Vietnamese people's well-being during the COVID-19 pandemic: an online survey

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Abstract

The COVID-19 pandemic and associated restrictive measures implemented may considerably affect people's lives. This study aimed to assess the well-being of Vietnamese people after COVID-19 lockdown measures were lifted and life gradually returned to normal. An online survey was organized from 21st to 25th April 2020 among Vietnamese residents aged 18 and over. Besides collecting socio-demographic and COVID-19-related data, the WHO-5 Well-Being Index (scored 0–25) was used to score participants' well-being. A multivariate logistic regression model was

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used to determine the predictors of well-being. A total of 1922 responses were analyzed (mean age: 31 years; 30.5% male). Mean well-being score was 17.35±4.97. Determinants of high well-being score (≥13) included older age, eating healthy food, practising physical exercise, working from home, and adhering to the COVID-19 preventive measures. Female participants, persons worried about their relatives' health, and smokers were more likely to have a low well-being score. In conclusion, after the lockdown measures were lifted, the Vietnamese people continued to follow COVID-19 preventive measures and most of them scored high on the well-being scale. Waiting to achieve large scale COVID-19 vaccine coverage, promoting preventive COVID-19 measures remains important, together with strategies to guarantee the well-being of the Vietnamese people.

Keywords: WHO-5 Well-being, COVID-19, social distancing, preventive measures, Vietnam

1. Introduction

On December 31, 2019, unexplained cases of pneumonia were reported in Wuhan City, Hubei Province, China by the World Health Organization (WHO) China Country Office [1]. Three months later, WHO officially declared the Coronavirus disease 2019 (COVID-19) outbreak as a pandemic with more than 118,000 confirmed cases and over 4200 death cases [2]. Prior to the identification of the first COVID-19 case in Vietnam, the Vietnamese government pro-actively took measures to prevent the importation of the disease into the country. Health screening was organized at country entry points, people were advised to practice personal hygiene, and to wear a face mask in public places. Initially, around the end of January 2020, COVID-19 cases entered from China. In early March 2020, cases entered from Europe and America [3]. Faced with an increasing number of COVID-19 cases, on April 1st 2020 Vietnam implemented a nationwide lockdown alongside other preventive measures such as keeping a minimum distance of 2m from others, staying at home, wearing a face mask, washing hands regularly, and restriction of gatherings. People from abroad who entered Vietnam were subject to compulsory isolation for 14 days [4]. Thanks to these measures, COVID-19 transmission stopped until July 25th 2020, when new cases of COVID-19 infection appeared and local community transmission was detected in the city of Da Nang. This second wave of COVID-19 in Vietnam, was successfully controlled but a

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third wave appeared in Hai Duong province on January 27, 2021. Also, this third wave was rapidly controlled. In total only 35 COVID-19 related deaths have been reported in Vietnam (Table 1).

Table 1. Covid-19 domestic infection cases in Vietnam by waves of outbreak in Vietnam

Stages of Covid-19 outbreak	Total cases	Total deaths
1st wave (January 23, 2020 – April 16, 2020) [5]	140	0
2nd wave (July 25, 2020 – September 2, 2020) [6]	551	35
3rd wave (January 28, 2021- March 18, 2021) [7]	908	0

Source: Vietnam Ministry of Health

Currently as there are no new domestic cases of COVID-19 in Vietnam, the country applies a "new normal" state with the partial relaxation of social distancing measures, due to the concern that complete removal of these measures could lead to a resurgence of the pandemic as observed in other countries [8]. March 8, 2021, COVID-19 vaccination started in Vietnam with the AstraZeneca vaccine among frontline healthcare workers followed by essential service providers, teachers, people with chronic diseases and people living in epidemic areas. Nation- wide vaccination is planned with the locally produced vaccine Nanocovax by the end of year 2021.

Worldwide, the COVID-19 pandemic and the associated preventive measures had a major effect on people's lives causing anxiety and stress, affecting daily life activities at home and workplaces, and restricting social relationships [9]. To investigate whether people were adhering to the preventive measures implemented by the Vietnamese government a first online survey was performed March 31st to April 6th, 2020 at a moment lockdown measures were still in place. Results of this survey showed good preventive behaviour of the Vietnamese population [10]. The aim of the current study was to investigate the effect of the COVID-19 pandemic on the COVID-19 preventive behaviour and the well-being of the Vietnamese people when lockdown measures were lifted and life gradually returned to normal in Vietnam.

2. Materials and Methods

2.1. Study design

Cross-sectional study collecting data through an online survey in Vietnam from 21st to 25th April 2020.

2.2. Study procedures

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Data of the study were collected via a web-based online survey tool developed by the ICPcovid consortium (https://www.icpcovid.com/). All questions of this online survey were required to answer before submission. The website interface was designed to be easily accessible by various devices such as computers, tablets, and smart phones. The entire questionnaire could be filled in 10 minutes or less, and was totally anonymous (no identification information was collected). Eligible participants were Vietnamese aged 18 years or older, who were able to read and understand Vietnamese, and residing in Vietnam at the time of data collection. Snow-ball sampling was used to recruit the participants. The survey link was shared via various social media platforms to relatives, friends, and colleagues.

Different determinants of well-being were collected (sociodemographic characteristics, health status and determinants of health, adherence to preventive measures, consequences of the preventive measures) (Fig 1). The level of anxiety about the health of the participant and his/her relatives was measured by a 5-point Likert scale (1= not worried/afraid to 5= extremely worried/afraid); a score of ≥3 was considered as moderate to high level of anxiety. Twenty yes/no questions were asked to assess the participant's adherence to the COVID-19 prevention measures.

Well-being was scored using the WHO proposed five questions: "I have felt cheerful in good spirits", "I have felt calm and relaxed", "I have felt active and vigorous", "I woke up feeling fresh and rested", "My daily life has been filled with things that interest me". Each answer was rated on a scale range from 0 to 5. The overall score ranged from 0 to 25, with 0 representing the worst probable, and 25 representing the best probable well-being. A score below 13 indicated poor well-being (WHO, 1998) [11].
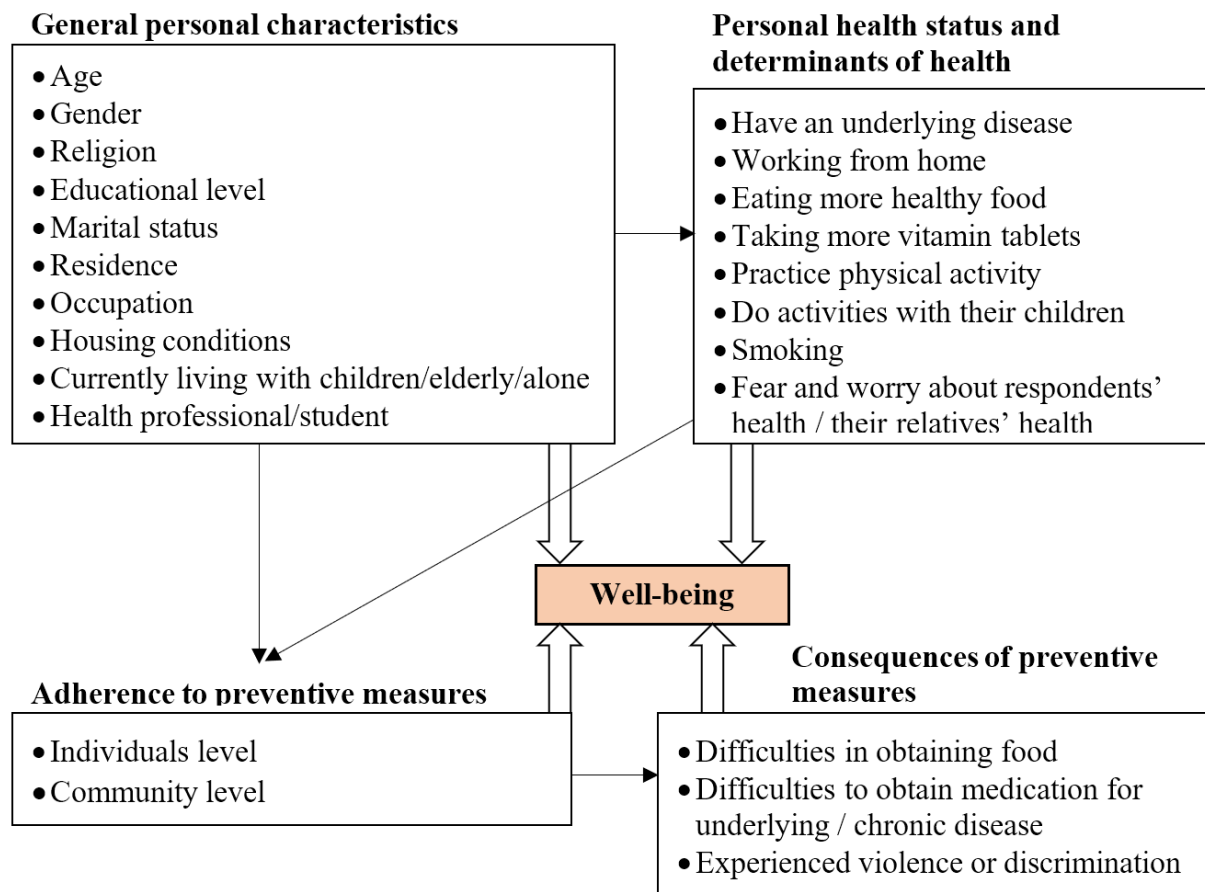
General personal characteristics

- Age
- Gender
- Religion
- Educational level
- Marital status
- Residence
- Occupation
- Housing conditions
- Currently living with children/elderly/alone
- Health professional/student

Personal health status and determinants of health

- Have an underlying disease
- Working from home
- Eating more healthy food
- Taking more vitamin tablets
- Practice physical activity
- Do activities with their children
- Smoking
- Fear and worry about respondents' health / their relatives' health

Well-being

Adherence to preventive measures

- Individuals level
- Community level

Consequences of preventive measures

- Difficulties in obtaining food
- Difficulties to obtain medication for underlying / chronic disease
- Experienced violence or discrimination

Figure 1. Conceptual framework of factors associated with well-being during the COVID-19 pandemic

2.3. Data analysis

IBM SPSS version 20 was used to analyze the collected data. Continuous variables were described by means and standard deviations (SD). Categorical variables were described by frequency (n) and percentage (%). Well-being was the dependent variable. Multiple logistic regression model was used to analyze which independent variables were predictors of poor well-being. First, age and gender were included in the model to adjust other covariates. Later, all factors available in the conceptual framework (Figure 1) were kept in the model if they had a statistically significant relationship with the independent variables at p-value <0.05.

3. Results

3.1. Characteristics of study participants

Of the 1934 responses obtained during the survey, 1922 were eligible for analysis. Participants lived in 46 of the 63 provinces and municipalities of Vietnam, with more than half residing in urban areas. The average age was 31 years (SD: 10; range: 18-76 years). 1376 (71.6%) of respondents reported living with children, and 286 (14.9%) with elderly persons (Table 1).

Table 2. Characteristics of study participants (n=1922)

Characteristic		n	%
Gender	Male	587	30.5
	Female	1332	69.3
	Other	3	0.2
Religion	Yes	417	21.7
	No	1505	78.3
Highest educational level	High school and lower	541	28.1
	University and higher	1381	71.9
Marital status	Married	886	46.1
	Other	1036	53.9
Place of residence	Municipalities	932	48.5
	Smaller urban or rural areas	990	51.5
Occupation	Student	412	21.4
	Government staff	706	36.7
	Private enterprise or self-employed	715	37.2
	Unemployed	89	4.6

Characteristic		n	%
Health professional or student in the health sector	Yes	1696	88.2
	No	226	11.8
Urban/Rural or Semi-Rural residence	Urban	1139	59.3
	Sub-urban/Rural	783	40.7
Housing conditions	Private house or apartment	1697	88.3
	Renting house/room	225	11.7
Currently living	Alone	136	7.1
	With children	1376	71.6
	With elderly persons	286	14.9
Smoking	Yes	118	6.1
	No	1804	93.9
Eating more healthy food	Yes	1699	88.4
	No	223	11.6
Taking more vitamin tablets	Yes	1206	62.7
	No	716	37.3
Have an underlying disease	Yes	135	7.0
	No	1787	93.0

The education level was higher in male than female but the rate of unemployment was lower in female than male (Table 2).

Table 3. Distribution of educational level/occupation of the participants by gender (n=1919)

Educational level and occupation		Gender n (%)		P-value
		Male (n=587)	Female (n=1332)	
Highest educational level	High school and lower	138 (23.5)	403 (30.3)	0.002
	University and higher	449 (76.5)	929 (69.7)	
Occupation	Student	112 (19.1)	299 (22.4)	<0.001
	Government staff	273 (46.5)	433 (32.5)	
	Private enterprise or self-employed	169 (28.8)	544 (40.8)	
	Unemployed	33 (5.6)	56 (4.2)	

3.2. Consequences of the COVID-19 pandemic on people's lives

Four hundred and six participants (21.1%) were moderately or very worried about their own health and 517 (26.9%) about the health of their relatives (Table 3). Ninety seven (5.0%) reported difficulties in obtaining food. Of the 135 people with an underlying disease, 9 (6.7%) encountered difficulties to obtain medication (Table 3). Nearly 90% of participants were physically active during the pandemic and 74.4% of them practiced outdoor activities. About 80% of the 1376 participants who lived with children responded that they participated in activities with their children on a daily basis.

Table 4. Consequences of the COVID-19 pandemic on people's lives (n=1922)

Characteristic		N (%)
Fear and worry about respondents' health	Moderate or high	406 (21.1)
	None or minimal	1516 (78.9)

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Characteristic		N (%)
Fear and worry about their relatives' health	Moderate or high	517 (26.9)
	None or minimal	1405 (73.1)
Difficulties in obtaining food	Yes	97 (5.0)
	No	1825 (95.0)
Difficulties to obtain medication for underlying disease (n=135)	Yes	9 (6.7)
	No	126 (93.3)
Working from home	Yes	586 (30.5)
	No	1336 (69.5)
Experienced violence or discrimination	Yes	6 (0.3)
	No	1916 (99.7)
Physical exercise	Yes	1675 (87.1)
	No	247 (12.9)
Type of physical exercise (n=1675)	Indoor, with music	589 (35.2)
	Indoor, with online video	169 (10.1)
	Outdoor	1247 (74.4)
Activities with their children (n=1376)	Yes	1105 (80.3)
	No	271 (19.7)
Type of activities with their children (n=1105)	Tell a story, talk about something they like, read a book, or share pictures	570 (51.6)
	Taking a walk around the house or in the street	430 (38.9)
	Doing exercises together while listening to their favourite music	214 (19.4)

Characteristic	N (%)
Doing a house chore together while having fun	603 (54.6)
Getting help with their school work	444 (40.2)

3.3. COVID-19 preventive behavior among respondents

Adherence to personal preventive measures remained high during this second survey with rates ranging from 55.9% to 99.9%. Only temperature check at least twice a week and disinfecting one's phone were seldom reported. (Table 4).

Table 5. Adherence to personal COVID-19 preventive measures

No	Measures	March 31st to April 6th N=2175*[10] N (%)	April 21st to 25th N=1922* N (%)
1.	Follow the 1.5-2m physical distance rule	1919 (88.2)	1809 (94.1)
2.	Face mask use when outdoor	2165 (99.5)	1921 (99.9)
3.	Cover mouth and nose when coughing/sneezing	2065 (94.9)	1879 (97.8)
4.	Usually wash/disinfect hands immediately after coughing/sneezing	1813 (83.4)	1693 (88.1)
5.	Wash hands regularly with water and soap during the day	2119 (97.4)	1899 (98.8)
6.	Use hand sanitizer/gel regularly during the day	1767 (81.2)	1661 (86.4)
7.	Body temperature check at least twice a week	980 (45.1)	1075 (55.9)

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No	Measures	March 31st to April 6th N=2175*[10] N (%)	April 21st to 25th N=1922* N (%)
8.	Avoid touching my face, eyes, nose and mouth with my hands	1852 (85.1)	1735 (90.3)
9.	Disinfect phone when I get home	1047 (48.1)	1129 (58.7)

*Total number of respondents during the survey

Adherence to community preventive measures also remained high during this second survey with rates ranging from 43.9% to 99.7% but most people continued going regularly to a market (Table 5).

Table 6. Adherence to community COVID-19 preventive measures in the last seven days

No	Measures	March 31st to April 6th N=2175*[10] N (%)	April 21st to 25th N=1922* N (%)
1.	Avoided meeting or gathering with more than 10 persons	1791 (82.3)	1683 (87.6)
2.	Avoided going to a restaurant, bar, or club	2147 (98.7)	1914 (99.6)
3.	Avoided attending a funeral	2117 (97.3)	1874 (97.5)
4.	Avoided going to a religious gathering	2160 (99.3)	1918 (99.8)
5.	Avoided going to a public gym	2157 (99.2)	1917 (99.7)
6.	Avoided going to a beauty parlour, massages, spa, hairdresser or nail studio	2121 (97.5)	1872 (97.4)
7.	Avoided being in a vehicle or bus with more than 5 persons	2079 (95.6)	1901 (98.9)
8.	Avoided using common plates/spoons when eating with family	1137 (52.3)	1158 (60.2)
9.	Avoided using common plates/spoons when eating with strangers	1986 (91.3)	1791 (93.2)
10.	Avoided going to a market	950 (43.7)	843 (43.9)
11.	Did not travel outside my city	2162 (99.4)	1916 (99.7)

*Total number of respondents during the survey

3.4. Well-being during the COVID-19 pandemic

Three hundred and ten (16.1%) persons had a poor well-being score (overall well-being score less than 13). The mean scores for each item on the WHO well-being scale are summarized in Table 6.

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Table 6. The mean scores of each item of the WHO-5 well-being scale, and overall well-being score (n=1922)

Items and overall well-being scores	Mean ± SD	Min - Max
I have felt cheerful in good spirits	3.64 ± 1.05	0 - 5
I have felt calm and relaxed	3.59 ± 1.07	0 – 5
I have felt active and vigorous	3.34 ± 1.19	0 – 5
I woke up feeling fresh and rested	3.50 ± 1.17	0 – 5
My daily life has been filled with things that interest me	3.28 ± 1.23	0 – 5
Overall well-being score	17.35 ± 4.97	0 – 25

Factors associated with a high well-being score were: older age, eating more healthy food, physical activity, working from home, and adherence to the COVID-19 preventive measures. In contrast, male gender, being worried about their relatives' health, and being a smoker were all associated with poor well-being (Table 7).

Table 7. Factors associated with poor well-being during the COVID-19 pandemic*

Co-variates	Odds Ratio (95% Confidence interval)	P-value
Age (continuous variable, in years)	0.98 (0.97 – 1.00)	0.024
Gender: Male	0.70 (0.51 – 0.97)	0.030
Adherence to the COVID-19 preventive measures	0.87 (0.81 – 0.93)	<0.001
Working from home	0.75 (0.56 – 1.00)	0.048
Physical activity during the epidemic	0.62 (0.44 – 0.87)	0.006
Fear and worry about their relatives' health	2.41 (1.86 – 3.12)	<0.001
Eating more healthy food	0.61 (0.43 – 0.86)	0.005

| Smoking | 1.88 (1.09 – 3.23) | 0.024 |

*: Multiple logistic regression model was used for analysis

4. Discussion

Despite the COVID-19 pandemic and the stringent restrictive measures that had been implemented in Vietnam, relatively few participants (16.1%) scored low on the WHO well-being score. This figure is lower than in Wuhan, China where 48.3% respondents scored low using the same scale [12]. In our study, the mean score of the 5 components was 17.35 ± 4.97 and this is higher compared to Austria, after four weeks of lockdown (15.05 ± 5.40) [13]. A similar study during a period of COVID-19 lockdown in the UK also found a lower mean WHO-well-being score (10.43 ± 5.40) [14]. The relatively moderate impact of the COVID-19 epidemic and the implemented preventive measures on the well-being of the Vietnamese may be because the epidemic in Vietnam was rapidly controlled and that the population accepted to adhere to the preventive measures.

The impacts of COVID-19 preventive measures on physical and mental well-being have been documented by many studies. Long-term adherence to these measures, as well as negative information about the epidemic may affect physical and mental well-being in the population [15]. Studies evaluating the mental health during lockdown periods in Austria and the US, showed that young people, women, the unemployed, and low-income people seemed to be more stressed than others [13],[16]. Certain participants in our study reported difficulties in obtaining food or medication, feeling worried about their own health or that of their relatives, and a few experienced violence or discrimination. These experiences most likely affected their well-being. The WHO Department of Mental Health and Substance Use has provided advice to improve mental and psychosocial well-being during the pandemic [17]. People in the community should sympathize and help those affected by the pandemic, avoid discrimination against infected people, and follow official COVID-19 information from local health authorities. Indeed, uncontrolled infodemics

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could make people feel anxious or distressed. In addition, healthcare workers should consider mental and psychosocial well-being as important as physical health.

Our multivariable analysis showed that better well-being was associated with eating healthy food, practicing physical exercise, and observing the COVID-19 preventive measures. Notably, increasing age was associated with better well-being (Table 7), suggesting that the pandemic may be particularly detrimental to the well-being of younger individuals who may find it more difficult to endure confinement compared to older persons. Similar findings were recently reported in the USA where poor mental health and well-being during the COVID-19 pandemic was reported among persons below the age of 40 years [16]. Other studies have shown that among elderly people, worrying about the risk of infection or death as well as the challenges related to physical distancing have reduced their well-being [18] [19]. It is possible that in Vietnam, the successful interruption of COVID-19 transmission at an early stage of the pandemic, and the absence of reported deaths due to COVID-19 during the first wave may have put the elderly population more at ease.

Female gender was also associated with poorer well-being in our study. This is similar with findings from Austria, Denmark and the UK [13] [20] [21]. An explanation could be that women carry the double burden of having a job and household responsibilities [22].

Fear and worry about their relatives' health was associated with poor well-being. This reflects the concerns that respondents have for their loved ones as they do not want them to develop COVID-19. Indeed, SARS-CoV-2 may spread rapidly among family clusters [23]. Understandably, being a smoker was also associated with poor well-being since some of the risk factors that increase the severity of COVID-19 disease (lung disease, cardiovascular disorders, diabetes) are more common among smokers. Therefore, quitting smoking is recommended, especially for those with underlying diseases [24]. The finding that physical activity was associated with a higher well-being score resonates with previous studies which found that physical activity improves mental well-

being, in addition to reducing the risk of acute respiratory distress syndrome which is a major cause of death in COVID-19 patients [25].

In many countries, the COVID-19 pandemic resulted in reduced income and increased food prices. Food insecurity and difficulties in accessing healthy food may lead to malnutrition and mental health problems [26]. However, Vietnam has a policy to control food prices and to guarantee food security by a well-organized collaboration between the government, producers, and supermarkets [27]. This explains why only 5% of our respondents reported difficulties in obtaining food, and that nearly 90% responded that they were regularly eating more healthy food during the outbreak. Some limitations of the study should be mentioned. People with no or limited internet access were not able to participate in the research. Therefore, our respondents are not representative of the general population in Vietnam. The survey was launched in medical schools, which resulted in a large percentage of respondents being medical students and healthcare workers. Moreover in an online questionnaire, there is a risk for recall bias and/or submission of incorrect information by respondents.

5. Conclusions

Thanks to the strict preventive measures that were implemented in Vietnam and the excellent preventive behaviour of the Vietnamese people, the COVID-19 epidemic was rapidly controlled. After the lockdown measures were lifted, the Vietnamese people continued to follow COVID-19 preventive measures and most of them scored high on the well-being scale. However, in the absence of large scale COVID-19 vaccine coverage, new COVID-19 waves may still appear. Together with implementing preventive measures, developing strategies to guarantee the well-being of the Vietnamese people is equally important.

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Institutional Review Board Statement: The study was conducted according to the guidelines of the Declaration of Helsinki, and approved by the Ethical Review Committee of University of Medicine and Pharmacy, Hue University, Vietnam (No. H202/041 dated March 30th, 2020).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study. Informed e-consent (checkbox) in fact was required from each participant before submitting responses.

Data Availability Statement: All responses were anonymous and securely stored in a password-protected server in Belgium. The datasets generated and/or analysed during the current study are available from the corresponding author upon reasonable request.

Conflicts of Interest: The authors declare no conflict of interest. The sponsors had no role in the design, execution, interpretation, or writing of the study.

Abbreviations

COVID-19: Coronavirus disease 2019

ICPcovid: International Citizen Project Covid-19

SARS-CoV-2: Severe acute respiratory syndrome coronavirus 2

SD: Standard deviation

USA: The United States of America

WHO: World Health Organization

References

1. World Health Organization. *Novel Coronavirus (2019-nCoV) SITUATION REPORT - 1*; 21 JANUARY 2020, 2020.
2. World Health Organization. *Coronavirus disease 2019 (COVID-19) Situation Report – 51*; 11 March 2020, 2020.
3. Quach, H.-L.; Hoang, N.-A. COVID-19 in Vietnam: A lesson of pre-preparation. *J Clin Virol* **2020**, *127*, 104379-104379, doi:10.1016/j.jcv.2020.104379.
4. Ha, B.T.T.; Ngoc Quang, L.; Mirzoev, T.; Tai, N.T.; Thai, P.Q.; Dinh, P.C. Combating the COVID-19 Epidemic: Experiences from Vietnam. *International journal of environmental research and public health* **2020**, *17*, doi:10.3390/ijerph17093125.
5. General Department of Preventive Medicine. COVID-19 pandemic newsletter on July 3, 2020: More than 2 months with no domestic infection cases. Availabe online: https://vncdc.gov.vn/ban-tin-dich-covid-19-ngay-0372020-hon-2-thang-khong-ca-lay-nhiem-trong-cong-dong-nd15809.html (accessed on
6. Vietnam Ministry Of Health - Covid-19 pandemic news website. On the morning of September 15, 2020 no new cases of COVID-19 were recorded, 926 patients were cured. Availabe online: https://ncov.moh.gov.vn/vi/web/guest/-/6847426-134 (accessed on

7.   Vietnam Ministry Of Health - Covid-19 pandemic news website. An 8-year-old boy in Hai Duong province tested positive for Sars-Cov-2, 3 more cases nationwide. Availabe online: https://ncov.moh.gov.vn/en/-/6847426-2103 (accessed on

8.   Nguyen, T.V.; Tran, Q.D.; Phan, L.T.; Vu, L.N.; Truong, D.T.T.; Truong, H.C.; Le, T.N.; Vien, L.D.K.; Nguyen, T.V.; Luong, Q.C., et al. In the interest of public safety: rapid response to the COVID-19 epidemic in Vietnam. *BMJ global health* **2021**, *6*, doi:10.1136/bmjgh-2020-004100.

9.   Eaton, J. Wellbeing and mental health during the COVID-19 outbreak *COMMUNITY EYE HEALTH JOURNAL* **2020**, *33*.

10.   Nguyen, N.P.T.; Hoang, T.D.; Tran, V.T.; Vu, C.T.; Siewe Fodjo, J.N.; Colebunders, R.; Dunne, M.P.; Vo, T.V. Preventive behavior of Vietnamese people in response to the COVID-19 pandemic. *PloS one* **2020**, *15*, e0238830, doi:10.1371/journal.pone.0238830.

11.   Psychiatric Research Unit - WHO Collaborating Center for Mental Health. WHO (Five) Well-Being Index (1998 version). 1998.

12.   Gao, J.; Zheng, P.; Jia, Y.; Chen, H.; Mao, Y.; Chen, S.; Wang, Y.; Fu, H.; Dai, J. Mental health problems and social media exposure during COVID-19 outbreak. *PloS one* **2020**, *15*, e0231924, doi:10.1371/journal.pone.0231924.

13.   Pieh, C.; Budimir, S.; Probst, T. The effect of age, gender, income, work, and physical activity on mental health during coronavirus disease (COVID-19) lockdown in Austria. *Journal of psychosomatic research* **2020**, *136*, 110186, doi:10.1016/j.jpsychores.2020.110186.

14.   White, R.G.; Van Der Boor, C. Impact of the COVID-19 pandemic and initial period of lockdown on the mental health and well-being of adults in the UK. *BJPsych Open* **2020**, *6*, e90-e90, doi:10.1192/bjo.2020.79.

15.   Li, W.; Yang, Y.; Liu, Z.-H.; Zhao, Y.-J.; Zhang, Q.; Zhang, L.; Cheung, T.; Xiang, Y.-T. Progression of Mental Health Services during the COVID-19 Outbreak in China. *Int J Biol Sci* **2020**, *16*, 1732-1738, doi:10.7150/ijbs.45120.

16.   Evanoff, B.A.; Strickland, J.R.; Dale, A.M.; Hayibor, L.; Page, E.; Duncan, J.G.; Kannampallil, T.; Gray, D.L. Work-Related and Personal Factors Associated With Mental Well-Being During the COVID-19 Response: Survey of Health Care and Other Workers. *J Med Internet Res* **2020**, *22*, e21366, doi:10.2196/21366.

17.   Organization, W.H. Mental health and psychosocial considerations during the COVID-19 outbreak. 2020.

18.   Petretto, D.R.; Pili, R. Ageing and COVID-19: What Is the Role for Elderly People? *Geriatrics (Basel)* **2020**, *5*, 25, doi:10.3390/geriatrics5020025.

19.   Ping, W.; Zheng, J.; Niu, X.; Guo, C.; Zhang, J.; Yang, H.; Shi, Y. Evaluation of health-related quality of life using EQ-5D in China during the COVID-19 pandemic. *PloS one* **2020**, *15*, e0234850-e0234850, doi:10.1371/journal.pone.0234850.

20.   Søndeskov, K.M.; Dinesen, P.T.; Santini, Z.I.; Østergaard, S.D. The depressive state of Denmark during the COVID-19 pandemic. *Acta neuropsychiatrica* **2020**, *32*, 226-228, doi:10.1017/neu.2020.15.

21.   Ben Etheridge; Lisa Spantig. The Gender Gap in Mental Well-Being During the Covid-19 Outbreak: Evidence from the UK. *Institute for Social and Economic Research, University of Essex* **2020**.

22. Dreger, S.; Gerlinger, T.; Bolte, G. Gender inequalities in mental wellbeing in 26 European countries: do welfare regimes matter? *European journal of public health* **2016**, *26*, 872-876, doi:10.1093/eurpub/ckw074.

23. Song, R.; Han, B.; Song, M.; Wang, L.; Conlon, C.P.; Dong, T.; Tian, D.; Zhang, W.; Chen, Z.; Zhang, F., et al. Clinical and epidemiological features of COVID-19 family clusters in Beijing, China. *The Journal of infection* **2020**, *81*, e26-e30, doi:10.1016/j.jinf.2020.04.018.

24. Berlin, I.; Thomas, D.; Le Faou, A.-L.; Cornuz, J. COVID-19 and smoking. *Nicotine Tob Res* **2020**, 10.1093/ntr/ntaa059, ntaa059, doi:10.1093/ntr/ntaa059.

25. Nyenhuis, S.M.; Greiwe, J.; Zeiger, J.S.; Nanda, A.; Cooke, A. Exercise and Fitness in the Age of Social Distancing During the COVID-19 Pandemic. *J Allergy Clin Immunol Pract* **2020**, 10.1016/j.jaip.2020.04.039, S2213-2198(2220)30396-30392, doi:10.1016/j.jaip.2020.04.039.

26. Paslakis, G.; Dimitropoulos, G.; Katzman, D.K. A call to action to address COVID-19-induced global food insecurity to prevent hunger, malnutrition, and eating pathology. *Nutrition reviews* **2020**, 10.1093/nutrit/nuaa069, doi:10.1093/nutrit/nuaa069.

27. La, V.-P.; Pham, T.-H.; Ho, T.; Nguyen, H.; Nguyen, P.; Vuong, T.-T.; Nguyen, H.K.; Tran, T.; Khuc, Q.; Ho, T., et al. Policy Response, Social Media and Science Journalism for the Sustainability of the Public Health System Amid the COVID-19 Outbreak: The Vietnam Lessons. *Sustainability* **2020**, *12*, 2931, doi:10.3390/su12072931.