

ORIGINAL RESEARCH

Knowledge, Attitude, and Practice toward COVID-19 among Healthy Population in the Philippines



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Abstract

Background: COVID-19 pandemic has become a severe health threat to the Philippines and around the world. At the early onset of the pandemic, it is imperative to measure the knowledge, attitude, and practice (KAP) among healthy individuals to better understand the causes, transmission, and preventive measures.

Purpose: This study aimed to identify the knowledge, attitude, and practice towards COVID-19 in a healthy Filipino population during the early onset of the pandemic outbreak.

Methods: This cross-sectional rapid online and web-based survey was conducted among healthy Filipino population. A total of 1634 subjects participated via the Google survey link. Descriptive statistics were used to describe the respondents' profile characteristics and KAP scores. The One-Way ANOVA or independent sample t-test was used to measure KAP scores' differences when grouped according to respondents' profile characteristics. Pearson correlation was used to measure the relationship among the KAP scores. The data were all analyzed using the SPSS version 26.0.

Results: The overall knowledge scores revealed 67.7%. Filipinos believed COVID-19 would finally be successfully controlled and confident that the Philippines can win the battle against the virus through preventive practices. KAP scores showed significant differences with age, sex ($p < 0.000$), and place of residence ($p < 0.000$), occupation ($p < 0.000$), and marital status ($p < 0.000$). A significant positive low correlation between knowledge and practice ($r = 0.076$, $p < 0.01$), attitude and practice ($r = 0.100$, $p < 0.01$).

Conclusion: Albeit a low knowledge of COVID-19, healthy Filipino populations had a positive attitude and compliant with the preventive measures. This study hopes to contribute to the growing corpus of literature on COVID-19 to provide evidence-based information towards health promotion, illness prevention, and control of possible virus' spread.

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1. Introduction

COVID-19 pandemic has become a severe health threat around the world. The novel coronavirus (SARS-CoV-2), the organism responsible for the disease belonging to the family known as coronavirus, was first identified and reported in December 2019 in Hubei, Wuhan,

China has spread to more than 151 countries since then. For several months since the Coronavirus disease (COVID-19) began, it has been at the center of public health agendas. The alarming increase of transmission and susceptibility to the disease led the World Health Organization (WHO) to characterize COVID-19 as a pandemic on March 11, 2020. Many countries had declared national emergencies as the COVID-19 spread rapidly, causing mortality rates in several countries to exceed 10%, economic losses, and threatening people's lives globally (Mei et al., 2020).

Coronavirus disease 2019 (COVID-19) is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and diverse transmission routes. People exposed to COVID-19 may present a wide range of symptoms ranging from mild to severe after 2-14 days from exposure. The symptoms include fever, chills, cough, sore throat, shortness of breath or difficulty breathing, muscle or body aches, fatigability, headache, loss of taste or smell, congestion or runny nose, nausea or vomiting, and diarrhea (Centers for Disease Control and Prevention, 2020b). Moreover, current reports of virus transmission from asymptomatic individuals (Zheming et al., 2020). Infectious disease epidemics are a constant threat to everyone (Sigfrid et al., 2019). On July 24, 2020, WHO has reported more than 15 million confirmed COVID-19 cases and had over 600,000 deaths worldwide (World Health Organization, 2020). Since the World Health Organization (WHO) declared a global public health emergency, the battle against COVID-19 has not yet ended. Across the world, the pandemic crippled most countries on the daily emergence of confirmed cases, which accounted for nearly three million people (Johns Hopkins University (JHU), 2020).

In the Philippines, President Rodrigo Duterte issued Proclamation No. 929, declaring the whole Philippines in the State of Calamity for six (6) months from March 16, 2020, and imposed an Enhanced Community Quarantine (ECQ) throughout the island of Luzon (Republic of the Philippines, 2020). This ECQ provided clear pathways on various government offices' restrictions, judicial courts acting in a legal capacity, and business establishments. Also, a mandatory home quarantine was imposed except to certain individuals (i.e., employees of establishments allowed to operate, law enforcement and certain public officials, health workers, and media and except to access necessities) (Republic of the Philippines, 2020).

During the early onset of the COVID-19 pandemic outbreak, few studies were conducted that measured the knowledge, attitude, and practices across populations primarily in China (Zhang et al., 2020; Zheming et al., 2020; Zhong et al., 2020; Zhou et al., 2020). These studies served as an impetus in this similar study due to the dearth of evidence within the Philippine context. For this reason, this study was conducted to identify the knowledge, attitude, and practices towards COVID-19 in a healthy Filipino population as a preliminary pursuit to obtain relevant information on the phenomenon of interest to offer relevant information for healthcare providers, particularly nurses on their roles in health promotion and illness prevention. Concomitantly, this study hopes to provide evidence-based data to prevent the virus's possible spread and future-related pandemic outbreaks.

2. Methods

2.1 Research design

A cross-sectional rapid online and web-based survey is a widely used approach during fast-moving infectious disease outbreaks (Geldsetzer, 2020). This design was chosen to identify the general population's knowledge, attitudes, and practices towards COVID-19 and the associated factors.

2.2 Setting and samples

The study was conducted among healthy Filipino population from March 16 to June 15, 2020. During the study period, an online survey was done in this study as the country was in a state of national lockdown, so it was not feasible to do a community-based national sampling survey during this special period (Asraf et al., 2020).

The sample size was calculated using Raosoft software based on a 20,000 random sample with a 3% margin of error, 95% confidence interval (CI) $\pm$ which yielded a required sample size of 1,014. The researchers anticipated a non-response rate of 50.0% ($1,014 \times 0.50 = 507$) that provided a final total sample size calculated as $1,014 + 507 = 1,521$ (Fincham, 2008). The inclusion criteria include healthy Filipinos without identified comorbid diseases, 16 years or more, Internet access, and agreed to participate in the study ($n=1634$), while a total of fifty-two were excluded who did not meet the inclusion criteria.

2.3 Measurement and data collection

A self-report questionnaire was adapted from the recent study conducted by Zhong et al. (2020) with a Cronbach alpha of 0.71 consisting of two parts. Part 1 described the respondent's age, gender, marital status, occupation, and place of residence. Part 2 measured the respondent's knowledge about the clinical presentations (4 items), transmission routes (3 items), and prevention and control (5 items). This 12-item questionnaire required the participants to answer with 1 point for correct response and 0 for the wrong response. The total knowledge score ranged from 0 to 12 and was calculated and summed up to give the total knowledge score with the following formula (Mean Score/Total Number of Items multiply by 100) (Zhong et al., 2020). The knowledge scores were categorized as high knowledge with a 76-100% score and low knowledge with 75% and below. The attitude was assessed by giving 1 to the agree and 0 to the disagree (2 items). The practice was assessed by giving 1 to the yes and 0 to the No response (2 items).

The researchers used the Google Survey Form with a link that allows the respondents to answer. The invitation link was posted on Facebook, LinkedIn, and Twitter. Also, email invitations were sent to those identified as eligible respondents who were required to answer each item before proceeding to the next question to minimize missing data. All the individual responses were saved and stored in password-protected computers.

2.4 Data analysis

After the data collection, responses were uploaded using Microsoft Excel and Statistical Package for Social Sciences (SPSS) for quantitative data analysis (IBM Corporation, 2020). Descriptive statistics were used in describing the demographic characteristics of the respondents and KAP scores. To identify the significant differences in the KAP scores when grouped according to the demographic variables, ANOVA or independent sample t-test were used. The relationship among the KAP scores was measured using Pearson correlation. An alpha level of <0.05 or less was used to identify the statistical significance.

2.5 Ethical considerations

This rapid online, web-based survey complied with the Ethical Approach to Gathering Survey Data Online (Callegaro et al., 2014; Ess & Jones, 2004; Fielding et al., 2008; Gaiser & Schreiner, 2009). Before the data collection, a letter of request was sent to the Ethics Committee of Research Development Office, St. Dominic College of Asia, approved the study protocol and procedures (SDCA-RDO-03-2020). The researchers only had access to the data and permanently deleted it after completing data collection, and the required number of participants was reached (Ess & Jones, 2004). Also, the respondents were informed about their voluntary participation, may partially or wholly withdraw during the study, their identity was anonymous, and no personal identification information was retrieved from them to ensure confidentiality (Kahn, 2000; Quinton & Smallbone, 2006).

3. Results

3.1 Profile characteristics in healthy Filipino population

The respondents mainly belonged to age group 16 to 29 (62.3%) with a mean average of 29.36 (standard deviation [SD]=0.78, range: 16-74), were female (60.1%), single (75.4%), engaged in non-medical occupation (45.7%) and resided in the National Capital Region (41.8%) (Table 1).

3.2 Knowledge scores according to profile characteristics in healthy Filipino population

Table 2 shows the knowledge scores on COVID-19 in a healthy Filipino population. Results revealed that scores ranging from 60.9% to 98.2%, with an average mean of 8.12 ± 1.54 suggesting an overall knowledge of 67.7% ($8.12/12 \times 100$), indicating a low knowledge.

3.3 Attitude toward COVID-19 in healthy Filipino population

Table 3 shows the attitude toward COVID-19 in a healthy Filipino population. A total of 1,402 respondents believed COVID-19 would finally be successfully controlled (85.8%) than those 232 who did not (14.2%). Also, 1487 (91.0%) respondents have the confidence that the Philippines can win the battle against the COVID-19 virus.

Table 1. Profile characteristics in healthy Filipino population

Profile characteristics	f	%	M±SD
Age			29.361± 0.781
16 to 29	1018	62.3	
30 to 49	491	30.0	
Above 50	125	7.6	
Sex			
Male	652	39.9	
Female	982	60.1	
Marital Status			
Single	1232	75.4	
Married	379	23.2	
Common Law	11	0.7	
Widowed/Separated	12	0.7	
Occupation			
Medical	221	13.5	
Non-medical	746	45.7	
Student	519	31.8	
Unemployed	148	9.1	
Place of Residence			
National Capital Region	683	41.8	
Ilocos Region (Region 1)	13	0.8	
Cagayan Valley (Region 2)	27	1.7	
Central Luzon (Region 3)	32	2.0	
Calabarzon (Region 4 Southern Tagalog)	319	19.5	
Bicol Region (Region 5)	40	2.4	
Western Visayas (Region 6)	186	11.4	
Central Visayas (Region 7)	11	0.7	
Eastern Visayas (Region 8)	35	2.1	
Zamboanga Peninsula (Region 9)	15	0.9	
Northern Mindanao (Region 10)	17	1.0	
Davao Region (Region 11)	10	0.6	
Soccsksargen (Region 12)	205	12.5	
Caraga (Region 13)	32	2.0	
Bangsamoro Autonomous Region in Muslim Mindanao	9	0.6	

Table 2. Knowledge scores according to profile characteristics in healthy Filipino population

Profile Characteristics	Knowledge Scores	
	M±SD	Scores in %
Age		
16 to 29	8.12±1.31	67.7
30 to 49	8.35±1.37	69.6
Above 50	7.14±2.96	59.5
Sex		
Male	7.88±1.88	65.7
Female	8.27±1.25	68.9
Marital Status		
Single	8.09±1.62	67.4
Married	8.18±1.32	68.2
Common Law	8.82±1.08	73.5
Widowed/Separated	8.00±0.00	66.7
Occupation		
Medical	8.21±1.31	68.4
Non-medical	8.08±1.65	67.3
Student	8.19±1.37	68.3
Unemployed	7.91±1.87	65.9

Table 2. Continued

Profile Characteristics	Knowledge Scores	
	M±SD	Scores in %
Place of Residence		
National Capital Region	7.84±1.77	65.3
Ilocos Region (Region 1)	7.62±1.12	63.5
Cagayan Valley (Region 2)	8.11±1.22	67.6
Central Luzon (Region 3)	8.50±1.52	70.8
Calabarzon (Region 4 Southern Tagalog)	8.22±1.32	68.5
Bicol Region (Region 5)	8.18±1.30	68.2
Western Visayas (Region 6)	8.52±1.18	71.0
Central Visayas (Region 7)	8.09±1.14	67.4
Eastern Visayas (Region 8)	8.83±1.44	73.6
Zamboanga Peninsula (Region 9)	7.80±1.01	65.0
Northern Mindanao (Region 10)	7.65±1.00	63.8
Davao Region (Region 11)	7.40±1.17	61.7
Soccsksargen (Region 12)	8.35±1.43	69.6
Caraga (Region 13)	8.84±1.05	73.7
Bangsamoro Autonomous Region in Muslim Mindanao	7.67±1.87	63.9
Knowledge Mean Score	8.12±1.54	67.7

Table 3. Attitude toward COVID-19 in healthy Filipino population

Attitude towards COVID-19	Agree	Disagree	M±SD
I believe that COVID-19 will finally be successfully controlled.	1402(86)	232(14.2)	0.858±0.35
I have confidence that the country (i.e., the Philippines) can win the battle against the COVID-19 virus.	1487(91)	147(9)	0.910±0.29

3.4 Practice toward COVID-19 in healthy Filipino population

Table 4 presents the practice toward COVID-19 in a healthy Filipino population. A total of 1343 (82.2%) respondents have not gone to any crowded place, in recent days, compared to those 291 (17.8%) who have been out. On the other hand, 1428 have worn a mask when leaving home (87.4%) than those 206 respondents who have not (12.6%).

Table 4. Practice toward COVID-19 in healthy Filipino population

Practice towards COVID-19	Yes	No	M±SD
In recent days, I have gone to any crowded place.	291(17.8)	1343(82.2)	0.1781±0.038
In recent days, I have worn a mask when leaving home?	1428(87.4)	206(12.6)	0.8739±0.033

3.5 Significant difference in the knowledge, attitude, and practice toward COVID-19 in healthy Filipino population

Table 5 shows the significant difference in the KAP scores when grouped according to the respondents' profile characteristics. Results revealed that the knowledge scores were significantly different in terms of age ($p<0.000$), sex ($p<0.000$), and residence ($p<0.000$). Also, the attitude scores showed a significant difference in age ($p<0.000$), occupation ($p<0.000$), and place of residence ($p<0.000$). The practices also showed a significant difference with sex ($p<0.000$) and place of residence ($p<0.000$).

3.6 Significant relationship among KAP scores on COVID-19 in healthy Filipino population

Table 6 shows the significant relationship among KAP scores on COVID-19. Results indicated a positive low correlation knowledge and practice ($r=0.076$, $p<0.01$), attitude and practice ($r=0.100$, $p<0.01$). Correlations were interpreted using the following criteria: 0–0.25=weak correlation, 0.25–0.50=fair correlation, 0.50–0.75=good correlation and greater than 0.75=excellent correlation (Cohen, 1988).

Table 5. Significant difference in the knowledge, attitude, and practice toward COVID-19 in healthy Filipino population (n=1,634)

Profile Characteristics	Knowledge		Attitude		Practices	
	t/F	p-value	t/F	p-value	t/F	p-value
Age [†]	11.796	0.000	4.415	0.000	3.328	0.007
Sex ^{† †}	-5.008	0.000	-0.076	0.894	-2.284	0.000
Marital Status [†]	1.161	0.323	1.728	0.174	1.358	0.254
Occupation [†]	1.756	0.154	17.712	0.000	2.053	0.105
Place of Residence [†]	4.738	0.000	5.014	0.000	4.198	0.000

Note. M=Mean; SD=Standard Deviation; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

[†]One -Way ANOVA; ^{††}Independent sample t-test

Table 6. Significant relationship among KAP scores on COVID-19 in healthy Filipino population

		Knowledge	Attitude	Practices
Knowledge	Pearson Correlation		0.016	0.076**
	Sig. (2-tailed)		0.522	0.002
Attitude	Pearson Correlation	0.016		0.100**
	Sig. (2-tailed)	0.522		0.000
Practices	Pearson Correlation	0.076**	0.100**	
	Sig. (2-tailed)	0.002	0.000	

** Correlation is significant at the 0.01 level (2-tailed).

4. Discussion

The present study's findings revealed a low knowledge of COVID-19, as depicted by an overall score of 67.7%; since this study was conducted in the early stages of a pandemic outbreak, respondents may have not heard about the disease prevention and control measures and its possible impact. Moreover, the overreliance on social media to gain information may have contributed to the low knowledge because of the overlapping information and reliable sources. On the contrary, in a study conducted by Lau et al. (2020), among the households experiencing extreme poverty in the Philippines, 94.0% of respondents had already heard of COVID-19. Another study among employed Filipinos showed a 92% had high knowledge about the disease (Bautista Jr. et al., 2020). This finding supports the variations of knowledge in terms of age, sex, and place of residence found in the present study and in the study conducted by Zhong et al. (2020). Ergo, this further requires a large-scale inclusion of the population across the Philippines to establish a stronghold baseline information about the knowledge among Filipinos using a standardized tool that can be utilized by all other researchers having similar interests about the phenomenon.

Moreover, although the knowledge was not related to the attitude apparent in the present study, it requires further continued support through various integration using social media platforms about the disease that should be developed by the Department of Health, other healthcare institutions, and even the civil society organizations. According to Lau et al. (2020), only 20.7% of people reported consulting internet or social media sources. The Philippine response to the COVID-19 pandemic lags behind, contributing to varying knowledge scores about the disease. Undeniably, other countries have responded at the early onset of the pandemic, evident in the knowledge scores about the disease, including China (Chen et al., 2020; Zhong et al., 2020), South Korea (Lee et al., 2021), Bangladesh (Ferdous et al., 2020), Malaysia (Azlan et al., 2020) and Indonesia (Sulistiyawati et al., 2021; Widayati, 2021).

Various measures were imposed, including community quarantine restricting the people's mobility and non-essential activities, but the virus's spread remains uncontrolled. At this rate, the Enhanced Community Quarantine and Modified Enhanced Community Quarantine were also imposed (Bautista Jr. et al., 2020). Albeit these measures, 86% agreed that the outbreak would be successfully controlled, and nearly 91.5% believed that the country could win the battle; the government should continue to strengthen its mechanisms through proper coordination from the national to local government city health offices. The attitude towards COVID-19 showed a

variation in age, occupation, and place of residence. Such difference may be attributable to the extent of information received during the pandemic outbreak. For instance, Zhong et al. (2020) found that women are knowledgeable about COVID-19 and had positive attitudes and appropriate practices among the Chinese residents with a relatively high socioeconomic status. In Malaysia, the respondents' age and occupation depicted variation on COVID-19. Similar to other studies conducted in Asian countries, a majority showed a positive attitude on the COVID-19 pandemic (Ferdous et al., 2020; Neupane et al., 2020; Sulistyawati et al., 2021; Widayati, 2021; Zhang et al., 2020; Zhong et al., 2020; Zhou et al., 2020). Undeniably, maintaining a positive attitude can help address a high level of anxiety, psychosis-like symptoms, and many other psychological-related issues. Several studies suggest that mental health must be integrated into the current response due to the pandemic's rippling effects on mental health (Assari & Habibzadeh, 2020; Li et al., 2020; Xiang et al., 2020). Assari and Habibzadeh (2020) surmised that emergency responses are incomplete unless mental health is prioritized.

The practices on preventive measures are also identified in this present study. The participants who opted not to go out to public places and wore a mask were considered as first-line prevention in contracting the virus. These findings are in concert with the previous studies conducted in other Asian countries (Ferdous et al., 2020; Neupane et al., 2020; Sulistyawati et al., 2021; Widayati, 2021; Zhang et al., 2020; Zhong et al., 2020; Zhou et al., 2020). The early onset of the pandemic, the Philippines' Department of Health continued the information dissemination campaigns about the importance of handwashing, covering of nose and mouth while coughing and sneezing, use of sanitizers, use of face masks, avoiding contact of fingers with mouth, nose, and eyes (Philippine Daily Inquirer, 2020; Republic of the Philippines, 2020). Another public action being implemented is through social distancing or physical distancing, which is people should practice being at least 6 feet apart from each other, avoidance of group gathering and crowded places (Centers for Disease Control and Prevention, 2020a).

The significant relationship between knowledge and practice was highlighted in this study. This means that having high knowledge about the clinical presentations, transmission routes, and prevention and control, the higher the chance that the general population may continue to advocate on various mechanisms in contracting the virus. Also, the more positive attitudes that the general population has, the more they would advocate preventive measures. Other studies found similar results (Ferdous et al., 2020; Neupane et al., 2020; Sulistyawati et al., 2021; Widayati, 2021; Zhang et al., 2020; Zhong et al., 2020; Zhou et al., 2020).

5. Implication and limitation

This present study is a preliminary pursuit to identify the healthy Filipino population's knowledge, attitude, and practice on COVID-19 at the early onset of the outbreak. Although the study poses limitations primarily on the inclusion of other populations across the country, it provides baseline information about the key areas where healthcare providers and particularly nurses should focus on health promotion, health education, and illness prevention. Moreover, Mesa Vieira et al. (2020) emphasized that special attention must be given to homeless, indigenous, migrant, and imprisoned populations, people living with disabilities, and the elderly. Another limitation, this study was conducted at the early stage of the pandemic, which may contribute to the low knowledge among the surveyed population about the disease. Hence, the researchers further suggest conducting a follow-up using a similar approach to the phenomenon being studied.

6. Conclusion

During the early onset of the pandemic outbreak in the Philippines, the researchers conducted a preliminary study to identify the knowledge, attitude, and practice in a healthy Filipino population. Based on the findings as presented, respondents' had low knowledge of COVID-19. Also, the correlation revealed significant positive low correlations between knowledge-practice and attitude-practice. This study's findings provide relevant baseline information that can be used for further development of evidence-based interventions and healthcare best practices, including nursing, to prevent the spread of COVID-19 and possible future pandemic outbreaks. Concomitantly, it is suggested to make a follow-up study during the later onset of the pandemic to measure if there is a significant change in the knowledge, attitude, and practice in the same population. Also, there is a need to develop a standardized and culturally

fit tool to measure the knowledge of the populations currently surveyed across the country to establish a more reliable and valid instrument. Further studies on other COVID-19 related topics require covering a large population with inclusion and involvement of vulnerable populations.

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Conflict of Interest

The authors declare that there was no conflict of interest.

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