al. 2020; Pollack et al. 2020). However, previous studies have demonstrated that the influences of health communication strategies on the public are mixed (Haug et al. 2020) and indicate that building

trust, credibility, honesty, transparency, accountability, and understandability of COVID-19 pandemic information is a challenging task (Wong and Jensen 2020; Polas and Raju 2021), especially when these campaigns are embedded in the context of conspiracy theories, fake news, and misinformation (Bavel et al. 2020). Thus, it is essential to assess how the public perceptions of governmental communications influence their cognitive, affective, and behavioral responses, thereby providing meaningful implications for effective governmental communication strategies.

The existing health communications studies have investigated the impacts of the independent aspects of communications such as information sources (Nazione et al. 2021), information channels (Chen et al. 2020; Raamkumar et al. 2020; Zeemering 2020), messages (Ma and Miller 2021) on the public's knowledge, risk perceptions, behavioral and emotional responses. Particularly, mediated (for example, print newspapers, television, and the Internet) and interpersonal information sources (for example, friends and family) demonstrate to have impacts on risk and general efficacy perceptions, which in turn lead to preventative behaviors (Nazione et al. 2021). Several studies also indicate that Web 2.0-based social media platforms, especially Twitter (Zeemering 2020), Facebook (Raamkumar et al. 2020) and Sina Weibo (Chen et al. 2020) provide governments with the best opportunity to communicate to and engage with the public. The nature of reference point (e.g., self-reference or self-other reference; Ma and Miller 2021) and content of the message (e.g., alarming or reassuring message; Rao et al. 2020) have been found to have influences on the targeted public's risk perceptions and coping responses. Despite the research regarding the impacts of specific communication component during the current pandemic, little is currently known about the perceptions of whole-of-government communications (Haug et al. 2020) that can be aggregated to assess communication activities accurately and to provide a complete understanding of the effectiveness of government communication strategies (Zeemering 2020).

Governments worldwide have enthusiastically applied communication strategies to educate, inform, and empower communities with correct information about COVID-19 (Haug et al. 2020). Local government agencies in the United States such as Atlanta, San Francisco, and Washington, DC have used Twitter to launch broad public communication efforts about the COVID-19 pandemic (Zeemering 2020). The prime minister of New Zealand, during the COVID-19 pandemic, has spoken in casual livestreaming sessions on social media and formal televised briefings with communication messages firmly yet empathetically to engage citizens in public (Han et al. 2020). The National Health Commission of China has used Sina Weibo, one of China's biggest social media platforms, to promote citizen engagement during the COVID-19 pandemic (Chen et al. 2020). In Vietnam, the government communication activities have helped control and prevent the epidemic effectively (La et al. 2020), but there are still some criticisms regarding the timeliness, ease in accessing, honesty, and reliability of media communications from official sources of the Government, the Ministry of Health, or Centers for Disease Control and Prevention (Black 2020). Moreover, when the COVID-19 pandemic broke out and threatened public health, misinformation and fake news have also spread quickly, causing disturbance and difficulty for the public to distinguish facts from less reliable sources of information, significantly affecting the effectiveness of communication strategies to control and prevent the pandemic (Bavel et al. 2020; Jungmann and Witthöft 2020; La et al. 2020). Most often, due to the nature of an unknown and emerging hazard, even when the government agencies disseminate factual information about COVID-19, the public perceptions and coping responses still vary significantly across individuals (Malecki et al. 2020). Systematically assessing the public perception about government communications and understanding its impact on cognitive, affective and behavioral responses is therefore of prime importance in the context of COVID-19. Thus, the overall objective of this study is to apply the communication/persuasion framework and behaviorist perspective to evaluate the public perceptions about the Vietnamese government communications and to explore how their coping responses could, at best, provide insights into the effectiveness of health communications during the COVID-19 pandemic. Thereby, a number of lessons will be drawn so as government agencies can prepare better communication strategies capable of controlling and preventing other diseases similar to COVID-19.

Literature Review

Communication Strategies for Health Management

Communication strategies for health management are purposive attempts of the state/government agencies to communicate about infectious illnesses, diseases, or epidemics to individuals and communities through traditional and modern channels such as mass media and social media (Servaes and Malikhao 2010; Rossmann 2017). According to Rossmann (2017), a health communication strategy starts with the formation of a communication idea and plan, including clarifying the campaign objectives and budgets, followed by the identification of target audiences for the media campaign. Then the message content is designed and communication channels are selected (Rossmann 2017).

Later on, the communication strategy is implemented and monitored (Rossmann 2017). Finally, the results are evaluated in order to improve the ongoing strategy and lessons drawn for the next media campaign (Rossmann 2017). While reviewing health communication campaigns, it is important to evaluate goals such as disseminating health information, raising awareness, changing attitudes, persuading or promoting healthy behaviors and alleviating unhealthy behaviors (Snyder et al. 2004; Fish et al. 2017).

Previous studies (e.g., Kreuter and McClure 2004; Elder et al. 2009) have demonstrated the evaluation of communication strategies, in general, and health communication strategies, in particular, is often based on McGuire's (1989) communication/persuasion model. The effectiveness of a health communication strategy is measured through the extent to which the communication strategy achieves desired purposes or intended outcomes (Fish et al. 2017). According to Elder et al. (2009), the communication/persuasion framework considers how five components (i.e., sources of communication; the message itself; channels through which the message is sent; the characteristics of receivers; and environment/destination) of a public health communication campaign can change attitudes and behaviors (Kreuter and McClure 2004). Among those components of the model, the three components of source, message, and channel factors can be manipulated by health management organizations (Kreuter and McClure 2004; Oetzel et al. 2007). In contrast, the other two components are complicated to control because they are strictly related to the recipients/audiences as well as the environment of the recipients/viewers (Kreuter and McClure 2004; Oetzel et al. 2007). Therefore, the effectiveness of a health communication campaign tends to depend on the selection of a credible source (i.e., who is the messenger), an appropriate message (i.e., the characteristics of the content and/or structure of the message), and the optimal use of communication channel (i.e., the means of communicating the message).

Additionally, experts argue that flexibility in communication can improve the effectiveness of communication strategies (e.g., Bamel et al. 2013; Vaishnavi and Suresh 2020). Conceptually, when a system is capable of exercising freedom of choice, it exhibits systemic flexibility (Sushil 1997; Shukla et al. 2019). Consequentially, understanding stakeholder needs are important in the development of strategies (Sushil 2014; Elias 2019) and it applies to health communication strategies as well. However, in each audience segmentation, the pre-existing knowledge, emotions, risk perceptions, beliefs, values, motivations, willingness to pay attention to and process communication messages, and appropriate dissemination channels will be quite different (Slater 1999). Therefore, health communication scholars suggest that the campaign planners must ascertain the key knowledge, emotions, attitude, behavioral or structural obstacles in the way of the audience members adopt the behavior (Cairns et al. 2013) to develop strategies for overcoming these obstacles. The classic stimulus–response mechanism offers a conceptual lens to explore how people's thoughts, emotions, and behaviors are reinforced in the face of information received by media.

Behaviorist Stimulus–Response Perspective

Behaviorism adopts a stimulus–response mechanism of human information processing that can "explain in terms of the external stimuli to which individuals are exposed and the responses that these stimuli evoke" (Weilbacher 2003, p.230). Stimulus sets refer to the environment (i.e., media inputs; Anderson 2020) as encountered by individuals (Jacoby 2002), while response sets refer to individual cognitive, emotional and behavioral responses that evoked by these stimuli (Tang et al. 2015). This traditional behaviorist psychological mechanism assumes that communicators can influence recipients through exposure to communication sources, channels and messages (Weilbacher 2003; Kerr and Schultz 2010). Through an observable, objective, defined, or identifiable pattern of thought processes, the recipient moves on the way to cognitive, emotional and behavioral responses (Stammerjohan et al. 2005; Kerr and Schultz 2010; Guo et al. 2018). Thus, communicators can 'control' the targeted audience's responses through communication exposure (Anderson 2020), which can be measured by recall and regurgitation of communication sources, channels and messages (Kerr and Schultz 2010).

For the purpose of this study, government communications are taken to represent the 'package of stimuli' that involves imperative elements, such as sources, channels, and messages. In line with the expectations of the behaviorist stimulus–response view, people's knowledge of health risks and benefits of different health practices, cognitions, emotional coping responses, adaption, and change are embedded in and influenced by communication exposure (Oetzel et al. 2007; Elder et al. 2009). Indeed, through effective communication strategies, health communicators can create and regulate environmental stimulus that aims at attaining people's cognition, affect, and action (Rice and Atkin 2009; Rossmann 2017). Cognitive aspects include individuals or communities' knowledge, awareness, risk perception, attitudes, and beliefs of public health. Similarly, affective aspects comprise emotional responses such as trust, fear and uncertainty regarding the communicated health issues. Likely, behavioral outcomes refer to changes in people behaviors and habits to improve their

health or avoid adverse health effects such as washing hands with soap and sanitary liquid or wearing face masks.

The Context of COVID-19 Pandemic and Communication Activities of Vietnam

COVID-19 is an epidemic caused by a new form of coronavirus (SARS-CoV-2) that causes severe acute respiratory syndrome. The ability of medical interventions to treat COVID-19 is limited; the primary strategy to control COVID-19 is non-pharmaceutical interventions (Haug et al. 2020).

On December 31st, 2019, for the first time, unexplained pneumonia was detected in Wuhan, China, and reported to the World Health Organization (WHO) office in China. Later, in early January 2020, 41 patients were confirmed to be infected with a new strain of coronavirus (officially known as SARS-CoV-2), causing COVID-19 (WHO 2020a; Huang et al. 2020). Although the virus spread rapidly in Wuhan, the leaders of most countries have ignored it despite an intelligence source warning that it could be a catastrophic global epidemic (Harris et al. 2020).

The consequences of the COVID-19 pandemic crisis in late 2019 and 2020 were devastating. As of May 25, 2020, only 6 months after the detection of the virus, COVID-19 has appeared in 213 countries and territories, making more than 5.4 million people infected and over 345,000 dead people worldwide. China, U.S, Italy, UK, and Spain are among the most affected countries (Gutiérrez and Clarke 2020). During 2020, this number was increasing daily. COVID-19 has caused a huge negative impact on economic, political, and social issues (Evans and Bahrami 2020; Paul and Chowdhury 2020; Elias 2021; Paramita et al. 2021).

Vietnam, as a neighboring country with a large volume of trade with China, is one of the first countries to confirm COVID-19 infection; the first two patients (both were Chinese travelling or living in Vietnam) were found on January 23rd, 2020. Despite being assessed as a country with limited medical resources and a high risk of COVID-19 infection and outbreaks, the Vietnamese government showed its determination to fight the epidemic from the beginning (La et al. 2020) and the daily cases Number of new COVID-19 cases detected per day in Vietnam only increased slowly. As of December 3rd, 2020, a total of 1046 cases of COVID-19 was confirmed in Vietnam. 35 deaths were recorded, and 755 cases have been recovered and discharged from hospitals and the active patients were strictly quarantined. These numbers were considered as low and, compared with efforts to prevent COVID-19 around the world, besides the success of countries like Germany, Taiwan, and South Korea, the Vietnamese reactions in the prevention and control of this century COVID-19 are considered timely and effective.

Communication Activities to Prevent and Control the COVID-19 Pandemic in Vietnam

The epidemic prevention and control can be divided into 6 time periods to review major media/communication activities of the Vietnamese government agencies.

Period 1—Prior to the first confirmed case on January 23rd, 2020 The media work was limited (La et al. 2020), with only a few cases of unexplained pneumonia detected in Wuhan (WHO 2020b). However, a rapid response could be seen through the Vietnamese Ministry of Health's decision No. 156/QD-BYT dated January 20th, 2020 pertaining to a "Plan to respond to an acute pneumonia caused by a new strain of Coronavirus" (MOH 2020). In this plan, the communication strategy is an important part with detailed contents for two epidemic scenarios "when there is non-invasive COVID-19" and "when there is an invasive COVID-19". The decision covers two important communication contents that aim to: (1) update the situation of the COVID-19 and (2) provide guidance to prevent and control COVID-19 depending on its seriousness and magnitude. During this time, a large amount of information was passed from the press and government agencies related to the measure to close schools for all levels from kindergarten to university to prevent COVID-19 (La et al. 2020; Le et al. 2021).

Period 2—From January 23rd to February 26th The first 16 patients were tested and treated until they were discharged (Le et al. 2021). During this period, the frequency and scale of communication activities have been carried out more frequently. Information about new cases was quickly diffused on mass media and social networks (Bucatariu 2020). COVID-19 prevention and control recommendations were widely disseminated through the website of the Ministry of Health, the website of the Department of Preventive Medicine, and through the mass media (e.g., television, radio, and newspapers), a variety of social network (e.g., Facebook, Zalo), and new media (e.g., SMS, TikTok, and phone apps). Among them, the outstanding success was attributed to the propaganda campaign initiated by the National Institute of Occupational Safety and Health who contacted musician Khac Hung to rewrite the lyrics, singers Min and Erik to perform the song "Ghen Co Vy" and dancer Quang Dang to choreograph the handwashing dance moves to spread the words about the prevention of this dangerous COVID-19 through social networks (YouTube, Facebook, Instagram, and Tik Tok) starting on February 23, 2020. The handwashing song and dance have had a strong spillover effect through famous television channels in the world and social networks,

making the propaganda of 5-step handwashing as recommended by the WHO to prevent COVID-19 understandable and easy to implement. Also, the COVID-19 information in the world has been updated regularly to enhance the community awareness about COVID-19. Besides, information about the prolonged school closure was updated continuously (La et al. 2020).

Period 3—From February 27th to March 5th There were no new cases; communication activities have been maintained to update the epidemic situation in Vietnam and around the world while focusing on propagating the recommendations and guidance on COVID-19 prevention measures (La et al. 2020; Le et al. 2021). Controversial information has been revolved around whether schools should be opened.

Period 4—From March 6th to April 30th Patient 17th was tested positive and then there was a wave of infected cases from arriving travelers and those returning to Vietnam, causing a total of 270 cases during this period. Not only schools continued to be closed, but a series of restrictive measures discouraging people to go out were also implemented. The Vietnamese government started gradually implementing stricter measures to control COVID-19, and culminated in Directive 16 to order a nationwide social distancing campaign from April 1st to April 15th, then extended until April 30th. This was the period when mass media activities aimed at continually updating and detailing the COVID-19 situation. The coverage and intensity of COVID-19 information on the mass media and social networks increased exponentially. Communication was strengthened by launching hotlines of the government agencies to receive information about the epidemic. Besides, the Vietnamese health authorities and government agencies had established a strong interaction with the citizen through social networks and online channels so as to update the COVID-19 situation and transmit instant and urgent messages regarding COVID-19 quickly (La et al. 2020; Le et al. 2021).

Period 5—From May 1st to July 24th The end of the social distancing campaign, there were no new case of locally transmitted infections, but some cases of imported infections was regularly recorded due to overseas Vietnamese people returning to their country. Social distancing measures had been gradually eased. Communication activities on epidemics were significantly reduced to only some updated information about the domestic and international epidemic situation, and updated vaccine research results. The message for the Vietnamese people during this period was mostly unintended because COVID-19 could come back anytime (La et al. 2020; Le et al. 2021).

Period 6—From July 25th until now: 'Patient 416' was the first locally transmitted case which was detected after 99 days without community transmission cases (Pearson 2020). This was the start of a resurgence of COVID-19 in Vietnam with 333 cases added, spreading in 13 cities and provinces. With experiences learned from the last wave, Vietnamese government issued the guideline to circle the zoned COVID-19 hit areas rather than a nationwide outbreak containment campaign. Similar communication activities as those in period 4 have been applied. Outbreak containment measures such as lockdown, social distancing, closures of non-essential services, no large gathering, stay-at-home were imposed in the areas where cases have been detected. This time, one important message from the government focused on measures to fight the pandemic outbreak effectively in tandem with minimizing the impacts on people's lives and socio-economic activities (e.g., Vietnamnews 2020).

Main channels, frequency, content and theme analysis of official communications during the COVID-19 pandemic in Vietnam are described in Table 1.

Research Methodology

Research Design

In order to thoroughly collect the public perceptions about the Vietnamese governmental communication and assess its effectiveness during COVID-19 pandemic, a qualitative approach was applied. Focus group discussion (FGD) was used as a technique for data collection because it helped participants share in-depth information about their views regarding the studied issue (Elias and Davis 2018). Also, the group dynamism through social interactions among participants were exploited, thus the collected data was enriched and diversified (Ritchie et al. 2013). Besides, the grounded theory approach was also used to analyze data (Strauss and Corbin 1994). The application of both focus group and grounded theory methods motivated participants to provide discussions of their own perceptions and viewpoints that were then incorporated into the interpretations of the research.

Participants

Participants in FGDs were selected using the purposive sampling method (Miles et al. 2014). Criteria for selecting participants were predetermined because sampling in qualitative research should base on background theory, study purpose, research questions and issues (Boddy 2016; Flick 2018). In the current study, participants had to meet the following criteria: (1) undergone all the time periods of the COVID-19 epidemic in Vietnam as aforementioned, and (2) having received information about COVID-19.

Table 1 Main channels, frequency, and content and theme analysis of official communications

Platform/channel	From	Frequency	Tone of voice/mood	Format	Content/themes
Government Portal	www.chinhphu.vn, www.gov.vn, https://baochinhphu.vn, http://media.chinhphu.vn	Daily	Factual, reassuring, strict	Text, some visual (infographic)	Updates on outbreak, prevention, warrants, endorsement of local government
Ministry of Health Portal	https://moh.gov.vn/, https://ncov.moh.gov.vn/, http://vncdc.gov.vn/, https://ncov.ehealth.gov.vn/	Daily	Factual, reassuring, strict	Text, some visual (infographic)	Updates on outbreak, prevention, warrants, endorsement of local government
State-influenced media	https://tuoitre.vn/, https://thanhnien.vn/, https://vnexpress.net/, https://vietnamnet.vn/, etc	Daily	Factual, reassuring	Text, some visual	Repeats news (sometimes verbatim) from Government Portal: updates on outbreak, prevention, warrants, endorsement of local government
SMS/ Text message	Ministry of Health	Every 2–3 days, timely to address developments	Factual, reassuring, strict	Text, some with links	Prevention, clarifying/dispelling rumors, warn against fake news, threaten if non-compliance, shared responsibility, endorsement of local government
	Ministry of Information and Communications	Timely to address scam, encourage donation	Reassuring	Text, some with links	Shared responsibility (donation), warn population against scams
Facebook	Government Information https://www.facebook.com/thongtinchinhphu	As needed	Factual, reassuring	Text, some with links, some visual (infographic)	Repeats (usually verbatim) from Government Portal
	Current Affairs VTV https://www.facebook.com/thoisuvtv/	Several times/day	Factual, reassuring	Short videos, text	Repeats content from VTV news (National TV). Prevention, rules, FAQ, shared responsibility, war rhetoric
TikTok	Ministry of Health's TikTok account (@boytevietnam)	Several times/day	Fun, engaging	Mainly videos from users and celebrities	Campaign #ONhaVanVui (#StayHomeIsFun) Campaign #GhenCoVy (#VuDieuRuaTay #HandWashingDance) Users share moments at home, dance challenge, etc Winner aired on TV. KOL's song about "Why aren't you home yet?"
YouTube	Ministry of Health's YouTube account (BộYtế)	Several times/day	Fun, engaging	Mainly videos from users and celebrities	KOL's song about "Ghen Co Vy" ("Jealous Coronavirus"). Viral video "Hand Washing Dance"
Zalo (Vietnamese social media app)	Official Government Account	several times/day	Factual, reassuring	Text, links, Visual (photos)	Repeats (usually verbatim) from Government Portal
Government Apps	NCOVI; Vietnam Health Declaration; SUCKHOE Vietnam	as needed	Factual, reassuring	Visual, some text	Medical health declaration, updates on outbreak, prevention, etc
Billboard & Outdoor	Outdoor, nationwide. High penetration in rural	n/a	Engaging	Visual with call to action	Depict desired behavior, shared responsibility Call to action

Source: Developed based on Bucatariu's (2020) work

Since the target audiences of COVID-19 communication is the whole community, we selected a sample for FGDs with a variety of age ranges and occupations to ensure the representativeness and accuracy of the data collected. In qualitative research, a limited sample size may still adequately represent a research population (Guest et al. 2017). In the current study, the sufficient sample size was determined by data saturation (Onwuegbuzie et al. 2009; Guest et al. 2017). In the qualitative data collection process using the FGD approach, data saturation occurs when the collected data of subsequent FGDs are similar to those of previous FGDs (Onwuegbuzie et al. 2009).

Accordingly, 12 FGDs with 60 participants who were at least 18 years old were voluntarily agreed to participate in the study. Of the 12 groups discussed in this study, 9 groups were part-time MBA students (each group with 5 participants), 1 group was full-time university students (6 participants), 1 group was university lecturers (4 participants) and a group of people working in other industries aged 45 to 55 (5 participants). Information describing the research sample is shown in Table 2.

Interview Design

Drawing on the topic under study and research objectives built earlier, the interview guide and structure were developed and prepared to help researchers lead the participants in the group discussion effectively. A preliminary interview was conducted in a focus group with 5 Master of Business Administration (MBA) students, who had received information about COVID-19 from the Vietnamese government communications, including 2 managers who are working in communication sectors, 1 pharmacist who has knowledge in COVID-19 related information, 1 manager who are head of sale department at a foreign company, and 1 bank staff, to validate the value and logic of the original interview questions. After receiving feedback from the participants in the preliminary interview, eight major questions were identified for FGDs. In particular, four questions focused on the COVID-19 knowledge, the emotions and psychology of the community during the pandemic, awareness of the seriousness of COVID-19, and the preparation, readiness and potential reaction. The four remaining questions focused on discussing sources of information, channels of information, the content of messages, and forms of messages related to COVID-19 in Vietnam. We started data collection at May 01st 2020 and stopped this procedure in the middle of July 2020. Before starting a group discussion, the facilitator (one of the authors of this paper) stated the purpose and content of the discussion to engage participants. During the FGDs, based on the structured questions, probing questions were asked to explore further so as to collect the most complete and accurate data. If participants did not know how to answer the question, the facilitator would guide participants to recall the communicative events related to COVID-19 so they could answer questions. If participants were out of the discussion topic, the researcher brought them back to the right track.

Value of Data

As described above, to ensure the value of qualitative FGD data and the accuracy in describing data from the participants' words, each FGD was recorded with the permission of the participants and then transferred to full texts. Each FGD was carefully designed and the discussion process lasted about 2 h/group. On an average, each group discussion was described in an eight-page script. Although in this study, the authors conducted 12 focus group discussions, the data reached saturation after only 9 FGDs. According to the results indicated by previous studies, this is relevant because the saturation state of the data in FGDs is achieved earlier than in individual interviews (Guest et al. 2017). We still conducted another three FGDs to confirm the value of data collected (Corbin and Strauss 2015).

Data Processing and Analysis

The collected data was coded into basic categories based on both expected issues (e.g., COVID-19 knowledge, communication sources, channels, messages, etc.) and emergent themes that pointed out during FGDs. Two independent authors manually encoded the collected qualitative data; after that, they collated the results. Heterogeneous coding contents were discussed and agreed upon by the authors to ensure that all codes were identified and described. This was done to ensure the value of the data and improve the quality of the study (Corbin and Strauss 2015). After the qualitative data converted into text, all data were divided into small units (phrases, sentences, paragraphs), each unit was labeled and grouped into subcategories. Subsequent rounds of coding classified these subcategories into overarching categories, which were structured according to the hierarchy (parent–child relationship) (Gibbs 2018).

Research Results and Discussion

As mentioned earlier, the primary purposes of the Vietnamese pandemic communication strategy include: (1) update the situation of COVID-19 and (2) provide guidance to prevent and control COVID-19. Thus, the effectiveness of the governmental communication strategy is manifested

Table 2 Characteristics of research samples

FGD	Alias	Age	Sex	Education	Profession	Native place
FGD 1	Nghi	23	M	MBA student	Financial advisor	Binh Duong
	Thuy	32	F	MBA student	State officer	Ho Chi Minh city
	Tri	27	M	MBA student	Global Production Planner—Merchandiser	Khanh Hoa
	Trien	26	M	MBA student	Bank staff	Ninh Thuan
	Uyen	28	F	MBA student	Logistic staff	Dong Thap
FGD 2	Duy	28	M	MBA student	Bank staff	Tay Ninh
	Mai	24	F	MBA student	Bank staff	Ho Chi Minh city
	Phuc	25	F	MBA student	Human resource staff	Binh Thuan
	Thinh	28	M	MBA student	Assistant director	Binh Dinh
	Vu-Ca	25	M	MBA student	Marketer	Ho Chi Minh city
FGD 3	An	33	F	PhD's	Lecturer	Vinh Long
	Hang	33	F	PhD's	Lecturer	Binh Dinh
	My-Ngoc	30	F	Master's	Lecturer	Ho Chi Minh city
	Tien	45	M	PhD's	Lecturer	Quang Nam
FGD 4	Hai	29	M	MBA student	Pharmacist	Ho Chi Minh city
	Thanh	27	F	MBA student	Pharmacist	Tien Giang
	Thuy	29	F	MBA student	Pharmacist	Da Nang
	Phuong	26	F	MBA student	Financial advisor	Tien Giang
	Van-Huy	31	M	MBA student	Bank staff	Quang Tri
FGD 5	Hoang-Nguyen	30	M	MBA student	Salesperson	Dak Lak
	Huong	31	F	MBA student	Bank staff	Tra Vinh
	My-Nhi	24	F	MBA student	Graduate student	Binh Thuan
	Tam	27	M	MBA student	Trainer at an insurance company	Gia Lai
	Thanh-Nhan	38	M	MBA student	Sale manager	Quang Binh
FGD 6	Ky	29	M	MBA student	Head of sale department at a foreign company	Lam Dong
	Linh	26	F	MBA student	Import–export staff	Dong Nai
	My-Hien	32	F	MBA student	Private company owner	Quang Ngai
	Ngoc-Ha	27	M	MBA student	State officer	Ha Nam
	Quang	32	M	MBA student	Salesperson	Hau Giang
FGD 7	Anh	26	M	MBA student	Bank staff	Ho Chi Minh city
	Cuong	28	M	MBA student	Head of individual service department at a bank	Khanh Hoa
	Nghia	29	M	MBA student	Administration division staff at a hospital	Ben Tre
	Phuong	23	F	MBA student	New media marketing	Ho Chi Minh city
	Thanh	28	F	MBA student	Accountant	Tay Ninh
FGD 8	Hao	30	M	MBA student	Salesperson	Dong Nai
	Nam	33	M	MBA student	Pharmacist	Khanh Hoa
	Ngan	26	F	MBA student	Quality control staff	Tien Giang
	Tien	23	M	MBA student	Bank staff	Quang Ngai
	Trang	30	F	MBA student	Bank staff	Ha Tinh
FGD 9	Anh	25	M	MBA student	Information system designer	Long An
	Duc	30	M	MBA student	Private company owner	Ha Noi
	Khang	24	M	MBA student	Bank staff	Long An
	Thao	23	F	MBA student	Human resource staff	Ho Chi Minh city
	Thang	38	M	MBA student	New media marketing	Dak Lak

Table 2 continued

FGD	Alias	Age	Sex	Education	Profession	Native place
FGD 10	Canh	21	M	Student	Student	Nghe An
	Bich-Hanh	20	F	Student	Student	Vinh Long
	Huy	20	M	Student	Student	Binh Dinh
	My-Hien	20	F	Student	Student	Ho Chi Minh city
	Thuy-Nhien	21	F	Student	Student	Quang Ngai
	Yen	21	F	Student	Student	Vinh Long
FGD 11	Huu-Nhan	45	M	MBA student	Sales supervisor	Ho Chi Minh city
	Lang	51	M	MBA student	Eco-tourism zone's deputy director	An Giang
	Oanh	31	F	MBA student	Bank staff	Ho Chi Minh city
	Thuy-Dung	27	F	MBA student	Director assistant	Binh Dinh
	Truc	30	F	MBA student	Restaurant manager	Kien Giang
FGD 12	Hieu	42	M	Master's	University librarian	Quang Tri
	Hoa	40	M	Bachelor's	State officer	Binh Dinh
	Minh	54	M	Some college	Cruise ship sailor	Ho Chi Minh city
	Tuan-Minh	51	M	Master's	College' head divisor	Vinh Long
	Van-Nam	40	M	Bachelor's	Mechanical engineer	Can Tho

in its outcomes, such as disseminating COVID-19 information, raising awareness, changing attitudes, persuading or promoting healthy behaviors, and limiting unhealthy behaviors. Drawing on the FGDs data, this analysis firstly described these outcomes through four nodes, namely knowledge, threat perceptions, emotional responses, and behavioral responses toward the COVID-19 pandemic. Following that, the communication factors (e.g., sources, channels, and messages) that influenced the effectiveness of the communication strategy were scrutinized. Particularly, how source credibility, message characteristics, and optimal use of multiple communication channels provided COVID-19 knowledge, increased risk perceptions, changed attitude, facilitated emotional responses, and persuaded behaviors changes are depicted in the following sections (see Fig. 1).

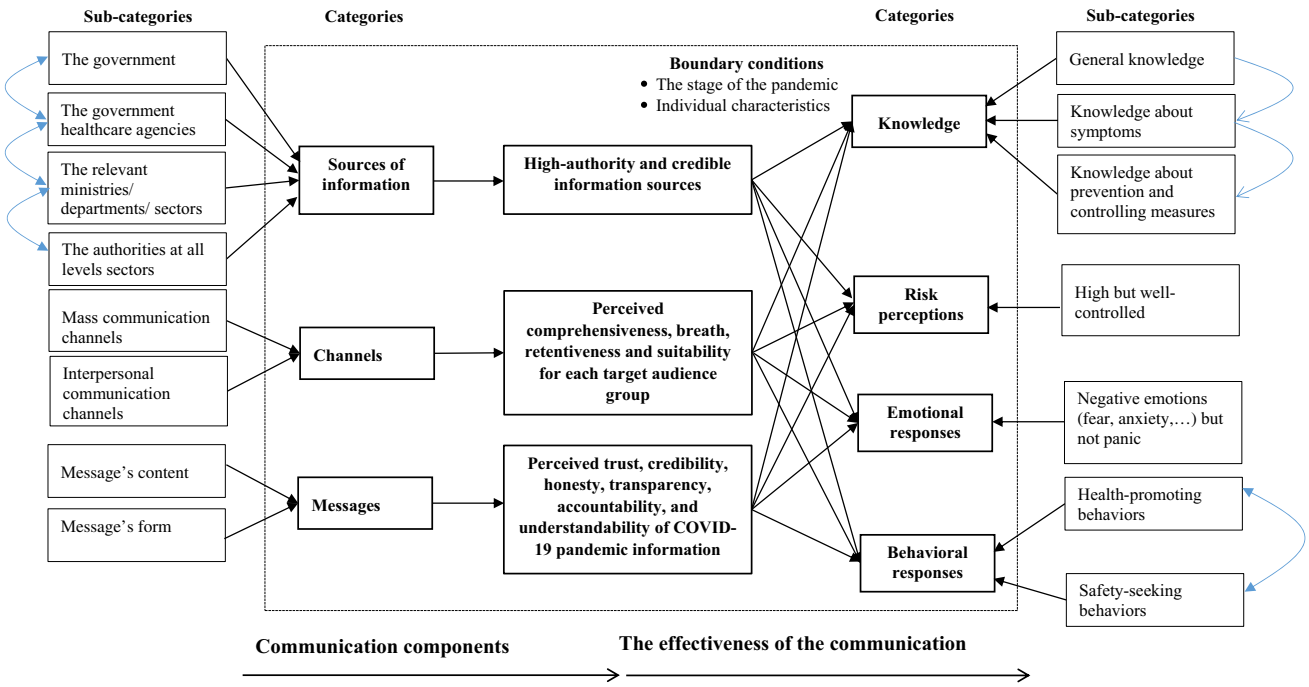

Fig. 1 A code hierarchy and a theoretical model about the effectiveness of communication strategies

The Effectiveness of the Vietnamese Pandemic Communication Strategy

Knowledge about COVID-19 Pandemic

The knowledge about the COVID-19 pandemic was the first category that emerged from FGDs regarding the perceptions of the COVID-19 pandemic communication strategy, and it was considered as one of the most important components. Three distinct themes emerged when participants were asked to reflect on their understanding, including: general knowledge pertaining to the COVID-19 pandemic, knowledge about symptoms, and knowledge about preventing the spread of COVID-19, which we identified as a type of responses elicited by health communication exposure. Our data showed that most participants had adequate general knowledge, understood the mechanisms of the spread of and measures to prevent the pandemic. For example, Mr. Hai, a 29-year-old male, pharmacist, FGD 4, shared that:

> […] This is a virus shaped like a crown under a microscope; the name Corona means a crown. The same family as SARs and MERs (respiratory pathology), originated in Wuhan, China, in December 2019.

In another group, a 25-year-old female officer, Ms. Phuc (FGD 2) shared her knowledge, which added Mr. Hai's experiences, and she stated that "COVID-19 virus causes acute respiratory COVID-19, devastating health, even leading to death if not treated promptly". Mr. Thanh-Nhan, a 38-year-old male manager, FGD 5, also added to the discussion and noticed that "there is currently no vaccine available."

Moreover, the evidence in our data also illustrated that most participants had good knowledge about signs or symptoms of COVID-19 infected patients when they indicated a constellation of symptoms such as fever, cough, sputum, myalgia, fatigue, diarrhoea, and nausea or vomiting, etc. For example, a participant stated that "The information from mass media channels let me know that the COVID-19 symptoms include fever, chest tightness, lightheadedness, pale face and lips, shortness of breath, sore throat, aches, possibly loss of taste and smell" (Mr. Quang, 32-year-old, a salesperson, FGD 6).

With respect to knowledge about preventing the spread of the COVID-19 pandemic, this study discovered that most participants stated that washing hands with soap, wearing masks, avoiding touching eyes, nose and mouth, maintaining an appropriate distance with others are common measures to prevent. In addition, several participants reported that cases from the epidemic areas were quarantined in the planned isolation areas or self-isolated at home for 14 days. However, "self-isolation procedures are not widely available" (Ms. Thuy, a 32-year-old female officer, FGD 1). Only a small minority shared their knowledge about self-isolated at home. For example, Ms. Hang (a 33-year-old female lecturer, FGD 3) shared her own knowledge during her 14-day isolation period:

> An individual bedroom and bathroom should be used when isolating at home for 14 days as required; clean and hygienic; measure body temperature 2 times/day; collect masks, napkins, and tissues into separate garbage bags and put them in the corner of the isolation room; clean floor, surface and doorknobs.

During the focus group, Ms. Hang and other participants further mentioned in detail how people had known information about the COVID-19 pandemic. Consequently, she explained that many people received information from the government via multiple communication channels, especially mass media communication channels, which ensured timely dissemination of accurate and clear information to enhance the level of knowledge about COVID-19. Moreover, the government agencies "created visual messages such as infographics, Vpop song "Ghen Co Vy", and dancing movies that make me remember easier" (Mr. Hao, a 30-year-old male salesperson, FGD 8). The findings are supported by previous studies that indicate that mass media interventions have been used to increase social capital, social cohesion, knowledge networks, and self-efficacy to prevent or control the issues of global diseases (Abroms and Maibach 2008; Elnaggar et al. 2020).

Perceptions Regarding Severity, Likelihood, and Fatalism

The next theme that emerged as a result of the Vietnamese pandemic communication strategy was risk perceptions. The subjective assessment of COVID-19 risks regarding the alarming levels of spread, severity, and fatalism was identified. For instance, Mr. Minh, a 54-year-old cruise ship sailor, FGD 12, shared his perceptions and stated:

> Because the number of people infected and dying in the world is large and so contagious, it will be complicated to eradicate. In the future, the COVID-19 pandemic will continue for a long time until the coronavirus vaccine is found, and people will learn to live with it.

Furthermore, another participant, Mr. Hieu, a 42-year-old male university librarian, FGD 12, further highlighted the COVID-19 pandemic severity. Mr. Hieu shared that "COVID-19 is a severe pandemic and a life-threatening danger. Especially, it is more lethal in the elderly person (60 years or above) as well as those with a history of other illnesses." Moreover, all of participants indicated that risk

perceptions of the public were formed by framed messages that were communicated by the government agencies via multiple communication channels.

Additionally, several participants shared that the Vietnamese government's pandemic communication messages were designed not only to emphasize the risks but also to educate the community to prevent and control the disease. Therefore, they believed that the COVID-19 epidemic can be well controlled and that all people who follow the communicated preventive measures strictly are not too anxious. Ms. Thuy-Nhien, a 21-year-old female student, FGD 10, stated:

> I think that COVID-19 is not too dangerous. The government and authorities used multi-channels to disseminate information, advise the general public to keep calm and guide for them to prevent the epidemic […] For people who are highly resistant, completely healthy bodies, it is difficult to get sick if they follow the preventive measures recommended by the government healthcare agencies and local authorities. For the elderly with weak health and low resistance, the risk is higher. However, if we, unfortunately, suffered from COVID-19 and had symptoms of illness, we had to quarantine for treatment incontinently.

This example highlighted that while people perceived threats and risks during the COVID-19 pandemic, they did not panic. This was contributed to the effectiveness of the Vietnamese government communication strategy. Specifically, the communication messages not only focused on the severity and reported the number of people infected and those who died, but also "included information about the effectiveness of measures designed to protect people from the disease at both a personal and societal level" (Dryhurst et al. 2020, p. 11).

Emotional Responses towards the COVID-19 Pandemic

Emotional responses towards the COVID-19 pandemic was the next theme that emerged. The set of emotional responses elicited specifically during COVID-19 pandemic experiences covered different levels of anxiety, fear, dread, stress, and panic. Several participants said that they experienced indifferent and subjective emotional states when the first messages were disseminated about the disease situation in Wuhan, China. Then, these participants shared mild psychological distress when Vietnam reported the first two COVID-19 patients and the spread of COVID-19 in China, Hong Kong, Taiwan, South Korea, Japan, and other Western countries. For example, 28-year-old Uyen (FGD 1) shared her experiences during the initial stage of the COVID-19 pandemic that:

> "When the disease started, and I usually consumed the news by watching broadcasts, surfing social networks [such as Facebook and Zalo], or reading the newspapers … I felt indifferent because the COVID-19 pandemic was in Wuhan, China … So, I was subjective. But … then I was gradually slightly worried when the information about the number of cases in Wuhan increased rapidly, the number of patients and deaths increased day by day. Wuhan was quarantined. Vietnam reported the first two cases positive with coronavirus … But … I was not much worrying at that time. Because I believed that Vietnam succeeded in preventing SAR in 2003 … So this is a premise for the prevention of COVID-19. Moreover, Vietnam is a hot-climate and high-temperature country, so this virus can hardly survive on surfaces for a long time in this condition."

Additionally, in most FGDs, peoples also reported that the central emotional responses during the COVID-19 outbreak were fear and anxiety. Especially, they experienced "the peak fear as the 17th patient returning from Europe. Because she was hiding her situation, then infected other people in an unpredictable way… I was very anxious and angry…" (Mr. Khang, a 24-year-old male bank employee, FGD 9). Another participant, Mr. Thinh, a 28-year-old male assistant director (FGD 2), also echoed these negative emotional experiences and stated that: "I am really, really bewildered and fear as if the epidemic is not under control. When I go out, I always feel that I can get coronavirus anytime and anywhere from people not showing symptoms". As the nature of negative emotional experiences can lead people to change their safety-promoting behaviors, communication messages often implicate and highlight these negative emotions (e.g., fear and anxiety) as targets for psychological input (Harper et al. 2020). However, this interrelation also depends on the boundary conditions, for example, specific situations and personal characteristics (Witte and Allen 2000; Bavel et al. 2020). Several participants stated that messages were disseminated with scientific information, successful treatment figures, and the effectiveness of disease prevention and control measures, which helped relieve negative emotions and increase public health behaviors. As Mr. Nam, a 33-year-old pharmacist (FGD 8), shared that "the results show the effectiveness in the government's proactive management to prevent and control the epidemic. Although the epidemic is still persistent, my current emotional state is … I no longer feel so worried and scared."

In summary, these findings demonstrated that the Vietnamese pandemic communication strategy was well suited for each stage of the COVID-19 outbreak. Specifically, communication strategies that were based on a more

positive frame created higher effectiveness by either educating the public or relieving negative emotions or enhancing a range of public health behaviors. These findings are supported by the argument of Bavel et al. (2020) that "communication strategies must strike a balance between breaking through optimism bias without inducing excessive feelings of anxiety and dread" (p. 461).

Behavioral Responses towards the COVID-19 Pandemic

The FGDs indicated that behavioral responses were another important outcome of the Vietnamese pandemic communication strategy, which are consistent with behaviorist stimulus–response mechanism. Participants shared a number of health-related behaviors, sometimes simultaneously. Specifically, the evidence in our data suggested that two majority behavioral categories emerged during the COVID-19 outbreak, including (a) health-promoting behaviors and (b) safety-seeking behaviors.

When people had a high level of knowledge, threat appraisal, risk perception, and negative emotion, which were the consequences of a communication strategy, they showed a high willingness to adopt health-protective behaviors during the COVID-19 pandemic. Specifically, adherence to the government agencies' recommendations and lockdown regulations could be considered as health-promoting behaviors as the likelihood of individual infections would be curtailed (Anderson et al. 2020). An example was found from one of participants' sharing, Mr. Anh, a 26-year-old bank employee, FGD 7 who stated: "My family and I strictly followed social distancing regulations of the government. I immediately wash my clothes and clean my shoes when I come back home. I always wear face masks when I go out. Because of the nature of my job, I also have to wear face masks when I am working. I often wash my hands with soap. My family members often gargle with saltwater."

Furthermore, most participants also mentioned that using the Internet to search for health-related information (i.e., cyberchondria) was common safety-seeking behavior. Therefore, the recent reports showed that social media served as a powerful tool for seeking and sharing health-related information as well as changing health-related attitudes and behaviors during the pandemic outbreak (Di Martino et al. 2017; Raamkumar et al. 2020; Zeemering2020). Moreover, increased consumption of hygiene products, masks, toilet papers were seen as safety-seeking behaviors as people wanted to protect themselves from contracting COVID-19 (Paul and Chowdhury 2020). Prior studies have found that health-promoting behaviors and safety-seeking behaviors are aspects of the effectiveness of communication strategies that can be evoked by source, channel and message during the pandemic outbreak (Glik 2007; Bavel et al. 2020; Jungmann and Witthöft 2020).

The Characteristics (i.e., Sources, Channels, and Messages) of Effective Communication Strategies

The FGDs indicated that all of the participants had enough information about the COVID-19 pandemic and the majority of them experienced low emotional levels of anxiety, fear, dread, stress, and panic. Moreover, the Vietnamese communication strategy has helped to form both health-promoting and safety-seeking behaviors among the community. These outcomes significantly contribute to the overall success of the Vietnamese government in controlling and preventing the outbreak of COVID-19, therefore it is crucial to know the characteristics of effective communication strategies in terms of sources of communication, communication channels, and communication messages.

Sources of Information about COVID-19

The source of information is considered as one of the most important stimuli influencing the effectiveness of a communication strategy. Sources of information have a decisive influence on the perception of information reliability, thereby improving positive emotions and response coping strategies. In the current research, sources of information were considered as the government, governmental healthcare agencies (e.g., the Ministry of Health, Centers for Disease Control and Prevention), World Health Organization (WHO), relevant ministries, departments, and sectors (e.g., the Ministry of Information and Communications, the Ministry of Education and Training), the authorities at all levels (e.g., province/city, district/town, commune/ward, village/hamlet/residential quarter), and state-own organizations/businesses. These sources provided information for press releases, propaganda, and education for individuals and communities about the COVID-19 pandemic. The participants revealed that the most important sources of information for people were from the Vietnamese government and the Ministry of Health. Most participants agreed that, at the early stage of the COVID-19 pandemic in Vietnam, the information reliability from these sources was only above average. They explained that Vietnam shares a common border with China—where the COVID-19 pandemic originated—but the official report on COVID-19 infection rate was very small (FGD 7); or they did not really believe in the healthcare capacity of Vietnam, as well as because of the perceived degree of "dripping" information (FGD 8); or psychologically affected due to

the inconsistent Chinese data on changing the calculation method (FGD 3).

However, thanks to the timely communication as well as updated studies and scientific reports on SARS-CoV-2 of Vietnamese government agencies, people were provided with completely reliable information. Moreover, transparent data have supported the credibility of communication messages. For example, Mr. Huu-Nhan, a 45-year-old sales supervisor of a foreign pharmaceutical company in Vietnam, FGD 11, stated:

> Up to now, I entirely believe in information from state agencies. Vietnamese government agencies do not conceal any information. Vietnam has a collective culture, so if someone gets sick or dies or isolates because of COVID-19, the whole neighborhood and the whole region will know and spread the word to each other, especially the social network environment. Especially, the Internet now is very developed, so the speed of information transmission will be more widely and faster. But the observational reality shows that 'there is no hided case like that.'

During the interview, Mr. Huu-Nhan and other participants in FGD 11 took part in the discussion about the judgment he made. This result was similar to the opinion of other focus groups when all were now fully confident in the sources of information from the state agencies. This result could be supported by the statement of Associate Professor Todd Pollack, Harvard Medical School, who directs the Partnership for Health Advancement in Vietnam: "I see no reason to mistrust the information coming out of Vietnamese government at this time. Vietnam's response was swift and decisive. If the epidemic were much larger than is being officially reported, we would see the evidence in increased emergency room visits and hospital admissions —and we do not see it" (Black 2020).

The FGDs revealed that the communication sources of Vietnamese government agencies provided credible, trustworthy and accurate information regarding the COVID-19 pandemic, thus people gained COVID-19 knowledge as well as health-promoting and safety-seeking behaviors from these governmental sources.

Channels of Communication about COVID-19

Channels of communication were found as a significant factor that affected the COVID-19 cognitive, affective, and behavioral responses. Most FGD participants agreed that they used multiple communication channels to access health messages during the emergency COVID-19 pandemic. The typical channels were mass media (television, radio, and newspapers), the web portal of government agencies and World Health Organization (WHO), personalized media provided by Vietnam's mobile telecommunication service firms (such as Mobifone, Viettel, and Vinaphone), global social media (e.g., Facebook, YouTube), local social networks (i.e., Zalo), public places communication (e.g., posters, publicity), mobile health applications, and face-to-face communication (family, friends, neighbors, and authorities). Besides, locally-focused channels (local authorities, local health papers, and newsletters) and internal communication (organizations or firms) were additional means indicated by the participants. For example, Mr. Hai, FGD 4, shared his experiences with the communication channels where he received information about COVID-19. He stated:

> I received information about the COVID-19 pandemic from various channels such as the information page of the Ministry of Health, WHOmetters, newspapers, Facebook, Zalo, Vietnam health applications, television, cell phone, friends, colleagues, relatives in the family […] Because I have been working in the field of medicine, I also regularly update information about the COVID-19 pandemic over the world through the FDA. [FDA is an acronym of U.S. Food and Drug Administration].

During the FGD, Mr. Hai further mentioned about communication channels that were frequently used to search for information on the COVID-19 pandemic. Consequently, Mr. Hai explained, many Vietnamese people prefer to search for information about symptoms, degree of infection, vaccines, as well as control and prevention measures. We further asked several follow-ups and probing questions to investigate what communication channels were the most preferable to reach a broad audience. Mr. Hai and most participants mentioned that they commonly used multiple channels to get out information about the COVID-19 pandemic. For example, Mr. Lang, a 51-year-old eco-tourism zone's deputy director, FGD 11, shared that "I often watch the news, read newspapers, and browse Facebook and Zalo. I also received information from SMS messages which were sent by the government and the Ministry of Health and from notices in my organization. If I want to find out the necessary information, I will search for Google. So, I am not sure what the best channels are". These findings support Fish et al.'s (2017) study that stated: "participants commonly reported using multiple means in an attempt to reach a wide audience" (p. 252). However, several participants emphasized the importance of online and social media communication channels. Ms. My-Hien, a 20-year-old student, FGD 10, stated:

> I often received information from Zalo page of the Ministry of Health, Facebook, SMS messages, and newspapers. I also received information from

> YouTube and Tik Tok. Because I use the smartphone and laptop frequently so, social networks, the Internet, and websites are primary information channels for me to find and share information."

Ms. My-Hien's experiences were echoed by a different participant in a different focus group, Mr. Vu-Ca, a 25-year-old marketer, FGD 2, who stated that "I regularly access and share information with relatives and friends about the COVID-19 pandemic via Facebook and Zalo because they are easily accessible information channels and I use them frequently." Ms. My-Hien and Mr. Vu-Ca's comments showed how social media could effectively be used to release messages regarding the COVID-19 pandemic. As the rapid development and high user rate of social networks in Vietnam (Pollack et al. 2020), health departments can use social networks that enable them to release messages to communicate, warn, control, and prevent the COVID-19 pandemic on a broad audience (Di Martino et al. 2017; Limaye et al. 2020). Especially in today's media landscape, people often use social media channels or virtual communities (e.g., Facebook, Twitter, Tik Tok, and Zalo) for information exchange.

Furthermore, several participants in the different FGDs pointed out that mobile health applications are emerging as an effective means to release the COVID-19 messages for the public effectively. Several participants also noted that authorities at the wards/communes and villages/hamlets/residential quarters informed the threats and preventive measures of the COVID-19 pandemic to each household. Moreover, Ms. My-Ngoc, a 30-year-old lecturer, FGD 3, also stated: "I see many posters, stickers, infographics, leaflets which are put on elevators, in front of apartment buildings or public places." Besides, intra-organization communication, such as state hospitals, schools, and companies, were also posited as important information channels.

These findings highlighted that communication channels facilitated the effectiveness of communication strategies that were measured via communication channel preferences and usages. Moreover, the data analysis also pointed out Vietnamese people used multiple channels to collect the COVID-19 pandemic information messages. In other words, by adopting multiple transmission channels—combining mass and interpersonal communication channels (i.e., mass personal communication; O'Sullivan and Carr 2018)—for disseminating communication messages, the Vietnamese government has achieved the great effectiveness of communication strategies. These findings are supported by previous studies indicating that combining forms of communication helps disseminate, preserve and review health communication messages more comprehensively, widely, and retentively complex health information than any one source can do on its own (Seeger et al. 2018). Although most participants were not reported regarding the best communication channels, several participants showed the important role of modern communication channels, especially social media, mobile applications, and mobile phone messages. The growing use of these channels has created outstanding changes providing broad access to information for making health decisions and addressing users' cognitive, emotional, and behavioral needs (Fish et al. 2017). The government agencies, thereby, are recommended to use them to maximize awareness of communication messages and rate of behavioral changes (Park et al. 2016; Kreps 2017; Limaye et al. 2020).

The Messages of Communication Disseminated during the COVID-19 Pandemic

Communication messages can be divided into two subcategories: the message content and the message form. The data analysis showed that messages ranged from general warnings to specific advice (e.g., the origin, transmission, symptoms, and clinical therapies), as well as from the prevention measures (e.g., wearing masks, washing hands, staying home, and keeping the distance from others) to the promotion of social distancing. Moreover, the message content, which the Vietnamese government communicated, were clear, accurate, transparent, timely, creative, and strong terms about the dangers of the illness during the emergency COVID-19 pandemic even before the first case was reported. For example, a 21-year-old student, Mr. Canh, stated that:

> I perceived that the content of the information about Covid-19 was highly accurate, speedy, and timely for people to protect themselves and follow the government decrees […] I focused on the consistency of communication messages on many channels, not conflicting information. I am sure that both formal and informal channels have been operated effectively, so… everyone could catch the information promptly and accurately to minimize the impacts of the epidemic.

In another experience, Mr. Hoang-Nguyen, a 30-year-old salesperson, FGD 5 shared that he perceived the communication messages received was credibility. He stated that: "My overall assessment was: accurate, transparent, easy to understand, and timely. Because the information I received through newspapers and websites was the same about data and time, so… I think that the messages were credibility". Previous studies also demonstrated that the COVID-19 pandemic communication messages performed by the Vietnamese government agencies were clear, consistent, and accurate (Pollack et al. 2020; Tran

et al. 2020). In the context of health communications, the public tends to view government health agencies and institutions as highly credible sources that deliver reliable messages and, as a result, enhances their trust that facilitates the public awareness about health issues and adoption of new healthy behaviors (Hoeken et al. 2009; Fish et al. 2017).

Furthermore, several participants echoed Ms. Thuy-Nhien and Mr. Hoang-Nguyen's statement and added a narrative that further highlighted fake, untruthful, or slanderous news and information on social media. Ms. Thuy, FGD 1, stated that "[…] Much of the COVID-19-related information shared on social networking sites were not highly accurate, because individuals made information based only on their subjective knowledge, unconfirmed information and incorrect." This finding is supported by previous studies that indicated flow-, context- and object-sensitivity of fake news, especially social media settings (Hammer and Snelting 2009; Papanastasiou 2020). Hence, as the serious consequences of "shared false, untruthful, distorted, or slanderous information", the government must control sources and channels that share and distribute untrue contents about the COVID-19 pandemic.

As noted above, this study shows that the forms of messages—a second subcategory—generated by the government agencies had adopted to disseminate the COVID-19 messages to the public, which were classified into three sub-themes: messages via mass communication channels, messages via social media channels, messages via interpersonal communication channels.

All of the focus groups pointed to the importance of traditional visual-, voice-, image-, infographics-, text-based forms of messages on traditional mass communication channels (e.g., television, newspapers, and radio). News with "real" or "authentic" stories, validated infographics help to rapidly disseminate accurate public health information during the COVID-19 pandemic, especially humane messages from the medical team: "We stay at work for you. Please stay at home for us." (Mr. Huu-Nhan). Moreover, most participants emphasized the effectiveness of disseminating public health messages through releasing a music video, "Ghen Co Vy," meaning "Jealous Coronavirus," on YouTube and dance moves on Tik Tok, as well as the song "Let's fight COVID" later. For example, Ms. Ngoc-Ha, a 27-year-old officer, FGD 6 stated that:

> The most effective form of communicating is through the video clip, such as "Ghen Co Vy" because it creates a special attraction effect by having fun, a hand-washing dance and meaningful song content related to the COVID-19 pandemic prevention; thereby conveying a strong message to everyone in order to raise awareness of protecting public health against COVID-19.

In different focus groups, participants also shared the same idea with Ms. Ngoc-Ha of how videos turned into messages about the dangers of coronavirus, a hand-washing public service announcement, promotion for social distancing, which facilitated the mental, emotional, or physical engagement of the listener with the topic of the messages.

With respect to the messages via interpersonal communication channels, all participants reported that they received SMS messages from the Ministry of Health; mobile phone operators showed a status "Hay O Nha," meaning "Stay At Home" message on their cell phone, and changed waiting for ringtones to a voice message that reminded people about the COVID-19 protection. In addition, several participants also mentioned messages that "were communicated by documents in intra-organizations directly to employees" (Mr. Thanh-Nhan).

These findings were supported by previous studies that showed how forms of messages engendered a community spirit, motivation, education, or entertainment, thereby increasing the desired impact of the messages (Hoeken et al. 2009). Communication message content and form have been proved to enhance the mental, emotional, or physical engagement of a broad audience with the topic of the message (Hoeken et al. 2009; Kreps 2017; O'Sullivan and Carr 2018; Seeger et al. 2018; Bavel et al. 2020). Moreover, these findings are supported by the classical models of behavior changes such as the communication/persuasion model (McGuire 1989) and behaviorist stimulus–response perspective (Weilbacher 2003). When communication strategies successfully help individuals recognize the health risks that do exist, they will change emotional, psychological state and attitudes toward health behaviors, which in turn facilitate behavioral intention.

Conclusion

This article aims at evaluating the effectiveness of the communication strategy implemented by the Vietnamese government during the period of controlling and preventing the COVID-19 pandemic (from the end of December 2019 to the end of July 2020). Drawing upon McGuire's (1989) communication/persuasion framework and behaviorist stimulus–response model (Weilbacher 2003), we coded and analyzed the public perceptions of government communications and their cognitive, emotional, and behavioral responses elicited by these communication stimuli. A thematic analysis was used to analyze and interpret the qualitative data and summarizes the outcomes of the

governmental communication strategy, as well as the communication components/factors deployed by the government to disseminate, preserve and review the information about the COVID-19 pandemic. In general, the results reveal that people have enough knowledge about the COVID-19 pandemic, which is displayed through their general knowledge, knowledge about symptoms, and knowledge about preventing the spread of COVID-19. Risk perceptions about the pandemic situation are high but well-controlled. In addition, negative emotions such as anxiety, stress, and panic have been reducing to quite a low level. Furthermore, the Vietnamese communication strategy has helped to form both health-promoting and safety-seeking behaviors among the community.

Furthermore, according to the thematic findings, the characteristics of effective communication strategies such as sources of communication, communication channels, and communication messages are important factors that significantly contribute to the overall success of the Vietnamese government in controlling and preventing the outbreak of COVID-19. Specifically, the communication sources of Vietnamese government agencies provide credible, trustworthy, and accurate information regarding the COVID-19 pandemic. As heterogeneity and uncertainty of COVID-19 matters, high-authority, and credible information sources are necessary to enhance the perceived trust of the public. Additionally, by combining mass and interpersonal communications for disseminating communication messages, the Vietnamese government provides broad access to information about the COVID-19 pandemic. Moreover, regarding the messages of the governmental communication strategy during the COVID-19 pandemic, the message content is generally evaluated as being clear, accurate, transparent, easy to understand, and timely. Furthermore, the government has deployed a variety of message forms such as text, infographics, photo, video, music video, dance movie, voice, and SMS messages which facilitate the general public's cognitive, emotional, and behavioral responses.

Deriving from the analysis findings, this study contributes to the existing literature a theoretical framework to the receptivity of governmental communication and its effectiveness, which is proposed and presented in Fig. 1. In the framework, components (i.e., source, channel, and message) of a communication strategy, its outcomes (i.e., knowledge, risk perceptions, emotional and behavioral responses) and the boundary conditions (i.e., stages of the pandemic, individual characteristics) are integrated, thus providing guidance for academia and practitioners to gain further insights into the studied matter. Also, future studies can develop reliable and valid scales to measure and test the theoretical framework pertaining to the effectiveness of communication strategies based on direct, mediating, and moderating effects.

Given the findings of this study, we underscore the importance of effective communication strategies regarding public health disseminated by government officials. Several practical implications can be derived from this research for authorities to prepare future health communication campaigns during emerging infectious disease outbreaks such as the COVID-19 pandemic. First, high-authority and credible, trustworthy and accurate information sources can be an efficient communication solution to rapidly and effectively change hearts and minds for public health. Functional fragmentation of communication sources from governmental healthcare agencies, relevant ministries, departments, sectors, the authorities at all levels (e.g., province/city, district/town, commune/ward, village/hamlet/residential quarter) to state-own organizations/businesses can be used to reach broader public audiences through coordination. Besides, the policymakers can identify other sources, such as religious or public health experts (Bavel et al. 2020), that are credible to different audiences to share communication messages in the fight against future risks. Second, this study also underscores the importance of considering both mass and interpersonal communication channels when designing public health messaging. This finding may help public health agencies understand the necessity to disseminate accurate public health information, timely to address issues, and consistent throughout a variety of traditional and new media and interpersonal communication. Third, the public takes different information processing routes to process health communication message stimuli (Kreps 2017; O'Sullivan and Carr 2018). Therefore, finding message contents and forms for the targeted public is needed from national leaders and central health officials. Message contents that provide accurate, useful, and transparent information for the public need to emphasize benefits to the recipient, focus on protecting others (e.g., members of the recipient's community), align with the recipient's moral values, and increase public mental, emotional, or physical engagement. In addition to promoting public health communication during a crisis, public health agencies can also use visual-, voice-, image-, infographics-, text-based message form to rapidly disseminate accurate public health information and integrate entertainment-education aspect into communication messages to match new media's mood such as TikTok to rapidly and effectively change hearts and minds for public health.

Our study has several limitations that can pave the way for further research. Specifically, our sample is relatively small, using healthy participants from Vietnam. These results may not be generalizable to infected individuals/cases of the pandemic. Also, a focus group study often

faces challenges in finding the right time and place. Therefore, future studies may collect a larger sample, in a different country, and combine different types of data collection, such as in-depth interviews or observations. Additionally, although behaviorism view can be used to investigate the meaning and the interpretation of media texts by political communication researchers (Anderson 2020), several researchers consider a more complex, holistic perspective of information processing (Kerr and Schultz 2010), challenging the more traditional stimulus–response model used in this study. Therefore, future research may provide more careful consideration to the conditions surrounding media consumption and processing in their studies to help clearly understand cognitive, emotional, and behavioral responses in the context of public health communication.

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Declarations

Conflict of interest The authors declare that there is no conflict of interest.

Ethical approval The study has followed all the established standards and was approved by the Ethics Committee of the University of Economics Ho Chi Minh City. Participants were informed that it was voluntary to agree to participate in the group discussions. They were also notified that the research was for academic purposes only. The anonymization of the data from the group discussions was assured because each participant was assigned an alias.

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Key Questions Reflecting Applicability in RealLife

1. How do the public perceptions regarding governmental communications influence their cognitive, affective, and behavioral responses during COVID-19 pandemic emergency?
2. How can we evaluate the effectiveness of government communication strategies?
3. How should governments worldwide implement health communication campaigns during infectious disease outbreaks such as the COVID-19 pandemic?

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