

# A Survey On The Health of Vietnamese Individuals Living in Japan Under a Declared State of Emergency Due to COVID-19: A Cross-Sectional Survey

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## Research article

**Keywords:** COVID-19, Immigrant health, Health Information, Health seeking behavior, Japanese immigrant policy, Japanese policy against COVID-19, Vulnerable populations, Changes in living conditions due to COVID-19

**DOI:** <https://doi.org/10.21203/rs.3.rs-36025/v1>

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# Abstract

## Background

With the outbreak of COVID-19, Japan declared a state of emergency on April 7, 2020, and certain social measures were taken, including requests for store closures. In recent years, before the outbreak, Japan has been implementing policies to expand the acceptance of foreign students and technical interns from overseas, mainly from middle-income countries to meet the challenges of a declining birthrate, an aging society, and a declining population. Because of said policies, the number of Vietnamese nationalities living in Japan has surged to more than 400,000. However, some reports mentioned the hardships experienced by these individuals in Japanese society. It is not clear what their health-related situation and living conditions are actually like under the COVID-19 epidemic.

## Method

The application Facebook, which is frequently used by Vietnamese people, was used to solicit research participants and obtain their responses on a structured questionnaire asking about their present health-related situations changes in the living environment in COVID-19 via Google Form.

## Result

196 Vietnamese residents in Japan responded to the survey. The 25.4% of respondents have some kind of health problem, of which 14.2% have a mental problem and 5.6% have Symptoms of suspected COVID-19 infection were present. The 50% of these respondents chose a counseling center to deal with the symptoms of suspected COVID-19, which follows the Japanese policy direction. In fact, more than 80% of respondents said that they feel difficulty in visiting a medical institution in Japan, with problems being anxiously of medical cost and the language barrier given that most of the individuals are students and apprentices with short tenures in Japan. Furthermore, 65.8% is dissatisfied with Japanese measures against COVID-19. A total of 53.5% experienced income reduction and 27.0% experienced housing environment deterioration after COVID-19 epidemic.

## Conclusion

It is necessary to grasp the current situation of Vietnamese people living in Japan, since they are considered to be a vulnerable group in an emergency environment, and to take appropriate measures to aid in their predicament as soon as possible.

## Background

On the 21st of May, the number of COVID-19 confirmed cases in Japan reached 15,276 with a death toll 784 [1]. Because of the quick spread of COVID-19 across Japan, on April 7, 2020, the Head of the Novel Coronavirus Response Headquarters declared a state of emergency. The emergency measures placed included "Request to leave specific store measures", "Request for suspension of school", "Request to

refrain from going out”, “Recommendation of remote work”, etc. [2]. Given these measures, the COVID-19 outbreak has had a tremendous impact on a wide range of aspects in the daily life of citizens in Japan, including not only health conditions, but also work, entertainment, and overall economic conditions.

In recent years, however, before the outbreak, Japan has been implementing policies to expand the acceptance of foreign students and technical interns from overseas, mainly from middle-income countries in order to meet the challenges of a declining birthrate, an aging society, and a declining population. The country from which the greatest number of the residents included in said policies originate from Vietnam. According to the data from the Ministry of Justice, as of the end of June 2019, the number of Vietnamese individuals living in Japan was 371,755, and about 13% of all foreign residents are Vietnamese. This increase is recorded on top of the large increase of 12.4% recorded from the previous year, showing a remarkable increasing trend as compared to other countries [3]. The reason why the number of Vietnamese living in Japan is increasing, is due to several circumstances, such as the increasing incidence of interracial marriages, higher numbers of job openings in companies, which works globally, and economic improvement in middle-income countries. However, in the case of the Vietnamese individuals living in Japan, the following two factors have shown to have had the most significant impact.

#### 1. Increase in international students

Since the Government of Japan established the “300,000 international students plan” in 2008, it has been focusing on actively accepting international students. According to the results of the foreign student enrollment survey conducted in 2018 by the Japan Student Services Organization (JASSO), the number of Vietnamese international students was 72,354, showing an increase of 17.3% as compared to the previous year. The 20% of all Vietnamese individuals living in Japan are international students, and after graduating, there are many international students who work for a Japanese company that is expanding into Vietnam and plan to get offered to be assigned to a branch in Vietnam [4]. For many international students, however, living in Japan is not just for the sake of learning, but is said to be an important part of the Japanese society as a labor force. More than 23% of Japan’s 1.46 million foreign workers – 2% of the workforce in Japan – are students from Asian countries who work in convenience stores, fast food shops or factories as a part-time job [5].

#### 2. Increase in Technical Interns

The government revised the foreign technical intern training system in 2015 and extended the training period from a maximum of 3 years in the conventional system to 5 years. As a result, the number of Vietnamese technical interns who came to Japan in 2017 increased by 36.4% from the previous year to 54,504, making the total number of Vietnamese technical interns working in Japan more than 100,000. Among the 15 countries that dispatch technical interns to Japan, the number of Vietnamese technical interns is the largest, and it is expected that more Vietnamese internationals will come to Japan as technical interns in the future [6].

However, various problems such as working environment problems, low wages, and language barrier problems have been pointed out by Vietnamese people in Japan. In addition, in recent years, there has been a rapid increase in the number of international students and technical interns coming to Japan with insufficient understanding of language issues, culture, and systems [7]. On the other hand, the existence of health challenges for vulnerable groups in society, such as immigrant workers under the COVID-19 epidemic, has been pointed out [8] [9]. This is no exception for Vietnamese living in Japan, where various health problems may arise. Against this background, under the Japanese emergency declaration following the COVID-19 epidemic, much is needed to be revealed and understood about the health-related situation of Vietnamese residents in Japan with regard to COVID-19 consultations, preventive behavior, and general impact on life, which can influence their health condition. When faced with rapidly progressing infectious disease outbreaks, such as COVID-19, their assessment needs to be accomplished in a short time frame if the findings are to become informative in the context of the public health response. However, such an assessment is not an easy task. For example, population-representative household surveys generally take many months of preparation and data collection. Therefore, one way to do this is to use Internet tools, especially Social Networking Service (SNS). For example, the Japanese Ministry of Health, Labor, and Welfare uses LINE, which is a popular SNS in Japan, to conduct a population survey under the COVID-19 outbreak [10]. In this study, we decided to use Facebook, which is popular in Vietnamese society, to conduct a questionnaire survey for Vietnamese people living in Japan under the COVID-19 epidemic.

## Method

### Study design and recruitment

A cross-sectional study using a self-administered questionnaire was conducted. A link to the questionnaire created on Google Form was posted to the Facebook groups of the Vietnamese in Japan together with the explanation and the survey form itself. Only those who agreed with the research content received answers. No rewards were offered for responding. Individual consent was then obtained from the Google Form. The age range was set only over 20 years old. Only those who consented to the research answered and were later on anonymized for this study. The data collection period was from the 3rd of May 2020 to the 18th of May 2020.

### Survey Tools

We conducted this survey using Facebook and Google Forms. We selected Facebook for recruitment for the survey because in Vietnam, the number of Vietnamese Facebook users was expected to reach 45.3 million in 2019, indicating an increase from 41.7 million in 2017. Next to YouTube, Facebook was the leading social media platform in Vietnam in 2018. Overall, the country had a 64% active social media penetration rate [11]. In the Facebook group for Vietnamese in Japan, there were more than 300,000 Vietnamese members. Assuming that the members of this group are indeed Vietnamese living in Japan and have registered only one account per person, it means that more than 80% of Vietnamese living in

Japan are registered in this group. In addition, Google Forms is a tool that allows the collecting of information from users via a personalized survey. We explained the details about this study to the Facebook group of Vietnamese individuals living in Japan, then posted a link to the Google Form with the questions, and anonymized the answers on the Google Form at the link.

## **Questionnaire**

The questionnaire was made in Google Form. First, it was made by the Japanese and translated into Vietnamese. All answers in the questionnaire can be answered by Vietnamese only. The contents of the questions in apart from background information such as gender, age, type of entry qualification, type of job, included those about the health-related situation under the COVID-19 epidemic: 1) Preset health condition; 2) Degree of satisfaction with Japan's COVID-19 measures and requests to the government; 3) Sources of information on COVID-19 in Japan; 4) Status of implementation of preventive measures against COVID-19; 5) health seeking behavior in the case of appearance of the symptom of COVID-19; 6) whether there is difficulty in going to a medical institution in Japan and its contents; 7) Changes in overall life under Japan's emergency declaration by COVID-19.

## **Analysis**

Statistical analyses were performed using SPSS version 25.0. A univariate analysis was used to describe the population and bivariate analysis to determine associations between having health problems, feeling difficulties (Anxiously of cost and Language problem) in visiting health institutes, and other variables. The significance level was set at  $P < 0.05$ . Finally, factors significantly associated ( $p < 0.05$ ) with feeling difficulties in the bivariate analyses were compulsorily entered into a multivariate logistic regression model to calculate adjusted odds ratios (AORs) to assess the magnitude of independent association of these predictors with feeling difficulties in visiting health institutes. The free comments section of the questionnaire was translated into English from Vietnamese and classified by word, and the number of occurrences in the free comments was calculated. If the same word was used more than once by the same person, it was counted as one.

## **Ethical considerations**

This study was approved by the Ethics Review Board of the National Center for Global Health and Medicine (NCGM).

# **Result**

## **Respondents background data**

Responses were received from a total of 196 people. All respondents agreed and answered the questionnaire, and all provided valid answers. The status of residence and period of stay among the 196 people is shown in Table1.

The majority of respondents were female (89.2%), and the majority of the respondents were 20-29 years old (62.7%), followed by 30-39 years old (33.1%). The type of entry qualification was students, including technical interns (32.7%), employed as regular staff (16.8%), Permanent resident / Japanese spouse (48.0%) and illegal stay (2.0%). The length of stay is shown to be less than 3years (48.5%) and more than 3years (51.5%). The type of work that they get some income from (regular work, part-time job including student's part-time job) is that of Service industry (26.5%) followed by factory workers (18.9%), Office worker (17.3%).

### **Health condition**

We asked respondents about their present health condition. The 25.4% of the respondents complained of at least one present health problem. The contents of the present health problems are shown in Table2. 14.2% respondents manifested to mental problems like insomnia. Although not many, several respondents suffered from symptoms of suspected COVID-19 like fever, cough and fatigue (5.6%). There was no statistically significant tendency for certain groups to have health problems in terms of gender, age, VISA status, length of stay, or type of job.

### **Prevention measures against COVID-19**

We asked respondents about preventable measures against COVID-19 that they are presently implementing. Quite a majority of respondents implement "Wash Hands" (94.9%) "Wear Face Mask" (93.8%) "Do not go to crowded places" (86.2%). On the other hand, "Keep a certain distance when talking to people" (70.9%) "Do not gather while eating or drinking" (69.9%) "Avoid spaces with poor ventilation" (68.8%) were relatively lower in percentage of implementation. Lastly, "Remote work" showed the lowest percentage (20.4%) (Table3)

### **Information Source of COVID-19 in Japan**

We asked the respondents about where they obtained information about COVID-19. A high percentage of respondents (69.9%) obtained information from the Vietnamese Facebook group, followed by Japanese TV (45.9%), and then Japanese Internet Media (42.6%) (Table4)

### **Degree of satisfaction with Japanese measures against COVID-19**

We asked the respondents about their degree of satisfaction with Japanese measures taken against COVID-19. A high percentage of respondents (including moderately dissatisfied 65.8%) were dissatisfied with the Japanese measures against COVID-19. (Table5)

The results of the frequency of words in the free comments of requests to Japanese measures against COVID-19 is shown in Table6.

83 people mentioned in the free comments on Japan's COVID-19 countermeasures. The frequency of occurrence of each word was as follows: nouns: people (n=28), government (n=15), isolation (n=10),

measure (n=10), and number (n=9); verbs: infect (N=8), need (n=7), isolate (n=6), want (n=6), and increase (n=5); and adjectives: Japanese(n=7) , strong (n=5), close (n=5), timely (n=3), slow (n=3), whole (n=3), and many (n=3). (Table6)

### **Health-Seeking Behavior upon experiencing symptoms of COVID-19**

We asked the respondents about what you will do when the COVID-19's symptom appears, 52.5% of the Call consultation center, 29.5% stayed home, 8.6% did not know what to do, and 6.6% visited health facilities immediately. (Table7)

### **Difficulties in visiting Japanese health facilities and reasons**

We asked respondents about the difficulties in visiting Japanese health institutes. 82.7% respondents feel difficulties in visiting Japanese health institutes. The existence of anxiety regarding the cost of health institutes was 46.9%, also more likely present in those aged 20-29 (P=0.00), students including technical interns (P=0.00), and shorter length of stay are more likely in Japan (P=0.00) . Language problems in health facilities were 60.2% also more likely, students including technical interns (P=0.00), and those with a shorter length of stay (P=0.00). (Table8)

Regarding the correlates of Anxiety of cost in visiting health facility in Japan, multiple logistic regression analysis showed VISA status of students/Technical intern was the strongest predictor of having Anxiety of cost (AOR = 3.23), followed by Length of stay of less than 3years (AOR=3.14) with statistically significance (P=0.00, 0.01). Also, the correlates of Language problem in visiting health facility in Japan, multiple logistic regression analysis showed Length of stay of less than 3years was the strongest predictor those who have language problem in visiting health facilities (AOR= 3.14 P=0.01) (Table 9).

### **Recent negative changes in daily life**

We asked the respondents about any negative change that have occurred in their in daily lives since the COVID-19 outbreak. In total, 53.5% experienced a decrease in income, and 27.0% experienced deterioration in the housing environment. (Table 10)

## **Discussion**

The COVID-19 epidemic has greatly affected Japanese society. In addition to the response to COVID-19 infection itself, restrictions on socio-economic activities and activities, such as going out of the house due to Japan's state of emergency restrictions may have a significant impact on the lives of the population and increase various health risks, including psychological problems [12] [13] [14]. The Vietnamese population in Japan, which has been increasing rapidly in recent years, have reported many barriers that need to be pointed out so as to maintain a healthy condition in Japan. Some of these barriers include difficult working environments than usual and difficult access to various information due to language barrier problems. Under the COVID-19 epidemic, Vietnamese individuals living in Japan may

face more health maintenance challenges. We investigated the environment of Vietnamese people living in Japan under the COVID-19 declaration of emergency and found some important facts.

First, more than 10% of the respondents complained mental disorders like insomnia. According to the results of the questionnaire, in addition to the impact of living conditions such as reduced income and deteriorating living conditions, the fact that a very high percentage of respondents are not satisfied with COVID-19 in Japan may be a possible influencing factor on their mental health. As a cause of the dissatisfaction of Vietnamese residents in Japan against COVID-19 measures, there were many comments in a free comment section on the questionnaire that read a consistent message, and that is: "stronger measures against infectious diseases should be taken by Japanese government". It is possible that Vietnamese people are dissatisfied with Japan's response as compared to relatively stronger power measures such as border blockades and compulsory quarantine measures of Vietnam for infected persons since the early COVID-19 outbreak [15].

Second, the survey revealed that a very high percentage of respondents felt that they had some kind of difficulty receiving medical care in Japan. First, more than half of the respondents cited health care costs as one of their difficulties. However, when we consider the fact that the medical fee payment system under the Japanese universal health insurance system requires Vietnamese living in Japan (excluding illegal aliens) to join the universal health insurance system, which reduces the medical fee to a certain amount, and that the treatment of COVID-19 is effectively free under the Infectious Diseases Law, which is separate from the universal health insurance system, the result is somewhat inconsistent with the actual situation. This could be due to the fact that some Vietnamese living in Japan do not pay the premiums even though they are required to join the insurance system, or that they do not know the details of the contents and payment methods or simply, a lack of sufficient information even though they are already enrolled in these system. A previous study of Latin Americans living in Japan found that about 20% of them were uninsured. The study also shows that the uninsured are more likely to be among those who are not sufficiently familiar with Japan's insurance system [16]. In addition, when symptoms suspected of COVID-19 appeared, about 50% of the respondents said that they should call the consultation center first, which is the government's policy [17], suggesting that the government's policy is not yet fully known to Vietnamese people living in Japan. Moreover, the proportion of preventive actions recommended by the Japanese government to the population that are actually implemented varies among the preventive measures. When combined with the fact that language is a barrier to seeking medical care, the result suggests there is a lack of smooth communication of healthcare-related information in Japan. In addition, the presence of such difficulties is more common among the shorter they stay in Japan, which may reflect the need for appropriate measures such as the provision of information on the Japanese healthcare-related information in an easy and familiar style for them. In addition, there is a need for the deployment of medical interpreters in health institutes. In this survey, FACEBOOK in Vietnamese is an important source of information for Vietnamese residents, including COVID-19. These SNS tools should be used to the fullest extent to build a system that makes it easier for Vietnamese residents to obtain information on health management.

Furthermore, since many of the respondents are facing reduced income and deteriorating living conditions, comprehensive support for the Vietnamese individuals living in Japan is considered necessary. In the future, Japan will be able to come up with various measures not only in terms of medical care and health care, but also in terms of economy in the face of the COVID-19 epidemic, and Vietnamese people living in Japan will be required to grasp this information in a timely manner and take appropriate measures. The creation of such an environment is what Japan, which has recently adopted a policy to increase the number of Vietnamese students and workers under the COVID-19 epidemic, needs to do.

Although this survey was conducted using the self-administration method and the target population was not necessarily representative of Vietnamese people living in Japan, we made the best use of SNS tools to conduct a community survey, which is difficult to achieve in an emergency situation, and quickly investigated the health problems faced by Vietnamese people living in Japan under the COVID-19 epidemic. The results of this survey will be useful as a knowledge base for future countermeasures against health problems of Vietnamese people living in Japan.

## **Conclusion**

The study found that Vietnamese residents in Japan have barriers to staying healthy during the COVID-19 epidemic. It is necessary to grasp the current situation of Vietnamese people living in Japan, since they are considered to be a vulnerable group in an emergency environment, and to take appropriate measures to aid in their predicament as soon as possible.

## **Declarations**

The author has no conflicts of interest directly relevant to the content of this article.

## **Acknowledgement**

The author thanks Dr. Chiaki Miyoshi. Dr. Masami Fujita. Mr. Sadatoshi Matsuoka. Dr. Hiroyuki Kiyohara from National Center for Global Health and Medicine for their valuable comments for the draft of this paper.

## **Ethics approval and consent to participate**

This study was approved by the Ethics Review Board of the National Center for Global Health and Medicine (NCGM). All study participants confirmed that they agreed with the research and answered the questionnaire.

## **Consent for publication**

Not applicable

## Availability of data and materials

The datasets used and analysed during the current study are available from the corresponding author on reasonable request.

## Competing interests

The authors declare that they have no competing interests

## Funding

No funding for this study

## Authors' contributions

All work (Conceptualization, Data Curation, Formal Analysis, Investigation, Methodology, Validation, Visualization, Writing) related to this article is done by TOMOO ITO, except for English language editing, which is done by Editage ([www.editage.com](http://www.editage.com)).

## Acknowledgements

Dr. Chiaki Miyoshi. Dr. Masami Fujita. Mr. Sadatoshi Matsuoka. Dr. Hiroyuki Kiyohara from National Center for Global Health and Medicine made comments for the draft of this paper.

English language editing is done by Editage ([www.editage.com](http://www.editage.com))

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20. Declarations.

## Tables

Table 1. Background and work related characteristics of Vietnamese immigrants by existence of current health problem

|   | Total<br>n=196 |      | Existence of current health problem |      |          |      | Rate by category<br>% | P Value |
|---|----------------|------|-------------------------------------|------|----------|------|-----------------------|---------|
|   | n              | %    | Yes n=49                            |      | No n=147 |      |                       |         |
|   |                |      | n                                   | %    | n        | %    |                       |         |
| <b>Gender</b>   |                |      |                                     |      |          |      |                       |         |
| Men   | 21             | 10.7 | 9                                   | 18.4 | 12       | 8.2  | 42.9                  | 0.06    |
| Women   | 175            | 89.3 | 40                                  | 81.6 | 135      | 91.8 | 22.9                  |         |
| <b>Age</b>  |                |      |                                     |      |          |      |                       |         |
| 20-29   | 103            | 62.8 | 35                                  | 71.4 | 68       | 59.9 | 28.5                  | 0.43    |
| 30-39   | 65             | 33.2 | 13                                  | 26.5 | 52       | 35.4 | 20.0                  |         |
| 40-49   | 7              | 3.6  | 1                                   | 2.0  | 6        | 4.1  | 14.3                  |         |
| 50-59   | 1              | 0.5  | 0                                   | 0.0  | 1        | 0.7  | 0.0                   |         |
| <b>VISA Status</b>  |                |      |                                     |      |          |      |                       |         |
| Illegal stay  | 4              | 2.0  | 0                                   | 0.0  | 4        | 2.7  | 0.0                   | 0.62    |
| Students/Technical intern   | 64             | 32.7 | 17                                  | 34.7 | 47       | 32.0 | 26.6                  |         |
| Employed as regular staff   | 33             | 16.8 | 8                                   | 16.3 | 25       | 17.0 | 24.2                  |         |
| Permanent resident/Japanese spouse  | 55             | 28.1 | 24                                  | 49.0 | 31       | 21.1 | 25.5                  |         |
| Others  | 40             | 20.4 | 9                                   | 18.4 | 31       | 21.1 | 22.5                  |         |
| <b>Length of stay</b>   |                |      |                                     |      |          |      |                       |         |
| Less than 3years  | 95             | 48.5 | 27                                  | 55.1 | 68       | 46.3 | 28.4                  | 0.32    |
| More than 3years  | 101            | 51.5 | 22                                  | 44.9 | 79       | 53.7 | 21.8                  |         |
| <b>Type of job (Regular staff, non-regular staff, part-time job included)</b> |                |      |                                     |      |          |      |                       |         |
| Service industry  | 52             | 26.5 | 14                                  | 28.6 | 38       | 25.9 | 26.9                  | 0.09    |
| Factory worker  | 37             | 18.9 | 11                                  | 22.4 | 26       | 17.7 | 29.7                  |         |
| Office worker   | 34             | 17.3 | 5                                   | 10.2 | 29       | 19.7 | 14.7                  |         |
| Physical labor  | 13             | 6.6  | 0                                   | 0.0  | 13       | 8.8  | 0.0                   |         |
| Work at home  | 21             | 10.7 | 8                                   | 16.3 | 13       | 8.8  | 38.1                  |         |
| Other   | 10             | 5.1  | 3                                   | 6.1  | 7        | 4.8  | 30.0                  |         |
| No job  | 22             | 11.2 | 6                                   | 12.2 | 16       | 10.9 | 27.3                  |         |

Table 2 Current health problems

|                               | n  | %    |
|-------------------------------|----|------|
| At least one health problem   | 50 | 25.4 |
| Mental Problem                | 28 | 14.2 |
| Symptom of suspected COVID-19 | 11 | 5.6  |
| Other health problems         | 14 | 7.1  |

Number of valid responses:196

n=Number of people who checked the relevant item in the multiple-answer question

%=n/196

Table 3 Implementation of COVID-19 prevention measures

|                                 | n   | %    |
|---------------------------------|-----|------|
| Wash Hands                      | 186 | 94.9 |
| Facemask                        | 184 | 93.8 |
| Do not go to the crowded place  | 169 | 86.2 |
| Keep distance when talking      | 139 | 70.9 |
| Avoid poor ventilation place    | 135 | 68.8 |
| Remotework                      | 40  | 20.4 |
| Do not gather when eat or drink | 137 | 69.9 |
| Others                          | 10  | 5.1  |

Number of valid responses:196

n=Number of people who checked the relevant item in the multiple-answer question

%=n/196

Table4 Information Source about COVID-19

|                         | n   | %    |
|-------------------------|-----|------|
| Japanese TV             | 90  | 45.9 |
| Japanese Facebook       | 43  | 21.9 |
| Japanese Newspaper      | 64  | 32.6 |
| Japanese Internet Media | 84  | 42.8 |
| Vietnamese TV           | 23  | 11.7 |
| Vietnamese Facebook     | 137 | 69.9 |
| Vietnese Newspaper      | 48  | 24.4 |
| Vietnese Internet Media | 78  | 39.8 |
| Others                  | 16  | 8.1  |

Number of valid responses:196

n=Number of people who checked the relevant item in the multiple-answer question

%=n/196

Table5 Degree of satisfaction about Japanese countermeasures against COVID-19

|                         | n   | %     |
|-------------------------|-----|-------|
| Satisfied               | 5   | 2.6%  |
| Moderately satisfied    | 27  | 13.8% |
| Neither                 | 35  | 17.9% |
| Moderately dissatisfied | 99  | 50.5% |
| Dissatisfied            | 30  | 15.3% |
| Total                   | 196 | 100%  |

Table6 Frequency of words in Free comment about request to Japanese measures against COVID-19

| Noun       | n  | Verbs    | n | Adjectives   | n |
|------------|----|----------|---|--------------|---|
| people     | 28 | infect   | 8 | japanese     | 7 |
| government | 15 | need     | 7 | strong       | 5 |
| isolation  | 10 | isolate  | 6 | close        | 5 |
| measure    | 9  | want     | 6 | timely       | 3 |
| number     | 9  | increase | 5 | slow         | 3 |
| test       | 8  | take     | 5 | whole        | 3 |
| epidemic   | 7  | ban      | 4 | many         | 3 |
| mask       | 6  | treat    | 4 | crowded      | 2 |
| infection  | 6  | wear     | 4 | thorough     | 2 |
| testing    | 5  | avoid    | 4 | aggressive   | 2 |
| hospital   | 5  | prevent  | 3 | rapid        | 2 |
| case       | 5  | spread   | 3 | tough        | 2 |
| day        | 5  | test     | 3 | necessary    | 2 |
| vietnam    | 4  | buy      | 3 | okay         | 2 |
| disease    | 4  | hope     | 3 | fast         | 2 |
| policy     | 4  | keep     | 3 | easy         | 2 |
| health     | 4  | work     | 3 | large        | 2 |
| company    | 4  | know     | 3 | able         | 2 |
| shop       | 3  | declare  | 2 | social       | 2 |
| situation  | 3  | gather   | 2 | bad          | 2 |
| example    | 3  | conduct  | 2 | high         | 2 |
| everyone   | 3  | ensure   | 2 | cumbersome   | 1 |
| weak       | 3  | require  | 2 | reciprocal   | 1 |
| life       | 3  | travel   | 2 | unresolvable | 1 |

n=The frequency of occurrence of the words in the free comments, nouns, verbs and adjectives in each category.

Table7 What to do if you develop symptoms that make you suspect COVID-19

|                                   | n   | %     |
|-----------------------------------|-----|-------|
| Call the consultation center      | 103 | 52.6% |
| Stay at home                      | 58  | 29.6% |
| Buy medicine at pharmacy          | 4   | 2.0%  |
| Visit health facility immediately | 13  | 6.6%  |
| Do not know what to do            | 17  | 8.6%  |
| Others                            | 1   | 0.5%  |
| Total                             | 196 | 100%  |

Table8 Background and work-related characteristics of Vietnamese immigrants by difficulties to visit Japanese health facilities

|                                    | Anxiety of cost |         |                  | P Value | Language problem |        |                  | P Value |
|------------------------------------|-----------------|---------|------------------|---------|------------------|--------|------------------|---------|
|                                    | Yes n=92        | Non=204 | Rate by category |         | Yes n=118        | Non=18 | Rate by category |         |
|                                    | n               | n       | %                | n       | n                | %      |                  |         |
| <b>Gender</b>                      |                 |         |                  |         |                  |        |                  |         |
| Men                                | 14              | 7       | 66.7             | 0.06    | 14               | 7      | 66.7             | 0.64    |
| Women                              | 78              | 97      | 44.6             |         | 104              | 71     | 59.4             |         |
| <b>Age</b>                         |                 |         |                  |         |                  |        |                  |         |
| 20-29                              | 71              | 82      | 57.7             | 0.00    | 80               | 43     | 65.0             | 0.19    |
| 30-39                              | 21              | 44      | 32.3             |         | 34               | 31     | 52.3             |         |
| 40-49                              | 0               | 7       | 0.0              |         | 4                | 3      | 57.1             |         |
| 50-59                              | 0               | 1       | 0.0              |         | 0                | 1      | 0.0              |         |
| <b>VISA Status</b>                 |                 |         |                  |         |                  |        |                  |         |
| Illegal stay                       | 2               | 2       | 50.0             | 0.00    | 3                | 1      | 75.0             | 0.04    |
| Students/Technical intern          | 48              | 16      | 75.0             |         | 46               | 18     | 71.9             |         |
| Employed as regular staff          | 10              | 21      | 36.4             |         | 13               | 20     | 39.4             |         |
| Permanent resident/Japanese spouse | 10              | 45      | 18.2             |         | 28               | 27     | 50.9             |         |
| Others                             | 20              | 20      | 50.0             |         | 29               | 11     | 72.5             |         |
| <b>Length of stay</b>              |                 |         |                  |         |                  |        |                  |         |
| Less than 1year                    | 13              | 7       | 65.0             | 0.00    | 14               | 6      | 70.0             | 0.00    |
| 1-3years                           | 45              | 24      | 65.2             |         | 52               | 17     | 75.4             |         |
| 3-5years                           | 10              | 29      | 29.3             |         | 22               | 19     | 53.7             |         |
| 5-10years                          | 15              | 30      | 33.3             |         | 19               | 26     | 42.2             |         |
| more than 10years                  | 2               | 13      | 13.3             |         | 6                | 9      | 40.0             |         |

Table9 Correlates of Anxiety of cost and Language problem in visiting health facilities by multiple logistic regression analysis among backgrounds of Vietnamese

|                           | Anxiety of cost |      |           |         | Language problem |      |           |         |
|---------------------------|-----------------|------|-----------|---------|------------------|------|-----------|---------|
|                           | %               | AOR  | 95% CI    | P value | %                | AOR  | 95% CI    | P value |
| <b>Age</b>                |                 |      |           |         |                  |      |           |         |
| 20-29                     | 77.2            | 1.85 | 0.91-3.74 | 0.08    | 62.8             | 1.85 | 0.91-3.74 | 0.08    |
| Over30                    | 22.8            | 1    |           |         | 37.2             | 1    |           |         |
| <b>VISA status</b>        |                 |      |           |         |                  |      |           |         |
| Students/Technical intern | 63.7            | 3.23 | 1.35-7.74 | 0.00    | 76.1             | 0.78 | 0.34-1.79 | 0.56    |
| Other VISA status         | 36.3            | 1    |           |         | 23.9             | 1    |           |         |
| <b>Length of Stay</b>     |                 |      |           |         |                  |      |           |         |
| Less than 3years          | 68.5            | 3.14 | 1.62-6.05 | 0.01    | 60.2             | 3.14 | 1.62-6.05 | 0.01    |
| More than 3years          | 31.5            | 1    |           |         | 39.8             | 1    |           |         |

AOR, Adjusted odds ratio

CI, Confidence interval

Table 10 Any change in your daily life since the COVID-19 pandemic

|                                   | n   | %    |
|-----------------------------------|-----|------|
| Income decrease                   | 105 | 53.5 |
| Busier than before                | 14  | 7.1  |
| Lose job                          | 19  | 9.6  |
| Income became 0                   | 29  | 14.8 |
| Housing environment deterioration | 53  | 27.0 |
| Others                            | 15  | 7.6  |

Number of valid responses: 196

n=Number of people who checked the relevant item in the multiple-answer question

%=n/196

## Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [STROBEchecklistv4combined.doc](#)