

## Knowledge, Attitude, Practice of Ethnic Minorities and Some Factors Related to the Prevention of COVID-19 Pandemic in Cu Ebur Commune, Buon Ma Thuot City, Dak Lak Province, in 2022

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### Abstract

*Background:* COVID-19 is an infectious disease caused by the SARS-CoV-2 virus that is currently affecting and causing damage on a global scale. According to World Health Organization (WHO), the COVID-19 pandemic will not completely disappear, but become an endemic disease. Adhering to preventive measures is considered the best way; this is largely influenced by people's knowledge, attitudes and practices.

*Objectives:* The study was conducted to assess the knowledge, attitudes and practices of ethnic minorities towards the prevention of COVID-19 in Cu Ebur commune, Dak Lak province in 2022.

*Research subjects and methods:* A cross-sectional descriptive study was carried out on most of ethnic minority people in Cu Ebur commune, Buon Ma Thuot city, Dak Lak province in 2022.

*Results:* The study results present the correct knowledge of research subjects is 70.8%; positive attitude is 62%; good practice is 69%. The factors related to knowledge are (1) the educational level ( $p < 0.001$ ); (2) attitude ( $p < 0.001$ ); (3) and practice ( $p < 0.001$ ) of the research subjects. The factors related to attitude are (1) gender ( $p = 0.02$ ); (2) educational level with statistically significant  $p = 0.001$ ; (3) knowledge; and (4) attitude ( $p < 0.001$ ) of the research subjects.

*Conclusion:* It is necessary to strengthen health education in terms of knowledge, attitude and practice for ethnic minorities, providing effective communication ways and understandable materials in order to help people, especially ethnic minorities, to easily access information and effectively implement measures to prevent and control COVID-19 in general and another infectious diseases so far.

**Keywords:** knowledge, attitude, practice, ethnic minorities

### Introduction

COVID-19 is an infectious disease caused by SARS-CoV-2 virus that is currently affecting and globally causing huge damage. Human-to-human transmission was confirmed with outbreak rates increasing rapidly in mid-January 2020. On 11<sup>st</sup> February 2020, the International Committee on Taxonomy of Viruses (ICTV) officially named this new strain of corona virus SARS-CoV-2 (WHO, 2022). The emergence of new variants of SARS-CoV-2 with widely widespread and increased viral virulence lead to aggravated clinical manifestations, reduced effectiveness of prevention measures and vaccines. According to the WHO, the COVID-19 pandemic will not disappear completely, soon becoming an endemic disease. WHO also encourages countries to have actively transition from pandemic prevention to sustainable control. On 31<sup>st</sup> March, WHO issued the Prevention and Response Plan in order to end the emergency stage of the COVID-19 pandemic in 2022 (WHO, 2022). In Vietnam, the COVID-19 pandemic appeared on 23<sup>rd</sup> January 2020, in the first three phases recorded with nearly 3.000 infections. Particularly, in the 4th pandemic (from 27<sup>th</sup> April 2021 to 11<sup>st</sup> March 2022): The number of infections recorded in Vietnam was 5.441.358 cases, of which 2.980.405

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patients were declared cured. The total number of COVID-19 deaths in Vietnam is 41.228 accounting for 0.8% of the total number of infections (The Vietnamese Government, 2022). In the Central Highlands, Dak Lak province currently has the highest number of COVID-19 infections and is increasing rapidly, there are many clusters that appear complicatedly with unknown source of infection. In many ethnic minority villages, COVID-19 clusters appear remarkably and increase significantly with high risk of large spreading (Dak Lak newspaper, 2021). Cu Ebur commune is considered a key area with political and security problems in Dak Lak province where minority people mostly living and the number of infections remain highly (Dak Lak newspaper, 2022). Therefore, besides the efforts of local authorities, people's understanding, attitudes and practices are extremely important roles that contribute to the pandemic prevention and control, especially among ethnic minorities. So, we conducted a study: "*Knowledge, attitude, practice of ethnic minorities and some factors related to COVID-19 pandemic prevention in Cu Ebur commune, Dak Lak province, in 2022*", with the following two aims:

1. Assessment of knowledge, attitudes and practices of ethnic minorities toward COVID-19 prevention and control in Cu Ebur commune, Dak Lak province, in 2022.
2. Determine associated influencing factors to knowledge, attitude and practice of ethnic minorities on COVID-19 prevention and control in Cu Ebur commune, Dak Lak province, in 2022.

## Subjects and Methods

### Subjects

Ethnic minorities who aged 18 years or older.

- *Inclusion criteria*: having household registration of Cu Ebur commune and agree to participate in study.
- *Exclusion criteria*: Persons unable to respond to interviews, suffering from acute diseases or having mental problems at the time of the study and did not agree to participate in the study.

### Method

Cross-sectional study.

### Research Location

Cu Ebur commune, Buon Ma Thuot city, Dak Lak province.

### Time for Research

From May 2022 to October 2022.

### Sample and Sample Size Formula

$$n = \frac{Z_{1-\alpha/2}^2 p(1-p)}{d^2}$$

*Sample size*: Apply the formula to calculate sample size to estimate a proportion:

- $n$ : is the number of required sample sizes;  $Z(1-\alpha/2)$ : 95% confidence coefficient is 1.96 respectively;
- $p$ : there are no studies suitable for this study, we should choose  $p = 0.5$ .
- The desired absolute precision is  $d = 0.05$ ;

Substituting into the above formula we have the required minimum sample size of 384 people. An additional 10 % error yielded the required sample size, we finally have sample size of 422 persons.

## Variables

- *Demographic variables*: gender, ethnicity, age group, occupations, educational level, economic conditions.

- *Knowledge variables*: understanding about the COVID-19 pandemic, transmission, symptoms, complications, prevention, messages, ...

Knowledge assessment: Based on 15 questions, each correct answer is worth 1 point. Wrong answer gets 0 points. Knowledge is correct when the grade  $\geq 11$  correct answers.

- *Attitude variables*: 6 questions about the effectiveness of COVID-19 prevention and control measures.

Attitude assessment: Based on 6 questions, each correct answer gets 1 point, and the wrong answer gets 0 points. Research subjects achieved positive attitudes when the grade of correct answers  $\geq 4$ .

- *Practice variables*: Practicing COVID-19 prevention measures has 6 contents in terms of wearing masks, washing hands, strictly follow quarantine time, ...

Practice assessment: Based on 6 questions, each correct answer gets 1 point, the wrong answer 0 points. Research subjects achieved good practice when the grade of correct answers  $\geq 4$ .

## Tool and Method of Data Collection

*Tool of data collection*: Questionnaire that is based on survey questionnaire of some previous studies in Vietnam (Khue Nguyen Ngoc Nhu, 2021; Giao Huynh, 2021; Hue Phung, 2022).

This also gets approval form the Scientific Council of Buon Ma Thuot Medical University after testing on 30 volunteers and modify to suitable for research subjects (ethnic minority people).

*Method of data collection*: Data were collected through direct interviews with a questionnaire. In 2 months, we collected 400 samples, equivalent to 400 questionnaires. After checking and cleaning the data, 376 qualified votes were selected.

## Method of Data Processing

SPSS 22.0 software are used to manage and analyze the data. Using frequency, percentage and Chi-square test to compare and measure the strength of the statistical association factors related to knowledge, attitude, practice on COVID-19 prevention and control of research subjects through PR value and p value.

## Research Ethics

The research was carried out after the approval of the Scientific Council of Buon Ma Thuot Medical University; Cu Ebur health station as well as the research subjects agreed to participate in the research.

All information of the study subjects was not used for purposes other than research.

## Results and Discussion

### General Information of Research Subjects (Demographic Characteristics)

- *Gender*: the research subjects were female (59.0%) male (41.0%).
- *Age group*: 30-49 group accounted for the highest proportion 40.7%; group 18-29 years old accounted for 34.3%; the group from 50 years old and above accounted for 25.0%.
- *The educational level*: most of research subjects graduated secondary school accounting for 57.7%; group graduated primary school is 12.5%; group graduated high school is 5.6%, especially illiterate persons accounted for 24.2%.

- *Economic conditions:* 90% of the research subjects belongs to median household income level; the rest are poor and near-poor (10%).

**Table 1: Characteristics of research subjects**

Demographic characteristics		N	%
Gender	Male	154	41.0
	Female	222	59.0
Age group	18-29	129	34.3
	30-49	153	40.7
	≥ 50	94	25.0
Educational level	Illiterate	91	24.2
	Primary school	47	12.5
	Secondary school	217	57.7
	High school	21	5.6
Economic conditions	Median household income	339	90
	Poor and near-poor	37	10

**Knowledge, Attitude, and Practice on COVID-19 Prevention and Control**

**Table 2: Knowledge on COVID-19 prevention and control (n=376)**

Correct knowledge	n	%
1. COVID-19 is an infectious disease	356	94.7
2. The cause of COVID-19 is a virus	350	93
3. The route of transmission is the respiratory	370	98.4
4. COVID-19 is spread through droplets	290	77.3
5. Incubation period 2-14 days	172	45.7
6. COVID-19 is dangerous for the group of people from 50 years old and older with chronic diseases	208	55.3
7. Common symptoms are cough, runny nose, fatigue, fever	291	77.8
8. There is a vaccine to prevent COVID-19	322	85.6
9. Strictly follow the 5K message of the Ministry of Health	240	63.8
10. Washing hands with soap or sanitizer can eliminate the cause of COVID-19	278	74
11. Wearing a mask does not completely prevent COVID-19	283	75.3
12. COVID-19 has no specific medication	149	39.6
13. After vaccination, people don't need to wear masks in public places is wrong	294	78.2
14.1. Receive information about COVID-19 from newspapers/radio/television	329	87.5
14.2. Get information about COVID-19 from relatives/neighbors	312	83
14.3. Get information about COVID-19 from health staff	286	76
15. Group of people having high risk of COVID-19	77	20.5
<b>The rate of knowledge</b>	<b>Correct (n, %)</b>	<b>Fail (n, %)</b>
	<b>266 (70.8%)</b>	<b>110 (29.2%)</b>

The study's results show that correct knowledge is 70.8%, this is higher than that of in the study of Cao Ba Khuong et al. (Khuong Cao Ba, 2022) is 55.5% and Hue Phung et al. is 21.2% (Hue Phung, 2022). The study of Gebretsadik et al. in Northeast Ethiopia showed that the rate of knowledge to prevent and control COVID-19 of illiteracy participants was 5.5 times

higher than that of in the study with participants graduated university and above (OR=5.53, 95% CI=1.03-29.68, p=0.046) (Gebretsadik, 2021). Khuong Cao Ba and colleagues in Thai Nguyen pointed out that difficult economic conditions and lack of medical resources also directly affect people's knowledge, in fact people having a college education or less, practicing COVID-19 prevention is not good (25.3%) higher than that of people graduating under graduated and post-graduated (15.6%) (p=0.045) (Khuong Cao Ba, 2022). However, in this study, the rates for people correctly responded to some points such as the COVID-19 is dangerous for the group of people 50 years old and older with chronic diseases, common symptoms are cough, runny nose, fatigue, fever and COVID-19 is spread through droplets, wearing a mask does not completely prevent COVID-19 are lower than the result in the study of Hung Do Tran perspective are 83.4%; 91.2%; 95.6% and 98.7% (Hung Do Tran, 2022). In this study, research subjects are ethnic minorities with low educational level from secondary school or below (94.4%), this might affect to their awareness about COVID-19.

**Table 3: Positive attitude on COVID-19 prevention and control (n=376)**

Positive attitude	n	%
1. Is the COVID-19 pandemic dangerous?	317	84.3
2. Is wearing masks in public places effective?	244	65
3. Is social distancing effective?	246	65.4
4. Is vaccination effective for preventing and controlling COVID-19?	222	59
5. Is it necessary to wash hands and use hand sanitizer many times a day to prevent virus?	298	79.3
6. Are wearing masks, washing hands and fully vaccinated the best ways to prevent and control COVID-19 currently?	175	46.6
<b>The rate of attitude</b>	<b>Positive (n, %)</b>	<b>Negative (n, %)</b>
	<b>233 (62%)</b>	<b>143 (38%)</b>

The results of the study indicate that the positive attitude is 62.0%, this is lower than that of in the studies of Khuong Cao Ba (77.3%) (Khuong Cao Ba, 2022) and Hung Do Tran (94.3%) (Hung Tran Do, 2022). This difference is understandable because research subjects in two studies were conducted in Can Tho province with good living conditions, so people easily to access to information, especially people over 50 years old who pay more concerned about the disease than the group less than 50 years old. This is understandable because the mortality and severe complications from COVID-19 occur more frequently in the elderly with chronic diseases, so they obviously have positive attitude to obey measures to prevent and control.

Additionally, the majority of our survey respondents think that the COVID-19 pandemic is dangerous (84.3%), however just half of them had positive attitude toward to the ways to prevent and control COVID-19 in terms of wearing masks, washing hands and fully vaccinated (46.6%). This is considered to be a vital key to create the positive attitudes to enhance the effectiveness in COVID-19 prevention and control.

**Table 4: Good practice on COVID-19 prevention and control (n=376)**

Good practice	n	%
1. Time to wash hands to prevent SARS-CoV-2 virus: after touching objects in public places	257	68.4
2. Regularly washing your hands with soap or hand sanitizer	304	80.9
3. Always wearing a mask when going out	260	69.1
4. Regularly cover your nose and mouth when coughing/sneezing	288	76.6
5. Strictly obey quarantine time of Ministry of Health	311	82.7
6. Gargle with salt water, mouthwash every day	200	53.2
<b>The rate of practice</b>	<b>Good (n; %)</b>	<b>Not Good (n; %)</b>
	<b>259 (69%)</b>	<b>117 (31%)</b>

It is important to assess people's knowledge, attitudes and practices in COVID-19 toward to prevention and control. Correct knowledge leads to positive attitude and good practice, these are effective measures to prevent and control COVID-19 pandemic. In our study, the results point out that the rate of good practice is lower than that of in patients who come to the hospital in District 2, Ho Chi Minh City (76.1%) (Giao Huynh, 2021) and people in Quang Trung ward, Thai Nguyen (77.9%) (Khuong Cao Ba, 2022). This difference likely belong to the time to conduct study, in fact this study is conducted at nearly end of phase of pandemic outbreak, so it is possible that people might pay less attention on the pandemic.

#### Some Factors Related to the Knowledge and Attitudes of the Research Subjects

**Table 5: Some factors related to the knowledge**

Knowledge		Pass	Fail	PR (confidence interval 95%)	p
		n (%)	n (%)		
<b>Demographic characteristics</b>					
<b>Gender</b>	Male	100 (65)	54 (35)	1.15 (0.98-1.36)	0.093
	Female	125 (56.3)	97 (43.7)		
<b>Age group</b>	18-49	173 (61.3)	109 (38.7)	1.11 (0.9-1.36)	0.3
	≥ 50	52 (55.3)	42 (44.7)		
<b>Educational level</b>	Primary school	206 (58)	149 (42)	0.64 (0.54-0.76)	0.003
	Secondary school	19 (90.5)	2 (9.5)		
<b>Economic conditions</b>	Median household income	203 (60)	136 (40)	0.99 (0.75-1.3)	0.96
	poor/near-poor	22 (59.5)	15 (40.5)		
<b>Attitude</b>	Positive	170 (73)	63 (27)	1.90 (1.52-2.37)	0.00
	Negative	55 (38.4)	88 (61.6)		
<b>Practice</b>	Good	192 (74)	67 (26)	2.68 (1.95-3.54)	0.00
	Not good	33 (28.2)	84 (71.8)		

The results also find out that there is a relationship between knowledge about COVID-19 prevention and control and people's educational level, specifically knowledge rate in the group who are graduated secondary school and above is 0.64 times higher in compared with the people with primary school level ( $p < 0.001$ ); There is a relationship between knowledge and attitude ( $p < 0.001$ ) and practice ( $p < 0.001$ ). Obviously, many studies also show similar

results, people with higher education will perceive knowledge better than others. The poor knowledge might lead to negative attitude, ineffectively practice. In fact, the correlation showed a significant relationship between knowledge about COVID-19 and attitudes towards prevention measures ( $r = 0.179$ ;  $p = 0.005$ ;  $r = 0.136$ ;  $p = 0.001$ ) (Gebretsadik, 2021). The study of Hung Do Tran also found that people with correct knowledge having good practice were 1.07 times higher than those who did not have correct knowledge, furthermore 94.8% of people with correct knowledge are assessed to have a positive attitude and 94.2% of people in the group with a positive attitude are assessed to have the high rate of good practice (Hung Do Tran, 2022). Currently, although entering the "normalization" phase with the COVID-19 pandemic, we must continue to be ready for scenarios for all situations, even if the pandemic re-emerges or there is a new, more dangerous strain.

**Table 6: Some factors related to the attitude**

Attitude		Positive	Negative	PR (confidence interval 95%)	p
Demographic characteristics		n (%)	n (%)		
Gender	Male	106 (68.8)	48 (31.2)	1.2 (1.03-1.41)	0.02
	Female	127 (57.2)	95 (42.8)		
Age group	18-49	177 (63.2)	105 (36.8)	1,05 (0.87-1.27)	0.58
	≥ 50	56 (59.6)	38 (40.4)		
Educational level	Primary school	213 (60)	142 (40)	0.63 (0.55-0.72)	0.001
	Secondary school	20 (95.2)	1 (4.8)		
Economic conditions	Median household income	209 (61.6)	130 (38.4)	1.05 (0.82-1.35)	0.7
	poor/near-poor	24 (65)	13 (35)		
Knowledge	Positive	170 (75.6)	55 (24.4)	1.81 (1.48-2.22)	0.00
	Negative	63 (41.7)	88 (58.3)		
Practice	Good	198 (76.4)	61 (23.6)	2.56 (1.92-3.4)	0.00
	Not good	35 (30)	82 (70.0)		

The results show that there is a relationship between the attitudes to gender, the rate of female group with positive attitude is 1.2 times higher than that of male group, which is statistically significant ( $p=0.02$ ). Dao T. N. Huyen also shows that female students have a positive attitude toward COVID-19 prevention 1.30 times higher than male students (PR=1.3; CI 1.0-1.6;  $p<0.05$ ) (Huyen Dao, 2021). Regarding the level of education, the group graduated from secondary school and above has a positive attitude of 0.63 times higher than that of the primary school level, which is statistically significant with  $p=0.001$ ; The results also figure out that there is a relationship between attitude and knowledge ( $p<0.001$ ) and practice ( $p<0.001$ ) (Giao Huynh, 2021). Once they have correct knowledge, they likely easy to effectively perform preventive behaviors. The correlation showed a significant relationship between knowledge and attitudes towards prevention measures ( $r=0.179$ ;  $p=0.005$ ;  $r=0.136$ ;  $p=0.001$ ). Similarly, poor knowledge, negative attitudes and badly practices are related to the COVID-19 prevent and control among ethnic minorities have been shown in the research of Phung Thi Kim Hue (Hue Phung, 2022). This result is consistent with behavioral science and health education, and people's practice-related knowledge and attitudes. Currently, there are reports that having a subjective thinking in disease prevention in communities. Thus, it is necessary to strengthen effective communicating for the people on COVID-19 prevention and control in order to improve knowledge and attitudes, thereby improving practice (Hung Tran Do, 2022; WHO, 2022).

### Conclusion

Generally, the rate of correct knowledge, positive attitude and good practice of ethnic minorities in Cu Ebur commune on COVID-19 prevention is fairly high. The correct knowledge of COVID-19 pandemic prevention and control is 70.8%; positive attitude toward to pandemic prevention is 62.0%; Good practice to prevent and control COVID-19 is 68.9%. The study also found that the factors related to knowledge is the level of education; attitude ( $p<0.001$ ) and practice ( $p<0.001$ ). Factors related to attitude are gender and educational level. The results also show that there is a relationship between attitude and knowledge ( $p<0.001$ ) and practice ( $p<0.001$ ).

This findings might strengthen and improve health policies, especially health education that focus on improving people's knowledge about pandemic prevention measures, especially for people with low educational background. Some characteristics in terms of ethnicity, educational background and gender should carefully consider when planning and implementing pandemic prevention and control measures in community.



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