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## **Policy response, social media and science journalism for the sustainability of the public health system amid COVID-19 outbreak: The Vietnam lessons**

Viet-Phuong La, Thanh-Hang Pham, Manh-Toan Ho, Minh-Hoang Nguyen, Khanh-Linh P. Nguyen, Thu-Trang Vuong, Nguyen T. Hong-Kong, Manh-Tung Ho, Quan-Hoang Vuong

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**Keywords:** Coronavirus; COVID-19; pandemic; policy response; social media; science journalism; public health system; Vietnam

**JEL Classifications:** I12; I18; Q54

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### Abstract

With the geographic proximity and high volume of trade with China, Vietnam was expected to have a high risk of the new Coronavirus (COVID-19) outbreak. However, to date [mid-March 2020], in comparison to attempts to containing the disease around the world, responses from Vietnam are seen as prompt and effective in protecting the interests of its citizens. This study analyzes the situation in terms of Vietnam's policy response, social media, and science journalism. It contributes valuable lessons for other nations in the concurrent fight against the COVID-19 pandemic via fostering genuine cooperation between government, civil society, and private individuals.

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*This preprint (non-peer-reviewed manuscript) responds to the call for transparent information on the fight against COVID-19 from leading publishers such as Elsevier (Elsevier, 2020), Springer Nature (Springer Nature, 2020), and Emerald Publishing (Emerald Publishing, 2020) as well as the global scientific community at large. The data in this paper, all sourced from Vietnam, is collected and analyzed by the Hanoi-based AI for Social Data Lab (AISDL). For the sake of science, the team will continue to develop the preprint and upload this to preprint servers. The study is among the first attempts to contribute to a better understanding of social medicine in Vietnam. We welcome all comments from readers, scientists, and policymakers in the improvement of this manuscript.*



Hanoi, March 20, 2020  
This draft: version 6

## Introduction

“Dans les champs de l'observation le hasard ne favorise que les esprits préparés.”

As China grappled to contain an outbreak of the new Coronavirus (COVID-19) at the beginning of 2020, Vietnam, which shares a border of 1,281 kilometers and a high volume of trade with the northern giant (Central Intelligence Agency, 2020), was bracing itself for a high risk of cross-border infections. Within nearly two months from January 23th when the first case of COVID-19 was detected in Vietnam, there have been 66 confirmed cases with zero deaths (Hien Minh, 2020). During the same period, the number of infections in China had skyrocketed from 600 people, with 17 deaths to 80,881 with 3,226 deaths (World Health Organization, 2020d).

Despite the differences in their domestic contexts, such abysmal contrast between the two neighbors could raise questions as to how Vietnam, a populous but less-resourced nation of nearly 100 million people, has managed to contain the spread of the new disease. This feat merits in-depth studies, especially in light of the WHO's declaration of COVID-19 as a pandemic on March 11th (World Health Organization, 2020b) and the chaotic self-quarantine and lockdown in various countries in Europe and America.

The study, though in its preliminary and subject to changes as the disease progresses, might nonetheless be instructive and helpful for other countries to better understand the role of policy response, social media, and science journalism in maintaining public health. The case of Vietnam provides empirical evidence for assessing the efficacy of specific measures in fighting the pandemic.

**Table 1. The 12 first countries that announced COVID-19 cases**

	<i>Country</i>	<i>Date of the first COVID-19 case announcement</i>
1	China	December 31st, 2019
2	Korea	January 8th, 2020
3	Japan	January 15th, 2020
4	United States	January 21st, 2020
5	Taiwan	January 21st, 2020
6	Hong Kong	January 22nd, 2020
7	Vietnam	January 23rd, 2020
8	Singapore	January 23rd, 2020
9	France	January 24th, 2020
10	Australia	January 25th, 2020
11	Italy	January 31st, 2020
12	United Kingdom	January 31st, 2020

*Source: (World Health Organization, 2020d) |*

Vietnam had the first and second confirmed case of COVID-19 on January 23th, who were Chinese (Ministry of Health, 2020b). Until February 13th, there were 16 cases reported, including 11 instances in Vinh Phuc, 1 in Khanh Hoa, 1 in Thanh Hoa, and 3 in Ho Chi Minh City. These consisted of 12.5% Chinese, 81% Vietnamese, and 1 Vietnamese-American case. The primary source of infection came from six Vietnamese returned to Vinh Phuc from Wuhan and had contact with relatives then spread the virus to 5 family members (Ministry of Health, 2020c). From February 13th to March 5th, no more cases were found positive to the coronavirus. All 16 patients were cured, and the last case eventually recovered on February 25th, 2020.

However, on February 6<sup>th</sup>, 2020, Vietnam announced the 17<sup>th</sup> case, who is a Vietnamese citizen coming back from the United Kingdom (Tuoi tre Online, 2020).

Since then, the country recorded a number of cases returning from the outbreaks outside China. As of March 17th, 2020, the number of COVID-19 infections in Vietnam was 66, in which 16 patients had recovered, 50 had been treated, and no deaths were recorded. From February 6th to March 17th, there are 50 new cases reported including 16 cases in Hanoi, 8 in Ho Chi Minh City, 9 in Binh Thuan, 5 in Quang Ninh, 3 in Da Nang, Quang Nam, 2 in Lao Cai, Thua Thien Hue and 1 in Thai Binh, 1 in Ninh Binh, and 1 in Ninh Thuan(L. Nguyen, 2020) (See Figure 1).

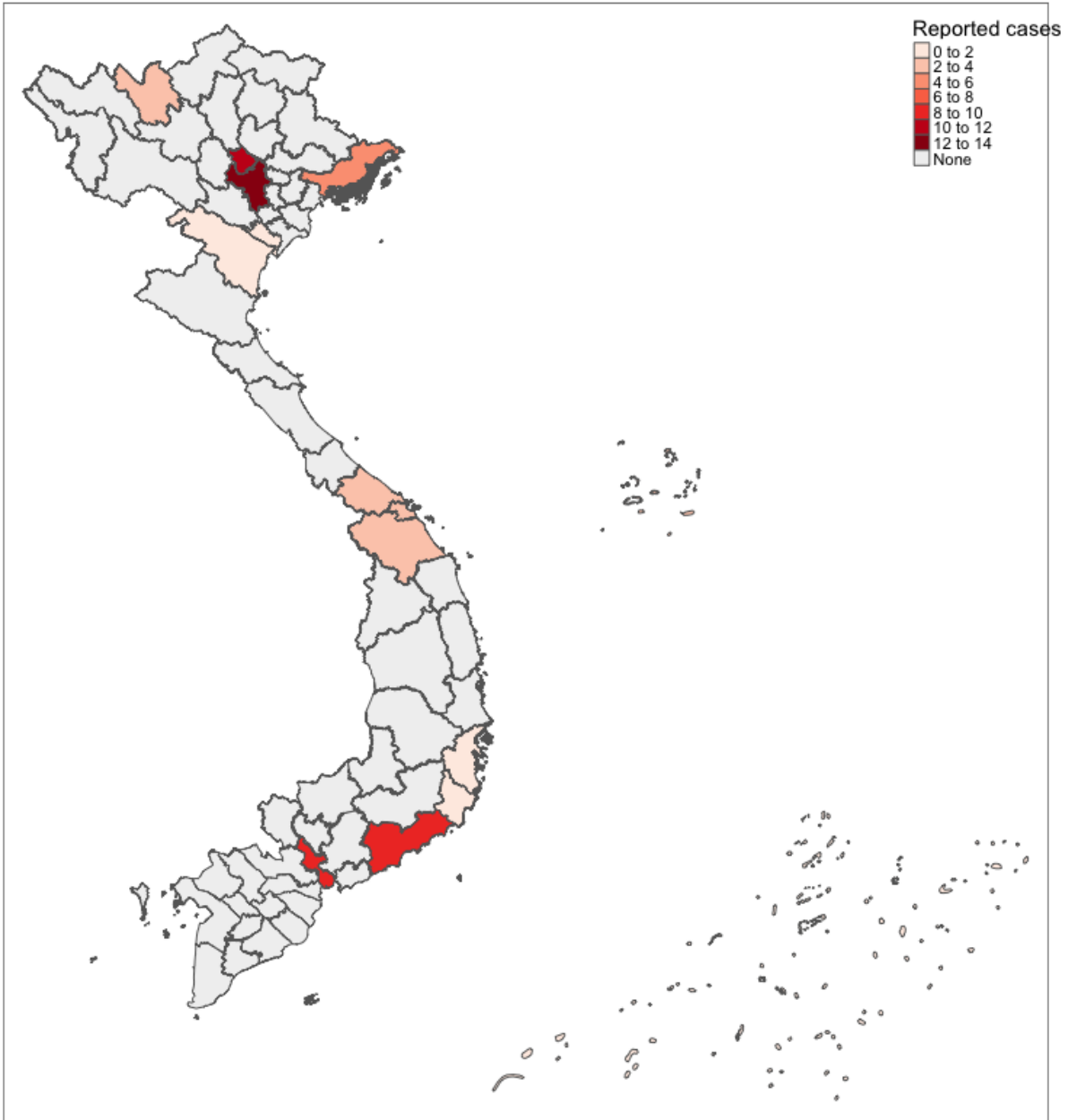
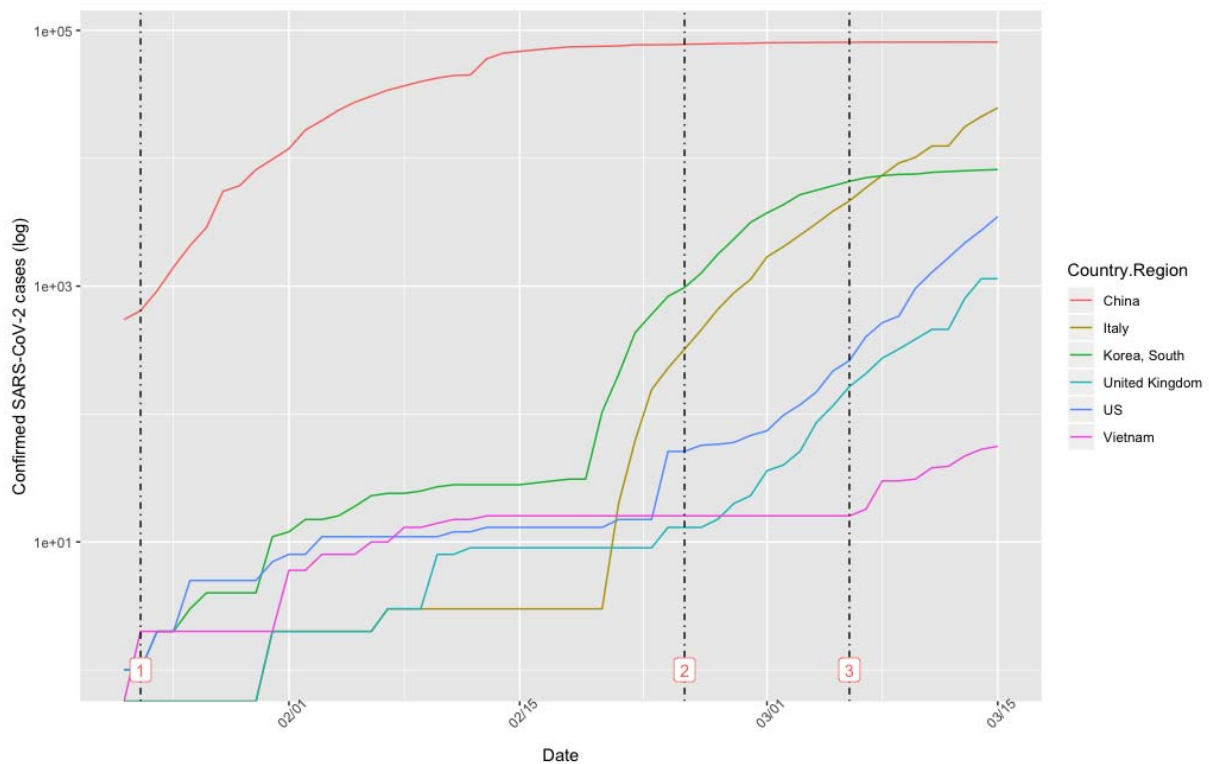


Figure 1. Maps of 66 Covid-19 cases in Vietnam (as of March 17th, 2020)



**Figure 2. The rise of COVID-19 cases in selected countries. Note: [1] is the first case in Vietnam; [2] is when the patient 16 recovered, ended the the 1<sup>st</sup> outbreak; [3] is the 17<sup>th</sup> case in Vietnam, also the beginning of the 2<sup>nd</sup> outbreak.**

Compared to other countries, it can be seen from the graph that the infection rate in Vietnam was much lower than China, Italy, South Korea, the United Kingdom, and the United States. All these countries, except China, had the first cases announced in January (World Health Organization, 2020d). Vietnam experienced a steady increase in the number of confirmed cases during the first period from January 23<sup>rd</sup> to February 25<sup>th</sup>, with a similar rate to the United States and the United Kingdom. However, in the next period from late February to March 5<sup>th</sup>, 2020, while the number of patients in Vietnam remained the same at 16 cases, this figure rocketed in all other countries except China, with 5766 cases in Korea and 3,089 cases in Italy (World Health Organization, 2020d). After that, the significant upward trends continued in Italy, the United Kingdom, and the United States. On March 16<sup>th</sup>, 2020, Italy was ranked second in the number of total confirmed cases, with 24,747 cases, only after China (World Health Organization, 2020d).

Since March 2020, everyone who enters an apartment complex or a building in Vietnam would strictly have their body temperature tested; and citizens are systematically reminded to wear masks. According to instructions from the Vietnamese government (Online Newspaper of the Government, 2020c), "one must fight the pandemic as though warring against physical

enemies" is the spirit that authorities, localities, and every citizen must keep up in order to stop the spread of the SARS-CoV-2. When a COVID-19 infected patient is identified, they will be immediately quarantined in a hospital, and their living neighborhood will be isolated and disinfected within the next 14 days, according to the Circular 344/QĐ-BYT of Vietnamese Government (Ministry of Health Portal, 2020). Those who have been exposed to confirmed patients and are likely to carry the virus will immediately get quarantined and taken to the centralized health facilities.

Basically, the aim is for the risk to be controlled from an early stage. People in confined areas are highly aware of the situation but not in a panic. In parallel with the battle against the COVID-19 enemy, the lives of the Vietnamese people still take place sustainably. The public health system can respond promptly, and people are regularly updated with related information to help reduce anxiety and dispel rumors, thus reigning in any potential chaos.

Although the economy has been slowed down and will be affected in general, it would not fall into recession. There is no scarcity of essential goods and very few panic-buying because of the support directive from the government's policies, although there are still cases of the hiked price of healthcare equipment and masks. All school buildings have been completely closed since February; students can continue to study and communicate via online platforms. The fake news regarding the spread of COVID-19 has been traced and immediately punished by the police. Fabricated rumors that had spread panic among people for a time have been traced by the police, and the instigators have been appropriately penalized.

In general, the government has been very serious in dealing with the COVID-19 outbreak from an early stage, developing a series of measures to avoid a public health crisis and tailored to contain the spread of a new disease. Several lessons from Vietnam might be able to help countries around the world to avoid a debilitating outbreak, including developed countries currently in critical conditions such as the UK, the USA, Italy, and France. As a concrete illustration, an image posted on the official website of the Military Health System showed a guardswoman translating a safety message about how to wear a mask from Vietnamese to English (Military Health System, 2020).





**Figure 3. A US guardswoman translates a Vietnamese document into English. Source: (Military Health System, 2020)**

### Literature review

During the few first months of the new decade, the novel coronavirus, officially named SARS-CoV-2, and the corresponding disease COVID-19, has spread from Wuhan Province, People's Republic of China, to more than 140 other countries. On 30th January 2020, following the recommendations of the Emergency Committee, the World Health Organization (WHO) Director-General declared that the outbreak constitutes a Public Health Emergency of International Concern. Only more than one month later, on March 11th, 2020, WHO announced that COVID-19 could be characterized as a pandemic (World Health Organization, 2020b). As reported from WHO Health Emergency Dashboard, on March 15th, 2020, there were 152,428 confirmed cases in 141 countries, areas, or territories, causing more than 5700 deaths (World Health Organization, 2020b).

In view of the urgency of this outbreak, the international community is mobilizing to find ways to accelerate the development of interventions significantly. Dr. Tedros, WHO Director-General, stated that "We need our collective knowledge, insight, and experience to answer the questions we do not have answers to, and to identify the questions we may not even realize we need to ask." (World Health Organization, 2020d)

In accordance with the call to action from WHO, various publishers have put collective efforts into pushing scientific discussion and collaboration forward. A consensus statement by Wellcome Trust's Statement has involved more than 100 signatories to "ensure that research findings and data relevant to this outbreak are shared rapidly and openly to inform the public health response and help save lives." These include prestigious journals such as *The Journal of the American Medical Association*, *The British Medical Journal*, the *Lancet*, and *New England Journal of Medicine* as well as leading publishers such as Springer Nature, Elsevier or Taylor and Francis (Wellcome Trust, 2020). In particular, Elsevier, for example, has opened a Novel Coronavirus Information Center, which aims "to open whatever resources we can to help public health authorities, researchers and clinicians contain and manage this disease." (Elsevier, 2020). In similar attempts, Emerald Publishing also has a page including free content related to Coronavirus and the management of epidemics (Emerald Publishing, 2020), while Springer Nature opened a campaign and stated to be "committed to supporting the global response to emerging outbreaks by enabling fast and direct access to the latest available research, evidence, and data"(Springer Nature, 2020).

It is essential to draw upon academic research to put evidence-based measures into practice for disease prevention and control. Amongst important research topics, those that integrated social sciences in the outbreak response constitute the cross-cutting priorities to understand better how to enhance the acceptability of and adherence to management, IPC, and public health measures, and simultaneously how to minimize stigma and prejudice. Social science research is expected to produce rich and detailed insights regarding social, behavioral, and contextual aspects of the communities, societies, and populations affected by infectious disease epidemics. The overarching aim of the research community is to bring social science expertise together with biomedical understandings of the COVID-19 epidemic, to strengthen the response at international, regional, national and local levels to stop the spread of COVID-19 and mitigate its social and economic impacts (World Health Organization, 2020a).

In many leading journals, editorials echoed a call for researchers to "keep sharing, stay open" (Nature, 2020). In *Nature Medicine*, the editorial also stated that "communication, collaboration, and cooperation can stop the 2019 coronavirus" (Nature Medicine, 2020). Editors in the leading medical journal BMJ asserted that "while scientists and public health professionals are working non-stop to contain the novel coronavirus, political scientists, economists, and sociologists should also ready themselves for rapid response" (Kickbusch & Leung, 2020).

Various authors have also expressed their viewpoints concerning the current situations in countries such as Taiwan (Wang, Ng, & Brook, 2020) or Singapore (Wong, Leo, & Tan, 2020). While the former illustrates an example of how a society can respond quickly to a crisis and protect the interests of its citizens, the latter focuses on discussing critical global issues that require concerted, coordinated attention and action from the experience of Singapore.

Amongst countries affected by the pandemic, Vietnam, with its geographical proximity with China, is a particular nation that has a high likelihood of being severely affected by the spread of the disease. However, until now, the situation in Vietnam has been quite stable, and the impact of the pandemic on people's lives has been minimal. Although the Vietnamese healthcare system had previously been under-resourced and had inherent weaknesses (Q.-H. Vuong, 2018; Q.-H. Vuong, Ho, Nguyen, & Vuong, 2018; Q. H. Vuong, 2015), especially concerning health insurance and patient welfare (Vuong, 2015), the Vietnamese response to urgent situations was commendable. Therefore, there are valuable lessons to be gained from looking into Vietnam's policy response, as well as information spread on social media and science journalism for the sustainability of the public health system amid the COVID-19 outbreak in Vietnam.

Few studies have discussed the situation of COVID-19 in Vietnam. The only three pieces of research to date are those by (Thanh et al., 2020), (Phan et al., 2020), and (Tan et al., 2020), which focused on the clinical aspects of the outbreak. However, there have hardly been any efforts to analyze the government's response in terms of public health measures and policy implementation, as well as the mobilization of citizens' collaboration in containing the disease. This shall be a subtle call for Vietnamese social science researchers to step in.

## Materials and Methods

This paper is concerned with reviewing Vietnamese policy response, news, and science journalisms related to COVID-19 recently. Findings were derived from the analysis of a database of recent policies, articles, and the credibility of data sources in Vietnam.

Extensive coverage was given to the pandemic in both the popular press and academic journals as well as through reports, briefs, and presentations by members of concerned and associated organizations (e.g., WHO).

A web crawler tool was used to scan the data from online newspapers in Vietnam, such as *Tuổi Trẻ*, *Thanh Niên*, *VnExpress*, or *Kenh 14*.

Using the keywords related to Covid-19, such as covid, ncov, corona, viem phoi, sars-cov, the tool has collected 7854 news reports regarding the coronavirus, as presented in Table 1.

**Table 2. List of online news sources (as of March 15<sup>th</sup>, 2020)**

<i>Sources</i>	<i>Start Date</i>	<i>News</i>
<i>kenh14.vn</i>	15/01/2020	1258
<i>vtc.vn</i>	17/01/2020	610
<i>suckhoedoisong.vn</i>	09/01/2020	584

<i>cafef.vn</i>	12/01/2020	556
<i>tuoitre.vn</i>	12/01/2020	571
<i>chinhphu.vn</i>	09/01/2020	355
<i>Zing.vn</i>	17/01/2020	914
<i>dantri.com.vn</i>	10/02/2020	973
<i>plo.vn</i>	23/01/2020	234

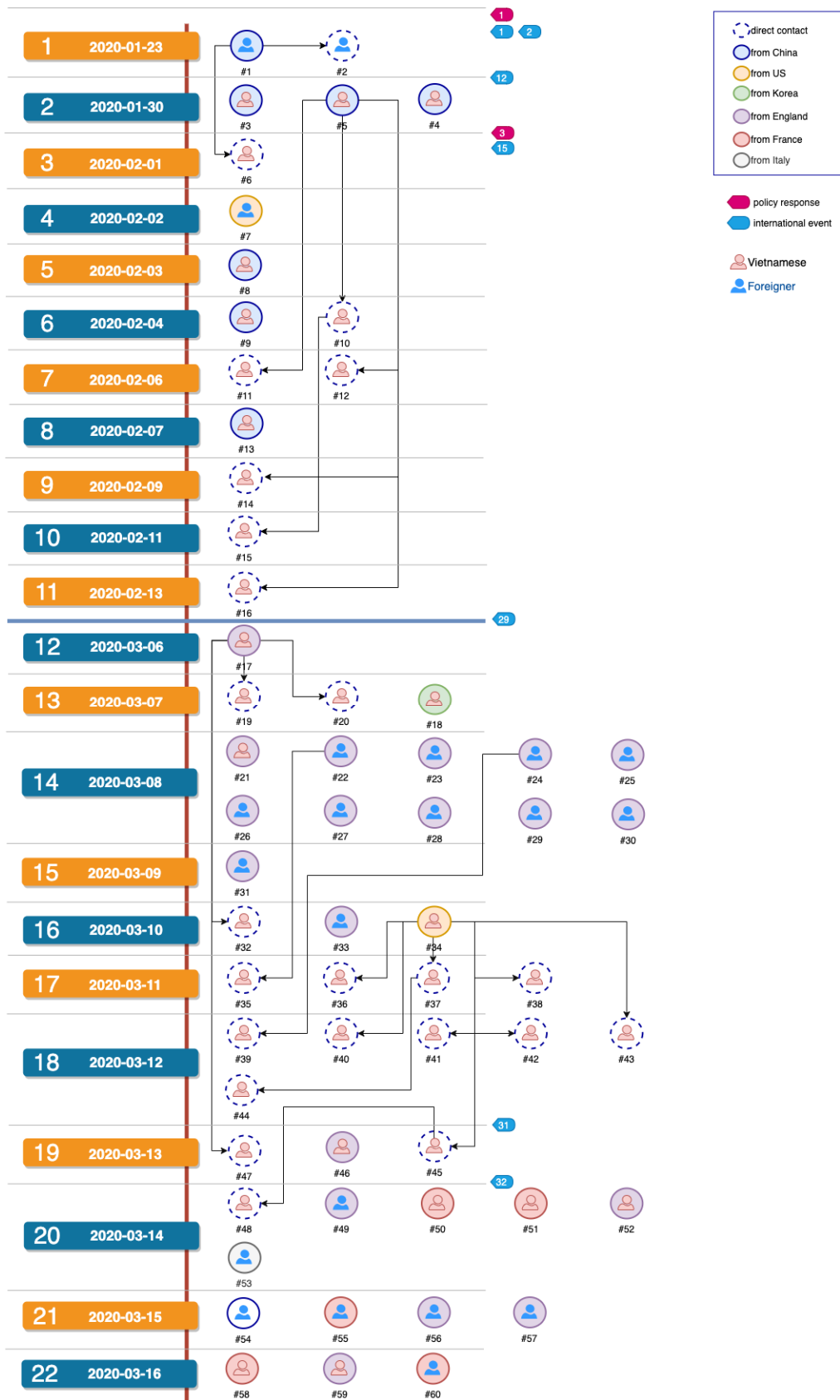
The raw data were manually cleaned, then categorized based on its characteristics, such as the timeline of COVID-19 cases, the timeline of international events regarding COVID-19, media reports, and policy response from the Vietnamese government. Furthermore, the data of the VN INDEX, which represents the changes in the Vietnamese stock market's prices during the COVID-19 pandemic, was also added to complete the dataset. Finally, we store the cleaned data as a comprehensive dataset in the SQL database for further analysis.

A compressive dataset about various socio-economic aspects of Vietnam during the COVID-19 pandemic, from the first outbreak in China until now, was collected, cleaned, stored, and analyzed. The dataset (as of March 16<sup>th</sup>, 2020) is available at OSF (URL: <https://osf.io/4w9ef/>; DOI: 10.17605/OSF.IO/4W9EF). Having organized the dataset, we then calculated descriptive statistics to illustrate how the Vietnamese government, news, and science journalisms response to COVID-19.

## Results

### *Chronology*

To have a better understanding of the situation, we propose to first take a look at a timeline of the spread of COVID-19 in Vietnam, from the first identified patient in late January 2020 to the most recent case.

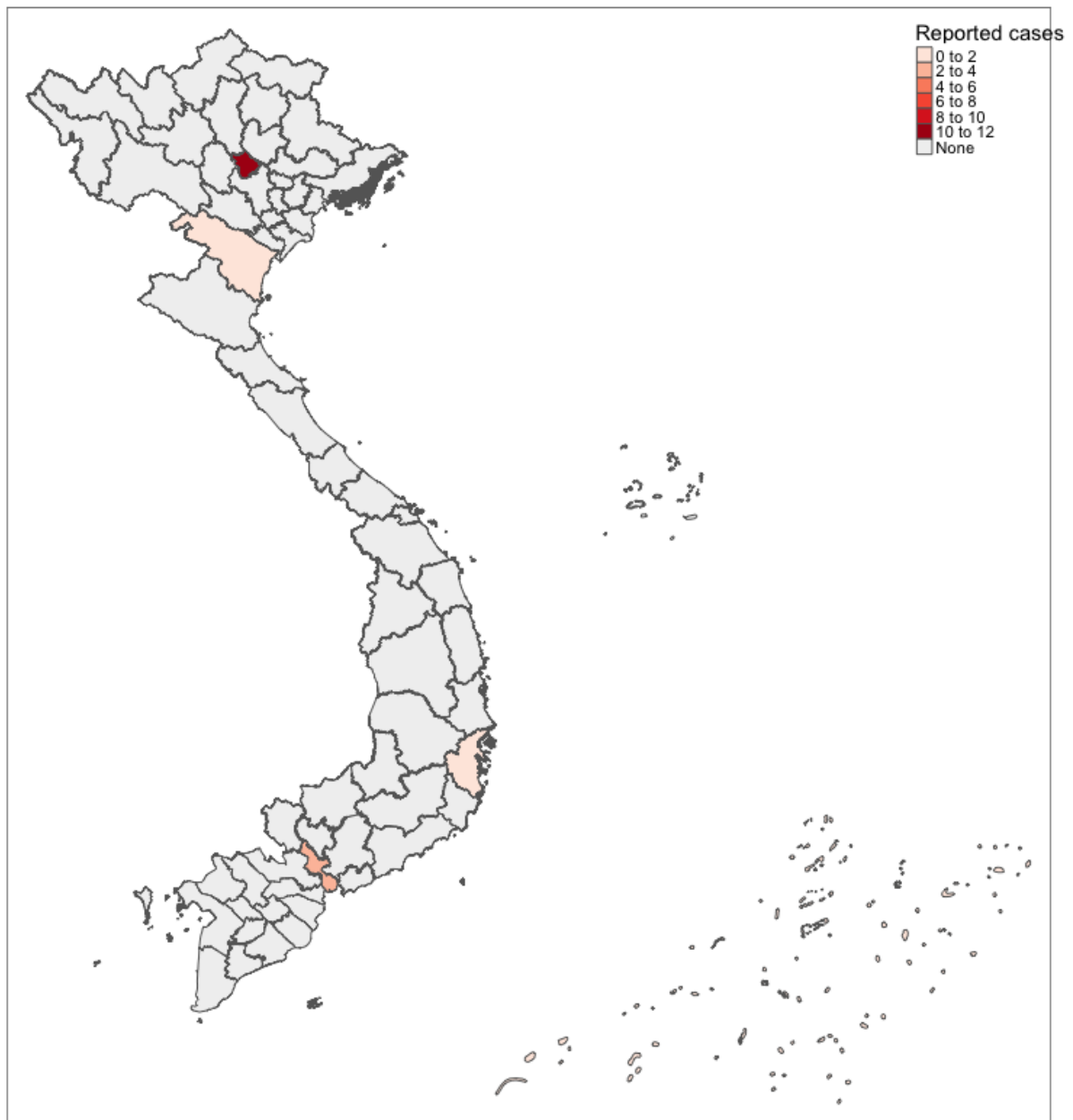


**Figure 3. Chronology of COVID-19 in Vietnam (as of 12:46 AM March 17<sup>th</sup>, 2020)**

We divided the timeline of the COVID-19 outbreak concerning Vietnam into four main periods as follows:

**Table 3. Four periods of COVID-19 outbreak in Vietnam**

<i>Period</i>	<i>Date</i>	<i>Event</i>
1	Before January 23 <sup>rd</sup> , 2020	No confirmed case in Vietnam
2	January 23 <sup>rd</sup> , 2020 – February 26 <sup>th</sup> , 2020	– First confirmed case in Vietnam – 16 <sup>th</sup> infected case discharged from hospital
3	February 27 <sup>th</sup> , 2020 – March 5 <sup>th</sup> , 2020	– No new case confirmed in Vietnam
4	March 6 <sup>th</sup> , 2020 – now	17 <sup>th</sup> infected case confirmed



**Figure 4. Locations of the first outbreak (16 cases) of COVID-19 in Vietnam**

In fact, one may even say that there are two separate outbreaks of the disease in Vietnam: the first outbreak, from patient 1 to patient 16, had been successfully contained with all patients having successfully recovered and been discharged from hospital. The second outbreak started with patient 17, who had previously resided in Europe, had been infected without declaring medical status to the authorities, thus spreading the disease once again to all those in contact. It is crucial to take into account these facts, as the actions were undertaken by the government right after the initial success with the first outbreak could be very telling about how a seemingly

contained situation could spiral again. Similarly, it would be helpful to consider the shift in the attitude of the government between the pause and the second outbreak.

## ***Policy Response***

### **Period 1 - Before January 23<sup>rd</sup>, 2020**

The Vietnamese government has reacted quickly to the news of the disease. In this period, the policy response focused on preventive measures and preparing resources for the coming combat for the newly detected disease.

On January 10, even before the first fatal case in China (World Health Organization, 2020a) and only a few days after China confirmed the outbreak of a new coronavirus (Lanese, 2020), the Public Health Emergency Operation Center under the Ministry of Health organized a meeting to evaluate the disease situation and suggest preventive and treatment measures.

Later on, from January 16<sup>th</sup> until 20<sup>th</sup>, the Ministry of Health had issued two decisions (No. 125/QĐ-BYT and No. 156/QĐ-BYT) to provide guidelines and plans to prevent the disease caused by the new coronavirus (Ministry of Health, 2020a). Even one urgent official dispatches (62/KCB-NV) to hospitals and local health departments, stressing on the importance of preventing and detecting the disease early (Hiep, 2020). Eventually, the first case was detected on January 23<sup>rd</sup>.

### **Period 2 - January 23<sup>rd</sup>, 2020 – February 26<sup>th</sup>, 2020**

After the first confirmed case of COVID-19 infection, continuous efforts was put forward by the Vietnamese government during this period. Right after the detection of the first case, Prime Minister Nguyen Xuan Phuc demanded measures to prevent the outbreak of COVID-19, including strict screening on passengers at airports, seaports and land crossings. The passengers who were suspected of being infected by Coronavirus should be kept in isolation timely. He also asked relevant ministries and provincial-level People's Committees to work together to provide information and ensure adequate supply of necessities (Kim Anh, 2020).

On January 28<sup>th</sup>, the steering committee for COVID-19 combat was set up. On the first day of February, the sixth COVID-19 positive was confirmed, which was also the first domestic transmission case in Vietnam, leading to the government chief's declaration of COVID-19 disease an epidemic in Vietnam (Vietnamplus, 2020). Since then, the Southeast Asian country had employed a series of strict preventive measures. These include compulsory health declarations at all international ports, supervision over passengers from infected areas like China, monitoring suspected cases at healthcare facilities and strengthened information



dissemination. School and university closures were also implemented in most cities and provinces. The Vietnamese government started to introduce technological application in the COVID-19 combat. For example, the website <http://ncov.moh.gov.vn> was introduced to provide updated information about the pandemic, including testing data and advice on precautionary measures and live chat for questions related to COVID-19 (Bich Thuy, 2020). The NCOVI and Vietnam Health app developed by the Ministry of Health was also activated to provide a risk assessment tool, consultation on prevention measurements, contact reports and live updates (Bich Thuy, 2020).

In this period, the hotspot of COVID-19 was in Vinh Phuc Province with 10 confirmed cases. The authorities decided to place a commune of 10,600 people in isolation to contain the spread of the virus. In the isolation period, the people were confined to their homes and in temporary houses, receiving a daily stipend of around US\$2.5. The local government set up a field hospital with 300 beds for quarantining and treating COVID-19 patients.

All these prompt and strict measures to prevent the spread lead to the comment from the WHO representative that Vietnam manages the COVID-19 outbreak “very well” on February 7<sup>th</sup>, 2020 (Online Newspaper of the Government, 2020b).

However, one mistake is from the Ministry of Tourism Vietnam when they attempted to promote a campaign called “Vietnam – Safe Haven,” while the spread of COVID-19 was still at the early stage (Ha Mai, 2020). The campaign aimed to attract tourists from the epidemic outbreak areas such as Korean and the UK to Vietnam because the country has managed it well, regardless of the ongoing widespread of COVID-19 in those countries. Consequently, 41% of the COVID-19 cases since patient N17 – effectively a “patient zero” of the second cluster of the outbreak in Vietnam – are foreigner tourists (H. Le, 2020b).

The second dilemma is the indecisiveness of the Ministry of Education in Vietnam. When they announced that students could not go to school (Khanh Van, 2020), the Ministry of Education has three significant mistakes. Firstly, the Ministry decided to announce the closing of schools for one week at a time, prolonging this shut-down only at the end of each week. They should have published shut-downs indefinitely until further notice, based on the nature of the pandemic alone, which can continue to be a public health menace for months until there is a vaccine. This week-by-week extension of school shutdowns leaves students and parents on edge for imminent school reopening every week and burdens their household decision-making. The second mistake of the Ministry of Education is the lack of educational guidelines when communicating the message to students. As the COVID-19 outbreak and subsequent school closing happened to occur directly after the Tet holidays, both students and parents were easily under the impression that this was an extension of the vacations. Aside from the risk of missing out on continuing the curriculum, the more dangerous consequence was that many families took the weeks off work and school as a cue for vacation and traveling, especially given the falling price of plane tickets and discounts from opportunists in the tourist industry. The Ministry should have issued concrete guidance on temporary homeschooling for parents,

teachers, and students, likely via online platforms. The third mistake that the Ministry of Education had made for a few weeks while COVID-19 was still spreading was only to oblige elementary and secondary students to stay at home and to allow the universities to determine their own schedule and high school students to return to study. The plan was irrational in the sense that no age group has been proven “safe” from virus transmission; not to mention, younger people could be asymptomatic carriers of the virus, thus becoming a transmission vector and endangering immunocompromised members of their own family, such as grandparents. Thankfully, the community has quickly protested this oversight, and the Ministry has since decreed all school buildings to be shut down and all students to stay home. Through these examples, one may observe that while the health care system in Vietnam has reacted appropriately to outbreaks, reactions in other areas such as the education system were not as seamless.

At the end of this period, Deputy Prime Minister Vu Duc Dam said that Vietnam “won the first battle against the epidemic but have not won the whole battle as we have entered a new stage with the situation worsening in South Korea, Japan and Italy” (Le Nga, 2020).

### **Period 3 - February 27<sup>th</sup>, 2020 – March 5<sup>th</sup>, 2020**

In the period between February 26<sup>th</sup> to March 4<sup>th</sup>, 2020, with all the confirmed cases discharged from hospital and no new cases, Vietnam has come to a new period of the epidemic. The Vietnamese government, however, continues cautious policies to prevent the spread of the virus, for example, suggesting provinces and cities to continue school closure and halting visa exemption for citizens of severely affected countries, including South Korea and Italy. On March 2<sup>nd</sup>, the government said that pandemic combat remains the top priority. On March 4<sup>th</sup>, Deputy Prime Minister Vu Duc Dam attends and leads the Army simulation exercise in response to the COVID-19 pandemic.

During this period, globally, the first positive case of coronavirus was diagnosed in Brazil (Lisandra Paraguassu, 2020) and Nigeria (Jason Burke, 2020), marking the spread of the disease to Latin America and Sub-Saharan Africa. On February 28<sup>th</sup>, WHO raised global risk assessment for coronavirus from “high” to “very high” as some countries struggle to contain the pathogen (Mulier, 2020) and in the following day, first U.S. coronavirus death was also recorded (Gerry Shih, Marisa Iati, Derek Hawkins, Katie Mettler, & Berger, 2020).

While the Vietnamese government has managed a rapid and effective response, there have also been inappropriate moves. For instance, after the 16<sup>th</sup> infected case was successfully treated, there were signs of imprudence. On March 4<sup>th</sup>, 2020, right before the 17<sup>th</sup> confirmed case, Deputy Prime Minister Vu Duc Dam, the leader of Vietnam National Steering Committee for COVID-19, has hastily announced that: “Only one more week without new cases, Vietnam will announce the end of the epidemic” (H. Le, 2020a). This leads to lax regulations among frontline guards against the disease and might have contributed to the outbreak from case 17.

Period 4 – March 6<sup>th</sup>, 2020 - current

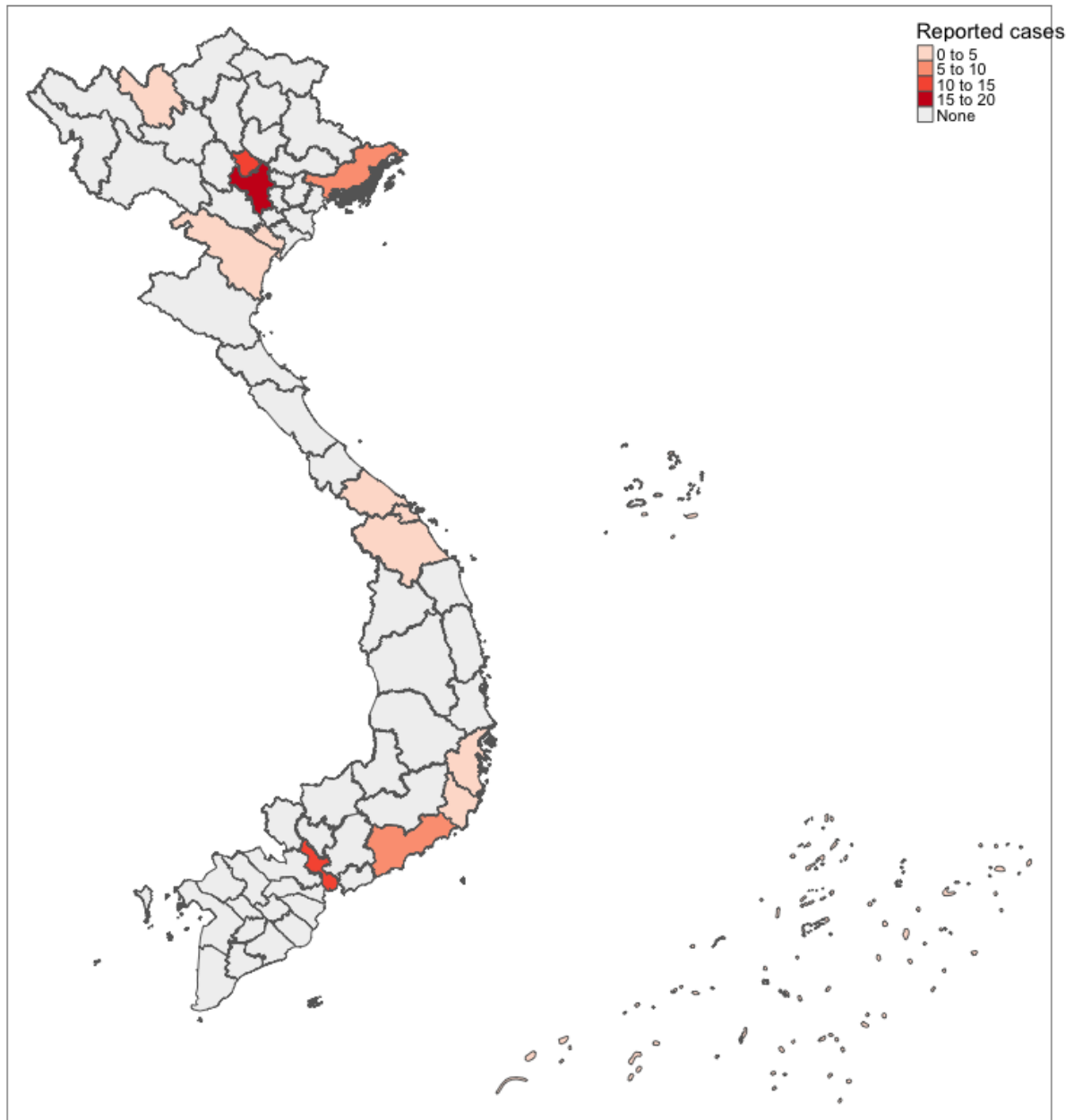


Figure 8. Locations of the second outbreak of COVID-19 in Vietnam (as of March 17<sup>th</sup>, 2020).

Period 4 – March 6<sup>th</sup>, 2020 – date

After 22 days of having no new confirmed case of COVID-19, on March 6<sup>th</sup>, the 17<sup>th</sup> patient was confirmed. What followed was a series of rigorous measures by the government, such as

obligatory medical status declaration for all incoming travelers, tighter border control, updated regulations for foreigners (Online Newspaper of the Government, 2020a). All Vietnamese citizens are encouraged to strictly follow the directives on disease prevention and containment in the combat against COVID-19.

This period also witnessed further application of digital technology to the combat against COVID-19. For instance, the Vietnamese government stated to apply electronic health declaration form for overseas travelers entering the country for case monitoring and surveillance (Vietnamnet, 2020). In addition, Hanoi Smart City app were also activated to provide a risk assessment tool, consultation on prevention measurements, contact reports and live updates (Le Nguyen, 2020).

On March 16th, Prime Minister Nguyen Xuan Phuc stated that this is the “golden time” to contain the spreading of the novel coronavirus to Vietnam (Online Newspaper of the Government, 2020b). The Head of the Government reiterated the need to step up efforts in the fight against the pandemic and serious fines for those who disseminate misleading information or fail to declare their medical status honestly. He voiced the imperative to place limits on mass gatherings, especially in urban areas and major metropolises, while maintaining centralized quarantine and isolation at places of residence to mitigate transmission. PM Phuc also asked for the reduction of flights from stricken regions. The Ministry of Health, Ministry of National Defense, and Ministry of Transport shall decide on designated parking areas for international landings to prevent transmission. As the virus has spread swiftly across the world, especially in Europe, Phuc tasked central and military hospitals to get ready to cope with the evolution of the pandemic (Online Newspaper of the Government, 2020b). In the following days, the government chief continuously took further actions, for example calling for nation’s joint efforts in COVID-19 combat (Vien Nhu, 2020) and stating that “COVID-19 fight is top central task now” (Thuy Dung, 2020a).

As the situation is worsening rapidly on a global scale, on March 18<sup>th</sup>, the Steering Committee for COVID-19 Prevention and Control called for accelerating responses such as tightening control of entrants, active prevention, early detection and timely quarantine (Thuy Dung, 2020b). As a result, on the same day, the Government has decided to temporarily halt visa issuance to all foreigners for 30 days, effective immediately (Q. Minh, 2020). In fact, since the beginning of the outbreak, Vietnam has continuously updated its visa suspension policy as a measure to constrain the rapid spread of the virus, given many countries now are at high risk of infection.

**Table 4. The halting of visa issuance to foreign countries**

<i>Country</i>	<i>Date Issued</i>	<i>Number of cases in Vietnam (as of the announcement)</i>
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<i>All countries</i>	March 18	66
<i>United Kingdom and Schengen</i>	March 15	53
<i>Italy</i>	March 03	17
<i>Korea</i>	February 29	16
<i>China</i>	February 02	7

The prompt and effective measures of the Vietnamese government to date has been regarded highly by WHO, and this organization recommended Vietnam to continue its approach and strategies to curb the pandemic or even taking stronger measures (Thuy Dung, 2020c).

### **Media communication**

#### **Official press**

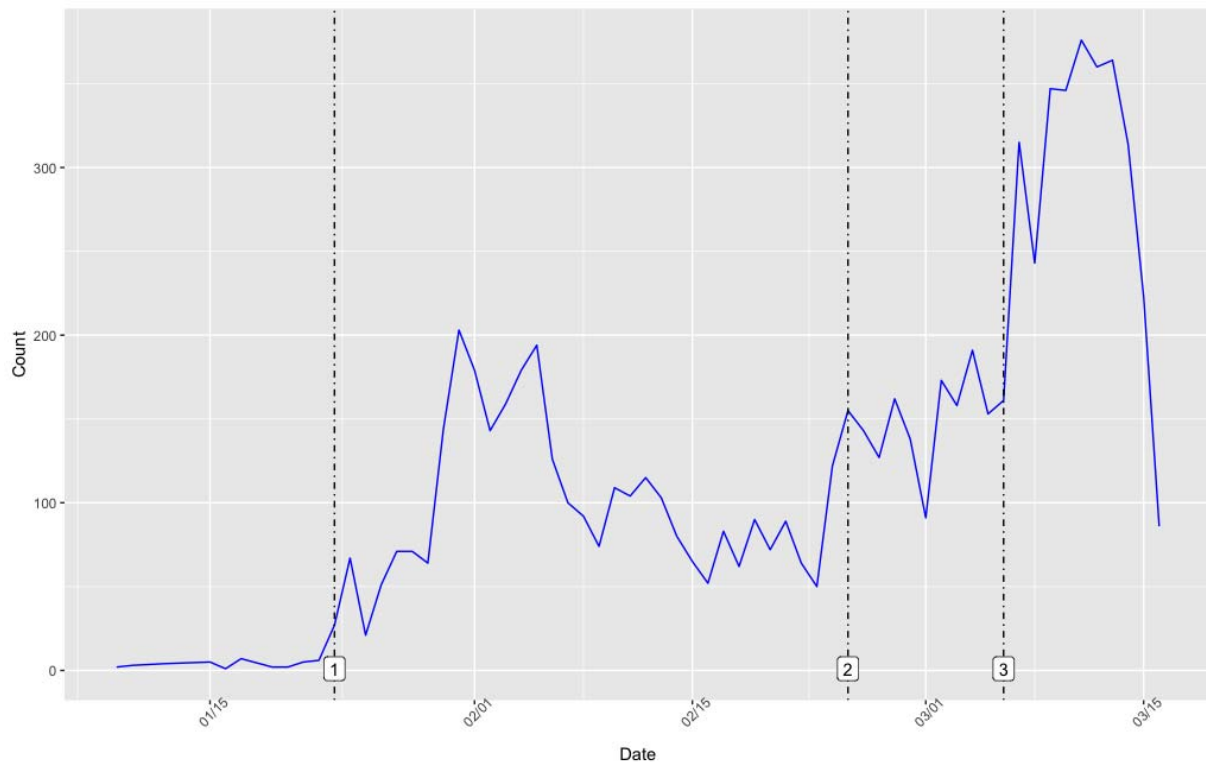
Prior to the first case of COVID-19 in Vietnam, the appearance of a so-called “strange pneumonia” in China was already circulated on Vietnam media as early as the beginning of January 2020. Our dataset suggests news regarding this “strange pneumonia” firstly appeared on *Báo Chính phủ* (chinhphu.vn), *Vietnam Government Portal*, and *Sức Khỏe và Đời Sống* (suckhoedoisong.vn), a news outlet of Ministry of Health, on January 9th, 2020 (H. Minh, 2020; PHOEC, 2020).

According to the article written by the Public Health Emergency Operation Center on *Sức Khỏe và Đời Sống* (PHOEC, 2020), public health experts expected high risk of having an outbreak in Vietnam because it was near Tet holiday (or Chinese new year). The following preventive measures had been proposed:

- Monitoring information from WHO and other sources
- Communicating the information clearly to the citizen
- Increasing disease surveillance at the border
- Maintaining the alertness of the Public Health Emergency Operation Center and four Institutes of Hygiene and Epidemiology.
- Planning prevention and control measures.

It should be noted that other news outlets such as Tuổi Trẻ, Thanh Niên, or Quân Đội Nhân Dân even shared the information to public earlier, from as early as January 3rd (Long, 2020; B. Nguyen, 2020). Thus, the timely attention from newspapers and news media, and afterward, social media, has played a crucial role in disseminating information to the public.

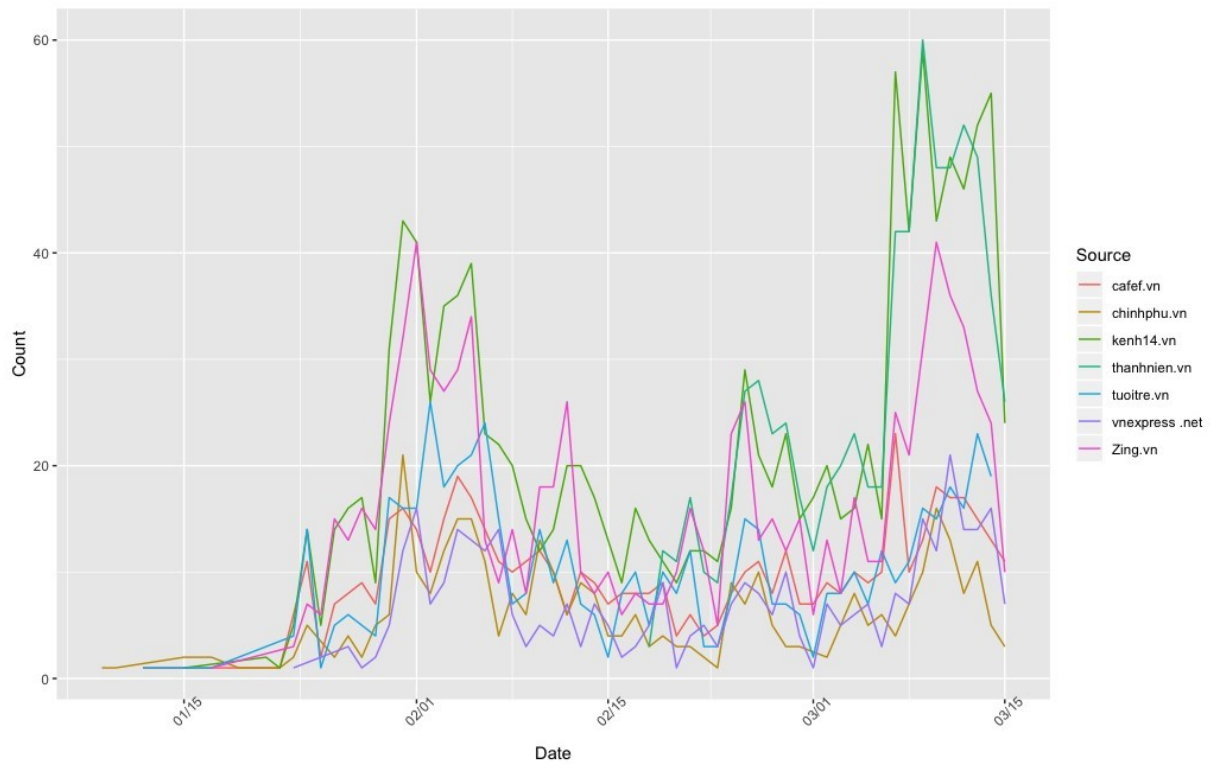
Since then, thousands of articles have been written updating Vietnamese people about the outbreak in the country and globally. Data from 13 online newspapers only generated nearly 8,000 articles published from January 9<sup>th</sup> to March 15<sup>th</sup>. This helps considerably in raising public awareness about the disease, as well as informing people about how to protect themselves and help prevent the spread of the virus.



**Figure 5. Total number of articles about coronavirus on major Vietnamese newspapers**

### ***Social media***

One particular characteristic of social media in Vietnam is the widespread use of Facebook and Zalo. In 2019, it was reported that 57.34% of the population used Facebook (My Lan, 2020). Zalo, a popular social network in the country, attracted 100 million users (The Anh, 2020). Therefore, the government has taken advantage of these social media to communicate coronavirus-related information to its citizens. For example, the Ministry of Health has created an official account. It keeps citizens informed daily about the current situation of the epidemic as well as reminding about protection measures for individuals.



**Figure 6: Number of articles about coronavirus in major newspapers**

As can be seen from Figure 5, the amount of media communication to the public remained high at around 150 to 190 articles daily. However, there were days when newspapers appeared to pay attention to other events, and this number of articles dropped to below 100 in the 3<sup>rd</sup> period. Compared to the previous period, the flow of news and information to the public was on-going and rather substantial during these days.

During the 4<sup>th</sup> period, information density proved to be an essential aspect of dealing with pandemic outbreaks. There exists a stereotype of students and expatriates coming back from developed countries as being more informed, given their higher level of education, and thus would behave more sensibly in the face of a global health crisis. However, recent events have shown that stereotypes remain stereotypes. Patient 17 in Vietnam is a notable illustration: a well-educated upper-middle-class person who acted in an extremely ignorant manner, refused to self-quarantine for 14 days, and thus had likely spread the virus to many other cases afterward.

Media communication created both positive and negative impacts on public awareness and attention during this period. On the one hand, individual effort in supporting public awareness and protection against the virus was also praised by social media.

For example, Vietnamese dancer Quang Dang with the handwashing song went viral globally and attracted thousands of views, and many people around the world are posting their own cover (Cost, 2020). In quarantine areas, people update about their life on social media, which spread a positive review of the facilities and healthcare system.

In another circumstance, the well-known local fashionista Chau Bui made videos of her quarantine period, all of which amassed nearly 1 million views, which has helped people feel more secure when going into the quarantine area (Ly, 2020). Famous artists are reported on social media for their donations to the healthcare facilities in Vietnam (Tuoi Tre News, 2020). Social media also reacted vividly to cases of confirmed patients or quarantined people. For example, Patient 17, who returned from Europe and did not provide accurate health status declaration got serious criticism from social media.

However, the negative side of rapid social media response is the strong emergence of fake news, especially during the early days of critical events such as the confirmed case of the first or 17<sup>th</sup> patient with the involvement of celebrities and famous people. To solve this problem, Prime Minister Nguyen Xuan Phuc has signed a decree stipulating sanctions against those spreading fake news and rumors on social media amid a deluge of online misinformation about the novel coronavirus in the Southeast Asian country (Tuoi Tre News, 2020).

### *Science Journalism*

In the fight against coronavirus, science journalism plays a crucial role in informing the global research community as well as providing reliable information to the public. Vietnamese hospitals have contributed very promptly to the call for sharing knowledge and data about the disease (Phan et al., 2020) on January 28<sup>th</sup>, 2020, even before the call from Nature editors to all COVID-19 researchers (Nature, 2020). Since then, there has been several significant works contributed by Vietnamese authors to the scientific community.



**Table 5: Articles about COVID-19 published by Vietnamese authors**

<i>No.</i>	<i>Title</i>	<i>Authors</i>	<i>Journal/Source</i>	<i>Date</i>
1	Importation and Human-to-Human Transmission of a Novel Coronavirus in Vietnam	Phan, Lan T., Nguyen, Thuong V., Luong, Quang C., Nguyen, Thinh V. Nguyen, Hieu T., Le, Hung Q., Nguyen, Thuc T., Cao, Thang M. Pham, Quang D.	The New England Journal of Medicine	January 28 <sup>th</sup> , 2020
2	Outbreak investigation for COVID-19 in northern Vietnam	Hai Nguyen Thanh, Truong Nguyen Van, Huong Ngo Thi Thu, Binh Nghiem Van, Binh Doan Thanh, Ha Phung Thi Thu,	The Lancet Infectious Diseases	March 4 <sup>th</sup> , 2020
3	Duration of viral detection in throat and rectum of a patient with COVID-19	Le Van Tan, Nghiem My Ngoc, Bui Thi Ton That, Le Thi Tam Uyen, Nguyen Thi Thu Hong, Nguyen Thi Phuong Dung, Le Nguyen Truc Nhu, Tran Tan Thanh, Dinh Nguyen Huy Man, Nguyen Thanh Phong, Tran Tinh Hien, Nguyen Thanh Truong, Guy Thwaites, Nguyen Van Vinh Chau	medRxiv	March 16 <sup>th</sup> , 2020

The first one investigated the transmission of the disease in Vietnam and highlighted some measures to enhance the diagnosis of COVID-19 (Thanh et al., 2020), while the second one reported one family cluster of COVID19 infection and raised concern regarding human-to-human transmission (Phan et al., 2020). In the third article, the authors reported the duration of viral detection in the throat and rectum of a COVID-19 patient treated at the Hospital for Tropical Diseases in Ho Chi Minh City, Vietnam (Tan et al., 2020). These efforts of Vietnamese scientists were also reported on official press, for example Vnexpress on January 30<sup>th</sup> posted an article named “The first case of nCoV in Vietnam on the world’s “medical bible””(P. Le, 2020), introducing the work by (Phan et al., 2020)

In terms of initiatives of science journalism, the use of preprints to speed up the publishing process has been a focus in the combat against COVID-19 (Kupferschmidt, 2020). As can be seen from Table 5, Vietnamese authors did use medRxiv, a preprint server for health sciences to speed up the dissemination of scientific data and findings (Tan et al., 2020). This shows the positive signal of Vietnamese scientific community to move forward with this global trend. Moreover, publishers also declare to be committed to making authors’ COVID-19 related research available immediately by making the peer-review process more rapid (Elsevier, 2020;

Emerald Publishing, 2020; Springer Nature, 2020). The consensus statement was also made by more than 100 signatories to “ensure that research findings and data relevant to this outbreak are shared rapidly and openly to inform the public health response and help save lives.” (Wellcome Trust, 2020). The efforts from Vietnamese hospitals and authors, therefore, can contribute to the database of global knowledge and expertise and may help to curtail this outbreak and prepare for future outbreaks.

Additionally, scientific publications also play a critical role in debunking myths related to the disease and quickly communicate reliable information to the public. This source may be used by newspapers and social media to disseminate information more widely to the general public (for example (Balloux, 2020). For instance, scientists pushed back against a steady stream of rumors and conspiracy theories about the origin of the coronavirus outbreak (Cohen, 2020). In the context of Vietnam, various Vietnamese scientists, for example Associate Professor Tran Xuan Bach, have frequently updated scientific knowledge and perspectives on their personal Facebook accounts to help inform the community update. Some of his posts attracted nearly 13,000 views and hundreds of shares from the public (Tran, 2020). Furthermore, interviews with doctors and scientists were also conducted both in written form and in live form, for example the live consultation session on topic “Information about Corona virus and respiratory diseases - How to prevent and treat” broadcasted on VTV News Newspaper (VTV News, 2020).

Regarding scientific advancement, Vietnam has successfully made test kit to diagnose COVID-19 infection in just one hour. The newly developed rapid COVID-19 testing kit was jointly developed by the Vietnam Military Medical University and Viet A Corporation. The kit was stated to meet World Health Organization and U.S. Center for Disease Control and Prevention Standards and 20 countries were negotiating to buy these products from Vietnam (T. Le, 2020). Besides this, several scientific projects in Vietnam are being conducted to produce similar rapid testing kit to meet the increasing demand worldwide, for example those by Hanoi University of Science and Technology or Vietnam Academy of Science and Technology (T. Le, 2020).

Besides scientific publications, university websites and various information-sharing magazines also contributed to enhancing the awareness of COVID-19. For instance, Phenikaa University has posted instructions to prevent the coronavirus up-to-date and donated more than 8,000 liters of hand sanitizer to residential areas, Hanoi Youth Union, Departments of Education and hundreds of schools in Vietnam Northern provinces (Thuy Linh, 2020). Similarly, more than 20 universities across the countries have produced sanitizers and provided them free for their communities (Nguyen Mi, 2020).

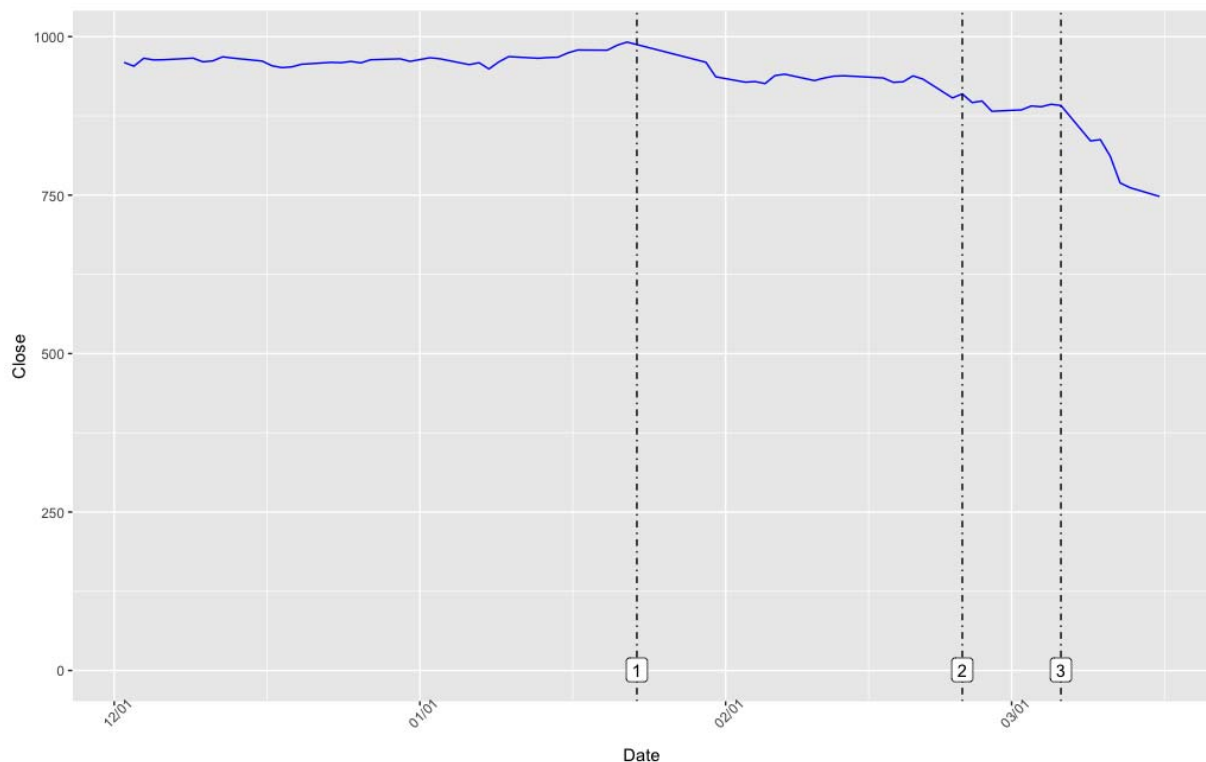
**Table: Vietnamese universities that produced sanitizers**

<b><i>Number</i></b>	<b><i>School</i></b>	<b><i>Location</i></b>
1	Angiang University	Angiang
2	Binhduong University	Binhduong

3	Dalat University	Dalat
4	Da Nang University of Technology	Danang
5	Lachong University	Dongnai
6	Hung Yen University of Technology and Education	Haiduong
7	Vietnam Maritime University	Haiphong
8	Hai Phong University Medicine And Phamarcy.	Haiphong
9	Thuyloi University	Hanoi
10	Hanoi Metropolitan University	Hanoi
11	Phenikaa University	Hanoi
12	Hanoi University of Science & Technology	Hanoi
13	Hanoi University of Industry	Hanoi
14	Hanoi University of Mining and Geology	Hanoi
15	Ha Noi University of Pharmacy	Hanoi
16	University of Technology and Education Ho Chi Minh city	Hochiminh City
17	Vietnam National University - Ho Chi Minh City	Hochiminh City
18	Ho Chi Minh City University of Science	Hochiminh City
19	Vanlang University	Hochiminh City
20	Hongbang University	Hochiminh City
21	Hue Industrial College	Hue
22	Travinh University	Travinh

### *Socioeconomic Aspects*

While imposing strict directives to prevent the dissemination of the novel coronavirus, adverse impacts on the socio-economic situations in Vietnam are observable as consequences. For instance, the number of international visitors to Vietnam in the first three months of 2020 was expected to decline by 800,000 compared to last year (Nhat Nam, 2020). As stated by Prime Minister Nguyen Xuan Phuc: “the government is willing to sacrifice economic benefits in the short term for the health of people”, Vietnam government acknowledges the adverse consequences of preventive measures. The acknowledgment is also reflected through the simultaneous reduction of interest rate by the State Bank of Vietnam (Thanh Xuan, 2020).



**Figure 7. The changes in the VN INDEX index during the COVID-19 outbreak (As of 17 March 2020). Note: [1] is the first case in Vietnam; [2] is when the patient 16 recovered, ended the 1<sup>st</sup> outbreak; [3] is the 17<sup>th</sup> case in Vietnam, also the beginning of the 2<sup>nd</sup> outbreak.**

For the stock market, before the detection of the first COVID-19 case in Vietnam, in period 1, the information for the disease in China appeared to have little impacts on the market. During period 2, from January 23<sup>th</sup> to February 26<sup>th</sup>, the market started the downward trend and lost more than 6.6%, from 959,58 points to 895,97 points. In the next period - February 27<sup>th</sup>, 2020 – March 5<sup>th</sup>, 2020, VN-Index experienced a minimal decrease from 895.97 on February 26<sup>th</sup> to 893.31 on March 5<sup>th</sup>, 2020. On the last day of this period, the Vietnamese stock market saw a recovery of 0.44% right before the consecutive days of a downward trend after the confirmation of the 17<sup>th</sup> coronavirus case.

During period 4, between confirmation of the 17<sup>th</sup> case in Vietnam on March 6<sup>th</sup> and the 66<sup>th</sup> case on March 17<sup>th</sup>, the stock market suffered severely, with its benchmark VN-Index recording a sharp loss of 145.66 points, or 16.33%, due to five consecutive days of extended selling. In terms of trading value, however, 287.28 million shares valued at VND4.38 trillion (\$188.72 million) were traded, in line with the ten-day average of 280.49 million shares worth VND4.74 trillion and the 20-day average of 242.87 million shares valued at VND4.29 trillion. The weak market sentiment and force-sell pressure in Vietnam are predicted to persist, given the complicated developments in stock markets around the world.

Beyond the stock market, this period of COVID-19 detection and intervention in Vietnam was marked by an initial wave of panic stockpiling of food among local consumers (Hang, 2020). Vietnamese media outlets on March 7 reported crowds of people lining up at supermarkets to buy all sorts of food and essential products such as hand sanitizer and toilet paper. Within two days, the government met and discussed measures not only to cope with the disease outbreak but also to stabilize the domestic market (Tuan, 2020).

While Vietnam is no longer a centrally-planned economy, in the face of a public health crisis and national emergency as this one, the government was quick to control any sudden spikes in prices of consumer goods, and thus, effectively preventing price speculation and gouging. Table 5 provides a snapshot of the prices of certain consumer goods before and after patient no. 17 was confirmed in Vietnam.

This shows beef as the only product whose prices remained unchanged during this period while the other goods all saw inevitable fluctuations, with the most drastic hikes seen in masks and hand sanitizer. By comparison, elsewhere around the globe, even in developed nations such as Australia (Koziol, 2020) and the United States (Telford & Bhattarai, 2020), consumers were reported to hoard a massive amount of food, toilet papers, hand sanitizer, and anti-bacterial wipes; some were doing it so as to profit off the public's panic buying. While there is insufficient data for comparing prices before and after the outbreak among countries, it appears that the situation in Vietnam is kept relatively better under control than in other countries. This is evidenced by the fact that the government, in conjunction with producers and supermarkets, was prompt to assure the public of food security as well as price stabilization.

**Table 5. The price of commodities in Vietnam**

<i>Goods</i>	<i>Before detection of case 17<sup>th</sup></i>	<i>After detection of case 17<sup>th</sup></i>	<i>Changes in percentage</i>
<i>Meat</i>	Pork: VND 100,000/kg-200,000/kg	Pork: VND 145,000/kg – 230,000/kg	Pork: 15-45%
	Beef: VND 250,000/kg – 300,000/kg	Beef: VND 250,000/kg – 300,000/kg	Beef: 0%
<i>Vegetable</i>	VND 10,000/pack – 20,000/pack	VND 20,000/pack – 30,000/pack	50%
<i>Fruit</i>	VND		
<i>Mask</i>	VND 34,000/pack - 45,000/pack	VND 45,000/pack - 100,000/pack	32%-122%

<i>Toilet paper</i>	VND 30,000/pack - 50,000/pack	VND 30,000/pack – 70,000/pack	40%
<i>Hand sanitizer</i>	VND 50,000/bottle	VND 50,000/bottle – 100,000/bottle	100%

*\*USD 1 = VND 23,140 (as of March 17 2020) |*

In terms of social aspects, during the early days after the first infected case, there was some rumor that the Vietnamese government was hiding information about Coronavirus, which caused some confusion and insecurity for the public (Van Son, 2020). To respond to this information, the authorities and mainstream media promptly reassured the citizens that transparency is the fundamental principle of the country in preventing the spread of the virus (Huy & Thu Hang, 2020). Government officials further explained that data and information from four Public Health Emergency Operation Centers of Vietnam were directly connected to the Centers for Disease Control and Prevention U.S and therefore, shared openly to the global database. (Huy & Thu Hang, 2020).

In later periods, the emergence of strong political leaders like Deputy Prime Minister Vu Duc Dam had significantly positive influence on public perceptions about the Vietnamese government as well as the consensus and trust in Vietnam’s efforts to fight against the pandemic. On social media, images and quotes of Deputy PM Dam appeared extensively on citizen’s posts, which created a sense of solidarity and the belief in governments’ efforts. Recently, the call from Prime Minister Nguyen Xuan Phuc on the whole nation’s joint efforts in COVID-19 combat attracted public attention and support from individual citizens (Vien Nhu, 2020). Responding to this call, one can easily see many images of bank transfer to the Vietnamese Fatherland Front on social media of Vietnamese people to support the government in the combat. On a larger scale, many enterprises, regardless of their size, also contributed to the national combat by donating their products such as masks, rice or milk, or by donating their hotels for isolation wards, or most popularly, by donating cash (eMagazine, 2020).

The social response can also be seen from various groups, including residential, work-related and informal groups. Since the early days of the outbreak, residential groups played a central role in transferring information to individual citizens by means of public announcements, leaflets, posters or standees (Thuy Linh & Thu Trang, 2020). In big cities, many management boards in complex buildings also decided to clean and sanitize the whole building to prevent the spread of the virus together with putting sanitizers in public spaces (Hanoimoi, 2020). The same efforts can be seen in work places and office buildings, with some even checking people’s body temperatures when entering the buildings. On the digital space, multiple groups have been formed, especially on social media, to share information about the pandemic and collaborate efforts to help fight against it.

## Discussion and Conclusions

First of all, the early risk assessment and immediate action of the Vietnam government, as well as the seamless coordination between government and citizens, are some of the main contributors to the prompt and effective reaction vis-à-vis the COVID-19 pandemic in Vietnam up till now. To date, Vietnam has managed to keep the situation under control, in several regards. All patients who tested positive either have recovered or were recovering; there has been zero death. In terms of prevention, the Vietnamese government has maintained rather impressive cooperation with citizens, and measures such as: mandatory mask-wearing, systemic health status declarations and checks, and self-quarantine have all been swiftly and smoothly implemented. Despite having made certain missteps or near-missteps as have been analyzed in the above sections, the government had been sensible enough to perceive warnings and recognize said mistakes.

The early policy response for preventive and treatment measures before the first case appearing in Vietnam is a highlight because Vietnam obtains a comparatively long shared borderline with China, and that was during the Tet holiday – the traditional new year of both Vietnam and China when the mobility rate was substantially high. The later simultaneous responses of the government presented through continuous directives of the Prime Minister according to the COVID-19 situation provide public health measures (school closure, public health quarantine, social distancing, etc.) and maintain the supply of fundamental goods for preventing the dissemination of the disease. Besides that, the effective control of the infected case number is also greatly influenced by the fluent coordination among governmental agencies. To achieve smooth national coordination during the harsh time, a whole-of-government pandemic prevention drill was held during the period when no newly infected cases were found. These efforts of Vietnam all met the suggestions by WHO for responding to community spread of COVID-19 (World Health Organization, 2020c) and implied the high awareness and integration of Vietnam government, which are two out of 5 main factors of a resilient health system proposed by (Kruk, Myers, Varpilah, & Dahn, 2015). Indeed, the government learned from its previous experience during the SARS 2003 epidemic and established a public health response mechanism that has proven to be effective to date.

Despite the optimistic results of the measures that have been taken to prevent the spread of COVID-19, one must not deny the mistake that might have intensified the severe consequences of the second outbreak. The Ministry of Education and Training was responsible for lack of guidelines for students as well as indecisive policies regarding school shutdowns during the early phases of the pandemic. The Ministry of Culture, Sports and Tourism had also taken missteps in underestimating the spread of the diseases and falling lax in controlling cross-borders contamination. Controlling the spread of the virus within the nation and from other outbreaks within Asia did not mean that the prevention was successful. As pathogen respects no border, the threat from another outbreak still existed if other places other than Asia cannot prevent the disease outbreak. Through promoting Vietnam as a “safe destination” to attract

foreign visitors from Europe – the second-largest outbreak besides China – the Ministry of Culture, Sports and Tourism has committed a near-fatal mistake that exacerbated the second outbreak: 41% of the COVID-19 infected cases since patient N17 are visitors from Europe. It highlights a certain disconnect between the declaration of the PM to prioritize the health of citizens above economic concerns: indeed, the Ministry had thought to take advantage of a global pandemic to promote tourism, and Vietnam had paid dearly.

As has been suggested by Leach, Scoones, and Stirling (2010), governments often preferred to frame disease outbreaks as acute, thus relying on temporary, short-term measures of public intervention; an alternative to this framing would be to consider infectious diseases as endemic and long-present in the locality, thus adapting the entire community's lifestyle to deal with it. As COVID-19 is a novel disease, the Vietnamese government has indeed responded to it as an epidemic outbreak; however, it could also be observed that the rapid response itself owed to the fact that Vietnam had had a history of dealing with epidemics and pandemics, namely SARS in 2003 and H5N1 flu in 2008; as well as A/H1N1 in 2009, a disease continued to make its reappearance in smaller outbreaks in years to come, such as in 2018 (Nguyen, 2018). For this reason, one may be able to have a positive outlook on Vietnam's sustainability, at least in terms of efficient decision-making, in the continuing battle against the spread of COVID-19.

Sustainability in terms of resources, however, merited a closer look. In view of the phenomenon of pre-lockdown panic-buying, particularly reported in the United States, but also in certain other countries such as France or Germany, food insecurity and commodity shortage have become legitimate concerns. In certain circles on social media, certain pictures of Vietnam and the US have been posted alongside to highlight the contrast between the quite adequate food distribution in Vietnam as well as the free meals provided in quarantine hospitals on one hand, and the empty shelves of not only food but also sanitary products (toilet rolls, hand sanitizer, soap, etc.) due to hoarding in certain place in United States on the other. In addition, one could not discuss resource drainage in the face of a pandemic without evoking labor. It goes without saying that the medical personnel were on the frontline; but other than medical professions, it should be noted that manual laborers who uphold the infrastructure, such as store staff, garbage collectors, deliverers, etc. This aspect of resource merits as much attention from governments and planning as any other.

With regard to resources required to sustain prevention measures, there are positive signs. COVID-19 test kit manufacturers have claimed that there was sufficient material to produce 3600 kits, each kit being capable of testing for 50 people, and that they would be capable of producing 10,000 kits per day if required (Bich Ngoc, 2020). While this claim was unsubstantiated scientifically, it is worth noting that Vietnam is efficient enough in the production of test kits for export deals. This would be comparable to South Korea's testing ability which had been put to use with remarkable success in curbing the spread of the disease as the country became the world's second-largest outbreak. Another successful innovation for disease prevention is the mobile full-body sanitization chamber; the first one has recently been



released in Ho Chi Minh City and at least three more were in order (Q. Linh, 2020), at the time of writing. These instances suggested that Vietnam has got the technology to sustain widespread preventive measures. However, as the second outbreak continued to spread, the efficiency of current preventive methods grew questionable. The demand for capable healthcare infrastructure to accommodate new cases thus remained pressing. Considering the fact that Vietnamese central hospitals suffered from chronic overpopulation in yearly minor outbreaks, this issue should very much concern policymakers. A suggestion would be to immediately devise plans to restrict mobility between provinces – both to prevent disease spread and to avoid overloading central hospitals – as well as to upgrade and equip regional hospitals and encourage infected citizens to utilize medical facilities in their proximity.

Concerning communication and information dissemination in the face of the pandemic, we have observed a pattern in the official press. Journalists have indeed picked up on the vocabulary used by officials in public speeches. As such, articles reporting on measures against COVID-19 employed rhetoric often associated to wars, such as: “fight the enemy” (*đánh giặc*, in which the word *giặc* connotes the illegitimacy of said enemy, a nuance difficult to translate), “leave nobody behind” (*không bỏ lại ai phía sau*; as if in a battle march), “grand solidarity” (*đại đoàn kết*, alluding to the two Indochina wars against France and the US), etc. This sort of highly combative language was, in fact, not new, as it has been used in official narratives for a good number of national media campaigns. On the other hand, technical terminologies seemed to be much less abundant in Vietnamese media reports.

Influential political leaders and experienced teams of officials were quick to recognize the crisis and implemented rigorous strategies to address the emerging outbreak. The media response has also helped in promoting public awareness about the disease and how people can protect themselves and the communities around them. Science journalism equally played a crucial role in communicating effectively and prompt information to the public and global research communities.

The three pillars of society's responses have contributed majorly to the situation of Vietnam, in which the community has responded quickly to a crisis and protect the interests of its citizens. It also reveals valuable lessons for other nations in the concurrent fight against the COVID-19 pandemic, namely an emphasis on mobilizing citizens' awareness of disease prevention without spreading panic, via fostering genuine cooperation between government, civil society, and private individuals.

### **Limitations of the study and future research directions**

We fully acknowledge the shortcomings of this paper. As the pandemic was still spreading and the situation continued to move rapidly at the time of writing, we are faced with a shortage of backing in the extant literature. While we tried our best with rigorous methodology and

technical tools – namely, using a web crawler to gather data *en masse* from news sites – there remained certain arbitrary choices that we had had to make as researchers, such as the choice of which news sites to consider and which to exclude from our analysis.

In terms of data curation and flexibility of analysis, our methodology also shows several limitations. It should be noted that news articles on online news sites were quite often reposted from one location to another, thus inflating the number of articles reporting on COVID-19 compared to the substantial information being disseminated. Rather than an error, we believe this phenomenon of media communication to be interesting in itself. However, we do not believe ourselves to be sufficiently equipped for analysis thereof, nor do we believe such an analysis would fit within the scope of our article. We would welcome any contribution, related, or not to this point.

In the future, we aim to use a Python web-crawled engine for scanning news from online sources. The scanned data will be saved into a news analysis system, which is developed by .net core, for storage and future analysis. The structure of this news database is as follows:

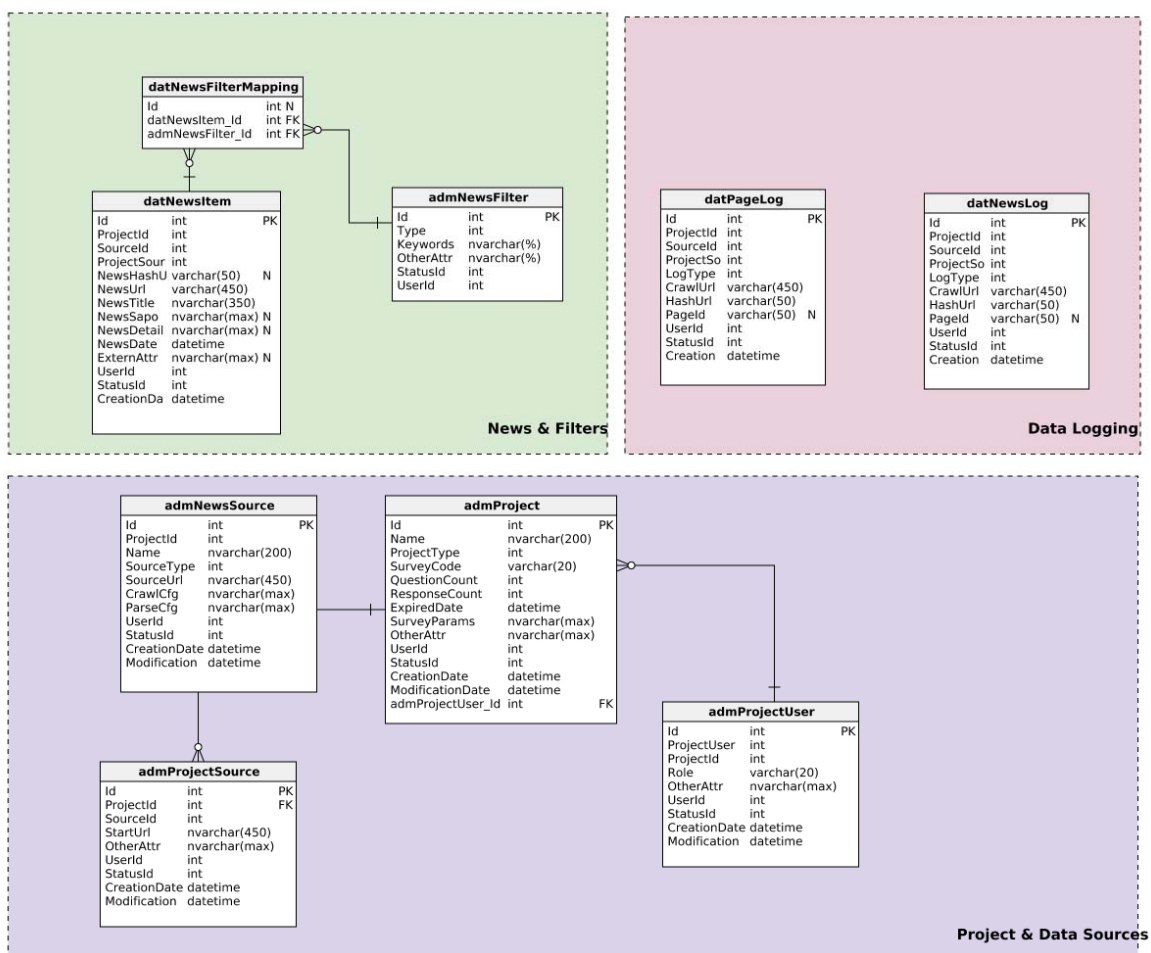


Figure 8.

There are three main components:

- Projects & Data Sources: Settings for projects and news sources.
- Data Logging: Log of the data collection process
- News & Filters: Collected news with filters.

Examples of Python code are as follows:

```
def parseDetail(self, response):
    projectId = response.meta.get('projectId')
    projectSourceId = response.meta.get('projectSourceId')
    sourceId = response.meta.get('sourceId')
    sourceUrl = response.meta.get('sourceUrl')
    projectCfg = response.meta.get('projectCfg')
    crawlCfg = response.meta.get('crawlCfg')
    parseCfg = response.meta.get('parseCfg')
    pageId = response.meta.get('pageId')

    keyGroup = response.meta.get('keyGroup')

    if self.existNewsUrl(projectId, response.url):
        return(None)

    #print(keyGroup)
    newsTitle = NewsParser.extractText(NewsParser.parseItem(response, parseCfg["TitleCfg"]))
    print(newsTitle)

    newsDate = NewsParser.parseDate(response, parseCfg["DateCfg"])
    print(newsDate)

    if projectCfg["UpToDate"]:
        upToDate = datetime.strptime(projectCfg["UpToDate"], "%Y-%m-%dT%H:%M:%S")
        if upToDate > newsDate:
            if projectSourceId not in self.completed:
                self.completed.append(projectSourceId)
                return(None)

    newsSapo = ""
    if "SapoCfg" in parseCfg:
        parseSapo = NewsParser.parseItem(response, parseCfg["SapoCfg"])
        newsSapo = NewsParser.extractText(parseSapo)
        #print(newsSapo)
```

Using this system, we can easily set up the sources, keywords. Furthermore, all tools and datasets will be maintained for future mining. We expect the dataset to keep growing over time, presenting us with new opportunities for further analysis for deeper (and more useful) insights.

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