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The COVID-19 risk perception: A survey on socioeconomics and media attention

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Abstract

This brief communication examines the role of socioeconomic factors and use of social media on the risk perception about COVID-19 in Vietnam, which shares a common border with China. Moreover, Vietnam was the first country to succeed in containment of severe acute respiratory syndrome (SARS) in 2003. From a sample of 391 Vietnamese respondents aged from 15 to 47 years, the present study found that geographical regions and behaviors in using social media have a positive impact on the risk perception of COVID-19 epidemic in Vietnam. It also adds to the significance of understanding the risk perception among people to communicate the public health response to COVID-19 to curb the spread of this deadly virus.

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1 Introduction

An outbreak of severe acute respiratory syndrome (SARS), a fatal infectious disease, reached global proportions in 2003. Vietnam became the first country to succeed in the local containment of SARS at that time (Cao et al., 2019). In a similar COVID-19 pandemic in 2020, Vietnam claims to be the first country to have successfully treated all 16 of COVID-19-infected patients[1]. At this stage, Vietnam has reported no new case of COVID-19 infection since February 13, 2020.

However, hitherto, Leung & Huang (2007) claimed that there are contrasting views reported in the Western media about China and Vietnam with regard to the case of SARS coverage. The 2019 World Press Freedom index stated that both Vietnam and China are ranked at 176 and 177, respectively, over 180 countries[2]. This indicates that the people from China and Vietnam lack vital information to shield against the fatal epidemic. In addition, there is always a concern about the state of fake news and misinformation in social media, for example, Zika virus (Sommariva et al., 2018). Seventeen years later, in 2020, in the context of the outbreak of the novel coronavirus (COVID-19), once again, the world is racing to contain the spread of the deadly virus in not just China but also across the world. Vietnam not only shares the border but also has close economic and sociological ties with China. At present, the rate of fatality arising from COVID-19 is lower than that from the previous epidemic such as SARS and Middle East respiratory syndrome (MERS) infections (Bassetti et al., 2020). However, the global transmission of COVID-19 is rapid because of the direct human-to-human infection, which makes it challenging to adequately inform the public about the risks involved and precautions needed. Clearly, the true risk from COVID-19 virus might be low, but this epidemic has received broad media attention and been subjected to social media discussion, which may have induced the perception of risk among people, which in turn might determine their behaviors (Sjöberg, 2000; Weinstein, 1988). Therefore, understanding their risk perception could be an effective method to communicate the health policy. Optimistic people might be under volitional control, while the pessimistic ones will be led by mass panic. This would lead to ineffective implementation of the health policy to halt the epidemic and might even become uncontrollable (Slovic, 1987; Weinstein, 1988).

[1] Especially, there is a case of three-month child

[2] `https://rsf.org/en/ranking`

In this context, this communication presents a timely evaluation of the risk perception of Vietnamese people regarding COVID-19 in its initial phase, where such a virus is reported, as the comparable transmissibility but lower mortality rates than the previous epidemics (i.e., SARS and MERS). In total, 391 Vietnamese people aged 15–47 years old were surveyed for COVID-19-related risk perceptions. This is closely associated with economic, political, and geographical links with the originating place of virus in the 2020 outbreak.

Section 2 of this communication summarizes the data sample. Section 3 describes the main findings and results and section 4 presents the conclusions.

2 Data sample

The respondents in the study were drawn from a random sample of an Internet research source, which provided the electronic questionnaire. Data were collected since February 1, 2020, when the Vietnamese prime minister officially declared the global and national emergency scenario. The duration of the survey was 20 working days, representing for three week after the announcement of the epidemic. A total of 391 persons (42.96% male) responded to the questionnaire. All questions were open for those who even desired to skip answering in case of an uncomfortable feeling. With respect to the socioeconomic factors, the study sample covers 62.66% nonreligious respondents and 29.67% Buddhists. In addition, of the 391 respondents, 13.81% had received university and college training level, 46.8% had graduated from high school, and the rest either did not divulge the information or were postgraduates. Finally, the average monthly income of the study sample was around 10.92 million Vietnamdong[3] (S.D. = 10.28).

With regard to the attitudes toward COVID-19 virus, the questionnaire included "risk perception," "fake news about COVID-19 evaluation," and "officially announced information." In particular, the respondents were asked how worried they feel about COVID-19 infections on a scale of 1 (very unlikely) to 10 (very likely). Moreover, they were asked to assess the extent of the spread of fake news regarding COVID-19 as well as the level of timely communication from official organizations (for instance, World Health Organization and the Vietnamese Ministry of Health) in the same previous scale (from 1 to 10). In addition, people were asked about the category channel on which they received the information on COVID-19 virus (24.55% from newspaper,

[3]It is equivalent to 470 USD per month.

magazine, and television; 62.4% from social media such as Facebook and Zalo[4]; and the rest from other sources). The respondents were also asked a follow-up question regarding the searching frequency (quantified as how many times the respondents actively sought information on COVID-19). Of which, 11% of the respondents did not actively search for information on COVID-19, while more than 80% admitted that they searched at least twice a day.

3 Results

The scale of risk perception ranged from 1 (less concerned) to 10 (most concerned). Therefore, the first evaluation from the study sample is the average of risk perception (mean = 7.65, S.E. = 0.092). This indicates that Vietnamese respondents were more worried about the risk of acquiring and getting infecting from COVID-19 as the responses were higher than the mid-point of the 10-point Likert Scale (t-stat = 28.94, $p < 0.001$). Meanwhile, our respondents believe that the average level of fake news on COVID-19 (mean = 7.88, S.E. = 0.097) is higher than the mid-point (t-stat = 29.59, p < 0.001) as well as the official information announcement (t-stat = 16.69, $p < 0.001$). Next, the ANOVA test was run to analyze the differences in the risk perception of COVID-19 among the socioeconomic and social media attention groups. The statistical results suggest that two factors, namely the habit of using social media ($\rho < 0.1$) and geography ($\rho < 0.05$), showed differences in COVID-19 risk perception, while the remaining factors showed none. Figure 1 shows that the higher the frequency in using social media, the higher is the risk perception of COVID-19 virus. The study finding is consistent with the previous studies of Guidry et al. (2017); Wahlberg & Sjoberg (2000). In addition, people from central and southern Vietnam expressed a higher risk perception of COVID-19 than those from northern Vietnam. This is because several Chinese tourists prefer southern Vietnam to northern Vietnam since 2002 (Chan, 2006), which is supported by the recent data from Vietnam National Administration of Tourism. With regard to the differences in the dissemination of fake news as well as the extent of official news announcement, no significant statistical values for socioeconomic factors and the habit of using social media were found. Table 1 demonstrates the regression model of socioeconomic factors and the habit of using social media to predict the COVID-19 risk perception in Vietnam. By controlling the socioeconomic factors, it was found that province, social media, and frequency are significant coefficients at 1%, 5%, and 1% significance level, respectively. Evidently, the determinants

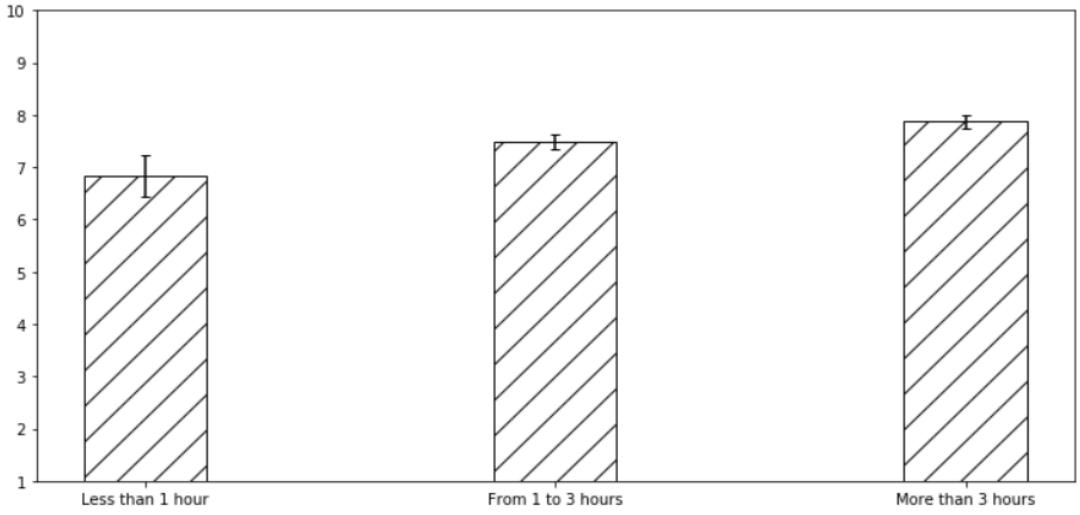
[4]It is the Vietnamese social media community. This platform is similar to WeChat in China.

of COVID-19 risk perception can be classified into two categories: geography and the social media behaviors. With regard to the historical news, the first patient who had a positive diagnosis of COVID-19 was found in the central and southern Vietnam (Thanh Hoa Province and Ho Chi Minh City). Therefore, it could be also be the underlying reason for the significant coefficient of province in the regression model. In particular, in the study sample, the habit of searching for information as well as the frequency of using social media is found to increase the COVID-19 virus risk perception. The regression analysis for socioeconomic and social media determinants of fake news perception and official news on COVID-19 were also run. However, there is no significant coefficient for further policy implications.

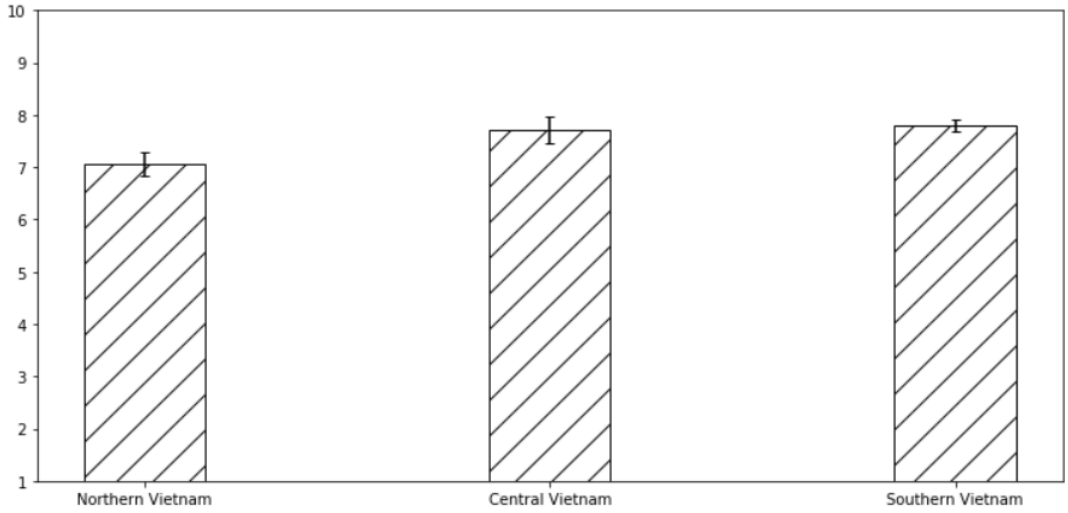
4 Conclusions

The contagious COVID-19 virus outbreaks need to be addressed urgently, which will require urgent actions from both government and the whole society. Understanding the determinants of the risk perception among people is critical to disseminate information on the appropriate public health policy. This short communication reveals on how people determine their own risk of exposure about COVID-19 from two aspects: (1) geography and (2) behaviors exhibited in using social media. Therefore, this brief communication could be used to improve public policy. The overwhelming amount of information and the overuse of mass media in communicating the COVID-19 virus might contribute to overreaction, unwarranted public fear, and an overly pessimistic feeling in perceiving the current risk. In particular, at the province having COVID-19-positive patient, the attitude of disseminating information could be changed from one of emergency responsiveness to that of preventive preparedness, which is likely to reduce the fear and panic among people. Finally, learning from different geographical regions about the current risk perception will be a key factor in reducing the global threat of the ongoing COVID-19 epidemic from the previous studies Goddard et al. (2006); James et al. (2006), indeed. However, the study sample includes respondents aged 15 to 47 years[5]. Thus, the elderly people may perhaps have a higher risk perception. In addition, the coefficients of age are positive over four models; unfortunately, they are insignificant. Hence, further research can be made on evaluating the risk perception at different age intervals.

[5]The respondent who is 47 years old evaluate the COVID-19 risk perception as 9 over 10).



(a) Habit in social media uses



(b) Geography

Figure 1: Risk perception mean differences in distinguishing categories

Notes: There is a statistically significant difference in the mean of risk perception among the three different groups from one-way analysis of variance as well as multivariate analysis of variance.

Table 1: Regression model to predict the COVID-19 virus risk perception in Vietnam

Variables	Risk perception on COVID-19 virus			
	Model (1)	**Model (2)**	**Model (3)**	**Model (4)**
Sources	0.066	0.044	0.032	0.105
	[0.351]	[0.235]	[0.170]	[0.559]
Frequency		0.052***	0.049***	0.054***
		[2.926]	[2.767]	[3.077]
Social-media			0.492**	0.478**
			[2.553]	[2.474]
Province				0.465***
				[3.255]
Age	0.017	0.015	0.017	0.022
	[0.627]	[0.526]	[0.616]	[0.781]
Gender	0.096	0.098	0.143	0.188
	[0.570]	[0.578]	[0.853]	[1.118]
Religion	0.103	0.042	0.064	-0.007
	[0.615]	[0.242]	[0.369]	[-0.038]
Income	-0.010	-0.014	-0.017	-0.017
	[-0.777]	[-1.093]	[-1.318]	[-1.337]
Job	-0.078	-0.068	-0.047	-0.125
	[-0.534]	[-0.463]	[-0.321]	[-0.848]
Members	0.064	0.032	0.016	0.027
	[0.739]	[0.362]	[0.183]	[0.306]
Education	-0.062	0.005	0.112	0.115
	[-0.238]	[0.020]	[0.431]	[0.435]
Constant	7.127***	7.041***	5.598***	4.298***
	[8.725]	[8.518]	[5.564]	[4.034]
Pseudo R^2	0.0026	0.0098	0.0154	0.0261
Observations	282	273	272	264

Notes: *** p < 0.01, ** p < 0.05; * p < 0.1. T-statistics are in parentheses. The Tobit regression estimation with left-censoring variable as 1. "Sources" denotes to the sources from which respondents look for information about COVID-19 virus. "Frequency" means the number of people actively searching information about the virus. "Social media" is the variable for the number of hours that respondents use social media platforms. "Province" is the ordered variables standing for northern, central, and southern Vietnam. Age, gender, religion, income, family member, job, and education are the socioeconomic determinants.

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