

University Students' Knowledge, Attitude, and Practice (KAP) towards COVID-19 in Malaysia

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ABSTRACT

Covid-19—associated with the human-to-human transmission is recent medical concern which also associated with public health concerns. A cross-sectional online survey was conducted among clinical year veterinary and medical students studying in a university in Malaysia to determine the students' knowledge, attitude, and practice towards COVID-19. The questionnaire consisted of 4 sections, namely, socio-demographic characteristics (6 items), knowledge (14 items), attitude (10 items), and practice (24 items) towards COVID-19. The collected data were subjected to descriptive statistics, Mann-Whitney U, Kruskal-Wallis H, and Spearman's correlation analysis. A total of 219 students participated in this study, and they consisted of 52.1% and 47.9% of veterinary and medical students, respectively. The total scores were categorised into poor (<60%), moderate (60-79%), and high (>80%) based on Bloom's cut off point. Overall, the students

acquired high knowledge (80%), moderate attitude (76%) and high practice (86%) against COVID-19. In the attitude section, the veterinary student scored significantly higher than medical students ($U=3791$, $p=.001$), and female students scored significantly higher than males ($U=3183$, $p=.001$). The analysis revealed a statistically significant association between attitude and practice ($P<.05$) despite no association

ARTICLE INFO

Article history:

Received: 1 July 2021

Accepted: 04 October 2021

Published: 14 December 2021

DOI: <https://doi.org/10.47836/pjssh.29.4.41>

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between knowledge to attitude and practice variables. Overall, the results indicated that both veterinary and medical students had high knowledge with moderate to high attitudes towards COVID-19. Thus, they were practising good preventive measures in limiting the spread of the disease.

Keywords: Attitude, COVID-19, knowledge, medical students, practice, veterinary students

INTRODUCTION

Severe acute respiratory syndrome coronavirus 2 is an enveloped, non-segmented, positive-sense RNA virus, a member of the family Coronaviridae. It is an aetiology of the deadly infection named Coronavirus disease 2019 originating from Wuhan, Hubei, China which mainly affects humans and some mammals, causing a high mortality rate. According to Yu et al. (2020), the infection initially spreads via zoonotic or environmental exposure and the infected person may transmit the disease to other people outside of the market, thus causing clusters of cases. Since 2019, the virus has spread rapidly among humans in various continents; therefore, the World Health Organization declared COVID-19 as a pandemic on March 11, 2020.

The reason behind this wide virus spreading might be due to its rapid transmission via direct and indirect contact with the infector. The primary transmission of COVID-19 is mainly through both respiratory droplets and contaminated surfaces; however, the airborne transmission may also occur under certain conditions

such as enclosed or poorly ventilated spaces or due to prolonged exposure to respiratory particles. According to World Health Organization (WHO, 2020), the incubation period varies within 14 days. A positively infected person usually shows the clinical manifestation of fever, dry cough, dyspnoea, chest pain, tiredness, and myalgia, rarely headache, conjunctivitis, diarrhoea, nausea, and vomiting. An asymptomatic carrier is known as a silent spreader. Based on a Centers for Disease Control and Prevention (CDC) report, both symptomless and pre-symptomatic individuals are typically not quarantined, thus spreading the virus.

COVID-19 replicates in the upper respiratory tract after five days post-exposure, and nasopharyngeal/oropharyngeal swabs or saliva is taken to diagnose the virus through antigen rapid test kit (RTK-Ag) for quick detection and real-time reverse-transcription polymerase chain reaction for a more accurate result. Currently, there is no specific treatment to cure COVID-19 disease. Nevertheless, according to the Centers for Disease Control and Prevention (CDC, 2020b), it can be managed via prevention, control measures, and supportive care. However, obedience to the preventive measures is crucial and highly dependent on knowledge, attitude, and practice (KAP) towards COVID-19.

In terms of the educational system, especially the undergraduate students, they are experiencing a tough situation where these students are gaining autonomy and freedom of life (Peng et al., 2020). Therefore, a few studies have been

conducted to evaluate the knowledge, attitude, and practice towards COVID-19 among undergraduate students in China (Peng et al., 2020), medical students in India (Maheshwari et al., 2020), and Jordan (Alzoubi et al., 2020). Overall, the students acquired good knowledge and practised towards COVID-19. In addition, Olaimat et al. (2020) stated that medical students are familiar with low-risk practices, and thus they have less fear than other students.

As education plays a vital part in preventing the disease's spread, this study was conducted to determine the knowledge level, attitude, and practices (KAP) towards COVID-19 among veterinary and medical undergraduates at the Universiti Putra Malaysia and how they took preventive measures to reduce exposure to COVID-19 infection and maintain an optimum level of health.

MATERIALS AND METHODS

Ethical Approval

Ethical approval was obtained from the Ethics Committee for Research Involving Human Subjects from the Universiti Putra Malaysia. Permission from the Faculty of Veterinary Medicine and Faculty of Medicine and Health Sciences was granted before the survey.

Study Design

A quantitative, cross-sectional survey was conducted online via Google Form and distributed through WhatsApp and email.

Study Location

This study was conducted in the Faculty of Veterinary Medicine and Faculty of Medicine and Health Sciences, Universiti Putra Malaysia.

Study Population and Sample Size

This study involved the participation of respondents from veterinary and medical major programmes at the Universiti Putra Malaysia. The selection of respondents was based on the subject criteria. Two proportion formula, $n = \frac{\{ [Z (1-\alpha/2)] * \sqrt{2P (1-P)} + [Z (1-\beta)] * \sqrt{P_1 (1-P_1) + P_2 (1-P_2)} \}^2}{(P_1-P_2)^2}$ was used to calculate the sample size. Since the pilot study was done among Veterinary and Medical students, the minimum calculated sample size was 155 by considering a 95% confidence interval.

Subject Criteria

Respondents consisted of undergraduate students pursuing a Doctor of Veterinary Medicine or Doctor of Medicine at the Universiti Putra Malaysia. Both medical doctoral candidates were in their clinical years (Veterinary: Year 4, 5 and Medical: Year 3, 4, 5). Respondents must be able to understand and read English for the completion of the questionnaire. Respondents who refused to participate in the survey and were not in the clinical years were excluded from the study.

Sampling of Subject

A consent request was obtained before the respondent answered the questionnaire.

Respondent data was kept confidential and remained anonymous for privacy assurance. Participation in this study was voluntary, and withdrawal from the survey was permitted without any repercussions and explanation.

Research Instruments

Questionnaire.

The survey was divided into four sections: to wit, the respondent's socio-demographic data, knowledge, attitude, and practice towards COVID-19. There were five questions in Section A mainly consisting of data collection about the respondents' background. Section B comprised 14 closed-ended questions about the respondents' knowledge of COVID-19. The third section of the questions evaluated the respondents' attitude towards COVID-19 by designing a Likert scale comprised of 10 items. Finally, the last section of the questionnaire explored respondents' practice in controlling the spread of COVID-19. There were 24 items in the practice section, and thus, the total number of items was 53.

Data Analysis

The data obtained were analysed using the Statistical Product and Service Solutions (SPSS) (IBM Corp. Released 2016. IBM SPSS Statistics for Windows, Version 24.0. Armonk, NY: IBM Corp.

Pilot Study

The pilot study was conducted using ten students from each veterinary and medical course ($n=20$). The Cronbach alpha was

calculated using the SPSS to measure the scale reliability of the survey, wherein more than 0.6 was considered an acceptable value (Hulin et al., 2001). Students who participated in the pilot study are excluded from the main study.

Score Calculation

The data was calculated and assessed based on the summated score obtained by the student individually. There were 13 multiple choice questions in the knowledge section wherein incorrect answers were scored as 0 points, and the correct answer was scored as 1 point. In the attitude section, the same scoring method used in the KAP study towards COVID-19 among health care providers in Yemen was applied in the present study, where the summated score was calculated (Alrubaiee et al., 2020).

KAP Statistical Analysis

A descriptive test was applied in which the significant level, $\alpha=0.5$ with 95 % confidence interval and $p\text{-value} < 0.05$, was set as statistically significant. Mann-Whitney U and Kruskal-Wallis H tests compared the mean scores between knowledge, attitude, and practice by different demographic characteristics. Spearman's correlation was used to determine the correlation between knowledge, attitude, and practice towards COVID-19.

RESULT

Twenty students participated in this pilot study, and the result of the Cronbach alpha revealed an acceptable value of internal

validity of more than 0.6, which were 0.654, 0.640, and 0.941 for knowledge, attitude, and practice questions, respectively.

Socio-Demographic Characteristic

A total of 219 participants took part in the survey wherein 114 (52.1%) and

105 (48%) were veterinary and medical students, respectively. The demographic characteristics of the participants were then tabulated based on the programme, as shown in Table 1.

Table 1

Socio-demographic of veterinary and medical students

Socio-demographic			Respondents	Percentage (%)	Total, N
Programme		Veterinary	114	52.1	219
		Medical	105	47.9	
Veterinary	Year of study	4	86	75.0	
		5	28	25.0	
	Age	21-25	110	96.0	
		26-30	4	4.0	
	Gender	Male	25	22.0	
		Female	89	78.0	
	Race	Malay	74	65.0	
		Indian	8	7.0	
		Chinese	24	21.0	
		Bumiputera Sabah Siamese	7	6.0	
Medical	Year of study	3	37	35.0	
		4	51	49.0	
		5	17	16.0	
	Age	21-25	103	98.0	
		26-30	2	2.0	
	Gender	Male	25	33.0	
		Female	89	67.0	
	Race	Malay	74	67.0	
		Indian	8	14.0	
		Chinese	24	19.0	

Note. N=Total number of students participated in the study

Mean Score of KAP

Total scores of knowledge, attitude, and practice were calculated, and the mean scores were obtained to compare the scores among different demographics. The Mann-Whitney U test was used, and the result showed a significant difference in the mean scores between Veterinary and Medical students in the attitude section with the

$p=0.001$, ($U=3791$) as shown in Table 2. The mean scores between genders in the practice section were also statistically significant with $p=0.001$, ($U=3183$). However, there was no statistically significant difference in the mean scores on knowledge among different socio-demographics with an overall $P>0.05$.

Table 2
Mean score obtained by students with different socio-demographic characteristics

Variables		Knowledge		Attitude		Practice	
		Mean ± SD	p	Mean ± SD	p	Mean ± SD	p
Type of study	Veterinary	10.97 ± 1.47	.455	38.96 ± 3.97	.001	103.63 ± 10.01	.943
	Medical	10.74 ± 1.75		36.45 ± 1.07		103.10 ± 10.88	
Year of study	3	10.57 ± 1.59	.217	37.03 ± 3.09	.219	105.54 ± 8.55	.380
	4	10.82 ± 1.74		38.01 ± 4.33		102.39 ± 11.57	
	5	11.22 ± 1.13		37.69 ± 4.55		104.60 ± 10.24	
Gender	Male	10.68 ± 1.94	.563	37.33 ± 4.74	.572	98.73 ± 12.47	.001
	Female	10.93 ± 1.48		37.95 ± 3.97		105.13 ± 9.70	
Age	21-25	10.88 ± 1.61	.133	37.75 ± 4.17	.758	103.29 ± 10.84	.501
	26-30	10.17 ± 1.60		39.00 ± 5.10		106.50 ± 13.07	

Note. SD=Standard deviation; p= P-value

Outcome of Knowledge

A total of 13 questions were used to measure the knowledge level of Veterinary and Medical students. As a result, most students (87.2%) obtained information regarding COVID-19 from relevant authorities (KKM, WHO, DVS), 86.3% of the student obtained information from mass media (TV, Radio, Internet) and social media (WhatsApp, Facebook, Twitter, Instagram, Telegram; Figure 1).

Overall, 68.0% of the participants scored high in knowledge, with a mean score of 10.86 ± 1.61 (83.5%). Figure 2 shows the difference between correct and incorrect percentage rates for each question in the knowledge section. The correct percentage rate is higher than the incorrect percentage rate on all questions. About 79% of participants correctly answered that COVID-19 is caused by Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2). Most participants (95%)

were correct about the virus's transmission from an asymptomatic person, and only half of the participants (55%) correctly answered that an animal could acquire the virus from an infected person. Out of 219 students, 200 of them (91%) were aware of the common

symptoms of COVID-19, which includes fever, dry cough, sore throat, and difficulty in breathing. Each response related to COVID-19 was scored and recorded, as shown in Table 3.

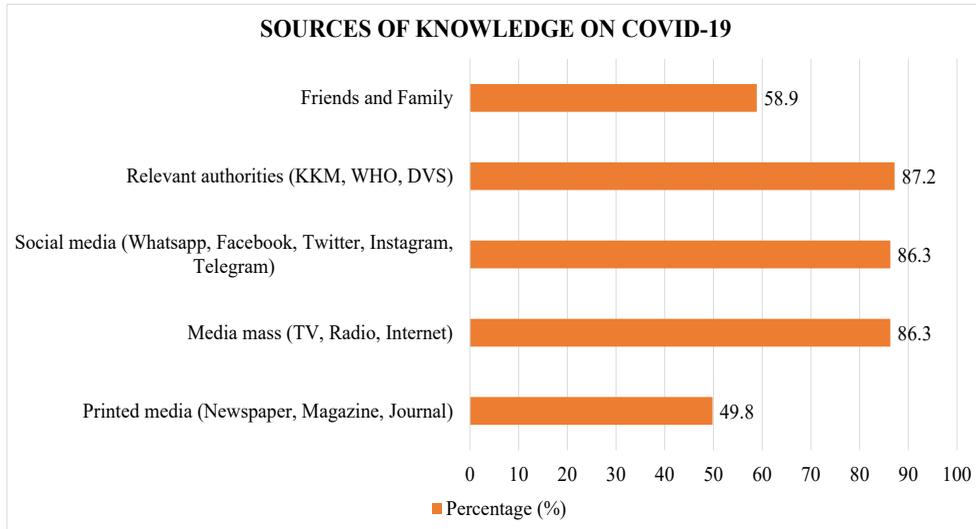


Figure 1. Sources of knowledge on COVID-19 disease obtained by the participants

The students obtained the information regarding COVID-19 from reliable sources where 87.2%, 86.3%, and 86.3% of them gained the knowledge from information relevant authorities, social media, and media mass, respectively. On the other hand, only 58.9% and 49.8% were acquired from friends and family and printed media.

Outcome of Attitude towards COVID-19

The ten items in this section shown in Table 4 were assessed to determine the students' attitude towards COVID-19. A five-point Likert scale was used to calculate the score, and 61.2% of the participants acquired a

moderate attitude towards COVID-19 with an overall mean of attitude score of 36.7 ± 4.57 (75.6%).

Outcome of Practice

In this section, the pattern of the questions resembled the attitude section wherein a five-point Likert scale was used to calculate the overall score. The mean practice score was 103.38 ± 10.88 (86.1%), and 78.5% of the participants scored high in the practice section, suggesting that participants were practicing the preventive measures towards COVID-19. Each response regarding preventive measures towards COVID-19 was scored and demonstrated in Table 5.

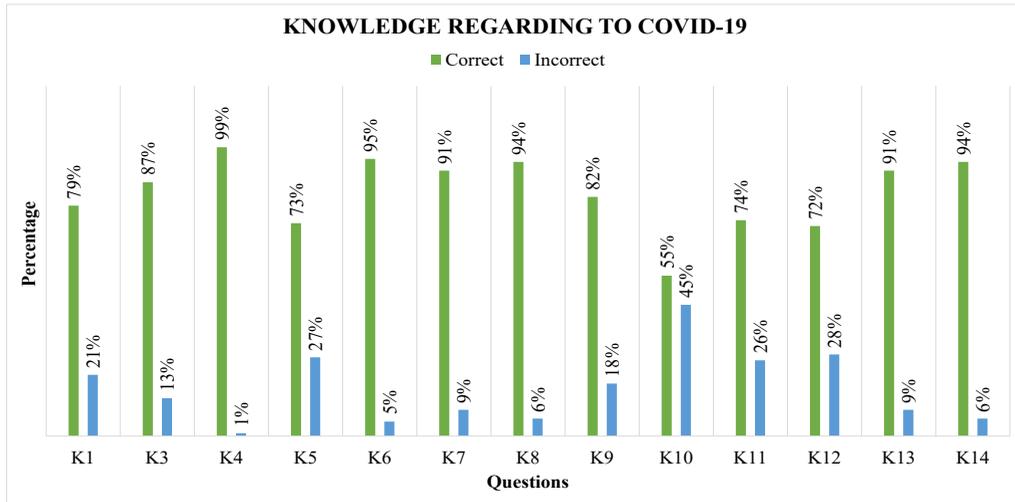


Figure 2. Percentage rate in knowledge section regarding COVID-19.

Table 3

Percentage score of students in the knowledge section

Questions	Correct (n, %)	Incorrect (n, %)
K1. Which is/are correct about COVID-19?	172 (79.0%)	47 (21.0%)
K3. COVID-19 was first detected in Wuhan, China infecting the human respiratory system and originated from bats.	190 (87.0%)	29 (13.0%)
K4. How COVID-19 is being transmitted between humans? (You can select more than one option)	218 (99.5%)	1 (0.5%)
K5. How does a person get infected with COVID-19? (You can select more than one option)	160 (73.0%)	59 (27.0%)
K6. Can COVID-19 be caught from a COVID-19 positive person who has no symptoms?	209 (95.0%)	10 (5.0%)
K7. What are the common symptoms of COVID-19 positive patients? (You can select more than one option)	200 (91.0%)	19 (9.0%)
K8. Older persons and person with pre-existing medical conditions (high blood pressure, heart disease, lung disease, cancer or diabetes) are at risk of developing severe illnesses such as difficulty in breathing or chest pain when they are infected with COVID-19.	205 (94.0%)	14 (6.0%)
K9. How long is the incubation period of COVID-19?	179 (82.0%)	40 (18.0%)
K10. Animals/pets can become infected from positive COVID-19 patients.	120 (55.0%)	99 (45.0%)
K11. If your pets are diagnosed positive of COVID-19 infection, is there any possibility that you can get infected from them?	163 (74.0%)	56 (26.0%)
K12. What is the importance of implementing Movement Control Order (MCO) in controlling the spread of COVID-19 in Malaysia?	158 (72.0%)	61 (28.0%)

Table 3 (Continue)

Questions	Correct (n, %)	Incorrect (n, %)
K13. In Malaysia, the Ministry of Health categorise districts into three zones: red, yellow, and green zones to define active cases. If you happen to be in any area in the green zone, what is the risk of you catching COVID-19?	199 (91.0%)	20 (9.0%)
K14. Vaccine availability in Malaysia.	206 (94.0%)	13 (6.0%)

Note. K=Knowledge question; n=Number of students answered correctly/incorrectly; %=Percentage of students answered correctly/incorrectly

Table 4

Percentage score of students in attitude to COVID-19

Questions	Strongly Disagree (n, %)	Disagree (n, %)	Not sure (n, %)	Agree (n, %)	Strongly Agree (n, %)	Total (n, %)
A1. COVID-19 infection makes you feel fearful and afraid, especially when going out of the house.	5, 2.3%	28, 12.8%	12, 5.5%	137, 62.6%	37, 16.9%	219, 100.0%
A2. You are willing to change your lifestyle to adapt to a new norm.	1, 0.5%	3, 1.4%	10, 4.6%	91, 41.6%	114, 52.1%	219, 100.0%
A3. If you have flu-like symptoms, you will immediately seek medical attention to avoid the virus from infecting other people.	2, 0.9%	14, 6.4%	23, 10.5%	100, 45.7%	80, 36.5%	219, 100.0%
A4. Disclose yourselves via social media such as Facebook, Instagram, or WhatsApp status when you feel unwell or after travelling back from overseas/affected areas.	37, 16.9%	31, 14.2%	71, 32.4%	61, 27.9%	19, 8.7%	219, 100.0%
A5. Mammals such as cats, dogs, ferrets, or tigers can transmit SARS-COV-19 to humans, and thus people should prevent having close contact with them, especially pet animals.	51, 23.3%	63, 28.8%	68, 31.1%	27, 12.3%	10, 4.6%	219, 100.0%

Table 4 (Continue)

Questions	Strongly Disagree (n, %)	Disagree (n, %)	Not sure (n, %)	Agree (n, %)	Strongly Agree (n, %)	Total (n, %)
A6. Considering the current situation of COVID-19 in Malaysia, you think that you are at risk of getting infected with COVID-19 in university.	3, 1.4%	27, 12.3%	58, 26.5%	99, 45.2%	32, 14.6%	219, 100.0%
A7. Movement Control Order (MCO) affects your study due to the lack of face-to-face interaction classes with lecturers.	7, 3.2%	7, 3.2%	22, 10.0%	81, 37.0%	102, 46.6%	219, 100.0%
A8. Difficulty in practicing social distancing, especially in university makes you feel insecure about the possibility of getting infected with COVID-19.	5, 2.3%	23, 10.5%	43, 19.6%	101, 46.1%	47, 21.5%	219, 100.0%
A9. Vaccination is the best preventive measure to control COVID-19.	6, 2.7%	17, 7.8%	47, 21.5%	81, 37.0%	68, 31.1%	219, 100.0%
A10. COVID-19 can affect your future career as a front-liner.	15, 6.8%	26, 11.9%	48, 21.9%	85, 38.8%	45, 20.5%	219, 100.0%

Note. A=Attitude question; n=Number of students react on each question; %=Percentage of students react on each question

Table 5

Percentage score of students in practice related to COVID-19 infection

Questions	Never (n, %)	Rarely (n, %)	Sometimes (n, %)	Very often (n, %)	Always (n, %)	Total (n, %)
P1. What are the preventive measures that you practice reducing the chances of being infected or spreading COVID-19?						
• Regularly and thoroughly clean my hands with an alcohol-based hand rub or sanitizer.	0, 0.0%	3, 1.4%	20, 9.1%	103, 47.0%	93, 42.5%	219, 100.0%
• Wash my hands with soap and water frequently.	2, 0.9%	4, 1.8%	32, 14.6%	90, 41.1%	91, 41.6%	219, 100.0%
• Maintain at least 1 meter (3 feet) distance between anyone who is coughing or sneezing.	1, 0.5%	2, 0.9%	25, 11.4%	95, 43.4%	96, 43.8%	219, 100.0%
• Wearing face mask.	1, 0.5%	0, 0.0%	3, 1.4%	51, 23.3%	164, 74.9%	219, 100.0%

Table 5 (Continue)

Questions	Never (n, %)	Rarely (n, %)	Sometimes (n, %)	Very often (n, %)	Always (n, %)	Total (n, %)
P1. What are the preventive measures that you practice reducing the chances of being infected or spreading COVID-19?						
• Avoid touching or rubbing the eyes, nose, and mouth after touching any surfaces.	0, 0.0%	12, 5.5%	51, 23.3%	76, 34.7%	80, 36.5%	219, 100.0%
• Self-quarantine if I feel unwell/after travelling back from overseas or affected areas.	2, 0.9%	4, 1.8%	15, 6.8%	91, 41.6%	107, 48.9%	219, 100.0%
• Bathing after going to the supermarket. (If you are the one who buys groceries)	7, 3.2%	12, 5.5%	53, 24.2%	74, 33.8%	73, 33.3%	219, 100.0%
P2. If you have signs and symptoms of flu-like illness, what is your practice in using face masks?						
• Use mask when I am in crowded places (supermarket).	1, 0.5%	2, 0.9%	2, 0.9%	19, 8.7%	195, 89.0%	219, 100.0%
• Change the mask every time I use it.	1, 0.5%	3, 1.4%	24, 11.0%	59, 26.9%	132, 60.3%	219, 100.0%
• Bring the mask wherever I go.	1, 0.5%	2, 0.9%	5, 2.3%	39, 17.8%	172, 78.5%	219, 100.0%
P3. If you have signs and symptoms of flu-like illness, when will you use hand sanitizer?						
• Sanitize my hands whenever I touch any surfaces.	3, 1.4%	2, 0.9%	30, 13.7%	73, 33.3%	111, 50.7%	219, 100.0%
• Use sanitizers whenever it is freely available.	2, 0.9%	1, 0.5%	22, 10.0%	65, 29.7%	129, 58.9%	219, 100.0%
• Keep hand sanitizer in my bag.	3, 1.4%	6, 2.7%	30, 13.7%	43, 19.6%	137, 62.6%	219, 100.0%
P4. If you have signs and symptoms of flu-like illness, when will you wash your hands?						
• Wash my hands whenever I touch anything.	4, 1.8%	3, 1.4%	39, 17.8%	72, 32.9%	101, 46.1%	219, 100.0%
• Wash hands whenever it is available.	2, 0.9%	6, 2.7%	24, 11.0%	78, 35.6%	109, 49.8%	219, 100.0%
• Wash hands whenever it is dirty.	19, 8.7%	36, 16.4%	36, 16.4%	47, 21.5%	81, 37.0%	219, 100.0%

Table 5 (Continue)

Questions	Never (n, %)	Rarely (n, %)	Sometimes (n, %)	Very often (n, %)	Always (n, %)	Total (n, %)
P5. What are the precautionary measures that you take if you have pets at home?						
• Wash my hands before and after touching pets.	1, 0.5%	9, 4.1%	38, 17.4%	69, 31.5%	102, 46.6%	219, 100.0%
• Avoid touching pets as I may have the possibility of transmitting the virus to them.	20, 9.1%	44, 20.1%	56, 25.6%	48, 21.9%	51, 23.3%	219, 100.0%
• Disinfecting objects and surfaces and keeping the environment in good hygiene.	3, 1.4%	13, 5.9%	52, 23.7%	53, 24.2%	98, 44.7%	219, 100.0%
P6. What would be your new norm practices in the university to control the spread of COVID-19?						
• Practice strong personal hygiene.	0, 0.0%	1, 0.5%	11, 5.0%	62, 28.3%	145, 66.2%	219, 100.0%
• Avoid unnecessary personal contact with friends and other people.	0, 0.0%	2, 0.9%	40, 18.3%	68, 31.1%	109, 49.8%	219, 100.0%
• Immediately seek medical attention if you are feeling sick or unwell.	0, 0.0%	6, 2.7%	19, 8.7%	58, 26.5%	136, 62.1%	219, 100.0%
• Wear a face mask when you feel unwell and always prepare extra face masks in the bag.	0, 0.0%	3, 1.4%	5, 2.3%	40, 18.3%	171, 78.1%	219, 100.0%
• Avoid attending any mass events until the outbreak has been successfully controlled.	2, 0.9%	1, 0.5%	7, 3.2%	58, 26.5%	151, 68.9%	219, 100.0%

Note. P=Practice question; n=Number of students responded to the question; %=Percentage of students responded to the question

Statistical Analysis of KAP towards COVID-19

Spearman’s correlation test was used to identify the relationship between the variables. The results in Table 6 show no statistically significant association between knowledge to attitude and practice variables with p= .114, r=0.093, and p= .016, r=0.818, respectively. Nevertheless, there was a

statistically significant association between attitude and practice variables with p= .001, r=0.325.

DISCUSSION

The COVID-19 pandemic has prompted the overview of various views from different sources (WHO, 2020). In addition, most youths face mental and physical uneasiness

Table 6

Correlation between knowledge, attitude, and practice score variables

Spearman's rho Correlation		Knowledge score	Attitude score	Practice score
Knowledge score	Correlation	1.000	0.114	0.016
	Coefficient (r)			
	p	.	.093	.818
Attitude score	Correlation	0.114	1.000	0.325
	Coefficient (r)			
	p	.093	.	.001
Practice score	Correlation	0.016	0.325	1.000
	Coefficient (r)			
	p	.818	.001	.

Note. p=P-value

due to the COVID-19 pandemic, and they use social media as an information source. Therefore, this cross-sectional study was carried out among the veterinary and medical students to assess their source of information, level of knowledge, how they reacted to the current situation, and the preventive measures they took to reduce COVID-19 disease.

This assessment research has revealed that most veterinary and medical students have good knowledge, moderate attitude, and good practices towards COVID-19. A total of 191 students (87.2%) relied mostly on authorities such as KKM, WHO, DVS to learn about COVID-19 related information, which guaranteed the reliability of the sources. However, out of 219 students, 86.3% of them utilise social media such as WhatsApp, Facebook, Telegram, and mass media such as TV, Radio, Internet as a second medium to keep them updated

about the virus. A study on the impact of social media during the COVID-19 outbreak in Iraq revealed that it has a significant emotional and psychological impact on individuals, especially between ages 18-35 years (Ahmad & Murad, 2020). Furthermore, Cinelli et al. (2020) noted that individuals could get inaccurate or misleading information from social media platforms. Thus, the source of information is important, especially during the pandemic. Therefore, the result corresponded with the assessment of information sources among the students, in which most of them scored high in this section.

Based on the data, almost half of the respondents (53.9%) score in the knowledge section, which corresponds with studies conducted among medical students in India (Maheswari et al., 2020), undergraduate students in China (Peng et al., 2020) and medical and non-medical students in Jordan

(Alzoubi et al., 2020). This result might be because veterinary and medical students have clinical health knowledge and, more generally, a relevant background. According to Peng et al. (2020), students with medical backgrounds tend to have more in-depth knowledge regarding COVID-19 as they were trained well in clinical surroundings and public health-related issues.

Attitude assessment revealed that 61.2% of respondents had a moderate attitude towards COVID-19. This result sheds some light on why students are hitherto failing to maintain physical distancing. Students probably felt fearful of COVID-19 since this was their first pandemic (Sari et al., 2020). In addition, students were hesitant about self-disclosure via social media when they were sick or travelling back from overseas or affected areas. It could be because social media might help alert family members and friends of their health status. Furthermore, Sahni and Sharma (2020) claimed that social media might create unnecessary panic and anxiety about other people, engender misinformation. On the other hand, Nabity-Grover et al. (2020) believed that the pandemic changed people's views on self-disclosure through social media. They claimed that people tend to avoid disclosing information about their activities because it could cause negative evaluations by others. Individuals tend to share more informative content, especially about health care, during this current situation.

At the same time, students were unsure about the possibility of animals such as cats, tigers, and ferrets transmitting the

SARS-CoV-2 virus to humans. Although OIE reported no evidence that animals could transmit the virus to humans, owners should take precautionary

measures when handling animals diagnosed with SARS-CoV-2 to reduce the possibility of transmission. Besides that, 46.6% of students claimed that the virtual online class system might negatively affect their studies due to the lack of face-to-face interaction. Nevertheless, according to Mukhtar et al. (2020), the online learning platform is a manageable, easy medium to access teaching materials, and students can replay sessions via recorded lectures which are not typically done in the conventional, face-to-face class classroom setting. Therefore, students should adapt to the new norms and take advantage of the benefits of the online learning platform. These students were also asked about their opinion regarding the ability of the vaccination to prevent COVID-19, and 37% and 31.1% of the students agreed and strongly agreed that the vaccination would be the best preventive measure for controlling the spread of COVID-19. Currently, several vaccine trials are being conducted, and the CDC (2020a) revealed that the vaccines prevent individuals from developing serious illnesses when exposed to COVID-19.

Students' practice and studies towards COVID-19 were evaluated, and the results revealed that veterinary and medical students from UPM were practicing good preventive measures. Approximately 78.5 % of the participants obtained a high score in the

practice trial, which aligns with the study conducted in Jordan (Alzoubi et al., 2020) among medical (and non-medical) students. Basic preventive measures such as washing hands with soap, using hand sanitizer, wearing face masks, avoiding hand-to-face contact after touching surfaces, and practicing self-quarantines when feeling unwell, have all been practiced, which are indicated as a good routine. As future medical professionals, Peng et al. (2020) stated that these students tend to display a positive attitude and good practices as it becomes their responsibility during a public health emergency.

Overall, veterinary students obtained higher scores than medical students in the attitudes section. Since this study was carried out during the recovery movement control order (RMCO), medical students believed they were at a lower risk of getting the COVID-19 infection. Females also scored higher in practice scores relative to male students. This finding supported other research wherein females practised good preventive measures against infectious diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS) relative to male students.

CONCLUSION

There were no significant differences between veterinary and medical students as they acquired the same COVID-19 related information. Both sets of students also share similar attitudes and practicing good preventive measures. Thus, both

groups are expected to play a significant role in spreading awareness and educating the public on staying safe and maintaining an optimum level of health during the pandemic.

ACKNOWLEDGEMENTS

The authors would like to thank all respondents that participated in this study. This research was supported by Universiti Putra Malaysia (UPM) under the research grants Geran Insentif Penyelidikan Untuk Pengajaran dan Pembelajaran (GIPP) vote number 9323721.

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