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Knowledge, Attitudes, and Practices on COVID-19 Prevention of Vietnamese Patients: A Cross-Sectional Study

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ABSTRACT

Background: The COVID-19 pandemic had a significant global impact, and although it has been controlled at the moment, the possibility of a resurgence is remains high if appropriate preventive measures are taken. Da Nang was one of the largest cities where the epidemic broke out and spread intensively in Vietnam. Knowledge, attitudes, and practices (KAP) towards COVID-19 play an important role in controlling and preventing the disease.

Objectives: To evaluate the KAP toward COVID-19 prevention among patients who visit to Da Nang Hospital for examinations and identify some related factors.

Methods: A cross-sectional study was conducted on 350 patients who visited the Department of Medical Examination of DaNang Hospital from November 2022 to April 2023. The questionnaire assessing knowledge, attitude, and practice of COVID-19 prevention of patients with 30 items was used and revised with the permission of the original author. Chi-square tests and odds ratios (ORs) with a 95% confidence interval (CI) were used to identify factors related to patient characteristics and knowledge, attitude, and practices of COVID-19 prevention. The results were considered statistically significant when $p < 0.05$.

Results: The percentage of participants with good knowledge, positive attitude, and successful practice on COVID-19 prevention accounted for 86.6%, 89.1%, and 56.3% respectively. Factors related to knowledge include sex (OR=1.88, 95% CI: 0.99-3.52, p-value < 0.05), age, education level, and family economy; attitudes include education level, place of residence (OR=0.44, 95% CI: 0.20-0.84, p-value < 0.05), occupation; and COVID-19 infection status (OR=0.47, 95% CI: 0.23-0.95, p <0.05); and practices include sex (OR=0.57, 95% CI: 0.37-0.88, p-value <0.05), age, education level , place of residence (OR= 0.65, 95% CI: 0.42-0.95, p-value <0.05) and occupation .

Conclusion: Research results showed that patients who visit to Da Nang Hospital for examinations have a high level of good knowledge and a positive attitude, while successful practices in COVID-19 prevention were not high. Thus, it is still necessary to promote and improve patients' knowledge about disease prevention vaccines, as well as enhance the practice of washing hands and covering mouths when coughing and sneezing for better disease prevention.

Keywords: Attitude, COVID-19, Knowledge, Practice, Prevention

1. Introduction

COVID-19 is an infectious respiratory illness in humans caused by the SARS-CoV-2 virus, which is transmitted directly from person to person through the respiratory tract and touching virus-infected surfaces [1]. From the first case discovered at the end of December 2019 in Wuhan, China, to date, the SARS-CoV-2 virus has caused a pandemic that has severely affected the whole world [2, 3]. As of September 17, 2022, there have been more than 616 million cases of COVID-19worldwide, with more than 6 million deaths [4]. In Vietnam, there have been more than 11 million cases, and more than 43 thousand deaths [5].

The COVID-19 pandemic has greatly affected the economic, social, cultural, educational, and public health aspects of society. More specifically, the outbreak of the pandemic seriously affected people's physical and mental health. Closures and quarantines not only affect infected people but also those who are not sick, such as anxiety, depression, stress, and sleep disorders [6].

Currently, the world in general and Vietnam specifically have had certain successes in treating and preventing COVID-19, but the number of COVID-19 cases and severe cases are still increasing due to new variants of the virus [7]. There are many ways to prevent COVID-19 such as physical distancing, washing, and disinfecting hands, wearing masks [8, 9] with vaccine playing an especially crucial role vaccines in preventing the spread of COVID-19 [10]. However, according to Maria Van Kerkhove, the technical team leader of the World Health Organization's emergency disease department, the COVID-19 vaccine

can still lose its effectiveness over time depending on the type of vaccine administered and the number of injections as well as the age and health condition of the individual [11-13] . Therefore, preventing COVID-19 remains key to reducing infection rates as well as the effects of the disease on people's physical and mental health. To prevent the spread of disease, educating people to have the appropriate of knowledge, attitude, and practice (KAP) in preventing COVID-19 is essential. Lack of knowledge leads to incorrect practices and increases the risk of disease outbreaks.

In Yilkal Simachew's research conducted on patients with chronic diseases in Sidama state, Ethiopia in 2021, results showed that 56.2% of people had good knowledge about COVID-19, while only 42.4% had good

practice. The results of this study also showed that age, marital status, and place of residence were significantly related to COVID-19 prevention practices [14]. In Vietnam, the study by Huynh Giao et al (2021) found that 79.2% of patients had good knowledge and 76.1% had good practice. This study also identified that patients with good knowledge and attitudes were 1.6 and 1.4 times more likely to practice correctly than those in remaining group [15].

Da Nang Hospital is the largest hospital in the central region, of Vietnam [16]. Da Nang Hospital was once the site of a COVID-19 outbreak in Vietnam and then spread the epidemic to Da Nang city. Moreover, few studies conducted to assess the KAP of patients toward COVID-19 prevention were found in Vietnam, specifically, no studies were conducted in Da Nang City. Therefore, our study was conducted to evaluate knowledge, attitudes, and practices on COVID-19 prevention among patients at Da Nang hospital; and identified some related factors for those contents. The results of the study help medical staff choose suitable a health education communication program to prevent COVID-19 disease widespread.

2. Methods

2.1 Study Area

The study was conducted at the Examination Department, Da Nang Hospital, Vietnam from November 2022 to April 2023.

2.2 Study Design

A cross-sectional study was conducted at the Examination Department, Da Nang Hospital, Vietnam from November 2022 to April 2023. In addition, the study complies with the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) guidelines for cross-sectional studies.

2.3 Sample size and sampling

Patients were selected for this study by convenience sampling technique. However, the sample size was counted by the following formula:

$n=Z^2 \cdot p(1-p)/d2$

In which:

n = required sample size

Z = 1.96, taking a 95% confidence interval

p = 0.707 [16]

d = absolute precision, 0.05

Adding to a 10 % dropout rate, the final sample size was 350.

Inclusion criteria: Patients equal to or over 18 years old; having the ability to read, understand, and write Vietnamese; and volunteering to participate in the study.

Exclusion criteria: Patients who were seriously ill or had been diagnosed with mental illness.

2.4 Data Collection

This study used a questionnaire with four parts, including general characteristics, knowledge, attitude, and practice regarding COVID-19 prevention.

Specifically, the general characteristics of participants included eight items (sex, age, level of education, occupation, place of residence, family income, COVID-19 status, and source of information about COVID-19).

The questionnaires on knowledge, attitude, and practice of COVID-19 prevention for patients were developed by Huynh Giao et al (2021) during the peak of the epidemic [15]. With the permission of original author, our study modified some items to suit with epidemic situation at the time of the study. Specifically, in the knowledge section, we emphasized more on knowledge about COVID-19 vaccine, the new prevention message '2K' (Face Mask & Sterilization) from the Ministry of Health. The knowledge sub-scale contained 15 items that were valued by 1 point for each correct answer and 0 points for incorrect or unknown response. A maximum total score of 15 points; and if the total score was≥12, it was identified as good knowledge, 8-11 as average, and ≤7 as poor. For 10 items of attitude sub-scale, participants were asked to rate their agreement with these statements on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Thus, patients have a positive attitude with a mean score of over 4 points, and those with a negative attitude had a mean score of under 4 points. Lastly, the practice subscale included 5 items, with 1 point for a “yes” answer. A total score of ≥4 was identified as good practice while <4 points as poor practice [17]. The reliability of the Cronbach's Alpha was determined to be 0.71.

2.5 Data Analysis

The data were analyzed by SPSS 20.0 software. Descriptive statistics were calculated for all scales, subscales, and variables of participants as means, standard deviations, errors, frequencies, and percentages. Chi-square tests and odds ratio (OR) with a 95% confidence interval (CI) were used to identify factors related to patient characteristics and Knowledge, attitude, and

practice of COVID-19 prevention. The results were considered statistically significant when $p < 0.05$.

2.6 Ethical Clearance

This study was approved by the Committee Board of Dong A University, with Decision No.99 that being signed by the director of Dong A University on January 30th, 2023. Moreover, the study also was approved by the Scientific council of Da Nang hospital. All patients voluntarily participated in the study and had the right to stop at any time they felt uncomfortable. The information obtained was used for research purposes only and not for any other purposes.

3. Results

3.1 Participant characteristics

Out of a total of 350 participants interviewed, 51.7% (n = 181) were male. The mean age was 41.8 years (SD: 14.7), with an age range of 18–82 years. Eighty-seven percent of the participants were aged 18-59. 50.6% of participants come from urban areas and the rest came from rural areas. The occupation of the participants focused on office workers, with a rate of 26.6% and there are 9 unemployed people (accounting for 2.6%). In terms of economic conditions, 65.7% of participants were middle income. 49.4% of the subjects had previously had COVID-19 and were cured, the remainder had never had COVID-19. 100% of subjects used at least one type of media to update information about COVID-19, with mobile phones for social media platforms (Facebook, TikTok, etc.) accounting for the highest rate of 96.6%; next was using television with a rate of 89.1% (see Table 1).

Table 1: Participant Characteristics (n=350)

Characteristics	Frequency (n)	%
Age group (year)		
18-35	137	39.1
36-59	168	48
≥60	45	12.9
Sex		
Male	181	51.7
Female	169	48.3
Level of education		
Primary	15	4.3
Secondary or high school	152	43.4
College	52	14.9
University and higher	131	37.4
Place of Residence		
Rural	173	49.4
Urban	177	50.6

Characteristics	Frequency (n)	%
Occupation		
Workers	61	17.4
Student	22	6.3
Housewife	39	11.1
Office staff	93	26.6
Unemployment	9	2.6
Other	126	36
Family Income		
Low (< 10USD/person/month)	27	7.7
Middle (10-15 USD/person/month)	230	65.7
High (>15 USD/person/month)	93	26.6
COVID-19 status		
Recovered from COVID-19	173	49.4
Not yet infectious with COVID-19	177	50.6
Source of information about Covid-19 (Multiple response)		
Television	312	89.1
Social networks (Facebook, TikTok, …)	338	96.6
Radio	95	27.1
Leaflets	24	6.9
Newspaper	33	9.4

3.2 Knowledge, Attitude, and Practice on COVID-19 Prevention of Patients

Among 350 patients, the proportion of patients with good knowledge and positive attitudes toward COVID-19 prevention was high, with 86.6% and 89.1%, respectively. However, the rate of patients with good practice was only at 56.3% (Table 2). Knowledge, Attitude, and Practice on COVID-19

Table 2: Prevention of Patients

Characteristics	n	%
Knowledge		
Good	303	86.6
Average	47	13.4
Mean (±SD)	12.69±0.99	
Min:Max	8.0:15.0	
Attitude		
Positive	312	89.1
Negative	38	10.9
Mean (±SD)	4.21 ± 0.27	
Min:Max	3.7:5.0	
Practice		
Good	197	56.3
Poor	153	43.7
Mean (±SD)	4.12±0.79	
Min:Max	2.0:5.0	

3.3 Relationship between Knowledge, Attitude, and Practice for COVID-19 Prevention and Patient's Demographic Characteristics

Table 3 shows that education level has a significant relationship with knowledge, attitude, and practice about COVID-19 prevention (p<0.05). Moreover, a significant relationship was observed between sex (OR=1.876, 95% CI:0.999-3.522, p-value =0.048 , age (p-value =0.019), education level (p-value =0.014), and family income (p-value =0.007), and knowledge; while the education level (p-value =<0.001), place of residence (OR=0.441, 95% CI: 0.200-0.844, p-value = 0.013, occupation (p-value =0.038); and COVID-19 infection status (OR=0.469, 95% CI: 0.232-0951, p-value =0.033) related to attitude about COVID-19 prevention. For the practice sub-scale, the study found a relationship with sex (OR=0.573, 95% CI: 0.374-0.879, p-value =0.010), age (p-value =0.005), education level (p-value =<0.001), place of residence (OR=0.646, 95% CI: 0.422-0.948, p-value =0.043) and occupation (p-value = 0.008) (Table 3).

Table 3: Relationship between Knowledge, Attitude, and Practice on COVID-19 Prevention and Patient's Demographic Characteristics

Factors	Knowledge		Attitude		Practice	
	Good (n; %)	Average (n; %)	Positive (n; %)	Negative (n; %)	Good (n; %)	Poor (n; %)
Sex	p-value = 0.048 OR (95%CI): 1.876 (0.999 – 3.522)		p-value = 0.419 OR (95%CI): 0.756 (0.382-1.494)		p-value = 0.010 OR (95%CI): 0.573 (0.374-0.879)	
Male	163 (90.1)	18 (9.9)	159 (87.8)	22 (12.2)	90 (49.7)	91 (36.7)
Female	140 (82.8)	29 (17.2)	153 (90.5)	16 (9.5)	107 (63.3)	62 (35.0)
Age group	p-value = 0.019		p-value = 0.193		p-value = 0.005	
18-35	120 (87.6)	17 (12.4)	127 (92.7)	10 (7.3)	89 (65.0)	48 (35.0)
36-59	150 (89.3)	18 (10.7)	147 (87.5)	21 (12.5)	91 (54.2)	77 (45.8)
≥60	33 (73.3)	12 (26.7)	38 (84.4)	7 (15.6)	17 (37.7)	28 (62.2)
Level of education	p-value = 0.014		p-value =<0.001		p-value =<0.001	
Primary	9 (60.0)	4 (40.0)	6 (40.0)	9 (60.0)	1 (6.7)	14 (93.3)
Secondary school/high school	132 (86.8)	20 (13.2)	133 (87.5)	19 (12.5)	76 (50.0)	76 (50.0)
College	48 (92.3)	4 (7.7)	49 (94.2)	3 (5.8)	31 (59.6)	21 (40.4)
University and higher	114 (87.0)	17 (13.0)	124 (94.7)	7 (5.3)	89 (67.9)	42 (32.1)
Family Income	p-value =0.007		p-value =0.158		p-value = 0.218	
Poor	24 (88.9)	3 (11.1)	22 (81.5)	5 (18.5)	12 (44.4)	15 (55.6)
Medium	190 (82.6)	40 (17.4)	203 (88.3)	27 (11.7)	127 (55.2)	103 (44.8)
High	89 (95.7)	4 (4.3)	87 (93.5)	6 (6.5)	58 (62.4)	35 (37.6)
Place of residence	p-value =0.699 OR (95%CI): 0.886 (0.479-1.639)		p-value =0.013 OR (95%CI): 0.441 (0.200-0.844)		p-value =0.043 OR (95%CI): 0.646 (0.422 – 0.948)	
Rural	151 (87.3)	22 (12.7)	147 (85.0)	26 (15.0)	88 (50.9)	85 (49.1)

Factors	Knowledge		Attitude		Practice	
	Good (n; %)	Average (n; %)	Positive (n; %)	Negative (n; %)	Good (n; %)	Poor (n; %)
Urban	152 (85.9)	25 (14.1)	165 (93.2)	12 (6.8)	109 (61.6)	68 (77.4)
Occupation	p-value =0.550		p-value =0.038		p-value =0.008	
Workers	54 (88.5)	7 (11.5)	54 (88.5)	7 (11.5)	36 (59.0)	25 (41.0)
Student	17 (77.3)	5 (22.7)	20 (90.9)	2 (9.1)	16 (72.7)	6 (27.3)
Housewife	32 (82.1)	7 (17.9)	37 (94.9)	2 (5.1)	18 (46.2)	21 (53.8)
Office staff	81 (87.1)	12 (12.9)	89 (95.7)	4 (4.3)	64 (68.8)	29 (31.2)
Unemployment	9 (100)	0 (0.0)	8 (88.9)	1 (11.1)	5 (55.6)	4 (44.4)
Other	110 (87.3)	16 (12.7)	104 (82.5)	22 (17.5)	58 (46.0)	68 (54.0)
COVID-19 status	p-value =0.810 OR (95%CI): 0.927 (0.501-1.714)		p-value =0.033 OR (95%CI): 0.469 (0.232-0.951)		p-value =0.408 OR (95%CI): 1.328 (0.677 – 2.607)	
Recovered from COVID-19	149 (86.1)	24 (13.9)	148 (85.5)	25 (14.5)	178 (57.1)	134 (42.9)
Not yet infectious with COVID-19	154 (87.0)	23 (13.0)	164 (92.7)	13 (7.3)	19 (50.0)	19 (50.0)

4. Discussion

In our study, 86.6% of research subjects had good knowledge about COVID-19 prevention, and this result was similar to results from some studies conducted in other region of Vietnam [18, 19]. However, compared with studies performed in other countries, our finding was higher, specifically, a study in an Australian hospital found that the knowledge level of patients was only 55.3% [20], and research in Ethiopia on patients with chronic diseases showed that the rate of good knowledge was only 33.9% [21]. The different results are understandable because our study was conducted at a time when the pandemic was under better control. Additionally, 100% of patients in our study used at least one type of media to update information about COVID-19 from the Ministry of Health and related agencies, which helped to improve the entire population's knowledge about COVID-19 prevention [22, 23]. Most patients had a positive attitude toward COVID-19 prevention (89.1%) in our study. The results of our study are much higher than those of other studies [15, 19, 20]. However, the rate of patients with good COVID-19 prevention practices was 56.3%. This rate was similar to Nguyen Hoang Bac's study with 57.7% of patients practiced well [19], but it was lower than Huynh Giao's study, which reported 76.1% of patients had good practices in COVID-19 prevention [15].

Our study found that gender, age, education level, and family economic status were related to COVID-19 prevention knowledge ($P<0.05$). Specifically, regarding gender, our

finding was similar to the study by Zhong in China [25], this relationship can be explained by the fact that women are the main healthcare providers for family members, so when an epidemic occurs, women tend to learn more about the disease than men. In our study, patients were mostly 18-60 years old and reported a very good level of knowledge about COVID-19. This relation was found in some previous studies [19, 21]. Those studies have shown that older people were identified as a factor leading to poor knowledge because aging causes decline in hearing and visual abilities, making it difficult to read or understand of medical guidelines [21]. Education level and knowledge were related in several studies [19, 21, 24-26]. Our study also found that illiterate patients had poor knowledge levels due to limited access to information. Family economic status was related to COVID-19 prevention knowledge, and this relationship was also noted in some previous studies [21, 26]. In which, patients with high income had good knowledge about COVID-19 prevention, and vice versa [26]. Economic status might affect the ability to spend on products to protect against the COVID-19 pandemic such as masks, hand sanitizer, etc [21].

The results of our study showed that education level, place of living, occupation, and COVID-19 infection status were related to attitude. This result was similar to some previous studies [19, 20, 24, 25, 27]. An author named Moradzadeh pointed out that people with lower levels of education tend to have fewer positive attitudes about epidemic prevention ($r=0.03$, $p<0.05$). People with high levels of education more easily have access to information about epidemics, thereby helping them develop a more positive attitude toward disease prevention.

Similar to previous studies, gender, age, education level, place of residence, and occupation were seen as related factors in COVID-19 prevention practices [19, 21, 24, 25]. Accordingly, Akalu's research found that people with lower levels of education were more likely to perform poorly in comparison to those with higher levels of education. People with higher levels of education tend to know how to gather information more effectively and better understand preventive measures, which forms the basis for their improved practices[21]. Furthermore, young people or people living in urban areas have many opportunities to access information about disease control through different media

channels, which can help practice better disease prevention [19].

5. Conclusion

Among 350 patients who came to the Examination Department at Da Nang Hospital, Vietnam from November 2022 to April 2023, the proportion of patients with good knowledge and positive attitudes toward COVID-19 prevention was high, with 86.6% and 89.1%, respectively. However, the rate of patients with good practice was only at 56.3%. While patients with higher education levels demonstrated better knowledge, positive attitudes, and good practice than others (P<0.005). Moreover, factors related to knowledge include gender, age, and family economy, whilst place of living, occupation, and COVID-19 infection status were related factors to attitude; and COVID-19 prevention practices related to gender, age, place of living, and occupation.

Although the rate of good knowledge and positive attitudes about COVID-19 prevention in our study was high, the successful practice percentage was low. Preventive practices are the key factor in disease prevention; therefore, it is necessary to increase the rate of implementation of these preventive measures with specific and vivid instructional documents such as videos, broadcasts on online platforms or via television, especially in places where people gather in large numbers. In addition, it is still necessary to promote propaganda to further improve knowledge about disease prevention, especially regarding COVID-19 vaccines, which are considered an important key in epidemic prevention.

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