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Knowledge, Attitudes and Practices Regarding Long Term Complications of COVID-19 among an Urban Population in Sri Lanka

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ABSTRACT

Background: *Recently, a surge of COVID 19 was observed globally, regionally, and nationally. With increasing numbers of cases, the frequency of long COVID is on the rise. Management and control of long COVID depend on changes in respect of human behaviours and require an understanding of Knowledge, Attitudes, and Practices (KAP) regarding health threats.* ***Methods:*** *A descriptive cross-sectional study using an online survey to gather data on the socio-economic background, knowledge, attitudes, and practices on long-term complications of COVID.* ***Results:*** *Out of 201 respondents, 89.2% of participants have heard about long-term complications of COVID 19. Only 35.9% have demonstrated adequate knowledge in the questions relating to co-morbidities and risk factors of COVID-19. A total of 92.2% believe that they should adhere to preventive measures following vaccination. Less than 60% were following the advice on avoiding unnecessary travel and crowded places. Further, less than 50% were following COVID preventive measures.* ***Conclusion:*** *Although the majority of participants have heard about long-term complications and common symptoms, the knowledge regarding co-morbidities that can lead to severe disease and long COVID was not satisfactory. The attitudes of the participants indicated increasing concern about long COVID. Practices indicate a lack of adherence to key measures such as avoiding crowded places. These findings highlight the need for further increasing of awareness.*

Keywords: Long COVID, COVID-19 vaccination, COVID awareness

INTRODUCTION

The first outbreak of COVID-19 was identified in December 2019 from Wuhan City in Hubei Province of China and in January 2020 the World Health Organization (WHO) declared it as a Public Health Emergency of International Concern. The first case of COVID-19 in South Asia was identified in January 2020, and in March 2020 COVID-19 was declared a pandemic by WHO. Sri Lanka reported its first case on 28th January 2020 [1].

The COVID-19 disease is caused by the SARS-CoV-2 virus which has given rise to several variants in recent months. The latest variants are found to be spreading faster and have given rise to the increased number of positive cases and mortality rates in recent months [2]. This is evident with the global statistics whereas at the first week of September 2021, almost 220 million cumulative cases have been recorded, with 4.5 million deaths worldwide [1]. As of the first week of October, Sri Lanka has recorded a total of 517882 COVID-19 positive cases with a mortality burden of 12907 deaths [3].

As with other respiratory illnesses, infection with the SARS-CoV-2 virus can cause mild symptoms including a runny nose, sore throat, cough, and fever. It can be more severe for some persons and can lead to pneumonia. In other cases, the disease can be fatal, especially in older people, and those with pre-existing medical conditions who are at higher risk of getting complications [4,5].

The incubation period is from 2 to 14 days with an average of 5 days. Most patients recover within two weeks whereas the progress of those with severe complications can take a longer time with a poor prognosis. After recovery, some patients may experience post-COVID symptoms. These symptoms are multi-system and can range from mild to moderate to severe and debilitating. This phenomenon is generally known as “long COVID” [5,6].

The exact mechanism of long COVID is yet to be understood. However, the occurrence and severity of post-COVID symptoms are related to multiple factors such as the virulence of the virus, host immune response, severity of the disease, vaccination status, existing co-morbidities, and management of the initial infections [5].

To design effective management and control strategies of long COVID, there should be adequate information on the knowledge, attitudes, and practices of people. Research has identified that age, educational level, and other socioeconomic factors amongst many others have a notable impact on the knowledge, attitudes, and practices regarding COVID-19. Even though several studies have been carried out on preventive and control measures of COVID-19, there is a paucity of evidence regarding long COVID [7,8].

In light of this limited information regarding long COVID, we assessed the awareness of the long-term health effects of COVID-19, and Knowledge, Attitudes, and Practices regarding COVID-19 among the general public in a cross-sectional online study carried out within two months. The findings of this study shall be beneficial to inform the design of effective management and control strategies for long COVID. Further, the findings will be helpful in the evaluation of the effectiveness of the COVID-19 vaccination.

METHODS

Aim, Design, and Setting of the Study

An online survey of a pre-determined questionnaire was used to gather data on the socio-economic background, knowledge, attitudes, and practices on long-term complications of COVID. The questionnaire was administered as a Google form and shared on social media platforms Whatsapp and Facebook and participants who were living in the Colombo district were invited to participate. In addition, the telephone conversation was used for participants who did not have access to internet facilities the online questionnaire was available from early August to mid-September 2021.

A brief description of the investigators, study questionnaire, the purpose of study, study duration and participant responsibilities, risks and benefits, and confidentiality were given before filling the questionnaire. The participation was entirely voluntary and anyone could withdraw from the study at any time if they were not willing to proceed further. Ethical clearance for the study was obtained from the Ethical review committee, Faculty of Medicine, University of Colombo, Sri Lanka.

Questionnaire Design Process

The first section of the questionnaire consisted of items on socio-demographics, such as age, ethnicity, level of education, gender, employment status, and economic level.

The rest of the questionnaire was divided into five parts which assessed the following:

- knowledge about COVID-19 (1.1: co-morbidities and risk factors, 1.2: complications, and 1.3: long COVID symptoms)
- Attitudes on COVID-19
- Practices about COVID-19
- any personal experience with COVID-19 diagnosis or quarantine during the past 3 months
- vaccination history of the participant

Questions related to knowledge had three options, “yes/no/don’t know”. There were a total of forty-eight knowledge questions, and for each item, a score of 1 was given for ‘yes’ and a score of 0 for ‘no’ and ‘don’t know. An individual score of less than 40% was taken as inadequate, while the score of 40% or higher was counted as adequate.

For the ten questions related to attitudes, five options were ranging from strongly disagree to strongly agree. A descriptive approach was employed in examining this data. There were fifteen practice questions, each of which had five options that ranged from never to always. The individual scores ranged as 0 for never, 1 for rarely, 2 for sometimes, 3 for frequently, and 4 for always. An overall score of 40% or higher was as taken as adequate.

Statistical Analysis

The descriptive analysis of percentages (%) was used to present demographic characteristics regarding the level and distribution of knowledge, attitude, and practice toward COVID-19. Non-parametric tests were used to explore the association between demographic characteristics variables and COVID-19 knowledge scores. All data were analyzed using Microsoft Excel 2010 and SPSS 20.0, with $p<0.05$ considered statistically significant.

RESULTS

Demographic Characteristics

The results of the online questionnaire turned out an overall response from 201 respondents, of which 92 filled the questionnaire in English language and 105 respondents filled it in Sinhala language. The participants comprise a majority of females than male participants with several 52.7% and 47.2% respectively.

The majority of the participants have answered most of the questions with a high response rate. The highest number of 22.3% of respondents is of the less than 25 years group. This is closely followed by 21.8% in the age group 26-35 years, 16.5% in the 46-55 years group, 16.1% in 36-45 years, 12.9% in the 56-65 years group, and lastly 10.4% in the 66 years and above group.

Knowledge

The results of this survey reveal that 89.2% of participants have heard about Long term complications of COVID-19. This comprises of different information sources, with the highest of 59.5% from television, 32.4% from internet, 5.7% from health care workers and only 2.9% from Newspapers/Magazines.

The responses of 26.2% of respondents have indicated that they do not know the answers to at least 10 of the total of 48 questions of the knowledge section. Only 35.9% have demonstrated adequate knowledge in the questions relating to co-morbidities and risk factors of COVID-19. Over 60% were aware of common symptoms of long COVID such as breathlessness, cough, joint pains, muscle aches, headache, fatigue, and feeling weak. Less than 20% were aware of symptoms such as insomnia, nightmares, weight changes, skin rashes (Figures 1-3).

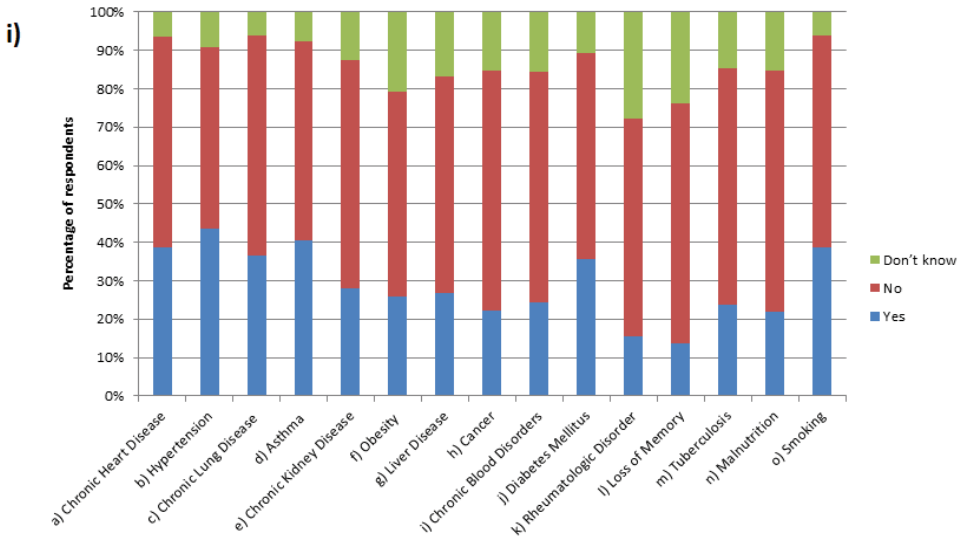

Figure 1 Knowledge regarding co-morbidities and risk factors of COVID-19

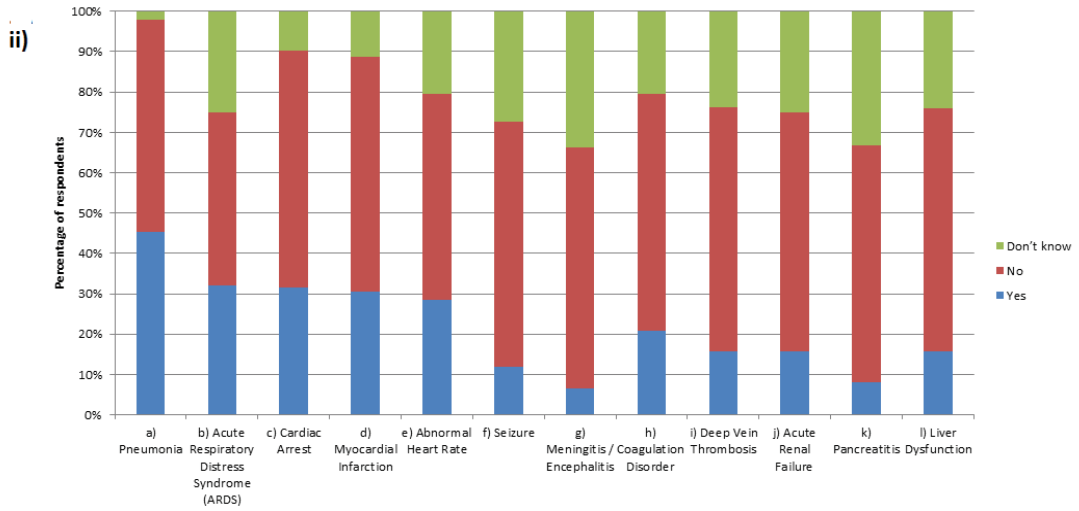

Figure 2 Knowledge regarding complications of COVID-19

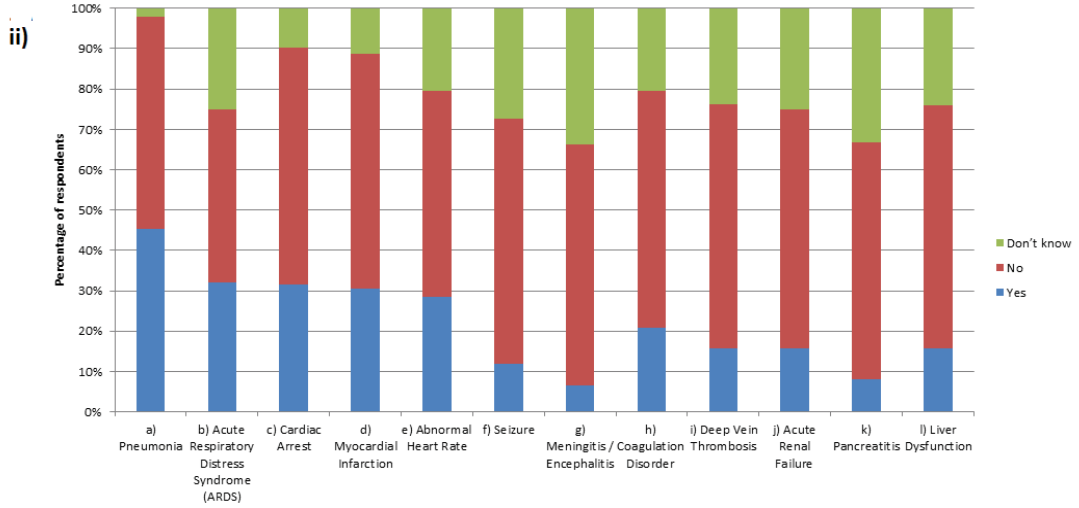

Figure 3 Knowledge regarding long COVID symptoms

Attitude

The majority of the respondents believed that COVID-19 should be taken into serious consideration, with 15.8% agreeing and 73.9% strongly agreeing with the statement. A total of 92.2% agrees that they believe that they should adhere to preventive measures following vaccination.

Most (85%) of the respondents believe that people who are sick with COVID-19 must not be afraid to tell others that they have the disease. Over 80% believe that it is embarrassing to have COVID-19. However, less than 5% feel that people who are sick with COVID-19 should be rejected by society.

The majority of respondents (72%) feel they are vulnerable to COVID-19. A cumulative majority of 84.5% are concerned about getting infected with COVID-19.

Practice

Over 60% stated that they get medical advice when not feeling well. Nearly 90% wear a mask when they go out. Less than 60% were following the advice on avoiding unnecessary travel and crowded places. Further, less than 50% were following instructions on performing hand hygiene immediately after discarding a mask, keeping a distance of 1 m or

more between each other when staying outside, and regularly cleaning hands with alcohol-based hand rub/wash with soap and water (Figure 4 and Table 1).

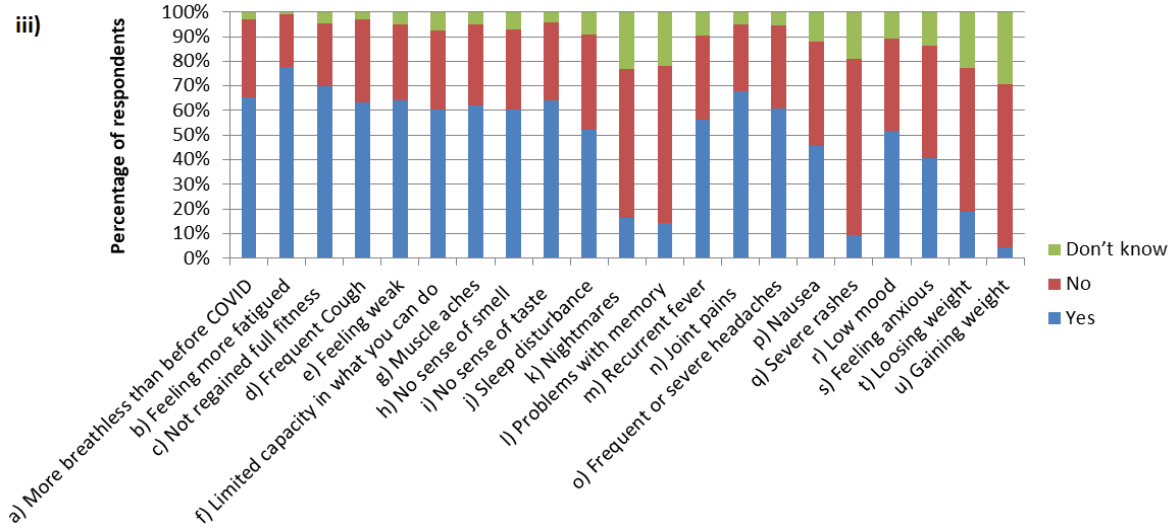

Figure 4 Responses for questions on practices

Table 1 Questions on practices

	Practices used
1	Getting medical advice when not feeling well
2	Maintain healthy eating
3	Physical exercise
4	Follow medical advice when not well
5	Regularly clean hands with alcohol-based hand rub/wash with soap and water
6	Covering the mouth and nose with bent elbow/tissue when sneezing/coughing
7	Cleaning/disinfecting frequently touched surfaces
8	Refraining from frequently touching the face
9	Wearing a mask whenever going outside
10	Ensuring that mouth and nose are covered properly
11	Performing hand hygiene immediately after discarding a mask
12	Keeping a distance of 1 m or more between each other when staying outside
13	Avoiding unnecessary travels
14	Avoiding crowded places
15	Avoiding physical contact when meeting people

DISCUSSION

Although our results reveal that the greater majority of participants had heard about the complications of COVID-19, the results conversely demonstrate a lack of knowledge about the modes of transmission and clinical manifestations of COVID-19. These further include the lack of knowledge of comorbidities and risk factors such as diabetes, obesity, chronic heart or lung disease, hypertension and asthma can lead to severe disease if infected. This raises a concern regarding the effectiveness of health education conveyed by electronic media. However, it should be noted that a greater majority had responded adequately to the knowledge questions relating to the complications of COVID-19 [9].

The knowledge on long COVID symptoms is an area that is not much known among the respondents with just over half displaying adequate knowledge. This may be due to the short duration of the pandemic, past one and a half years, and people are not aware of the long-term consequences such as insomnia, nightmares, weight changes, skin rashes. However, they are potentially debilitating symptoms that would need to be addressed and educated among the general public.

The attitudes of participants show a combination of favourable responses, with the majority agreeing on common principles to increase awareness of COVID situations. However, the specific responses relating to perceptions of the society towards those infected with the disease should be monitored closely so that the individuals and society do not suffer detrimental emotional situations.

The variable levels of adherence, especially related to social distancing and frequent hand washing or disinfecting hands, which are principal methods of prevention of COVID-19 raises serious concerns [10,11].

Sri Lanka has been under the control of several lockdowns and island-wide curfew periods since COVID-19 early 2020. Although there are many programs carried out to educate the general public, the success of such actions is still in question [9]. The knowledge, attitudes, and practices of people regarding a disease concern greatly vary within society [12].

The present study comprises several limitations, with the relatively small sample size and the responses mainly based on social media usage. Furthermore, the majority of respondents had been infected with COVID-19 and undergone treatment, thus the group does not adequately represent those who have not had that experience. Despite the limitations of the present study, including the short study period, the results bring insight into the knowledge of long COVID symptoms and prevalent knowledge, attitudes, and practices regarding COVID-19 amongst a study sample of residents in Colombo, Sri Lanka.

CONCLUSION

The study has identified gaps in the knowledge of long COVID symptoms and prevalent knowledge, attitudes, and practices regarding COVID-19 and long COVID. The identified needs further attention as a matter of urgency in the fight against COVID-19, especially in the light of the current global surge of COVID-19 cases and the emergence of new variants. Further, the success of the COVID-19 vaccination program depends on the adherence to preventive measures by the general public. A larger study extending beyond the Colombo district will help to understand the specific issues about different geographical and population segments and will contribute towards controlling COVID-19 in Sri Lanka and globally.

DECLARATIONS

Ethical Considerations

This project has been approved by the Ethics Review Committee, Faculty of Medicine, University of Colombo.

Conflict of Interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Availability of Data and Materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

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Authors' contributions

Indika Karunathilake and Chamindri Witharana proposed the research idea. Indika Karunathilake and Manuj Weerasinghe developed the tool. Data collection was carried out by Chamindri Witharana and Kithmini Siridewa.

Data analysis was done by Chamindri Witharana and Indika Karunathilake. All authors contributed to the writing of the manuscript. All authors read and approved the final manuscript.

REFERENCES

[1] World Health Organization. "Timeline: WHO's COVID-19 response." 2021. https://www.who.int/emergencies/diseases/novel-coronavirus-2019/interactive-timeline

[2] Centers for Disease Control and Prevention. "Delta variant: What we know about the science." 2021.

[3] World Health Organization. "COVID-19 weekly epidemiological update, edition 58, 21 September 2021." 2021.

[4] Baradaran, Ashkan, et al. "Prevalence of comorbidities in COVID-19 patients: A systematic review and meta-analysis." *Archives of Bone and Joint Surgery,* Vol. 8, No. Suppl 1, 2020, p. 247.

[5] Aiyegbusi, Olalekan Lee, et al. "Symptoms, complications and management of long COVID: A review." *Journal of the Royal Society of Medicine,* Vol. 114, No. 9, 2021, pp. 428-42.

[6] World Health Organization. "Statement for healthcare professionals: How COVID-19 vaccines are regulated for safety and effectiveness." 2021.

[7] Azlan, Arina Anis, et al. "Public knowledge, attitudes and practices towards COVID-19: A cross-sectional study in Malaysia." *Plos One,* Vol. 15, No. 5, 2020, p. e0233668.

[8] Afzal, Muhammad Sohail, et al. "Community-based assessment of knowledge, attitude, practices and risk factors regarding COVID-19 among Pakistanis residents during a recent outbreak: A cross-sectional survey." *Journal of Community Health,* Vol. 46, No. 3, 2021, pp. 476-86.

[9] Erandi, K. K. W. H., et al. "Effectiveness of the strategies implemented in Sri Lanka for controlling the COVID-19 outbreak." *Journal of Applied Mathematics,* Vol. 2020, 2020.

[10] Kusuma, Dian, et al. "Low uptake of COVID-19 prevention behaviours and high socioeconomic impact of lockdown measures in South Asia: Evidence from a large-scale multi-country surveillance programme." *SSM-Population Health,* Vol. 13, 2021, p. 100751.

[11] Chan, Emily Ying Yang, et al. "Narrative review of non-pharmaceutical behavioural measures for the prevention of COVID-19 (SARS-CoV-2) based on the Health-EDRM framework." *British Medical Bulletin,* Vol. 136, No. 1, 2020, pp. 46-87.

[12] Matthias, Anne Thushara, Mathotage Sathiesha Nihari Padmasiri, and Uduwaka Gam Aacharige Navoda Dharani. "Knowledge, attitudes, and practices on COVID-19 among medical students in Sri Lanka." *Asia Pacific Journal of Public Health,* 2021.