

A study on knowledge, attitude and practices towards the COVID-19 pandemic among the non-COVID-19 patients at Outpatient Department in a Teaching Hospital, Northern Sri Lanka

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ABSTRACT

Background: Severe Acute Respiratory Syndrome Coronavirus -2 (SARS-CoV-2) has infected millions of people all over the world and Sri Lanka is not an exception for the impact of Coronavirus Disease (COVID-19). As there are no effective therapeutic agents at present and newly developed vaccines are not freely available for many countries, preventive measures such as handwashing, social distancing, and respiratory etiquette are key to control of spread. The effective implementation of these measures depends on public knowledge and attitude towards COVID-19 and adherence to key practices. **Methods:** This is a cross-sectional study conducted among 500 non-COVID-19 patients who attended the Outpatient Department (OPD) of the Teaching Hospital Jaffna, Sri Lanka. Knowledge, attitude and practices (KAP) was assessed through a self-administered questionnaire and analysis was performed by using SPSS 26. **Results:** The majority were females (67.8%) and the mean age of the participants was 36.9 (range: 15–85). Most of the participants were homemakers. Two hundred and twenty-two patients (44.4%: 40.1–48.8) showed a suboptimal knowledge score regarding COVID-19. The males, age above 65, were significantly associated with low knowledge score ($P < 0.05$). Similarly, a significant proportion (36.4%: 32.3–40.7) showed a suboptimal attitude score but the majority of the participants have adopted positive behaviours such as frequently washing hands (88.4%) and wearing masks in appropriate places (91.6%). The major sources for information regarding COVID-19 among the participants were the news media (54.0%) followed by social media (23.2%). **Conclusion:** As a significant proportion of the participants showed a poor knowledge score and gaps in specific aspects related to COVID-19, the primary care physicians have a significant role to play to improve community knowledge by educating specific groups such as the males and elderly by using appropriate news media and social media platforms.

Keywords: COVID-19, key practices, northern Sri Lanka, Outpatient Department

Introduction

The novel coronavirus was first identified in Wuhan, China, in December 2019, and since then, it has spread globally and many

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Received: 24-03-2021

Revised: 05-07-2021

Accepted: 15-07-2021

Published: 05-11-2021

countries are still battling with the spread in the mid of 2021. On March 12, 2020, the World Health Organisation (WHO) declared COVID-19 as a global pandemic and a public health emergency.^[1,2] As of July 8, 2021, over 180 million cases of COVID-19 with around 4 million deaths all over the world,^[3] and in Sri Lanka 267,433 cases and 3,313 deaths, have been identified.^[4]

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How to cite this article: Hathurusinghe HM, Suganthan N, Sujanitha V, Rajeshkannan N. A study on knowledge, attitude and practices towards the COVID-19 pandemic among the non-COVID-19 patients at Outpatient Department in a Teaching Hospital, Northern Sri Lanka. *J Family Med Prim Care* 2021;10:3772-9.

Access this article online

Quick Response Code:



Website:
www.jfmpc.com

DOI:
10.4103/jfmpc.jfmpc_552_21

Coronaviruses are large, enveloped, single-stranded Ribonucleic acid (RNA) viruses. Four human coronaviruses have been identified as the common causes of respiratory diseases. Three new coronaviruses have emerged as a result of the genetic recombination that include MERS-CoV (Middle East respiratory syndrome), SARS-CoV (severe acute respiratory syndrome) and SARS-CoV-2.^[5] The COVID-19 infection can be asymptomatic (incubation period 2–14 days) and 80% of the time manifests with mild symptoms. The symptoms include fever, cough, sore throat, runny nose, tiredness, body ache, shortness of breath, loss of taste and smell, diarrhoea, and more adversely in some cases, it leads to respiratory failure, stroke, sepsis and kidney failure.^[5,6] It is mainly transmitted by direct contact with infected secretions or large aerosol droplets.^[5,6]

Many preventive strategies were adopted in Sri Lanka including the closing of public places and establishing quarantine centres to keep the local close contacts and passengers who arrive in Sri Lanka. The Sri Lankan government authorities also imposed a strict lock down in districts or police divisional areas and the public was encouraged to stay indoors and work from home. In spite of the vigilant preventive measures in Sri Lanka, a second wave from a cluster started in October 2020 with the numbers increasing day by day. This emphasised the need for better knowledge regarding the disease and preventive measures among the public to avoid the rapid spread of the disease. The knowledge of the disease can influence public readiness and preparedness and adherence to preventive measures.^[7-13] The assessment and appropriate education will help to reduce the acquiring infections and also to utilize the health services efficiently without burdening the health system and roll out vaccines to all the people of Sri Lanka.

Materials and Methods

Study design

This cross-sectional study was conducted over 1 month from September 1, 2020, to October 1, 2020, at the Outpatient Department (OPD) of Teaching Hospital Jaffna, Sri Lanka.

Study setting

The non-COVID-19 patients aged 15 and above, attending OPD of the Teaching Hospital Jaffna to seek medical attention for various illnesses were included in this study.

Recruitment procedure

The sample size was estimated using the estimate a proportion formula.^[14]

$$n = \frac{z^2 \times P(1-P)}{d^2}$$

z : value at 95% confidence level is 1.96

Acceptable difference (d) = 0.05 (5%)

As there was no previous study conducted in Sri Lanka and the studies done in other countries showed various levels of knowledge, attitude and practice among the participants, it 50% was taken as the assumed proportion (P) to give the maximum sample size.^[14] The sample size was inflated to 425 after considering the non-response rate of 10%.

Sampling method

According to the annual health statistics, 328,503 patients attended the Outpatient Department of the Teaching Hospital Jaffna in 2017.^[15] It was expected that approximately 3,000 patients would attend the outpatient department during the study period and so a representative systematic random sampling method was used to recruit the participants.

Study instrument and scoring system

The questionnaire was prepared based on the literature review and pretested. Subsequently, it was modified based on the responses received from the pre-test and feedback from the Ethical Review Committee.

To measure the knowledge towards COVID-19, 16 questions were given with three options that included “True”, “False” and “Do not know”. Similarly, answers related to attitude (8 questions) and practices (9 questions) were given three options to the participants namely “Agree”, “Disagree” and “No opinion” and “True”, “False” and “No opinion”, respectively. Correct, incorrect and do not know answers were given 3, 2, and 1 points, respectively. The score ranges were 16–48 for knowledge, 8–24 for attitude and 9–27 for practices.

Data collection and statistical analysis

The ethical clearance was obtained from the Ethical Review Committee of the Post Graduate Institute of Medicine, University of Colombo. The permission to carry out this study was obtained from the Director, TH, Jaffna and written consent was obtained from the participants after explaining the purpose and the nature of the study. The participants were asked to fill the questionnaire. Further, trained assistants were made available in the vicinity in order to assist in filling up the questionnaires.

The data were analysed using version 26 SPSS. Descriptive statistics were calculated and cross-tabulated. T-test was used to compare the mean values of the groups. One-way analysis of variance (ANOVA) and Chi-square test were utilised to determine the differences between the groups of selected variables. Pearson’s correlation analysis was used to compare correlations between knowledge, attitude and practices scores. A P value less than 0.05 was considered statistically significant.

Results

Out of the 500 participants surveyed, the majority were females (67.8%), the mean age was 36.99 (15–85) and 62.2% of them were in the age group of 18–44 years and 4.2% were

above 65 years of age. Although a majority did not disclose the income, 76 participants (15.2%) reported low income. Most of them completed secondary schooling (63.2%) and 7.8% did not attend school. Most of the participants were homemakers and 21.2% were unemployed [Table 1].

Basic facts with regards to COVID-19

The basic facts with regards to COVID-19 were assessed by seven questions initially before using the scoring system and the results are summarised in Table 2. Out of the 500 participants, 88.8% were aware of COVID-19 and 83.8% of them knew that COVID-19 is a contagious disease. Further 72.2% correctly identified that the infective agent is a virus. Only 27.4% answered correctly for the incubation period (2–14 days). A majority of them (79.6%) correctly said that the most vulnerable group for COVID-19 is the people who were aged above 50 years. With regards to treatment, 30.4% do not know the treatment while 16% reported symptomatic treatment and 13% reported no treatment.

Source of information

A majority of the participants reported news media (54.0%) as the main source of information regarding COVID-19, followed by 23.2, 12.0, 10.0 and 0.8% from the social media or Internet, family or friends, healthcare workers and scientific journals, respectively [Figure 1].

Assessment of Knowledge with regards to COVID-19

The assessment of knowledge regarding COVID-19 (symptoms, transmission, severity and prevention) among the participants was assessed by using a set of 16 questions based on the correct answers and scoring system, the summary of the assessment score is tabulated in Table 3.

The mean total knowledge among the participants was 42.41 (22–48). The median score was 43 which was used to classify the participants into two categories namely suboptimal knowledge and optimal knowledge. A significant proportion of the participants showed (44.4%: 40.1–48.8) suboptimal knowledge in regards to COVID-19 [Table 6]. The analysis in the differences in the knowledge scores among different

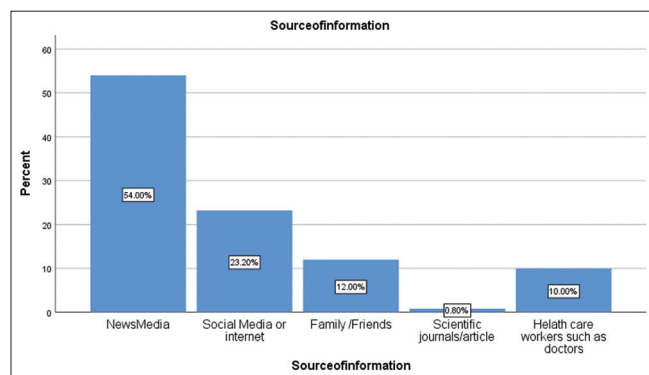


Figure 1: Main information source for the COVID-19 disease among the participants (N: 500)

demographic factors revealed that gender ($P: 0.027$) and age of the participants ($P < 0.001$) have shown significant influence on the knowledge. The knowledge score among the females (42.68) was higher than the males (41.84). Further, the knowledge score was high (43.23) among the age group of 45–64 and low (39.91) in the participants aged 65 and above. Similarly, the knowledge

Table 1: Sociodemographic characteristics of the participants (n=500)

Characteristic	Categories	Number	Percentage
Gender	Male	161	32.2
	Female	339	67.8
Age	Under 18	33	6.6
	18-44	311	62.2
	45-64	134	26.8
	65 and above	22	4.2
Income	<Rs 16,162	76	15.2
	Rs 16,163-57,499	33	6.6
	Missing value***	391	78.2
Educational Status	Not attended school	39	7.8
	Primary	71	14.2
	Secondary	316	63.2
Employment status	Tertiary	74	14.8
	Currently employed	145	29.0
	Unemployed	106	21.2
	Homemakers	211	42.2
	Retired	38	7.6

***A significant proportion of the participants did not disclose the income

Table 2: Assessment of the basic facts regarding COVID-19 among the participants (n=500)

Question	Response	n	Percentage
I am aware about the COVID-19 (Corona virus)	Yes	444	88.8
	No	56	11.2
It is a contagious disease	True	419	83.8
	False	34	6.8
	Do not know	47	9.4
What causes COVID-19	Bacteria	16	3.2
	Virus	361	72.2
	Fungus	13	2.6
	Parasite	9	1.8
	Immune deficiency	35	7.0
	Do not know	66	13.2
Incubation period of the COVID-19 disease	Less than 2 days	22	4.4
	2-14 days	137	27.4
	More than 14 days	228	45.6
	Do not know	113	22.6
Main treatment of COVID-19	Symptomatic treatment	80	16.0
	Antibiotic therapy	25	5.0
	Antiviral therapy	48	9.6
	Vaccine	68	13.6
	Herbal/Ayurveda therapy	62	12.4
	No treatment	65	13.0
Age group badly affected by the COVID-19 infection	Do not know	152	30.4
	Under 15 years	38	7.6
	15-30 years	24	4.8
	30-50 years	40	8.0
	Above 50 years	398	79.6

score of the housewives was high (42.84) compared to other employment categories. But no significant differences were noted among educational status ($P: 0.076$), employment status ($P: 0.092$) and income ($P: 0.99$) of the participants [Table 7].

Assessment of attitude

A majority of the participants (81.4%) reported a positive attitude towards the role of health education on COVID-19. Three hundred and sixty-one participants (72.2%) showed an agreeable attitude towards restricting travel to and from the COVID-19 disease-affected areas and 88.8% of them agreed that the appropriate authorities should be ready to lock down the city if COVID-19 cases increase. Also, a majority (52.8%) of them agreed that mild cases of COVID-19 could be treated at home [Table 4]. The mean total attitude score among the participants was 21.31 with the range 10–24. The median score was 22 which was used to classify the participants as having a suboptimal or optimal attitude towards COVID-19. Most of the participants (63.6%; 95% CI: 59.3–67.7) showed a positive attitude regarding COVID-19.

Assessment of practices among participants

The mean for the total score of the practices was 24.83 (SD +2.57) with the range of 15–27. The median score

was 26 which was used to classify the participants into two categories (suboptimal and optimal practices towards COVID-19). A significant proportion of the participants (44.8%; 95 CI: 40.5–49.2%) showed suboptimal practices based on the total score. When considering some of the key preventive practices such as washing hands frequently with soap and water or using hand sanitisers (88.4%), using masks in places such as public transport (91.6%) and staying at home if having symptoms (93.6%), a majority of the participants' practices were appropriate [Table 5]. Further analysis was done to explore the effect of the sociodemographic variable on the above key practices and the results are summarised in Table 8. Handwashing practice significantly varied with gender ($P: 0.02$), educational status ($P: 0.002$) and age ($P < 0.001$). Similarly, the practice of staying at home when a person is sick was significantly associated with age ($P < 0.001$), and employment ($P < 0.001$) but not significantly associated with education ($P: 0.189$) and gender ($P: 0.067$). The practise of wearing masks in appropriate places did not significantly differ with any sociodemographic variables such as gender, age, educational status or employment ($P > 0.05$).

Further analyses were performed to study the correlation between knowledge, attitudes and practices based on the scores

Table 3: Assessment of knowledge among the participants (n: 500)

Question	True	False	Do not know
Common symptoms of COVID-19			
1. Fever	464 (92.8%)	19 (3.8%)	17 (3.4%)
2. Dry Cough	477 (95.4%)	6 (1.2%)	17 (3.4%)
3. Sore throat	428 (85.6%)	21 (4.2%)	51 (10.2%)
4. Body aches and pain	323 (64.6%)	62 (12.4%)	115 (23.0%)
5. Headache	314 (62.8%)	93 (18.6%)	93 (18.6%)
6. Fatigue and tiredness	284 (56.8%)	79 (15.8%)	137 (28.4%)
7. Before I visit a doctor, I will call in advance or I will call and ask the Public Health Inspector (PHIs), PHMs (Public Health Midwives), MOH (Medical Officer of Health)	373 (74.6%)	83 (16.6%)	44 (8.8%)
8. During COVID-19 infection, avoid unnecessary daily activities and stay at home	430 (86.0%)	49 (9.8%)	21 (4.2%)
9. Avoid contact with suspected COVID-19 persons to avoid contracting COVID-19	447 (89.4%)	20 (4.0%)	33 (6.6%)
10. The number of cases of the COVID-19 disease is increasing in Sri Lanka	315 (63.0%)	112 (22.4%)	73 (14.6%)
11. Handwashing with water and soap or hand sanitisers to avoid the disease	427 (85.4%)	8 (3.6%)	55 (11.0%)
12. COVID-19 can be transmitted directly through cough	412 (82.4%)	38 (7.6%)	50 (10.0%)
13. The disease can be transmitted through contact with infected surfaces	417 (83.4%)	42 (8.4%)	41 (8.2%)
14. The disease can be contracted through the consumption of contaminated milk products and meat/fish	197 (39.4%)	171 (34.2%)	132 (26.4%)
15. The disease is more dangerous in people with cancer, diabetes and chronic respiratory diseases	338 (67.6%)	37 (7.4%)	125 (25.0%)
16. COVID-19 (Corona virus) can cause death	427 (85.4%)	22 (4.4%)	51 (10.2%)

*Correct answers in bold

Table 4: Participants' attitude assessment (n: 500)

Questions	Agree	Do not agree	No Opinion
In my opinion			
Early detection of COVID-19 can improve the treatment outcomes	414 (82.8%)	37 (7.4%)	49 (9.8%)
COVID-19 can be treated at home	264 (52.8%)	188 (37.6%)	48 (9.6%)
Health education can help prevent COVID-19	407 (81.4%)	42 (8.4%)	51 (10.2%)
COVID-19 is a serious disease	403 (80.6%)	25 (5.0%)	72 (14.4%)
COVID-19 can be avoided by proper preventive measures	339 (67.8%)	15 (3.0%)	146 (29.2%)
Government should restrict travel to COVID-19-affected areas to prevent contamination	361 (72.2%)	36 (7.2%)	103 (20.6%)
Health officials should isolate COVID-19 patients in special hospitals	407 (81.4%)	2.6 (5.2%)	67 (13.4%)
If the COVID-19 cases increase, the government should be ready to lock down and quarantine the city	444 (88.8%)	31 (6.2%)	25 (5.0%)

Table 5: Participants' practices assessment (n: 500)

Questions	Yes	No	No comment
Stay at home when sick or having symptoms such as cough, sneezing	469 (93.8%)	24 (4.8%)	7 (1.4%)
Avoid unnecessary holidays trips	465 (93.0%)	28 (5.6%)	7 (1.4%)
Avoid consuming takeaway foods to contract COVID-19	394 (78.8%)	79 (15.8%)	27 (5.4%)
Avoid handshaking, hugging and kissing to avoid contracting diseases	445 (89.0%)	18 (3.6%)	37 (7.4%)
When accidentally coughing or sneezing, using elbow to protect others	397 (79.4%)	45 (9.0%)	58 (11.6%)
Washing hands with soap and water or use hand sanitisers	442 (88.4%)	23 (4.6%)	35 (7.0%)
Wearing face masks in appropriate situations such as travelling in a public transport	456 (91.6%)	16 (3.2%)	26 (5.2%)
Using herbal products (ginger, garlic) and traditional medicines to prevent contracting the COVID-19 disease	402 (80.4%)	52 (10.4%)	46 (9.2%)
Taking vitamin supplements such as vitamin D to prevent COVID-19	290 (58.0%)	80 (16.0%)	130 (26.0%)

Table 6: Levels of KAP regarding COVID-19 among the participants in Northern Sri Lanka

Variable	No Questions Considered	Score Range	Total Score		Level of knowledge (%: 95% CI)	
			(Mean±SD)	Median	Suboptimal (n; %: CI)	Optimal (n; %: CI)
Knowledge Score	16	22-48	42.41 (3.99)	43	222 (44.4%: 40.1-48.8)	278 (55.6%)
Attitude Score	8	10-24	21.31 (2.35)	22	182 (36.4%: 32.3-40.7)	318 (63.6%)
Practice Score	9	15-27	24.83 (2.57)	26	224 (44.8%: 40.5-49.2)	276 (55.2%)

Table 7: Sociodemographic characteristics of the patients with knowledge score (n: 500)

Variables	Categories	Number	Knowledge score (SD)	t/F	P
Gender	Male	161 (32.2%)	41.84 (3.98)	t -2.225	0.027***
	Female	339 (67.8%)	42.68 (3.97)		
Age	Under 18	33 (6.6%)	42.12 (4.07)	F-6.121	P<0.001***
	18-44	311 (62.2%)	42.37 (4.05)		
	45-64	134 (26.8%)	43.23 (3.38)		
	65 and above	22 (4.2%)	39.91 (4.92)		
Income	<Rs 16,162	76 (15.2%)	42.61 (3.88)	t -0.001	P-0.999
	Rs 16,163-57,499	33 (6.6%)	42.61 (3.20)		
Educational status	Not attended school	39 (7.8%)	41.67 (3.80)	F-2.307	P-0.076
	Primary	71 (14.2%)	41.46 (4.07)		
	Secondary	316 (63.2%)	42.66 (4.05)		
	Tertiary	74 (14.8%)	42.65 (3.59)		
Employment status	Currently employed	145 (29.0%)	41.94 (4.25)	F-2.148	0.093
	Unemployed	106 (21.2%)	42.51 (3.92)		
	Homemakers	211 (42.2%)	42.84 (3.65)		
	Retired	38 (7.6%)	41.53 (4.72)		

***Statistically significant at 5% level

towards COVID-19 and it showed there was a significant positive correlation among the participants' knowledge and attitude ($r = 0.377$), knowledge and practice ($r = 0.347$) and attitude with practice score ($r = 0.373$), and these results are statistically significant ($P < 0.001$).

Discussion

At present, the rapid increase in the COVID-19 disease is a crucial public health challenge for many countries across the globe. No effective treatment has been developed yet even though a few, such as dexamethasone, have been tried as an adjunctive treatment for selected patients^[16] and only a small amount of the vaccine has been given to the Sri Lankan public at present (4). Therefore, preventive measures are the best available options to combat the COVID-19 spread. Better control of the COVID-19 spread could be achieved through increasing the population

KAP towards SARS-COV-2 infection.^[17] Many countries across the globe implemented several preventive measures such as lock downs, contact tracing and isolation or quarantine and promotion of key preventive measures including respiratory etiquette, social distancing and handwashing. In spite of that the SARS-COV-2 infection is increasing alarmingly daily. So, successful control and reducing the deaths due to COVID-19 warrant changing the behaviour of the public by improving the people's poor knowledge and understanding regarding the COVID-19 disease.^[18] Consequently, understanding the KAP and the possible risk factors are mandatory which will help for better planning according to the behaviours on COVID-19.

In the present study, a majority of the participants were females (67.8%), aged 18–44 (62.2%), completed secondary education (63.7%) and 88.2% of them were aware of COVID-19. Similarly, studies conducted in the Asian and African

Table 8: Sociodemographic characteristics of the participants and key practices towards COVID-19 (N: 500)

Sociodemographic variable	Handwashing		Wearing masks		Stay at home when sick	
		Statistics		Statistics		Statistics
Gender						
Male (161)	145 (90.1%)	Chi-square: 7.79, <i>P</i> -0.02	148 (91.9%)	Chi-square: 0.034, <i>P</i> -0.983	146 (90.7%)	Chi-square: 5.543, <i>P</i> -0.061
Female (339)	297 (87.6%)		310 (91.4%)		323 (95.3%)	
Education						
Not attended school (39)	36 (92.3%)	Chi-square: 21.18, <i>P</i> -0.002	38 (97.4%)	Chi-square: 4.759, <i>P</i> -0.575)	33 (84.6%)	Chi-square: 8.742, <i>P</i> -0.189
Primary (71)	54 (76.1%)		63 (88.7%)		67 (94.4%)	
Secondary (316)	286 (90.5%)		287 (90.8%)		298 (94.3%)	
Tertiary (74)	66 (89.2%)		70 (94.8%)		71 (95.9%)	
Employment status						
Unemployed (145)	130 (89.7%)	Chi-square: 12.22, <i>P</i> -0.057	136 (93.8%)	Chi-square: 7.851 <i>P</i> -0.249	134 (92.4%)	Chi-square: 27.962, <i>P</i> <0.001
Currently employed (106)	92 (86.8%)		100 (94.3%)		101 (95.3%)	
Homemakers (211)	190 (9.0%)		190 (90.0%)		200 (94.8%)	
Retired (38)	30 (78.9%)		32 (84.2%)		34 (89.5%)	
Age						
<18 years (33)	22 (66.7%)	Chi-square: 37.04, <i>P</i> <0.001	31 (93.9%)	Chi-square: 8.88, <i>P</i> -0.182	31 (93.9%)	Chi-square: 27.494, <i>P</i> <0.001
18-44 years (311)	274 (88.1%)		290 (93.2%)		293 (93.9%)	
45-64 years (134)	128 (95.5%)		120 (89.6%)		129 (96.3%)	
65 and above (22)	18 (81.8%)		17 (77.3%)		17 (77.3%)	

countries also demonstrated high knowledge with regards to COVID-19^[12,18-23] although direct comparison is difficult as the populations targeted differed between studies. In the present study, a majority of the patients (83.8%) correctly mentioned that COVID-19 is a highly contagious infection and 72.2% stated that this is caused by a virus, while 13.2% could not recognise a probable cause. The transmission methods and COVID-19 symptoms were well recognised by most of the respondents but not during the incubation period. Regarding the knowledge of the symptoms—fever, cough and sore throat are the most recognised symptoms related to COVID-19, while fatigue and body ache are the least recognised symptoms. As per the guidelines of the Ministry of Health, Sri Lanka, patients suspecting being infected with COVID-19 infection should contact the Health Promotion Bureau through the given hotline number to get a quarantine room in the allocated hospital.^[24] But 19.6% of the participants did not agree or reveal any opinion regarding the isolation of COVID-19 patients in special hospitals. Also, 99.2% of the participants believed that everyone is at risk of contracting the COVID-19 disease. Akwa *et al.*^[25] reported in a study that more than 80% of the respondents knew about the common modes of transmission such as person to person contact and contact with infectious droplets. The present study showed a high knowledge of disease transmission as 82.4% of them reported to being aware of direct transmission through cough and 83.4% identified that the disease can be transmitted directly through cough and touching infected surfaces, while, 39.4% reported that they believed that the disease could be contracted through the consumption of contaminated milk products, meat or fish though there is no evidence of such transmission.^[26] This could be due to invalidated information spread through the news media and social media. These facts need to be considered while implementing health education for the public. Further, this study also revealed that male gender (*P*: 0.017) and age 65 and above (*P* < 0.001) were the main associated factors with poor knowledge and

similar findings observed in the other studies.^[9,27] In addition, a majority of the participants reported news media (54.0%) as the main source of information followed by social media (23.2%) regarding COVID-19.

The knowledge of the public is essential for prevention strategies, developing desired behaviours by creating positive attitudes towards the disease. This survey showed a significant positive correlation among the participants' KAP (*P* < 0.001). A majority of the patients (69%) had a high attitude score towards health-seeking behaviour and 60.8% adopted necessary measures such as avoiding public places, wearing face masks and regular handwashing stipulated by the WHO.^[28]

In terms of practice, the majority of the participants have begun adopting positive behaviour. Examples are avoiding unnecessary holiday visits (93%), frequent handwashing (88.4%) and wearing face masks in appropriate situations (91.6%) and similar findings were noted in a study in Nigeria.^[29] The high rate of recommended practices could be mainly due to the very strict law implementation by the government regarding mask-wearing and handwashing in common public places. But when the country is ready to open for business as usual, appropriate mask-wearing is needed to be successful. This needs permanent behavioural modification among the public, especially where social distancing may be compromised in face-to-face service places like the banks, supermarkets, leisure places such as bars and restaurants and religious places such as the temple and churches. So, continuous education by health professionals is essential to improve the public knowledge. As people approach family physicians in the first instance and trust them compared to public health organisations,^[30] the physicians have an important role in educating them regarding COVID-19, specifically gaps and myths related to COVID-19 and targeting specific groups such as the males and elderly. In addition, as majority of the

participants declared news and social medias as the main source of information, effective use of the medias would be beneficial to improve the knowledge, altitude and practices among the population to overcome the covid pandemic.

Limitations

This study was conducted among the patients attending the Outpatient Department of the Teaching Hospital Jaffna which is the only tertiary care centre in northern Sri Lanka. The authors believe that it represents an adequate unbiased sample population representing the Jaffna general population. However, the findings of this study should be interpreted with caution before implementing in a generalised way as it may underrepresent the population which has poor health-seeking behaviour. Most of the participants did not disclose their income and we were unable to analyse the effect of the income status on the knowledge with regards to COVID-19.

Conclusion and Recommendation

Although a majority of the participants reported many correct practices and positive attitude towards the COVID-19 pandemic, there was a significant proportion of the participants who had suboptimal knowledge with some gaps in specific aspects. As the number of patients affected by the COVID infection is increasing, further targeted continuous public education for specific groups such as males and age group 65 and above by the primary care physicians is essential in addition to the other containment measures to bring down the spread of this virus. Furthermore, different modes of news media and social media were mentioned as the important sources of information of COVID-19 by the patients. These platforms could be appropriately used by family physicians in delivering the appropriate knowledge regarding the COVID-19 pandemic to the general public to mitigate the spread of COVID-19.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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