COVID-19 Epidemic in Vietnam: A Study on Knowledge, Attitudes and Prevention of Pharmacy Students

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ABSTRACT— ***Pharmacists play a variety of roles in supporting the health care system. The COVID-19 epidemic originated in China and has spread to many countries around the world. In the context of the current COVID-19, additional support from pharmacists' human resources will be needed in the future. This research survey explores the knowledge, attitude, and prevention strategies in Vietnam during the COVID-19 pandemic. This research aims to collect data from Vietnamese students in Ho Chi Minh City's pharmacy sector. The following objectives are to study the awareness of the COVID-19 virus, acts of prevention, risk awareness, and compliance measures to prevent further outbreaks of COVID -19 in Ho Chi Minh City. This cross-sectional survey used anonymous questionnaires that investigated the knowledge, attitudes, and prevention of Vietnamese students' COVID-19 epidemic. The unit of analysis consists of undergraduate pharmacy students from the first year to the last year. Data were collected during April and May 2020. Statistical analysis was performed using SPSS. Pharmacy students in this study were 80% female. The main source of information for pharmacy students to access information about COVID-19 epidemics from websites of the health authorities (31.7%) and news from television and newspapers (40.2 %). The Cronbach alpha coefficients of the three main factors in this study were knowledge (0.74), attitude (0.85), and prevention of COVID-19 (0.89), which show acceptable internal consistency. This research has shown no statistically significant difference between pharmacy students' demographics in three KAP variables, and there is a strong positive correlation between the three factors. It shows the unity and social solidarity of the study participants towards COVID-19. This study shows that pharmacy students have an epidemic concern about COVID-19 today. Pharmacy student's attention knowledge, attitude and preventive COVID-19. Sources of information from television and newspapers are important and updated regularly and accurately about COVID-19 to achieve effectiveness, helping pharmacy students to be aware of COVID- 19 pandemic in the country and the world.***

Keywords— COVID-19, Pharmacy students, KAP, Community pharmacist

1. INTRODUCTION

SARS CoV-2 virus causes the disease COVID-19(Weiss, 2020). According to the World Health Organization (WHO) report of China's COVID-19 epidemic in December 2019, the infection related to a seafood market in Wuhan City, Hubei Province(Singhal, 2020). The WHO declared COVID-19 to be a pandemic in March 2020 (Valencia, 2020). In the context of COVID-19, knowledge of epidemics and policies and preventive measures are always updated quickly to enable prompt response to pandemics(Arefi & Poursadeqiyan, 2020).

Knowledge of COVID-19 is very important. Information about COVID-19 is everywhere and quickly reaches everyone in society. People want to protect their friends and families and tend to share any kind of information, often justifying it on a "just in case" basis(So & Antebellum, 2020). The combination of these factors, enhanced by the multiplier effects of social media and messaging services, leaves ample room for the spread of misinformation(Kask, 2020). Publication of accurate information and inaccurate information makes it difficult for readers to identify which information is reliable within the situation and the risk of a strong outbreak of COVID-19(Farooq, Laato, & Islam, 2020; Malik et al., 2020).

It is not possible to return to everyday life as before the COVID-19 pandemic in the short term. Large-scale testing and a wide range of contact tracking and isolation measures in a residential area are implemented when necessary(Rösing, Cavagni, Langa, Mazzetti, & Muniz, 2020). In case of fever, cough, shortness of breath, people need

to guide patients to the electronic medical declaration or contact the nearest health facility for advice and guidance. Besides, pharmacies in the community report to the functional health authorities in the area or via the emergency line to obtain information about COVID-19 and conduct monitoring and supervision(Drug Administration of Vietnam, 2020c).

According to the International Pharmaceutical Federation, pharmacists represent the third-largest group of healthcare professionals in the world(Chan & Wulijii, 2006). Pharmacists are involved in drug management, building treatment protocols, participating in patients' pharmaceutical care, exploring new drugs, drug use counseling, and explaining the test results(Bragazzi, Mansour, Bonsignore, & Ciliberti, 2020). Pharmacists participate in the health care system's maximum efficiency and pharmaceutical supply(Ali, Thulasika, Sarah, & Cindy, 2020). Pharmacists in community pharmacies are open for patient and community services and are among the expert groups dealing with frontline COVID-19(Koster, Philbert, & Bouvy, 2020).

In response to concerns about the COVID-19 pandemic, on March 22, 2020, the Ministry of Health of Vietnam issued Decision No. 879 / QD-BYT "guiding medical isolation at home, accommodation, and prevention of COVID-19 epidemic" to prevent the spread of the COVID-19 epidemic to the community. More and more universities worldwide have postponed or canceled all campus events such as seminars, conferences, sports, and other activities (Sahu, 2020; Viner et al., 2020). Universities are taking steps to prevent and protect all students and staff from highly contagious illnesses such as COVID-19(Sahu, 2020). In Vietnam, students and citizens were required to exercise social distancing prescribed by the government. Pharmacy students at universities need to demonstrate knowledge, attitudes, and ways to prevent COVID-19 as participants in the future healthcare system. Pharmacy students with the right information about COVID-19 will help alleviate students' fears and worries about the disease and support their ability to cope with any side effects in their lives(Hamza, Badary, & Elmazar, 2020; Hoang, Hoang, Khuong, La, & Tran, 2020). Pharmacy students can also help raise awareness of the community in the prevention of COVID-19.

This study aims to investigate knowledge, attitudes, and prevention of COVID-19 among pharmacy students in the overall COVID-19 epidemic prevention strategy in Vietnam. This study aims to collect data from Vietnamese students in the pharmacy industry in Ho Chi Minh City. Pharmacy students are the third-ranked workforce with doctors and nurses in the healthcare system. This study's key objectives were to define knowledge of COVID-19 virus, preventive behaviors, risk awareness, and compliance measures to prevent additional COVID-19 outbreaks in Lake City. Ho Chi Minh City, Vietnam.

2. METHODOLOGY

The questionnaire's demographic section was designed to collect respondents' demographic information (gender and age) and other background data (years of pharmacy experience and educational levels). A cross-sectional research method was applied to assess the knowledge, attitude, and prevention (KAP) of COVID-19 of pharmacy students (Hamza et al., 2020). Data were collected in April and May 2020 in Ho Chi Minh City, Vietnam. The students studying pharmacy in the first year to final year in Ho Chi Minh City in five universities including Nguyen Tat Thanh University; Ton Duc Thang University; Hong Bang University; the Ho Chi Minh City University of Technology, and University of Medicine and Pharmacy at Ho Chi Minh City are considered the study subjects.

Data were collected via a questionnaire using anonymous, self-managed Google forms® online. The questionnaire was posted and shared with student groups studying pharmacy on the Facebook pages and student management groups of lecturers. The approval committee from the center for clinical pharmacy and health economics has reviewed the author's research report dated June 5, 2020.

Initially, we designed a questionnaire, including six items relating to knowledge, eight items relating to attitude, and ten items relating to prevention. Then, we employed EFA to extract three latent factors (KAP). We removed some noise items affecting results (which item has factor loading < 0.5). Details are found in table 2.

The knowledge factor was measured by four items about pharmacy students' self-updated knowledge related to COVID-19, including two items related to symptoms and the incubation period, an item related to diagnostic and pathological background involved(Drug Administration of Vietnam, 2020a, 2020b, 2020c, 2020d; Federation, 2020).

The attitude factor was measured by five items, including a related decrease to a public place in everyday life, one related to preventive behaviors relating to cough and fever, two items related to hand washing and disinfecting surfaces, and one concerning the guidelines around prevention of COVID-19(Drug Administration of Vietnam, 2020a, 2020b, 2020c, 2020d; Federation, 2020).

The prevention factor was measured by five items used to assess participants' risk perception of COVID-19. Includes two items that are the serious and timely implementation of replaced information in the COVID-19 disease prevention guidance chain of health agencies, two items that reflect the perceptions of pharmacy students providing accurate information for family members and around COVID-19 prevention medication information counseling for family members and unintentional surrounds. Purchase and use drugs to treat diseases caused by the SARS-CoV2 virus(Drug Administration of Vietnam, 2020a, 2020b, 2020c, 2020d; Federation, 2020).

Data analysis was performed with SPSS version 17.0. Significance levels were set at $p < 0.05$ for all analyses. Initially, the information collected through the questionnaire was coded into variables. In this study, Cronbach's Alpha coefficient was used to measure internal consistency in exploratory factor analysis (EFA). Descriptive and inferential statistics were employed, involving Kruskal-Wallis as a standard approach of non-parametric analysis for nominal variables, and Pearson's correlation analysis among all latent factors was executed questionnaire development.

3. RESULTS

We collected 500 pharmacy students with anonymous responses; however, through the screening process, 460 answers qualified for statistical analysis, and the remaining did not complete the entire questionnaire. A description of the demographics of participants is shown in table 1.

Table 1: Demographic and Background Characteristics of participants (N=460)

Characteristics	Categories	Number (%) N= 460
Gender	Male	368 (80.0)
	Female	92 (20.0)
Age (years)	19	22 (4.8)
	20	84 (18.3)
	21	50 (10.9)
	22	66 (14.3)
	23	238 (51.7)
Education levels	Pharmacy student 1 year	21 (4.6)
	Pharmacy student 2 year	100 (21.7)
	Pharmacy student 3 year	48 (10.4)
	Pharmacy student 4 year	93 (20.2)
	Pharmacy students last year	198 (43.0)
Experience in pharmacy practice: work part- time (years)	0	208 (45.2)
	Under 1	133 (28.9)
	1-2	49 (10.7)
	2-3	28 (6.1)
	Currently working	42 (9.1)
How to update the information of Covid-19	Health professionals	5 (1.1)
	Government at all levels (Example: Quarter, ward ...)	10 (2.2)
	Social networks (Facebook, ...)	114 (24.8)
	Television, Newspaper, Newspaper Online	185 (40.2)
	The website from health agencies (Department of Health website, ...)	146 (31.7)

By exploratory factor analysis, we extracted three talent factors: knowledge, attitude, and prevention (KAP). Table 2 shows descriptive and reliability analysis. As seen, the overall reliability of each element, according to Cronbach's alpha, reaches 0.74, 0.85, 0.89 for knowledge, attitude, prevention, respectively, which indicates acceptable reliability. Moreover, descriptive parameters, including mean and standard deviation (SD) corresponding to each item are provided.

As shown in table 3, there are no significant differences in knowledge, attitude, and disease prevention between the male and female groups in this study. Similarly, there are no significant differences in knowledge, attitude, and prevention for all groups in age, education levels, pharmacy practice experience, and approach updating information of COVID-19.

Table 2: Descriptive and reliability analysis of KAP questionnaire

	Questions	Mean	SD	Cronbach's Alpha
	Knowledge			
K1	Self-update with correct information and guidance on health, hygiene, and environmental measures to help prevent disease COVID-19	4.43	0.70	0.74
K2	Continuously update the directions of the relevant authorities for COVID-19 disease prevention.	4.36	0.75	
K3	Self-sufficient communication channels when encountering problems related to diseases COVID-19.	4.15	0.86	
K4	Self-updating information in drug prevention and treatment of SARS virus-CoV2.	3.54	1.07	
	Attitude			
A1	Be aware of the danger level of the epidemic caused by the SARS-CoV2 virus to yourself and society	4.64	0.61	0.85
A2	Voluntarily adhere to the guide disease prevention COVID-19 to bring positive effects to themselves and those around them.	4.66	0.60	
A3	Aware of the pharmacist's role in equipping future knowledge about disease prevention and counseling COVID-19, supporting others.	4.40	0.71	
A4	Oppose the speculation and profit from the COVID-19 epidemic, especially items serving the prevention of infection with the SARS-CoV2 virus.	4.57	0.71	
A5	Aware of his role in the prevention of disease COVID-19 in particular and health sciences in the future.	4.43	0.70	
	Prevention			
P1	To seriously and promptly implement alternative activities in the series of COVID-19 epidemic prevention guidelines issued by the authorities.	4.46	0.66	0.89
P2	Provide timely information to family members (the elderly and adolescents) who have adverse effects of the COVID-19 epidemic on human health and social aspects.	4.46	0.66	
P3	Guide family members and neighbors about COVID-19 disease prevention regulations and measures	4.39	0.70	
P4	Demonstrate your role in providing information about individuals and those around you for COVID-19 epidemic prevention	4.31	0.71	
P5	Recommended to those in the family and surroundings who do not voluntarily buy and use medicines to treat diseases caused by the SARS-CoV2 virus.	4.43	0.77	

The correlation coefficients existing between the major knowledge, attitude, and prevention components were analyzed. A strong positive correlation was observed between knowledge, attitude, and prevention, and this result appeared to be highly significant ($p<0.01$) (table 4). This shows that students who update their knowledge of COVID-19 well tend to have better attitudes and prevention skills.

Table 3: Characteristics of pharmacy students with the knowledge, attitude, and prevention of COVID-19 (N = 460).

Group variable		Test Variables Mean Rank		
		Knowledge	**Attitudes**	**Prevention**
Gender	Male	232.11	236.23	232.03
	Female	224.04	207.56	224.38
	P-value	0.5995	0.0574	0.6132
Age (years)	19	246.95	265.27	257.20
	20	224.51	240.74	223.20
	21	224.8	212.11	217.68
	22	206.82	229.48	236.30
	23	238.86	227.82	231.69
	P-value	0.4489	0.5206	0.7665
Education levels	Pharmacy student one year	269.17	291.98	276.43
	Pharmacy student two year	216.89	230.51	221.04
	Pharmacy student three year	215.55	217.69	219.27
	Pharmacy student four year	221.42	218.36	226.67
	Pharmacy student last year	241.16	232.78	234.93
	P-value	0.2650	0.1930	0.4304
Experience in pharmacy practice: work part-time (years)	0	225.88	239.84	227.52
	Under 1	234.29	205.03	236.56
	1-2	242.33	191.30	203.39
	2-3	218.09	238.44	239.02
	Currently working	235.88	214.94	229.27
	P-value	0.8978	0.1555	0.7337
How to update the information of COVID-19	Health professionals	290.90	281.10	364.80
	Government at all levels (Example: Quarter, ward ...)	292.60	245.10	250.90
	Social networks (Facebook, ...)	247.00	249.89	241.67
	Television, newspaper, and newspaper online	216.38	227.15	226.01
	The website from health agencies (Department of Health website, ...)	229.18	216.87	221.47
	P-value	0.1263	0.2682	0.1182

4. DISCUSSION

Pharmacy students were aware of the role of the pharmacist in the health care system. Research shows that the Vietnamese government and the Ministry of Health and health workers have made efforts to provide health communication and community education on COVID-19 prevention from the core media(Health, 2020). Therefore, KAP of pharmacy students for future COVID-19 joins the health care forces in hospitals and community pharmacies, helping vulnerable populations. This aspect needs more attention and research with students from different fields in Vietnam. The most interesting finding of this study was the significant correlation between pharmacy students' knowledge, attitudes, and preventive behaviors. As preventive behaviors increase, risk decreases(Taghrir, Borazjani, & Shiraly, 2020).

In this study, we investigated pharmacy students who would know the effectiveness of preventive behaviors. Therefore, to minimize risk, stress, and anxiety, which are significant issues when disease outbreaks may be extended in the future, training prevention behavior for student pharmacy needs to be strengthened. At the time of this study, we still do not know how the COVID-19 epidemic will evolve. The research results showed that Television, Newspaper, and Newspaper Online were 185 (40.2%) and the website from health agencies (Department of Health website, ...) was 146 (31.7%). We also analyzed pharmacy students' characteristics for the COVID-19 epidemic and identified some demographic factors related to KAP results from table 1. Final year pharmacy students 198 (43%) sample. This is because seniors prepare to complete their course and take jobs in the health system. With the seriousness of the epidemic and news of the COVID -19 epidemic emergency in the community, the pharmacy students will learn about the COVID -19 epidemic from various information channels.

Table 4: Correlation between knowledge, attitude, and prevention

	Knowledge	Attitude	Practice
Knowledge	1.00	0.78	0.73
Attitude	0.78***	1.00	0.67
Practice	0.73***	0.67***	1.00

* Statistically significant at $p < 0.05$

Correlation of knowledge, attitude, and prevention of COVID-19 disease of Pharmaceutical students. According to our best knowledge with table 4 results. Pharmacy students have access to knowledge about disease prevention COVID-19. Future pharmacy participation in the health care system includes knowing symptoms, complications, transmission methods, and how to prevent transmission and pharmaceutical care. Pharmacy students need to update their knowledge and information about COVID 19 through reputable sources such as UNICEF, WHO, the national health system, and medical advice first by calling the health facility. Pharmacy students note fake information/legend can spread through word of mouth or online, as some studies have mentioned. The spread of the global coronavirus pandemic has infected the world with a substantial surge of false information(Tasnim, Hossain, & Mazumder, 2020). When there is already a significant amount of confusion, misinformation can amplify feelings of fear and enhance risks(Kask, 2020).

A positive attitude of pharmacy students that follow the fundamentals of the COVID-19 epidemic can help keep students, teachers, and staff safe at university and help prevent the spread of epidemic COVID-19. COVID-19's positive attitude to prevent epidemics can deliver messages and engage school administrators, teachers and staff, parents, carers, community members, and other industry students in Universities to promote safe and healthy colleges. Epidemics and pandemics are serious problems at the highest globally, requiring the attention of policy for the universities and the country's management(Sahu, 2020). Universities have “hypothetical situational” tutorials and exercises for students of real-life disaster situations to verify existing local government plans or any epidemic control systems(Viner et al., 2020). Pharmacy students in the learning process need to be trained to know the needs, the peculiarities of the environment, and the community's culture to become a pharmacist in the health care system(Kawaguchi-Suzuki et al., 2019).

Currently, the risk of COVID -19 spreading in the community is always present (Tran, Le, Nguyen, & Hoang, 2020). Health policymakers and university administrators may use the results to create training to focus on risk education and epidemic prevention for pharmacy students and other students in other fields. They will become pharmacists who can help raise awareness of the community in the prevention COVID-19(Federation, 2020).

The limitations of the study are the representativeness of the sample. The final drawback is the short time required to develop the questionnaire and questionnaires shared with pharmacy students at universities in Ho Chi Minh City, Vietnam. Research to assess more fully the knowledge, attitudes, and prevention COVID-19 should be developed through discussions in focus groups, in-depth interviews from clinical experts, and multi-direction measures.

5. CONCLUSION

Pharmacy students will be future health care professionals. They should have proper knowledge, attitude, and practice skills. Research shows that overall knowledge, attitudes, and prevention COVID-19 pharmacy students achieve a good and very good according to the Likert 5 levels from weak to very good. Remarkably, there was no statistically significant difference in the mean value between knowledge, attitude, and prevention COVID-19 for pharmacy students' demographic. Results of research on knowledge, attitudes, and prevention of COVID-19 from Pharmacy students. We can see that the Vietnamese government's health communication campaigns' effectiveness is consistent and contributes to the COVID-19 epidemic prevention in Vietnam.

Our findings indicate that social networks, television, newspapers, and websites from health agencies are the most common ways that pharmacy students use to update the information of COVID-19. A strong correlation between knowledge, attitude, and preventive actions of pharmacy students observed in this study show that students who have a better knowledge of COVID-19 will tend to have a better attitude and preventive action against the pandemic. Our findings suggest the knowledge should be improved by conducting more health education programs on social networks, television, websites from health agencies. It will finally help future pharmacists provide the proper care to the COVID-19 patients and improve their quality of life.

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