

|   |
|---|
| Access this article online  |
| Quick Response Code:  |
|  |
| Website:<br>www.jehp.net  |
| DOI:<br>10.4103/jehp.jehp_1637_21   |

# Knowledge, attitudes, and sociodemographic factors related to COVID-19 among older people living in the community in Malaysia

Sharifah Munirah Syed Elias, Nur Rasyidah Rohinmi<sup>1</sup>

## Abstract:

**BACKGROUND:** Although older people are at a higher risk of COVID-19 infection, there is a lack of research that focuses on COVID-19 in older people in Malaysia. Therefore, the aim of this study was to assess the level of knowledge and attitudes related to COVID-19, and to identify the association of sociodemographic background with knowledge and attitudes towards COVID-19 among older people.

**MATERIALS AND METHODS:** This is a cross-sectional study involving 382 older people living in the community in Malaysia. Data was collected using convenience sampling through an online questionnaire that consisted of three parts: sociodemographic details, knowledge, and attitude related to COVID-19.

**RESULTS:** The overall correct rate of knowledge was 77.3%, indicating that participants had slightly good knowledge related to COVID-19. The participants showed a positive attitude with a mean score of 26.0 (SD = 5.0). There were significant associations between knowledge and education level ( $P = 0.00$ ) and marital status ( $P = 0.02$ ). Marital status was significantly associated with attitude towards COVID-19 ( $P = 0.03$ ). A weak positive correlation was found between knowledge and attitude ( $r = 0.17$ ,  $P = 0.00$ ) suggesting that an increase in knowledge will increase the positive attitude among older people.

**CONCLUSION:** Older people reported good knowledge and positive attitudes towards COVID-19. The Malaysian government should provide relevant health education for those with lower education levels and divorced or widowed to improve knowledge and attitudes towards COVID-19.

## Keywords:

Attitude, COVID-19, knowledge, Malaysia, older people

Department of  
Special Care Nursing,  
Kulliyah (Faculty) of  
Nursing, International  
Islamic University  
Malaysia, Pahang,  
Malaysia, <sup>1</sup>Department  
of Operation Theatre,  
Thomson Hospital Kota  
Damansara, Selangor,  
Malaysia

## Address for correspondence:

Dr. Sharifah Munirah Syed  
Elias,  
Department of  
Special Care Nursing,  
Kulliyah (Faculty) of  
Nursing, International  
Islamic University  
Malaysia, 25200  
Jalan Sultan Ahmad  
Shah, Kuantan,  
Pahang, Malaysia.  
E-mail: shmunirah@iium.  
edu.my

Received: 09-11-2021

Revised: 03-02-2022

Accepted: 08-02-2022

Published: 28-09-2022

## Introduction

Coronavirus disease 2019 (COVID-19) is a highly contagious disease caused by a new strain of coronavirus known as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).<sup>[1]</sup> On 7 January 2020, the novel coronavirus was officially announced by Chinese authorities as the causal agent of this infection.<sup>[2]</sup> In Malaysia, the first COVID-19 wave occurred from 25 January to 16 February 2020, the second wave occurred between 27 February 2020 and

30 June 2020.<sup>[3]</sup> The current third wave began on 8 September 2020 to the current date.

Worldwide, the deaths caused by COVID-19 mainly include older people with chronic diseases such as cancer, diabetes mellitus, respiratory disease, and cardiovascular diseases.<sup>[4]</sup> The statistics for COVID-19 in Malaysia in May 2020 was reported at a mortality rate of 1.5% with 115 deaths among 7,604 cases of positive COVID-19.<sup>[5]</sup> In Malaysia, the age group with the highest mortality rate related to COVID-19 is older people between the ages of 61 and

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow\_reprints@wolterskluwer.com

**How to cite this article:** Syed Elias SM, Rohinmi NR. Knowledge, attitudes, and sociodemographic factors related to COVID-19 among older people living in the community in Malaysia. J Edu Health Promot 2022;11:298.

70 years.<sup>[6]</sup> Due to the factor of age and pre-existing medical conditions, older people pose a higher risk of COVID-19 infections and experience more severe complications compared to the younger populations.<sup>[1]</sup>

In the absence of a definite therapy to control the rate of infection, older people should adhere to the preventative measures such as physical distancing of one meter, wear facemasks, and practice proper hand hygiene.<sup>[1,7,8]</sup> The implementation of physical distancing and staying at home, however, physically separate older people from their caregivers due to the higher vulnerability of older people. Hence, older people who are isolated from their caregivers might have less exposure to new information about COVID-19 and less understanding of the need to get appropriate treatment once infected.<sup>[9]</sup> There is increasing concern that older people are at a disadvantage during this pandemic because they are less likely to obtain clear information about COVID-19,<sup>[8]</sup> have limited access to the internet and social media<sup>[10]</sup> as well as experience declining function of their cognitive abilities.<sup>[11]</sup> Thus, it is significant to ensure older people are equipped with adequate knowledge of COVID-19 to combat COVID-19 infections.

Previous studies on knowledge related to COVID-19 found that the majority of older people reported good levels of knowledge towards COVID-19.<sup>[8,10,12]</sup> In China, a study of 1,263 older participants on the knowledge about COVID-19 reported that 87% gave correct answers, thus indicating that most older people had adequate knowledge.<sup>[12]</sup> A study in Iran also reported a good level of knowledge on COVID-19.<sup>[10]</sup> A cross-sectional study conducted among 501 older people in Malaysia had an overall rate of 91.3% that gave correct answers, indicating a high level of knowledge on COVID-19.<sup>[8]</sup> Previous studies on attitudes related to COVID-19 reported that most older people showed positive attitudes in carrying out COVID-19 preventive measures such as social distancing, compliance to health authorities' precautions, and successful control of COVID-19 spread.<sup>[8,10]</sup> The relationship between knowledge and attitude towards COVID-19 among older people had a weak statistically significant positive correlation.<sup>[10]</sup>

The Health Belief Model (HBM) suggests that promotion of health to the community is successful when individuals adopt desired health-related behaviors.<sup>[13]</sup> This model is suitable in this study to explain the sociodemographic factors such as age, educational level, and marital status that may influence the health-related behaviors of older persons in engaging with recommended guidelines from health authorities relating to COVID-19. It was found that the age of the participants was associated with attitudes in different age groups of older people ranging from 60 to 80 years of age.<sup>[10]</sup> The significant differences in attitudes

were observed between age groups of 65–69 years and 80 years, as well as age groups of 74–79 years and 80 years.<sup>[10]</sup> Older people who reported having higher education levels and were married were more knowledgeable about COVID-19 preventive measures.<sup>[8]</sup>

Previous studies on knowledge, attitudes and practices towards COVID-19 were conducted in different geographical locations and different methods; thus it is difficult to conclude.<sup>[8,10,12,14,15]</sup> The majority of previous studies on COVID-19 among older people focused on the impacts of COVID-19 on the well-being of older people.<sup>[5,6,11,16–18]</sup> Other topics of interest related to COVID-19 are clinical characteristics of COVID-19 among hospitalized older patients,<sup>[4,19]</sup> challenges in implementing preventive measures related to COVID-19,<sup>[20]</sup> and abuse related to COVID-19.<sup>[21]</sup> All these previous studies were conducted worldwide: Malaysia,<sup>[5,6,8,16,19]</sup> China,<sup>[4,12,21]</sup> Belgium,<sup>[11]</sup> Iran,<sup>[10]</sup> Japan,<sup>[15]</sup> England,<sup>[20]</sup> Italy,<sup>[18]</sup> and the United States of America (USA).<sup>[17]</sup>

This study was essential to identify the presence of misconceptions about COVID-19; thus, future interventions can be recommended to increase the knowledge and attitudes related to COVID-19. The present study involved older people living in the eastern region of Malaysia as compared to the previous study that involved older people in all regions with a small sample size.<sup>[8]</sup> The eastern region of Malaysia is considered to have inadequate infrastructure and limited access to health care facilities.<sup>[22]</sup> It is acceptable to conclude that older people living in the eastern region of Malaysia experience several challenges that may affect their knowledge and attitudes towards COVID-19. Therefore, this study aimed to measure the level of knowledge and attitudes related to COVID-19, and to identify the association of sociodemographic background with knowledge and attitudes towards COVID-19 among older people in Malaysia.

## Materials and Methods

### Study design and setting

A cross-sectional study was conducted in Kuantan, Pahang, Malaysia between March and May 2021. This design was selected as it is suitable to measure the association between different parameters. The study was conducted in Kuantan, Pahang because it is located in the eastern region of Malaysia which was the location of interest in this study.

### Study participants and sampling

Based on Raosoft software calculator, the approximate number of participants was 382. The inclusion criteria for this study were those aged 60 years and above and had

internet access. Older people living outside of Kuantan, Pahang, and those with intellectual disabilities and cognitive declines such as dementia and Alzheimer’s disease were excluded from the study.

**Data collection tool and technique**

The questionnaire for this study consisted of three parts: Part A (sociodemographic), Part B (knowledge on COVID-19), and Part C (attitudes towards COVID-19). Part A included questions on gender, age, education level, marital status, and living arrangement. Part B comprised of 22 items on knowledge related to COVID-19.<sup>[23]</sup> These items were grouped into modes of transmission (items 1–5), clinical manifestation (items 6–7), treatment (items 8–9), risk factors (items 10–14), isolation (item 15–16), and preventative measures (items 17–22). The answer options for the items used a 3-point Likert scale as either “true”, “false” or “don’t know”. Correct answers received a score of 1, while incorrect and unclear responses received a score of 0. The total score varied from 0 to 22, with higher scores representing better knowledge of COVID-19. Cronbach’s alpha coefficient for part B was 0.7.<sup>[23]</sup> Part C consisted of 6 attitude questions related to COVID-19.<sup>[23]</sup> These items focused on self-protection measures (3 items), disease control (1 item), and confidence in government and health authority actions for combating disease (2 items). The answer options for the items used the 5-point Likert scale with 1 indicating “strongly disagree” and 5 indicating “strongly agree”. The average total score from six questions was calculated and higher scores indicated a positive attitude related to COVID-19. The total score ranged from 6 to 30. Cronbach’s alpha coefficient for part C was 0.81.<sup>[23]</sup> The questionnaire was translated into the Malay language using back-translation.<sup>[24]</sup> A pilot study was conducted on 38 older people to test the reliability of part B and part C and the results for part B was 0.7 and Part C was 0.81, which meant that the questionnaire was reliable for the Malaysian population.

For data collection, the target population received survey invitations sent through emails and social media platforms, such as Facebook, WhatsApp, Twitter, and Telegram. The online questionnaires were also distributed through Google Form to caregivers, community leaders, and social media groups as personal and professional reliance that was relevant to reach the older people. Older people were advised to answer the questionnaire on the initial page of the google form by themselves before they proceed to the next page. In consideration of their inability to respond by themselves or lack of comprehension for the question, older people could also answer the questionnaires with the assistance of their caregivers.

Descriptive and inferential analyses were performed using Statistical Package for Social Science (SPSS) 20.0. The Mann–Whitney *U* test and Kruskal–Wallis test were applied to analyze the differences in knowledge and attitudes of older people. The Pearson correlation test was applied to determine the correlation between knowledge and attitude. The level of significance was determined at 0.05 for all analyses.

**Ethical consideration**

This study received ethical approval from the Ethics Committee (IREC 2021-KON/51). Online, informed consent was provided for each participant. The identity of the participants was ensured to remain confidential.

**Results**

Table 1 shows the sociodemographic background of the study participants. Of the 382 participants, 223 were female (58%). The mean age of the participants was 66.7 ± 5.9 years, with the age range between 60 and 82 years. The majority of the participants had qualifications up to secondary school (45.5%) followed by primary school (20.4%), diploma (14.4%), degree or above (10.2%), and 9.4% of the participants had no formal education. Most of the participants were married (74.6%) and more than half of the participants lived with their partners and children (53.7%).

**Level of knowledge regarding COVID-19**

The median knowledge score was 17.0 (IQR: 3.00) and the accuracy rate of the knowledge was 77.3%. The range

**Table 1: Sociodemographic characteristics of participants**

| <i>n</i> =382                   | Frequency | Percentage (%) | Mean (SD)  |
|---------------------------------|-----------|----------------|------------|
| <b>Gender</b>                   |           |                |            |
| Male                            | 159       | 42.0           |            |
| Female                          | 223       | 58.0           |            |
| <b>Age (years)</b>              |           |                |            |
| 60-82                           |           |                | 66.7 (5.9) |
| <b>Education level</b>          |           |                |            |
| No formal education             | 36        | 9.4            |            |
| Primary school                  | 78        | 20.4           |            |
| Secondary school                | 174       | 45.4           |            |
| Diploma                         | 55        | 14.4           |            |
| Degree or above                 | 39        | 10.2           |            |
| <b>Marital status</b>           |           |                |            |
| Single                          | 30        | 7.9            |            |
| Married                         | 285       | 74.6           |            |
| Divorced/widowed                | 67        | 17.5           |            |
| <b>Living arrangement</b>       |           |                |            |
| Living alone                    | 50        | 13.1           |            |
| Living with spouse              | 46        | 12.0           |            |
| Living with children            | 81        | 21.2           |            |
| Living with spouse and children | 205       | 53.7           |            |

of scores according to items were 48.4%–95% for items 1–5, 57.9%–91.6% for items 6–7, 50%–85.3% for items 8–9, 60.2%–96.6% for items 10–14, 94.8%–96.6% for items 15–16, and 82.5%–100% for items 17–22 [Table 2].

**Level of attitudes towards COVID-19**

The attitude scores of participants in the study are presented in median (IQR), 26.0 (3.0). The majority of the participants agreed that social distancing (91.1%), handwashing (92.4%), and staying home if feeling unwell (85.9%) are part of the self-protection measures to combat the COVID-19 infection [Table 3]. The lowest percentage was from item 4 (disease control) where only 63.1% stated that COVID-19 can be successfully controlled.

**Association between sociodemographic background and knowledge**

Education level ( $P = 0.00$ ) and marital status ( $P = 0.02$ ) were statistically significant with knowledge [Table 4]. *Post hoc* test showed a significant difference between secondary school and no formal education ( $P = 0.00$ ), secondary school and degree or above ( $P = 0.00$ ) and, secondary school and primary school ( $P = 0.00$ ). The *post hoc* comparison revealed that a significant difference was found only between the knowledge score of married and divorce/widowed participants ( $P = 0.02$ ). There was no significant difference between knowledge related to COVID-19 and gender ( $P = 0.94$ ), age ( $P = 0.45$ ), and living arrangement ( $P = 0.33$ ).

**Association between sociodemographic background and attitudes**

Marital status was significantly associated with  $\chi^2(2) = 7.31$  and  $P$  value = 0.03 [Table 4]. Based on *post hoc* analysis, significant difference was observed in groups of married participants and divorced/widowed participants with  $P = 0.03$ . There was no significant association between gender ( $P = 0.49$ ), age ( $P = 0.15$ ), education level ( $P = 0.66$ ) and living arrangement ( $P = 0.07$ ), and attitude.

**Association between knowledge and attitude**

A significant, weak, positive correlation between knowledge and attitude towards COVID-19 was identified among older people ( $r = 0.17$ ,  $P = 0.00$ ) [Table 4].

**Discussion**

In this study, older people had knowledge about COVID-19 with 77.3% of the participants answering the questions accurately. This study found a good level of knowledge in older people which is consistent with previous studies.<sup>[8,10,12]</sup> The high rate of correct answers in this study can be due to the time of questionnaire

**Table 2: Knowledge regarding COVID-19**

| Items   | Correct response (%) |
|---|----------------------|
| The COVID-19 spreads from person-to-person.   | 91.6                 |
| The COVID-19 spread through respiratory droplets.   | 95.0                 |
| A person can get COVID-19 by touching a surface that has the virus on it.   | 92.7                 |
| Eating or contacting wild animals would result in the infection by the COVID-19 virus.  | 48.4                 |
| Persons with COVID-19 cannot infect the virus to others when a fever is not present.  | 63.6                 |
| The main clinical symptoms of COVID-19 are fever, fatigue, dry cough, myalgia and shortness of breath.  | 91.6                 |
| Stuffy nose, runny nose and sneezing are less common in persons with COVID-19.  | 57.9                 |
| Antibiotics are effective treatment of COVID-19.  | 50.0                 |
| Currently there is no effective cure for COVID-19   | 85.3                 |
| Older adults and people who have severe underlying chronic medical conditions are at higher risk for developing more serious complications from COVID-19. | 96.6                 |
| Not all persons with COVID-19 will develop to severe cases.   | 89.0                 |
| Pregnant women are more vulnerable to getting infections.   | 63.4                 |
| Children do not appear to be at higher risk for COVID-19 than adults.   | 60.2                 |
| It is not necessary for children and young adults to take precautionary measures.   | 73.6                 |
| Wash your hands with soap and water or a hand sanitizer.  | 94.8                 |
| Avoid touching your eyes, nose and mouth with unwashed hands.   | 96.6                 |
| Ordinary people can wear general medical masks.   | 100                  |
| You need to wear a mask if you are taking care of a person with suspected COVID-19 infection.   | 95.0                 |
| Healthy food and drinking water increase body immunity and resistance to COVID-19.  | 83.8                 |
| Isolation of people with COVID-19 virus are effective ways to reduce the spread of virus.   | 96.3                 |
| People who have contact with someone infected with COVID-19 virus should be immediately isolated in a proper place.                                       | 96.9                 |
| Individuals should avoid going to crowded places  | 82.5                 |

distribution which is one year after the COVID-19 outbreak in Malaysia where a majority of the participants were aware and were already provided with adequate information about COVID-19. These findings may also be due to the ongoing efforts of the government to provide educational materials through various platforms such as radio, television, and digital communication to increase public understanding of COVID-19 and promote new cultural norms through behavioral change.

The findings revealed that the knowledge regarding isolation and preventative measures were answered well by the participants. For instance, all participants provided correct responses for the importance of wearing a mask to prevent infection by the COVID-19 virus. This finding

**Table 3: Attitudes related to COVID-19**

| Statement  | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|--|-------------------|----------|---------|-------|----------------|
| It is important to put distance between myself and other people.             | 4.2%              | 0.8%     | 3.9%    | 29.1% | 62%            |
| Hand washing is important.   | 4.2%              | 0.3%     | 3.1%    | 33.2% | 59.2%          |
| Stay home if I am sick.  | 5%                | 2.1%     | 7.1%    | 36.4% | 49.5%          |
| COVID-19 will eventually be successfully controlled.                         | 2.9%              | 3.1%     | 30.9%   | 39%   | 24.1%          |
| Malaysia's strict measures can help to win the battle against the COVID-19.  | 3.4%              | 2.1%     | 20.2%   | 44.5% | 29.8%          |
| All precautions from Ministry of Health will prevent spread of the COVID-19. | 4.2%              | 0.3%     | 13.9%   | 42.7% | 39%            |

**Table 4: The association between sociodemographic characteristics with knowledge and attitudes**

| Variables                       | Knowledge    |      |       | Attitudes    |       |       |
|---------------------------------|--------------|------|-------|--------------|-------|-------|
|                                 | Median (IQR) | r    | P     | Median (IQR) | r     | P     |
| Gender                          |              |      |       |              |       |       |
| Male                            | 17.0 (3.0)   |      | 0.94  | 26.0 (5.0)   |       | 0.49  |
| Female                          | 17.0 (3.0)   |      |       | 26.0 (5.0)   |       |       |
| Age                             |              | 0.39 | 0.45  |              | -0.75 | 0.15  |
| Education level                 |              |      |       |              |       |       |
| No formal education             | 17.0 (2.0)   |      | 0.00* | 26.0 (9.8)   |       | 0.66  |
| Primary school                  | 17.0 (4.0)   |      |       | 25.0 (5.3)   |       |       |
| Secondary school                | 18.0 (4.0)   |      |       | 27.0 (4.0)   |       |       |
| Diploma                         | 17.0 (1.0)   |      |       | 26.0 (4.0)   |       |       |
| Degree or above                 | 16.8 (1.9)   |      |       | 26.0 (5.0)   |       |       |
| Marital status                  |              |      |       |              |       |       |
| Single                          | 17.5 (10.0)  |      | 0.02* | 27.0 (5.3)   |       | 0.03* |
| Married                         | 17.0 (4.0)   |      |       | 26.0 (4.0)   |       |       |
| Divorced/Widowed                | 15.5 (4.3)   |      |       | 25.0 (6.0)   |       |       |
| Living arrangement              |              |      |       |              |       |       |
| Living alone                    | 17.0 (3.0)   |      | 0.33  | 27.0 (6.3)   |       | 0.07  |
| Living with spouse              | 18.0 (3.3)   |      |       | 27.0 (6.0)   |       |       |
| Living with children            | 17.0 (2.5)   |      |       | 25.0 (5.0)   |       |       |
| Living with spouse and children | 17.0 (3.0)   |      |       | 26.0 (4.5)   |       |       |

\*P<0.05

is not consistent with a previous study conducted in Malaysia involving the public in which only 51.2% wore a mask to prevent COVID-19 infection.<sup>[7]</sup> The differences in the findings might be because the previous study was conducted in April 2020, which was when the outbreak had just started. They also reported good knowledge on the importance of hand hygiene, healthy food and water, isolation practices for people infected with COVID-19, and avoiding crowded places. The lowest score was from the questions related to COVID-19 infection itself, as indicated by more than half of the participants believing that eating or being in contact with wild animals would result in infection by COVID-19 virus. Out of the total number of participants, 50% agreed that antibiotics were an effective treatment for COVID-19 infection. The findings suggested that participants had more knowledge on isolation and preventative measures but lacked knowledge on COVID-19 itself, such as the modes of transmission, clinical manifestations, treatments, and risk factors.

This study found that older people had a positive attitude about COVID-19, which is similar to the previous studies in Malaysia.<sup>[8]</sup> The majority of the participants agreed

with the importance of self-protection measures such as physical distancing, hand hygiene, and staying at home. However, the participants felt less confident in disease control where only 63.1% of the participants agreed that COVID-19 can be successfully controlled. It can be due to the attitude of the population that is not compliant with the standard operating procedures produced by the government and it is one of the factors related to the current wave of the COVID-19 pandemic.<sup>[3]</sup>

Among the sociodemographic factors that may interfere with the health-related behaviour of older persons related to COVID-19 based on the HBM, it was observed that educational level and marital status had significant associations with knowledge and attitudes towards COVID-19. The majority of participants had education levels up to secondary school. It was found that older people with higher education levels appeared to be more knowledgeable than those with lower levels of education. A possible explanation for this is that low education levels can be considered as a risk factor because it may negatively influence the way older people understand health information.<sup>[9]</sup> Nonetheless, greater access to medical resources through electric and

electronic devices can mitigate the risks of having low levels of knowledge.<sup>[9]</sup> It was reported that older people, especially those with higher education levels, were more technologically savvy and were able to use online health information especially for disease information.<sup>[25]</sup>

Regarding marital status, it was found that married participants had higher knowledge scores and positive attitudes compared to divorced or widowed participants. This result might be because married people have a heightened sense of responsibility for the consequence of actions that can affect their spouses.<sup>[8]</sup> Hence, older, married people were more conscious about seeking authentic information on COVID-19 and this can be shown by being proactive in acquiring knowledge related to COVID-19 from relevant sources.<sup>[12]</sup> Older people with more knowledge related to COVID-19 were found to have more positive attitudes towards COVID-19. The result is congruent with previous studies in which a positive correlation was found between knowledge and attitudes among older people.<sup>[10]</sup> The results of this study indicated that participants have good knowledge of COVID-19, and this can be translated into good and safe attitudes during the COVID-19 pandemic.

### Limitation and Recommendation

The sociodemographic characteristics collected in the study consisted mostly of participants with secondary school qualification and who were married, which may indirectly influence the findings of this study. With the consideration of their inability to answer the questionnaire by themselves or having lower access to electronic devices, this study uses alternatives by having the caregivers or family members answer the questionnaire on behalf of the older people. The response can be biased to social desirability as the answers are by a third party and not the actual response from the target population.

It is recommended that future research on knowledge and attitudes towards COVID-19 include older people living in nursing homes. The study on how prophylaxis measures including behavior strategies and pharmacological strategies can reduce the risk of acquiring COVID-19 infection among older people are also significant.

### Conclusion

In general, older people reported good knowledge, especially on isolation and preventive measures and have a positive attitude towards COVID-19. However, the findings suggested that older people had misconceptions on the disease itself in terms of modes of transmission and treatments. Although older people

reported positive attitudes towards COVID-19, they reported a lack of confidence in the ability to control COVID-19 infections. Older people who were married and had higher education levels had more knowledge and a better attitude towards COVID-19. The focus of health education related to COVID-19 for older people in Malaysia should be on those with lower education levels and who are divorced or widowed, with good emphasis on information about COVID-19 itself.

### Acknowledgments and ethical moral code

This study is funded by the IIUM Research Grant (RMCG20-061-0061). This study received ethical approval from Ethics Committee (IREC 2021-KON/51).

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

### Key Messages

Older people reported good knowledge, especially on isolation and preventive measures and had a positive attitude towards COVID-19. Those who were married and had higher education levels had more knowledge and a better attitude towards COVID-19.

### Financial support and sponsorship

RMCG20-061-0061.

### Conflicts of interest

There are no conflicts of interest.

### References

1. Hashim JH, Adman MA, Hashim Z, Radi MF, Kwan SC. COVID-19 epidemic in Malaysia: Epidemic progression, challenges, and response. *Front Public Health* 2021;9:560592.
2. Palacios Cruz M, Santos E, Velázquez Cervantes MA, León Juárez M. COVID-19, a worldwide public health emergency. *Rev Clín Esp (Barc)* 2021;221:55–61.
3. Rampal L, Liew BS. Malaysia's third COVID-19 wave-A paradigm shift required. *Med J Malaysia* 2021;76:1–4.
4. Liu K, Chen Y, Lin R, Han K. Clinical features of COVID-19 in elderly patients: A comparison with young and middle-aged patients. *J Infect* 2020;80:14–8.
5. Mustaffa N, Lee S-Y, Nawi SN, Rahim MJ, Chee YC, Besari AM, *et al.* COVID-19 in the elderly: A Malaysian perspective. *J Glob Health* 2020;10:1–4.
6. Chung CF, Singau JB, Pazim KH, Mansur K. The repercussions of Covid-19 pandemic on the wellbeing of older people in Malaysia: A literature review. *Int J Stud Child Women Elderly Disabl* 2020;11:17–23.
7. Azlan AA, Hamzah MR, Sern TJ, Ayub SH, Mohamad E.

- Public knowledge, attitudes and practices towards COVID-19: A cross-sectional study in Malaysia. *PLoS One* 2020;15:e0233668. doi: 10.1371/journal.pone.0233668.
8. Mat Din H, Adnan RN, Akahbar SA, Minhat HS. Assessment of Knowledge, attitudes and practices towards COVID-19 among Malaysian older adults during the pandemic. *Asian J Behav Sci* 2021;3:1-12.
  9. Xie B, Charness N, Fingerman K, Kaye J, Kim MT, Khurshid A. When going digital becomes a necessity: Ensuring older adults' needs for information, services, and social inclusion during COVID-19. *J Aging Soc Policy* 2020;3:460-70.
  10. Maracy MR, Rahimi M, Shahraki RA. A survey of knowledge, attitude and practice of the older people about COVID-19 pandemic in Isfahan, Iran. *J Gerontol Geriatr* 2020;68:204-11.
  11. De Pue S, Gillebert C, Dierckx E, Vanderhasselt M-A, De Raedt R, Van den Bussche E. The impact of the COVID-19 pandemic on wellbeing and cognitive functioning of older adults. *Sci Rep* 2021;11:4636.
  12. Chen Y, Zhou R, Chen B, Chen H, Li Y, Chen Z, *et al.* Knowledge, perceived beliefs, and preventive behaviors related to covid-19 among Chinese older adults: Cross-sectional web-based survey. *J Med Internet Res* 2020;22:e23729. doi: 10.2196/23729.
  13. Rosenstock IM. Historical origins of the health belief model. *Health Educ Monogr* 1974;2:328-35.
  14. Sarojini K, Somasundaram J, Girija AS. Knowledge, attitude and perception of COVID infections among elders with respiratory diseases. *Int J Pharm Res* 2020;12: 909-920.
  15. He L, Traphagan JW. A preliminary exploration of attitudes about COVID-19 among a group of older people in Iwate Prefecture, Japan. *J Cross Cult Gerontol* 2021;36:1-19.
  16. Chee SY. COVID-19 pandemic: The lived experiences of older adults in aged care homes. *Millenn Asia* 2020;11:299-317.
  17. Mueller AL, McNamara MS, Sinclair DA. Why does COVID-19 disproportionately affect older people? *Aging* 2020;12:9959-81.
  18. Amore S, Puppo E, Melara J, Terracciano E, Gentili S, Liotta G. Impact of COVID-19 on older adults and role of long-term care facilities during early stages of epidemic in Italy. *Sci Rep* 2021;11:12530.
  19. Thiam CN, Hasmukharay K, Lim WC, Ng CC, Pang GH, Abdullah A, *et al.* COVID-19 infection among older people admitted to hospital: A cross-sectional analysis. *Geriatrics (Basel)* 2021;6:25.
  20. Fitzpatrick JM, Rafferty AM, Hussein S, Ezhova I, Palmer S, Adams R, *et al.* Protecting older people living in care homes from COVID-19: A protocol for a mixed-methods study to understand the challenges and solutions to implementing social distancing and isolation. *BMJ Open* 2021;11:e050706. doi: 10.1136/bmjopen-2021-050706.
  21. Du P, Chen Y. Prevalence of elder abuse and victim-related risk factors during the COVID-19 pandemic in China. *BMC Public Health* 2021;21:1096.
  22. Aini AM, Murni N, Abd Aziz WN. Housing aspirations of the elderly in Malaysia: A comparison of urban and rural areas. *J Des Built Environ* 2016;16 30-43.
  23. Al-Hanawi MK, Angawi K, Alshareef N, Qattan AM, Helmy HZ, Abudawood Y, *et al.* Knowledge, attitude and practice toward COVID-19 among the public in the Kingdom of Saudi Arabia: A cross-sectional study. *Front Public Health* 2020;8:217.
  24. Maneesriwongul W, Dixon JK. Instrument translation process: A methods review. *J Adv Nurs* 2004;48:175-86.
  25. Ahmad N, Rahman AB, Jasman N, Zaman Salleh K, Harun SN, Krishnan M. Usage of internet for health information seeking among elderly in Malaysia. *EPRA Int J Multidiscip Res* 2020;6:187-193.