Self-reported worry and action among Vietnamese citizens during the COVID-19 pandemic in 2021: latent class analysis

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Article Info

ABSTRACT

Describe the prevalence of and factors associated with self-reported worry and actions of Vietnamese citizens during the COVID-19 pandemic in 2021. A secondary data analysis was implemented using a cross-sectional survey conducted in 2021 among 447 adults living in Hanoi City from July to December 2021 and Ho Chi Minh City from May to October 2021. The hidden layers assessment results retained the 3-class model as the best-fitting one in the study. In this model, 28.4% of participants were in Class 2 - "Low Self-reported Worry and Moderate Action" group, 45.9% of the participants were classified into Class 1-"Moderate Self-reported Worry and Low Action" group, and 25.7% in Class 3 - "High Self-reported Worry and High Action" group. The multinomial logistics model showed that worrying about losing the house because of COVID-19 makes the expected participation risk of staying in latent class 1 lower for subjects high in latent class 3 (p<0.05). Our study identified the latent classes of self-protection action and awareness among Vietnamese citizens. The associated factor that impacted the classes was the fear of losing a house.

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1. INTRODUCTION

On December 31, 2019, Wuhan City in Hubei Province, China, reported an outbreak of coronavirus disease of unknown cause to the World Health Organization (WHO) [1]. Genetic sequencing has identified The virus causing the outbreak as a novel coronavirus since January 10, 2020. Understanding the transmission characteristics of this highly infectious virus in communities, regions, and countries will help improve measures to reduce disease transmission [2].

On the one hand, self-protective actions such as wearing a mask or keeping an appropriate distance during social distancing can be an excellent strategy to prevent person-to-person transmission of COVID-19 [3]. Raising people's sense of self-protection can help control and prevent the COVID-19 pandemic. Studies in China have shown that the impact of the second wave of COVID-19 in Tonghua City, Jilin Province, China, has dramatically decreased due to China. People's self-reported worry about self-protection measures has increased after the first wave of COVID-19 [4]. In Saudi Arabia, many studies showed high public knowledge of COVID-19 and adherence to personal protective measures in the general population in 2020 [5], [6]. In the United States of America, many studies addressed people who reported self-worry because of food insecurity, relocation, and healthcare delays during the COVID-19 pandemic [7]-[10].

During the COVID-19 outbreak in Vietnam, the government has carried out many communication campaigns about the importance of self-protection. Many studies evaluate the outcome of these campaigns on many populations [11]-[13]. However, the question of how often and how to improve self-protection practices among Vietnamese people after receiving media campaigns is limited. Therefore, we conducted a study describing the current situation and factors related to Vietnamese citizens' self-reported worry and self-protection practices during the COVID-19 pandemic 2021.

2. METHOD

2.1. Objective

The study subjects recruited adults aged 18 years or older living in Hanoi City from July to December 2021 and Ho Chi Minh City from May to October 2021. All study participants provided informed consent to participate in the study. The study design was a secondary data analysis using a cross-sectional survey conducted in 2021 of adults living in Hanoi City from July to December 2021 and Ho Chi Minh City from May to October 2021. The Institute for Population, Health, and Development Research in Vietnam conducted the study.

2.2. Sample size

The study enrolled any adult 18 years or older living in an endemic area during the study period who could participate in the survey without calculating a predetermined sample size. We estimate that 500 people living in Hanoi from July to December 2021 and Ho Chi Minh City from May to October 2021 will participate in the study. The study used convenience sampling through social media, text messages, and the "snowball" method by contacting friends, acquaintances, and relatives by forwarding links to at least 20 phone numbers of people living in Hanoi and Ho Chi Minh City during the study period. Four hundred forty-seven people completed the questionnaire of the study.

2.3. Questionnaire

The questionnaire used in this study is based on the questionnaire previously used for Vietnamese in Worcester, Massachusetts, USA [14] and has been culturally adapted to the people living in Vietnam. The questionnaire consists of two main parts. The first part collects demographic information about participants, including age, gender, COVID-19 vaccination history, area of residence, education level, social activities such as going out (2 last week), getting paid work (before COVID-19), living with someone at high risk for coronavirus/COVID-19, moving out because of COVID-19 and worried about losing their home.

In the second part, participants were asked to rate their self-reported worry about COVID-19 transmission using a 5-point Likert scale (from strongly disagree to agree strongly) for the following three statements: level degree of self-reported worry about catching coronavirus/COVID-19, worry that family/friends will catch coronavirus/COVID-19 and level of worry that respondents will spread coronavirus/COVID-19 to others. In addition, information on self-protection actions, including wearing a mask, washing or sanitizing hands, and keeping a distance (2 meters) from people who are not family members, is also collected on a Likert scale levels (from never to always). The entire scale has Cronbach's Alpha coefficient of 0.66 (self-reported worry scale (3 items): 0.84 and action scale (3 items): 0.62), showing that the research scale has a high degree of accuracy [15].

2.4. Data collection method

During the pandemic, the survey link, including the consent form to participate in the study and the questionnaire, was developed and posted on social networks and sent via text to people living in Hanoi and Ho Chi Minh City. If someone wants to participate, they can open the survey link, sign the consent form, and complete the research questionnaire. Their responses are stored in a secure database regulated at the Institute for Population, Health, and Development. Study participants may withdraw from the study at any time by contacting the study coordinator, and their responses will not be included.

2.5. Data analysis

We used a hidden life cycle assessment (LCA) to evaluate the evidence for a subgroup disaggregating self-reported worry and self-protection practices with COVID-19 (with three self-reported worry questions and three practice questions). We started by assessing the fit of the 2-group model, and we systematically increased the number of groups in the model until it became clear that adding groups was unnecessary. To determine this, we evaluated the following indicators of comparative model fit. The "entropy" index determines the number of suitable groups [16]. The p-value associated with the lo-mendell-rubin (LMR) adjusted likelihood ratio test was used to evaluate the results [17]. The $p<0.05$ indicates that the specified clustering model provides appropriate data.

2.6. Ethical consideration

Compliance with ethical standards was strictly adhered to throughout the study. All procedures involving human participants were approved by the Institute for Population, Health, and Development IRB, ensuring informed consent was obtained from all participants. Data handling and reporting followed established guidelines to protect confidentiality and privacy. All participants gave informed consent, with the option to decline or withdraw from the study at any time. The study was approved by the Institute for Population, Health, and Development IRB under protocol number 2020PHADMALOC05-01.

3. RESULTS AND DISCUSSION

3.1. General characteristics of the study population

Table 1 shows that most demographic characteristics are not different between the three groups of Vietnamese people's self-reported worry and self-protection practices during the COVID-19 pandemic (p>0.05). There was no difference between self-reported worry groups and self-protection practices of Vietnamese people in terms of gender, age, marital status, education level, and place of residence. In contrast, a difference between the three groups of self-reported worry and self-protection practices was found when comparing the fear of losing their home (p<0.05).

The study aimed to describe Vietnamese people's self-reported worry and self-protection practices during the COVID-19 pandemic in 2021. The findings of this study revealed three different groups based on self-reported worry and practising self-defence. Group 1, consisting of 28.4% (n=127) participants, represents the "Low Self-Reported Worry and Moderate Action" group. In this group, individuals exhibit low self-reported worry levels but engage in moderate actions to protect themselves against COVID-19. Group 2, consisting of 45.9% (n=205) participants, belonged to the "Moderate self-reported worry and Low action" group. These individuals reported moderate self-self-reported worry but demonstrated minimal actions to reduce the risk of the COVID-19 pandemic. Finally, group 3, consisting of 25.7% (n=115) participants, fell into the "High self-reported worry and High actions" group. They show a high level of self-self-reported worry and actively participate in taking preventive measures against the epidemic.

Table 1. Demographic differences between self-reported worry groups and self-protection practices of Vietnamese people during the COVID-19 pandemic

Characteristics	Total population n (%)	Low self-reported worry and moderate action	Moderate self-reported worry and low action	High self-reported worry and high action	p-value
Female	252 (56.4)	69	122	61	0.460
	195 (43.6)	58	83	54	-
Age (years) Mean (SD)	33.0 (13.4)	34.0 (13.0)	34.2 (13.3)	35.7 (13.7)	0.280
Below and from 30	219 (49.0)	53	103	63	0.114
Above 30	228 (51.0)	74	102	52	-
University or higher Education level	278 (62.2)	84	133	61	0.062
Address					
Hanoi city	195 (43.6)	60	92	43	0.269
Ho Chi Minh city	252 (56.4)	67	113	72	-
Living with family	114 (25.5)	32	46	36	0.217
Having health insurance	381 (85.2)	106	182	93	0.128
Completed two doses of COVID-19 vaccine	402 (89.9)	115	183	104	0.911
Go out in the last two weeks	381 (85.2)	114	176	91	0.063
Got a paying job before the COVID-19 pandemic	320 (71.6)	95	142	83	0.547
Living with someone at high risk for COVID-19	113 (25.3)	28	50	35	0.300
Relocating because of COVID-19	23 (5.1)	8	10	5	0.769
Fear of losing home because of COVID-19	139 (31.1)	37	53	49	0.007

According to a study in the United States, 71% of participants reported high levels of self-reported worry, which negatively impacted many aspects of their lives [18]. These effects include fear and self-reported worry about the health of self and loved ones, difficulty concentrating, disrupted sleep, reduced social interactions due to social distancing, and increased concern about study outcomes. In addition, a study in Saudi Arabia reported that 75.85% of participants had self-reported worry about COVID-19, which increased their perceptions of protecting themselves from the pandemic [19]. Many studies also showed differences in self-reported worry and self-protection practices [7], [20]. These findings reveal differences in the prevalence of self-reported worry and self-protection practices practised among different populations during the pandemic.

3.2. Factors associated with self-reported worry

The polynomial logistic regression is shown in Table 2. It can be seen from the data that most of the factors are not statistically significant (p>0.05). The final model showed that fear of losing their home because of COVID-19 made study participants more likely to be classified as high self-reported worry and high action than low self-reported worry and moderate self-reported worry (p<0.05).

Multinomial logistic models have shown that people worried about losing their homes due to COVID-19 influence self-reported worry and self-protection practices during the COVID-19 pandemic. This finding suggests that individuals more worried about potentially losing their homes due to the pandemic are more likely to take proactive actions to protect themselves and others. It means that fear of housing instability can act as an incentive to take preventive measures. Moreover, housing instability can lead to emotional distress, similar to the study's result [21]. This is consistent with the concept of "perceived risk", where individuals perceive the threat of an adverse event to affect their behavioural response [22]. In this case, the fear of losing their home may have heightened individuals' awareness of the risks associated with COVID-19, prompting them to take more decisive actions to reduce those risks [23], [24].

The link between self-reported worry about housing loss and engaging in preventive behaviours during the pandemic is significant. It suggests that public health interventions and campaigns that promote adherence to preventive measures could benefit from addressing concerns related to housing stability. Public health efforts can better align systems by recognizing and addressing individuals' concerns about potential financial hardship and housing insecurity and messaging systems to encourage desired behaviours. It is worth noting that the findings of this study are consistent with previous research in this area. A study in the US found that individuals facing economic turmoil due to the pandemic were more likely to take preventive actions [25]. Moreover, many studies also found a relationship between economic status, psychological health, and health behaviours [26]-[30]. This highlights the interrelationships between economic factors, psychological health, and health behaviours during crises such as the COVID-19 pandemic.

Table 2. Influencing factors among self-reported worry groups and self-protection practices of Vietnamese people during the COVID-19

Influencing factors	Moderate self-reported worry and Low action RRR (95%CI)	High self-reported worry and High action RRR (95%CI)
Age		
Below and from 30 years old	1	1
Above 30 years old	1.5 (1–2.4)	0.9 (0.6–1.5)
Address		
Hanoi city	1	1
Ho Chi Minh city	0.9 (0.5–1.3)	1.4 (0.9–2.2)
Living with family		
No	1	1
Yes	1.4 (0.8–2.3)	1.6 (0.9–2.8)
Go out in the last two weeks		
No	1	1
Yes	1.5 (0.7–3.0)	0.7 (0.4–1.2)
Fear of losing home because of COVID-19		
No	1	1
Yes	1.3 (0.8–2.1)	2.2 (1.3–3.6) *

p-value<0.05
Low self-reported worry and moderate action groups were used as reference groups

4. CONCLUSION

In summary, research conducted in Vietnam shows three different groups based on self-reported worry and self-protection practices of Vietnamese people during the COVID-19 pandemic. The polynomial logistic model indicates that people worried about losing their homes due to COVID-19 impact their self-reported worry and self-protection practices during the COVID-19 pandemic. This finding highlights the importance of addressing housing stability concerns in public health strategies to promote adherence to preventive measures. By recognizing and mitigating economic anxieties, interventions can increase individuals' participation in protective behaviours during the pandemic.

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