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Original Research

WILLINGNESS TO PAY FOR THE VACCINE IN THE COVID-19 PANDEMIC: A LESSON LEARNED FOR FUTURE PANDEMIC VACCINE

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ABSTRACT

Our study aims to estimate the value of willingness-to-pay (WTP) for COVID-19 vaccine and relevant factors in central region of Vietnam. We conducted a cross-sectional survey among 367 people in Hue. To survey WTP, we used a contingent valuation method in a double - bounded dichotomous choice format. Multivariate median regression was applied to determine the predictors of WTP. The study involved 367 respondents with an age range of 18 - 74 years. Of these respondents, WTP for COVID-19 vaccine was observed in 71.9% of participants, with a mean and median WTP amount of US$38. 20 and $28.87 for two doses. Age, knowledge of COVID-19, health insurance participation, belief in the effectiveness of the vaccine, and support from family/friends were found in relation to WTP. A high proportion of WTP was found, but a low amount. Knowledge and beliefs related to vaccines were found to have an impact on WTP amount. These findings can provide evidence for future consideration regarding vaccination campaigns and may contribute to tackling the barriers that block adequate vaccine coverage in the central region of Vietnam.

Keywords: *COVID-19, willingness to pay, contingent valuation, pandemic.*

I. . INTRODUCTION

The coronavirus disease 2019 (COVID-19) pandemic is a major global threat [1]. The number of cases and deaths have been reported to be about more than 512 million and 6 million worldwide [2]. As of April 30, 2022, more than 10 million cases and 43,000 deaths have been recorded in Vietnam. Because of the threat posed by the COVID-19 pandemic to healthcare systems and society at large, several measures have been developed to address this situation [3], of which vaccination is considered the most effective.

Although the COVID-19 vaccine has been widely reported to be safe and effective, it is not clear whether people will accept and pay for the vaccine [1]. Thus, several studies have been conducted to explore the willingness to pay (WTP) for this vaccine. Previous studies revealed that the level of acceptance and the WTP amount vary with both the location and the time. In 2020, participants were willing to pay for the COVID-19 vaccine with the median amount from $28 - 46 in China [4-6]. The proportion of WTP in another study, which was conducted on 531 individuals in Chile with middle - and high - income socioeconomic status, was 56%, with a value up to $232 [7]. Another study, conducted among 651 pregnant women in Vietnam, reported that the willingness to receive and pay were 60.4% and 82.6%, respectively, with a mean WTP of $15.20 (SD ± 27.4) [8].

Some COVID-19 vaccines have been officially introduced [8]. As of March 15, 2022, successful universal vaccination in the context of COVID-19 in Vietnam has surprisingly been achieved. 79.3% of the population has been vaccinated, and half of those have had the booster dose (third dose) [9] . However, COVID-19 variants are unpredictable, and the efficacy of the vaccine has been decreasing. This contributes to the increase in new and reinfected cases in people who have had a full COVID-19 vaccination [10,11].

Vaccination is currently free of charge for all populations in Vietnam. However, as reinfection cases rise, vaccine hesitancy due to doubts about its efficacy grows, and willingness to receive the vaccine declines [12]. The need for a better vaccine is urgent. Policymakers and particular strategies regarding vaccination need to prepare issues related to price and acceptability of vaccine for future consideration, especially by mobilizing financial resources from the community when the nation's budget is insufficient [13,14].

Therefore, our study aims to investigate maximum WTP for the COVID-19 vaccine and relevant factors among residents of the central region of Vietnam.

II. SUBJECTS AND METHODS

2.1. Study setting and participants

This was a cross - sectional study on residents of three selected wards in Hue: Thuan Thanh, Phuoc Vinh, and Huong Long (to balance geography and socioeconomics), a city located in central Vietnam with 500,000 inhabitants.

The study involves 367 people, ages 18 - 60, and has a statistical power of 83%. Data collection was undertaken for one month, from December 2021 to January 2022. The participants were invited and directly interviewed by well-trained 4th public health and 6th preventive students. The interviews took place in the participants' homes, lasted 10 minutes, and used the structured questionnaire.

We selected participants were: (1) aged 18 and older, (2) living in Hue, and (3) provided written informed consent. We obtained approval for study protocol from The Institutional Ethics Committee of Hue University of Medicine and Pharmacy (No. H2021/443, dated August 26th, 2021).

2.2. Measurement and instruments

The researchers came to each home to ask the respondents, who answered on the behalf of family members as well. We had four components for the survey: (1) information on sociodemographic, (2) knowledge of the COVID-19 vaccine, (3) beliefs about taking the COVID-19 vaccine, and (4) willingness to receive the COVID-19 vaccine and to pay for it.

2.3. Eliciting WTP

The primary outcomes were respondents' acceptance of the COVID-19 vaccine, their willingness to pay for the vaccine, and the amount of money they were willing to pay. To measure the outcomes, we asked the following: "Assuming a better vaccine for COVID-19 was developed, are you willing to pay for a COVID-19 vaccine for yourself and your household members?" If they answered "yes," then we asked about WTP.

We used a double - bounded dichotomous choice that gradually reduced the number of WTP responses for the hypothetical vaccine to measure WTP. We based on common features of a vaccine to ask participants about typical attributes of hypothetical COVID-19 vaccine. The question was: "Suppose that a vaccine for COVID-19 was discovered that was guaranteed to be better than the one that exists. Would you be willing to pay a specific amount of money to get vaccinated?"

For this method, the biggest challenge was choosing a starting point for the WTP amount. Thus, we piloted the study with a randomly chosen 40 people (ages 18 - 57, mean = 35.3 ± 5.2), for whom the mean maximum willingness to pay was 400,000 VND (~ $17.30). We then used this level of price for our first question. If the participants answered "yes" to this question, we asked again, but with the price at 550,000 VND (~ $23.80) and at more than 700,000 VND (~ $30.20). If the participants answered "no" to the initial question, we will ask the same question with a price of 250,000 VND ($10.80). If the respondent replied "no" to either of the above questions, they would then be asked an open - ended question about their maximum WTP.

Survey questions used VND as currency and also showed the equivalent price in USD using the official Vietnam National Bank state exchange rate for 2021 (US$1 = 23,150 VND). Gross domestic product (GDP) per capita in Vietnam 2021 was 50.4 millions (~US$ 2,178) [15].

2.4. Predictor variables

* Demographic information

The sociodemographic characteristics in our study

included gender (male/female), age (≤ 30 and > 30), monthly household income (less than 5 million VND, 5 - 10 million VND, or > 10 million VND), living area (urban, rural/mountain), education (high school and below, college/university/postgraduate), occupation (government officer, worker/craftsman/ self - employed, blue - collar worker/farmer/ housewife/student, small business), marital status (single/divorced/separated, living with others), family size (≤ 4 persons, > 4 persons), health insurance status (none, yes), decreases in income due to COVID-19 pandemic (0%, 1 - 10%; 11 - 20%, > 20%), infected with COVID-19 (yes, no), and vaccination for COVID-19 (none, first dose, second dose, and third dose).

* Knowledge and beliefs about the efficacy of the COVID-19 vaccine [16]

We based on information on the essentialness and efficacy of the COVID-19 vaccine and vaccination, including the protective ability through herd immunity to evaluate knowledge.

The vaccine belief section included belief in the efficacy of the COVID-19 vaccine, thinking for getting vaccination, and support for friends/ family members getting vaccinated. This section included 3 Likert scale questions, each with 5 options corresponding to the level of agreement or disagreement with the provided statement and scores ranging from 0 to 4.

2.5. Data analysis

Data analysis was performed with STATA version 16.0. We used chi - squared ($\chi 2$), Fisher's exact, Mann - Whitney, and Kruskal - Wallis tests to compare maximum amount of WTP for the COVID-19 vaccine according to socio - demographic factors.

Due to the non-normal distribution, the multivariate median regression model was used to identify potential factors associated with the maximum amount of WTP. Variance Inflation Factor (VIF) analysis have been conducted to identify the collinearity of the independent variables with a value of 10 considered the threshold. In this study, we did not find any VIF values exceeding 10, suggesting no collinearity in our models. A p-value below 0.05 was considered statistically significant.

III. RESULTS

Table 1 describes the characteristics of the subjects participating in this study. A total of 367 people participated in the study, of whom 47.1% were male and 52.9% were female. The mean age was 30.6 years.

The main occupations of the study subjects were "worker/craftsman/self - employed" and agriculture, forestry, and fishery, accounting for 71.3%. During the pandemic, up to 36.5% of people reduced their income by more than 20%. The rate of people who had been infected with COVID-19 in this study was 21%, and 97.9% of study respondents had received the second and third doses of the COVID-19 vaccine.

Table 1: General characteristics of participants and maximum willingness to pay (WTP) for full doses of COVID-19 vaccine

Factors	Total sample	Maximum willingness to pay (n = 264)				p - value
	N (%)	n (%)	Mean (SD)	Median	Min - Max	
All	367	264	885 (1,168)	663	50 - 10,000	NA
Gender						
Male	173 (47.1)	121 (45.8)	982 (1,378)	800	50 - 10,000	0.171
Female	194 (52.9)	143 (54.2)	804 (954)	600	100 - 10,000	
Age (Years)	Mean ± SD: 30.6 ± 11.7 Min - max: 18 - 74					
≤ 30	243 (66.2)	176 (66.7)	1007 (1,395)	800	50 - 10,000	0.006
> 30	124 (33.8)	88 (33.3)	643 (351)	500	100 - 1,500	
Occupation						

Factors	Total sample	Maximum willingness to pay (n = 264)				p - value
	N (%)	n (%)	Mean (SD)	Median	Min - Max	
Government officer	66 (18)	55 (20.8)	961 (1,281)	600	100 - 7,000	0.051
Worker/craftsman/ self - employed	111 (30.2)	73 (27.7)	743 (372)	800	100 - 1,500	
Agriculture/ housewife/ student	151 (41.1)	106 (40.2)	893 (1,275)	550	50 - 1,000	
Small business	39 (10.6)	30 (11.4)	1066 (1,733)	766	100 - 10000	
Education						
≤ High school	130 (35.4)	91 (34.50	713 (364)	752	50 - 1500	0.846
> High school	237 (64.6)	173 (65.5)	976 (1,412)	650	100 - 10,000	
Marital status						
Single/divorced/ separated	239 (65.1)	173 (65.5)	995 (1,408)	800	50 - 10,000	0.740
Living with others	128 (34.9)	91 (34.5)	677 (369)	510	100 - 2,000	
Monthly income (VND)						
< 5 million	101 (27.5)	67 (25.4)	1056 (1,566)	752	100 - 10,000	0.037*
5 - 10 million	189 (51.5)	135 (51.1)	761 (668)	755	50 - 7,000	
> 10 million	77 (21)	62 (23.5)	973 (1,475)	600	100 - 10,000	
Size of family						0.929
≤ 4 members	184(50.1)	134 (50.8)	910 (1,271)	550	100 - 10,000	
> 4 members	183 (49.9)	130 (49.2)	860 (1,057)	768	50 - 10,000	
Declines in income due to COVID-19						0.704
0%	74 (20.2)	50 (18.9)	964 (1,410)	550	100 - 8,000	
1% to 10%	104 (28.3)	82 (31.1)	876 (1,093)	790	100 - 10,000	
> 10% to 20%	55 (15)	38 (14.4)	666 (435)	500	100 - 2,000	
> 20%	134 (36.5)	94 (35.6)	941 (1,293)	758	50 - 10,000	
Health insurance status						0.373
None	38 (10.4)	31 (11.7)	1470 (2,255)	800	100 - 10,000	
Yes	329 (89.6)	233 (88.3)	808 (916)	600	50 - 10,000	
COVID-19 infected						

Factors	Total sample	Maximum willingness to pay (n = 264)				p - value
	N (%)	n (%)	Mean (SD)	Median	Min - Max	
Yes	77 (21.0)	52 (19.7)	1,104 (1,652)	850	50 - 10,000	0.053
None	290 (79.0)	212 (80.3)	831 (1,013)	600	100 - 10,000	
COVID-19 vaccination						
First dose	6 (1.6)	3 (1.1)	900 (360)	1000	500 - 1,200	0.178
Second dose	216 (58.9)	155 (58.7)	856 (1,236)	600	50 - 10,000	
Third dose	143 (39.0)	106 (40.2)	927 (1,082)	800	100 - 8,000	
None	2 (0.5)					

(USD $1 = = 23,150 VND)

Table 2 describes the study subjects' knowledge about the vaccine. The percentage of people who considered COVID-19 to be a very dangerous/dangerous disease was 92.2%, and 84% knew more than three symptoms of possible side effects due to vaccination. Up to 81.2% of participants thought that the COVID-19 vaccine is very effective/effective in preventing disease.

Table 2: Knowledge about COVID-19 vaccine

Contents	n	%
COVID-19 is a tratransmitteddangerouss disease (n=367)		
Very dangerous/dangerous	341	92.2
Normal/Not dangerous	26	7.1
Knowing the side effects after getting the COVID-19 vaccine (Yes)	318	86.6
Common side effects after receiving the COVID-19 vaccine		
<3 symptoms	51	16.0
≥3 symptoms	267	84.0
At present, do you need to pay for taking vaccination?		
Yes	19	5.2
No	340	92.6
Do not know	8	2.2
How does the COVID-19 vaccine work?		
Very effective/effective	298	81.2
Normal/Not effective/Very no/No	69	18.8
Does the COVID-19 vaccine reduce the risk of community transmission?		
Yes	300	81.7
No/Do not know	67	18.3
Total	367	100

Table 3 gives information on the participants' beliefs about the COVID-19 vaccine. 6.3% of people hesitated or did not take the vaccine, for reasons that included waiting to verify the effectiveness of the vaccine and having personal health problems. Up to 87.2% of people strongly believe/believe in the effectiveness of the COVID-19 vaccine, and 93.2% of people strongly support/support a family member or friend intending to get the vaccine.

Table 3: Beliefs about the COVID-19 vaccine

Contents	n	%
Are you planning to get a vaccination against COVID-19?		
Will definitely	344	93.7
Confused, hesitant	22	6.0
Probably won't	1	0.3
The reason you are hesitant/not to get vaccinated against COVID-19		
1. Waiting for a better vaccine	5	1.4
2. Waiting for the time to verify the effectiveness and safety of the vaccine	12	3.3
3. Current health status does not allow it: pregnancy, lactation, immunocompromised, acute illness	9	2.5
What are your beliefs about the effectiveness of the COVID-19 vaccine?		
Very trusting/Trusting	320	87.2
Normal/Disbelieving/Very disbelieving	47	12.8
If your family or friends intend to get the COVID-19 vaccine, you will		
Totally support/Support	342	93.2
No opinion/Advise them to delay injection/Advise them not to inject/Don't know	25	6.8
Total	367	100.0

Table 1, Table 4, and **Figure 1** describe the maximum WTP in general and by individual characteristics. Of the 367 participants in this study, 264 (71.9%) would pay for the COVID-19 vaccine in the hypothetical 2 - dose vaccinations if there were a better vaccine or an additional dose. The mean and median WTP for two doses of the COVID-19 vaccine were VND 885,000 ($38.20) and VND 663,000 ($28.90) respectively. The lowest payment named was 50,000 VND ($2.20), and the highest was 10 million VND ($432).

Table 4: Willingness to pay (WTP) for 2 doses of the COVID-19 Vaccine (n=367)

WTP	Frequency (n)		Percent (%)	
Yes	264		71.9	
No	62		16.9	
Do not know	41		11.2	
Maximum WTP for 2 doses COVID-19 vaccine (1,000), n=264				
	n (%)	Mean	Median	Min-Max
All	n = 264	885 (1168)	663	50 - 10000
< 250	16 (6,1))	109 (38)	100	50 - 200
250 - 400	12 (4,5)	265 (22)	250	250 - 300

WTP	Frequency (n)		Percent (%)	
400	64 (24,2)	400 (0)	400	400
400 - 550	31 (11,7)	502 (28)	500	440 - 550
550 - 700	11 (4,1)	627 (33)	600	600 - 675
> 700	130 (49,2)	1390	1000	752 - 10,000

Figure 1 shows that if the price for two doses is at the same level as for seasonal flu vaccines in Vietnam (service price), 65.1% (172 people) were willing to pay higher than this level.

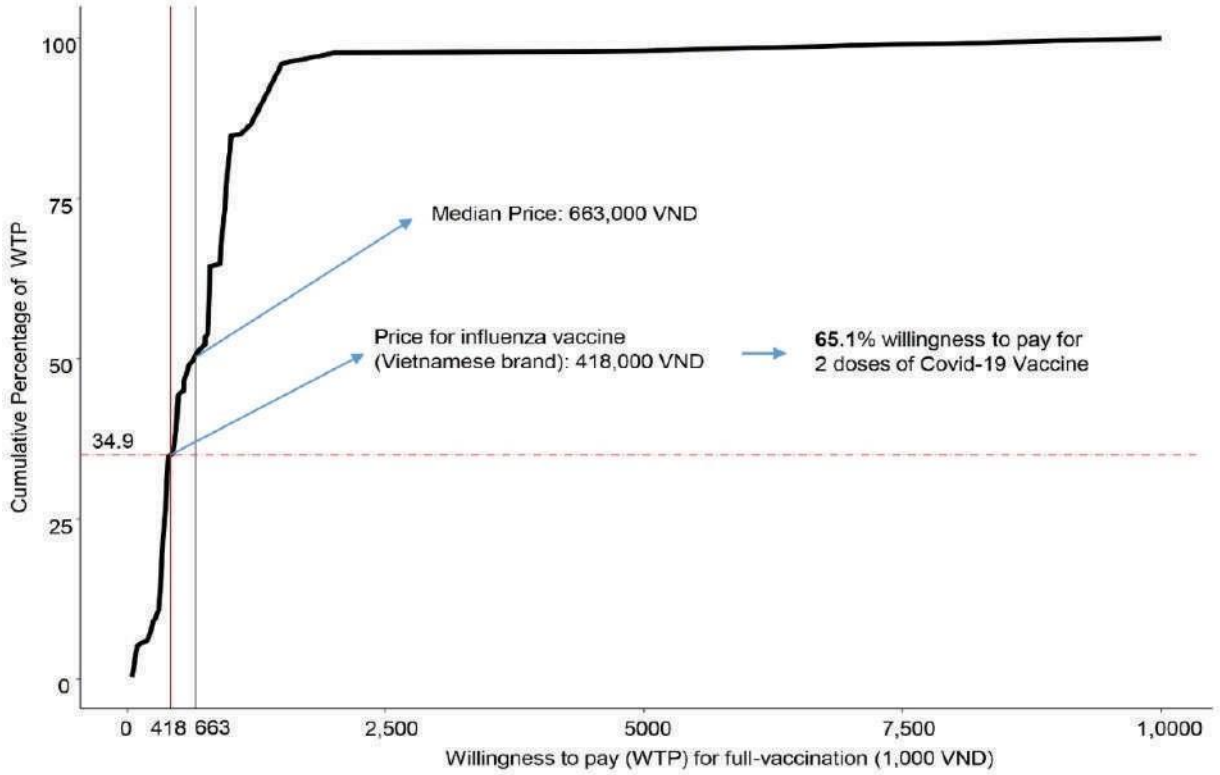

Figure 1: Accumulative percentage of WTP by prices.
(Units presented in Vietnam Dong, USD $1 = = 23,150 VND)

Vaccine side effects were the most dominant reason among those who were not accepting vaccination (54.2%) **(Table 5)**.

Table 5: Reasons for not taking vaccination

Reasons for not taking vaccination	n	%
1. Vaccines have many side effects	13	54.2
2. I am not in a high-risk group for severe progression to COVID-19	2	8.3
3. I find self-prevention measures more effective than vaccination	2	8.3
4. Waiting until the vaccine is safe to inject the booster dose	8	33.3
5. No funding for vaccination	8	33.3
Other	0	0
Total	24	100.0

Multivariable median regression shows that being over 30 and having health insurance were negatively related to the maximum WTP. In contrast, adequate knowledge about COVID-19, belief that vaccination reduces transmission in the community, and support for household/friends receiving the vaccine were all associated with increased WTP ($p < 0.05$) **(Table 6).**

Table 6: Multivariate median regression: predictors of maximum WTP

Factors	Coef. (se)	t	P > t	95% Conf. Interval	
				Lower limit	Upper limit
Age group					
≤ 30	Ref				
> 30	- 220.1 (85.7)	- 2.57	0.011	- 389.0	- 51.3
Gender					
Male	Ref				
Female	- 54.1 (67.4)	- 0.8	0.423	- 186.8	78.6
Marital status					
Single/Divorced/Separated	Ref				
Living with others	- 22.2 (96.3)	- 0.23	0.818	- 211.9	167.5
Education					
≤ High school	Ref				
> High school	- 21.8 (113.8)	- 0.19	0.848	- 246.0	202.4
Size of family					
≤ 4 members	Ref				
> 4 members	63.4 (72.3)	0.88	0.381	-78.9	205.8
Health insurance status					
None	Ref				
Yes	- 226.1 (88.8)	-2.55	0.012	- 401.1	- 51.1
COVID-19 infected					
Yes	Ref				
No	- 79.1 (94.8)	- 0.83	0.405	- 265.9	107.7
Occupation					
Government officer	Ref				
Worker/Craftsman/Freelancer	- 105.3 (160.6)	- 0.66	0.513	- 421.6	211.0
Agriculture/Housewife/ Student	- 200.9 (124.2)	- 1.62	0.107	- 445.5	43.8
Small business	- 52.1 (172.6)	- 0.3	0.763	- 392.1	288.0
Monthly income					
< 5 million	Ref				
5 - 10 million	- 44.9 (69.8)	- 0.64	0.521	- 182.4	92.6
> 10 million	- 31.5 (92.0)	- 0.34	0.733	- 212.7	149.8
Declines in income due to COVID-19					

Factors	Coef. (se)	t	P > t	95% Conf. Interval	
				Lower limit	Upper limit
0%	Ref				
1% to 10%	79.1 (95.1)	0.83	0.406	- 108.2	266.4
> 10% to 20%	- 128.1 (125.1)	- 1.02	0.307	- 374.5	118.4
> 20%	22.6 (115.4)	0.2	0.845	- 204.8	250.0
Knowledge of COVID-19					
Adequate	Ref				
Inadequate	264.2 (102.5)	2.58	0.011	62.3	466.1
Knowing about the side effects of vaccination					
Yes	Ref				
No	- 81.3 (104.9)	- 0.77	0.439	- 287.9	125.4
Must pay for getting a vaccination					
Yes	Ref				
No	- 131.4 (111.1)	- 1.18	0.238	- 350.2	87.4
Preventive disease after getting a vaccination					
Yes	Ref				
No	109.0 (154.6)	0.7	0.482	-195.6	413.7
Reduce the community transmission					
Yes	Ref				
No	- 147.0 (73.7)	- 1.99	0.047	- 292.2	- 1.8
Plan to take the vaccine					
Yes	Ref				
No	1151.3 (2733.1)	0.42	0.674	- 4232.6	6535.2
Belief about the efficacy of the vaccine					
Yes	Ref				
No	- 297.2 (268.7)	- 1.11	0.27	-826.5	232.0
Support for family members/friends taking the vaccine					
Yes	Ref				
No	287.0 (140.1)	2.05	0.042	11.1	562.9
Cons	1332.1 (196.8)	6.77	0	944.5	1719.8

IV. DISCUSSION

In this cross - sectional study with 367 participants, 71.9% of respondents were identified with WTP for the COVID-19 vaccine; a mean and median of WTP amount were US$38. 20 and $28.87 for two doses, respectively. Age, knowledge of COVID-19, health insurance participation, belief in the effectiveness of the vaccine, and support from family/friends were found in relation to WTP.

COVID-19 is a worldwide health emergency, and its influence does not stop at any country's border. This pandemic has been documented to have global effects on the healthcare system and economic welfare, contributing to changes in social behaviors and individual mental health [7]. Because of the threat to healthcare systems and society at large, several measures have been enacted [3]. Vaccination is known to be the most effective approach to keeping infectious diseases under control, and COVID-19 is no exception [17]. As a result, WTP for the COVID-19 vaccine and amount of WTP have drawn much attention from researchers. A previous study conducted on 531 middle - and high - income individuals in Chile indicated a high WTP (≥ 56%) and a maximum value was US$232 [7]. Similarly, a high proportion of willingness to pay was observed in Lebanon (78.1%), even if the vaccine was not covered by health insurance; the maximum amount of WTP was approximately $60 ± $66 (range $3 - $500) [18]. Similar results were found in a study in Indonesia [1]. In contrast, a lower percentage of willingness to receive was found in Malaysia (48.2%), where participants were willing to pay $30.66 [17].

Consistent with the majority of previous studies, our study exhibited a high percentage of WTP for the COVID-19 vaccine with 71.9% of respondents and a mean and median WTP was $28.87, and $33.2, respectively. Influenza is known as the flu, which is an infectious disease caused by influenza viruses with typical symptoms including fever, headache, sore throat, fatigue, cough and coryza [19]. Children, the elderly, and people with chronic diseases are vulnerable subjects to Influenza [19]. Residents are ready to pay for influenza vaccination because Vietnam has no free national program. If the price for two doses of COVID-19 vaccine were similar to that of seasonal influenza vaccines, even if higher, 65.1% of participants were willing to pay. This proportion may be enough to reach herd immunity with the transmissibility of COVID-19 [8]. A high proportion of WTP may be an indicator that the Vietnamese consider vaccination an effective tactic against COVID-19. There is a possible reason for pushing people to do the vaccine in our study. Participants are more afraid of becoming infected with COVID-19 due to its threats, especially having relatives infected with COVID-19.

To date, few studies have been conducted to explore the level of WTP for the COVID-19 vaccine in Vietnam. Our study indicated a lower WTP amount compared to a previous study conducted in southern Vietnam (US$38.2 vs. $85.92) [20]. Our study was conducted in the central region of Vietnam, which is characterized by disasters. Although efforts were made to mitigate the impact of disasters on the community, the income level in this area is lower compared to other areas in Vietnam. However, our findings are in line with another study in Vietnam, this one restricted to pregnant women [8]. Furthermore, the meaningful amount of WTP in our study is lower than that of other countries [1,7,18]. However, it should be noted that a comparison of the WTP amount of this study with those of other investigations in other countries is difficult due to differences in per capita income. A lower amount of WTP was found in our study, which could be expected because Vietnam is a lower middle-income country. Additionally, our study was conducted after a vaccination campaign had been performed in the central region of Vietnam. As a result, information on the price of COVID-19 is available, and the price in our study is close to available vaccines in the market. This may be another possible reason [8].

Age and health insurance were found to be negatively associated with WTP amount. Participants aged ≥ 30 and participants with health insurance were less likely to pay for vaccination. Although the majority of participants were aware of the threat and disease severity, people believed that the vaccine will be covered by health insurance. This may well reflect the economic situation in the central region of Vietnam. A large proportion of participants in our study were craftsmen and workers, for whom 5 million to 10 million VND is a common monthly income. Thus, it is difficult for them to pay to get the vaccine. Thus, health insurance should be a source of coverage for the vaccine.

In contrast, good knowledge of COVID-19 was observed to have a positive impact on the WTP amount. This is consistent with a previous study that indicated self - perceived risk of COVID-19 in relation to WTP [8]. Participants with good knowledge of COVID-19 know more about the severity of the pandemic and the importance of the vaccine. Thus, they were willing to pay more than others [18]. We also found that participants who believed in the effectiveness of the vaccine would pay more because the vaccine is thought to reduce transmission in the community. In addition, support from family/friends also had a positive impact on amount of WTP. Taken together, our study suggests that we should have strategies to enhance knowledge of COVID-19 and the efficacy and safety of the vaccine. These strategies could help people become more willing to get the vaccine. Additionally, health insurance coverage is a key to increasing the vaccination rate.

V. CONCLUSION

Our study observed a high proportion of WTP with a low amount. Age, knowledge of COVID-19, health insurance participation, belief in the effectiveness of the vaccine, and support from family/friends were found to have an impact on the WTP amount. These findings can provide evidence for future consideration regarding vaccination campaigns and may contribute to tackling the barriers that block adequate vaccine coverage in the central region of Vietnam.

CONTRIBUTIONS

BTT, HLN, TATD: Conceptualization, Methodology; **HLN, NHDV, CKD, TGN, DDL, MTN, VVBL, DDN, HTTVL, THNN, TMLT, ATN, TTTH, TTHN:** Validation. **NHDV, CKD, TGN, DDL, MTN, VVBL, DDN, HTTVL, THNN, TMLT, ATN, TTTH, TTHN:** Investigation. **BTT, TGN, DDL, MTN, TTT:** Data analysis and review. **BTT:** writing - original draft preparation. **HLN, TATD, NHDV, CKD, TGN, DDL, MTN, VVBL, DDN, HTTVL, THNN, TMLT, ATN, TTTH, TTHN:** Critical review. **BTT:** Writing - Reviewing and Editing.

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