# KNOWLEDGE, ATTITUDE AND PRACTICES OF MALAY TRADITIONAL MEDICINE PRACTITIONERS TOWARDS COVID-19 PANDEMIC IN MALAYSIA

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## ABSTRACT

**Introduction**: Restricted movement and preventive actions such as vaccination had been introduced in Malaysia to break the chain of transmission of the new coronavirus, COVID-19. These strategies, however, affected many sections of the society including Malay medicine practitioners. Malay medicine practitioners are important as they could also influence the response of the society towards health promotion by the mainstream modern medicine authority. This, however, depends on their own level of knowledge, attitude and practices concerning COVID-19 pandemic. **Methods**: A cross-sectional study using convenience sampling by online questionnaire was conducted among Malay traditional medicine practitioners in Malaysia. **Results**: This study showed that the level of knowledge was high (n=90, 89.1%) while the level of attitude was moderate (n= 66, 65.3%) and practice was moderate (n=55, 54.5%). Age and marital status were significantly associated with knowledge scores with the *p*-value of 0.001 and 0.010 respectively. None of the socio-demographic characteristic appeared to have an association with attitude and practice. Strong and significant correlation were found between knowledge and attitude ($r$ = 0.230, $p$-value = 0.020), and attitude with practice ($r$ = 0.395, $p$-value = 0.001) of the Malay traditional medicine practitioners concerning COVID-19. No correlation was found between knowledge and practice as $p$>0.05. **Conclusion**: The results would be useful for formulating policies that are suitable to this important and influential group of healthcare providers to reduce resistance and increase compliance to strategies concerning COVID-19 in society.

**KEYWORDS**: COVID-19, Malay traditional medicine, knowledge, attitude, practice.

## INTRODUCTION

Coronavirus disease 2019 (COVID-19) was defined as a respiratory infection caused by a novel coronavirus called Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2). It first emerged in December 2019, in Wuhan city, Hubei Province, China (Wu et al., 2020). SARS-CoV-2, or COVID-19, belongs to the larger family of ribonucleic acid (RNA) viruses. This family of viruses lead to infections ranging from the common cold, to more serious diseases, such as Middle East Respiratory Syndrome (MERS-CoV) and Severe Acute Respiratory Syndrome (SARS-CoV) (Zong et al., 2020). The main symptoms of COVID-19 had been identified as fever, cough, fatigue, myalgia, and shortness of breath. COVID-19 virus could be transmitted via respiratory droplet produced by infected person though coughing, talking and sneezing.

In Malaysia, the first case of COVID-19 was reported on 25 January 2020 (Chang et al, 2021). The number of cases increased until it passed the 500 mark on 16 March 2020. To curb its transmission, Malaysian authority had imposed Movement Control Order (MCO) on 18 March 2020. There are guidelines release from World Health Organization (WHO) in order to break the chain of transmission which includes protective measure by wearing a face mask, washing hands with soap or alcohol-based hand rubs and avoiding crowded places.

The traditional medicine practitioners in Malaysia were affected during this pandemic because they were only allowed to provide their service by following the Standard Operating Procedure (SOP) (Yusof, 2020). Many of their services such as the treatment of cupping, acupuncture, traditional massage and pre- and post-natal services, involved close contact between the practitioners and their patients which was prohibited during the outbreak (Chie, 2020). This severely limit their operations and made it difficult for them to treat patients. According to the Standard Operating Procedure (SOP), the patient also needs to set up an appointment before the treatment and this limit the number of patients that could be received per day (Yusuf, 2020). Some of the traditional medicine centres were forced to close even though they have the permission to open their premises as the cost of operation is higher than the revenue.

Traditional medicine practitioners are important people in society as they provide important medical service to the people, covering and providing more personalised attention that modern medical system may not be able to provide. The support that they provide also goes beyond medical support and include moral as well as spiritual engagements. Due to the personalised treatment and the development of trust in their service, they could influence patients sometimes more effectively than modern medical practitioners. The current study is performed to assess the knowledge, attitude and practice of traditional Malay medicine practitioners with regards to the pandemic of COVID-19. Most studies on COVID-19 in relation to traditional medicines were performed to assess the perception of user or patients towards the use of traditional medicine in treating COVID-19 (Alyami et al., 2020; Nguyen et al., 2020; Alotiby, 2021; Çetin, 2021; Leen et al., 2021) but none of these were conducted in Malaysia.

Nevertheless, there have been several studies on knowledge, attitude and practice of Malaysian society towards COVID-19. Some of these studies targets specific segments such as students (Mohd Zubir et al., 2021; Sazali et al., 2021; Ganaprakasam et al, 2021; Mohamad Aidid et al., 2022; Tan et al., 2022) and healthcare workers (Anuar et al., 2022) and food deliverers (Mohamad Saleh & Rahip, 2022), whereas others studied samples of the general Malaysia population (Azlan et al., 2020; Puwaneswarry et al., 2020; Abu Hasan et al., 2022; Chang et al., 2021; Syed Elias et al., 2022; Chai et al., 2022; Elias et al., 2021). The results are not easy to delineate since the studies were performed at different timepoints during the pandemic, on different sampling populations with different occupation and level of education, and conducted using different method of sampling. Hence, the outcome is varied with some studies showed that many Malaysians have high level of knowledge on COVID-19 (Azlan et al., 2020; Abu Hasan et al., 2022; Anuar et al., 2022; Mohamad Aidid et al., 2022; Tan et al., 2022; Syed Elias et al., 2022), where as other studies reported differently (Sazali et al., 2021). Some studies also reported that even when knowledge score is high, attitude and practice scores towards COVID-19 may be low (Sazali et al., 2021; Chai et al., 2022). Factors that may influence the

scores of knowledge, attitude and practice could be age group (e.g. older people scored higher than younger people) (Syed Elias et al., 2022), as well as monthly income, employment status, gender and race (Elias et al., 2021). At least one study, however, showed that some of these factors played no part in influencing the knowledge, attitude and practice of their sampling population (Tan et al., 2022). Worldwide, there have been very few studies conducted on the traditional medicine practitioners themselves as the main subjects in relation to COVID-19. Two published studies involved one study in Ethiopia (Asmelash et al., 2020) and another one in Bhutan (Gyeltshen et al., 2021) and none yet on traditional medicine practitioners in Malaysia in relation to COVID-19 (Ng, 2020).

## MATERIALS AND METHODS

The research was designed as a cross-sectional study using convenience sampling and was conducted online from April to July 2021. The assistance of several associations of Malay Traditional Medicine registered under the Ministry of Health was officially sought after. This include *Gabungan Persatuan Pengamal Perubatan Tradisional Melayu Malaysia (GAPERA), MAMACARE (Postnatal Service), Persatuan Pengamal Urut Teraputik dan Penjagaan Melayu Malaysia* (PUTRAM), Heritage Association of Malay Massage (HAMA), and *Dar al-Syifa*. Ethical approval was submitted to and retrieved from the International Islamic University Malaysia Research Ethics Committee (IREC) IIUM/504/14/11/2/IREC-KAHS (DBMS). The study population initially included other ethnic groups prevalent in Malaysia such as the Indian and Chinese, however the final results were restricted to ethnic Malay traditional medicine practitioners as response from other ethnic groups was very low. Only those practitioners who are actively practicing with at least one year of experience were included.

The questionnaire was distributed to Malay traditional medicine practitioners either through the help of the associations' representative, or through contacts made via social media advertisements, or through direct contact. The questionnaire was divided into four parts namely Part A, B, C and D. Part A was on sociodemographic information of participants such as age, gender, religion, race, education, marital status, and income. Information on the involvement of the practitioners in their respective association, type of services being offered and working experiences, and source of their information on COVID-19 were also asked. Part B was focused on knowledge of COVID-19. It consists of 27 multiple choice questions concerning the clinical symptoms of COVID-19, route of transmission, preventive steps of COVID-19 transmission, association between vaccination, and use of traditional medicine related to COVID-19. Part C and D were regarding the attitude and practice of the traditional Malay medicine practitioners in relation to COVID-19. Likert scale was used in these two parts. There were 18 simple statements with choice of answer such as "strongly disagree", "disagree", "neutral", "agree" and "strongly agree". Besides, 19 easy statements were related to practice on impact of COVID-19 in the last part of the questionnaire consisting of various choice of answer: "never", "seldom", "sometimes", "often" and "always". The options scored marks ranked from 1 to 5 corresponding to "strongly disagree" for part C and "never" for part D, to "strongly agree" for part C and "always" for part D. The highest marks from each part indicated the higher level of knowledge, attitude and practice concerning COVID-19 outbreak among the respondents.

### Statistical Analysis

The independent variables in this study were the socio-demographic data whereas the dependent variables were knowledge, attitude and practice towards COVID 19. The total score of responses was calculated and then categorised into low, moderate and high categories. Descriptive frequency table was used to analyse the sociodemographic characteristics of respondents in this study while Kruskal Wallis test was used to investigate the relationship between socio-demographic and knowledge, attitude and practice. The relationship between knowledge, attitude and practice was then analysed using the correlation test. As the distribution is non-parametric, Spearman correlation test was used in this study. The statistical significance was set at $p < 0.05$ for all tests mentioned above. All data was analysed using Statistical Package Software for Social Science (SPSS) version (IBM SPSS 20).

## RESULTS AND DISCUSSIONS

A total of 115 respondents answered the questionnaires but 14 of them were excluded due to reasons such as not enough evidence of practicing traditional medicine. Hence, only 101 people were included during the final analysis. There were 14 socio-demographic variables including gender, religion, age, race, education, marital status, working sector, monthly income, working experiences, types of service, source of information, association, location of service and courses. The summary of socio-demographic characteristics among respondents in this study are illustrated in Table 1 and Table 2 below.

As shown in Table 1, most respondents were female traditional practitioners (n=72 or 71.3% of respondents) while male traditional practitioners numbers at 29 (28.7%). The respondents belong to four age-groups: 20-29 years old, 30-39 years old, 40-49 years old and 50 years old and above. The number of traditional practitioners for each category of age were 14 (13.9%), 29 (28.7%), 41 (40.6%) and 17 (16.8%) respectively. Nearly half of the respondents were from the age group of 40-49 years old (n=101, 40.6%). The respondents were all Muslim and Malay (n=101, 100%). Their educational level was categorised according to the highest qualification completed i.e. primary school, secondary school, Sijil Pelajaran Malaysia (Malaysian Education Certificate), Diploma, Degree, Master, and PhD. The frequency of respondents for each category of educational level was 2 (2.0%), 14 (13.9%), 32 (31.7%), 26 (25.7%), 19 (18.8%), 4 (4.0%), 2 (2.0%) and 2 (2.0%) respectively. Hence, most of respondents were SPM and diploma level-graduates with total number of 58 (57.4%). Most respondents, i.e. 78 (77.2%) of them, are married compared to the single and divorced/widowed categories at 11 (10.9%) and 12 (11.9%) respectively. It was also found that most respondents were self-employed (n=72; 71.3%) and most belongs to the B40 status (n=74; 73.3%). More than half of the respondents had more than five years of working experience (n=66, 65.3%) followed by less than 2 years (n=18; 17.8%) and between 2 to 5 years (n=17; 16. 8%).

**Table 1** General sociodemographic profile of respondents

| Characteristics | | Frequency | Percentage |
|---|---|---|---|
| Gender | Male | 29 | 28.7 |
| | Female | 72 | 71.3 |
| Religion | Islam | 101 | 100.0 |
| Age | 20-29 years old | 14 | 13.9 |
| | 30-39 years old | 29 | 28.7 |
| | 40-49 years old | 41 | 40.6 |
| | 50 years and above | 17 | 16.8 |
| Education | Primary | 2 | 2.0 |
| | Secondary | 14 | 13.9 |
| | SPM | 32 | 31.7 |
| | Diploma | 26 | 25.7 |
| | Degree | 19 | 18.8 |
| | Master | 4 | 4.0 |
| | PHD | 2 | 2.0 |
| | Others | 2 | 2.0 |

| | | | |
|---|---|---|---|
| Marital status | Single | 11 | 10.9 |
| | Married | 78 | 77.2 |
| | Divorced/ Widow | 12 | 11.9 |
| Working sector | Government sector | 12 | 11.9 |
| | Private sector | 17 | 16.8 |
| | Self employed | 72 | 71.3 |
| Income | RM 0- RM 4849 | 74 | 73.3 |
| | RM4850- RM 10959 | 18 | 17.8 |
| | RM 10959 and above | 9 | 8.9 |
| Working experience | Less than 2 years | 18 | 17.8 |
| | 2 to 5 years | 17 | 16.8 |
| | More than 5 years | 66 | 65.3 |

The next part is regarding the traditional practitioners' services. There were 24 types of services offered by the traditional Malay medicine practitioners. Many respondents claimed expertise in more than one modality of treatments. However, the most often offered type of service was traditional massage at n=25, i.e. equivalent to 24.8%, followed by '*perubatan Islam*' (Islamic medicine) at the frequency of n=22, i.e. equivalent to 21.8%. "*Perbidanan & urutan tradisional*" or postnatal care and massage was also one type of service with quite a large number of respondents as the frequency was 13 (12%).

Table 2 illustrates the source of information regarding COVID-19 with social media-only emerged as the main source for most respondents (n=27; 26.7%) followed by social media + television + official website category (n=22; 21.8%). The social media + television + newspaper + website category also scored quite highly at n=20 corresponding to 19.8% of the respondents.

**Table 2** Source of information regarding COVID-19 among Malay traditional medicine practitioners.

| Source of information | **Number** | **Percentage** |
|---|---|---|
| Social media | **27** | **26.7** |
| Television | 2 | 2.0 |
| Official website | 5 | 5.0 |
| Social media, television, newspaper and official website | 20 | 19.8 |
| Social media, television, and official website | 22 | 21.8 |
| Social media, and television | 9 | 8.9 |
| Social media, and official website | 10 | 9.9 |
| Social media, official website and articles | 1 | 1.0 |
| Social media, websites and television | 1 | 1.0 |
| Social media, television and newspaper | 1 | 1.0 |
| Television and websites | 1 | 1.0 |
| Television, websites and newspaper | 1 | 1.0 |

Regarding the involvement in association, 44% of the respondents did not involve in any association while the other 54% of respondents were involved in several different types of association in Malaysia (Figure 1). Location of service of traditional practitioners was also investigated in this study. Nearly half of traditional practitioners offered their service at both registered premise and home service (n=45) followed by home service only (n=36) and registered premises only (n=20) (Figure 9). Malay traditional medicine is the highest form practiced by Malay traditional medicine practitioners (80.2%), followed by '*perubatan Islam*' or Islamic medicine at 15.84%, and others at 0.99%.

Table 3 shows the data on knowledge regarding COVID-19. The questions consist of several elements including definition, main clinical symptoms, cause, risk factor, prevention, vaccination and SOPs on the COVID-19. The first question was on the definition of COVID-19. Majority of respondents managed to answer this question (n= 99; 98%). The second question was about clinical symptoms of COVID-19. Most of participants managed to answer accurately on the main clinical symptoms of COVID-19 which were fever (95%), fatigue (77.2%) and coughing (69.3%). However, 2% of the participants chose the "not sure" answer. Regarding the high mortality rate among chronic patients, most of the participants were able to answer correctly (n=98; 97%). For the two questions regarding the route of transmission of COVID-19, 34.7 % of respondents were able to answer correctly, while a significant number i.e. 35.6% respondents answered "not sure." Next, regarding the five different routes of transmission of COVID-19, the respondents were able to answer correctly for most of the options, except for the transmission via bodily fluid which was chose by most respondents. Next, there were six questions (i.e. questions 8-13) regarding the prevention of transmission of COVID-19. Majority of the respondents were able to answer with correct answer at the frequency of 98 (97%), 98 (97%), 88 (87.1%), 100 (99%), 101 (100%), 99 (98%), 97 (96%) and 100 (99%) respectively for each question. More than half of respondents were able to answer correctly regarding the vaccination of COVID-19. Lastly, almost all of the respondents (97%) knew the SOPs during COVID-19 pandemic.


**Figure 1** Involvement in association among the respondents.

**Table 3** Knowledge of respondents regarding COVID-19 (n= 101).

| No | Statement | Yes (Freq %) | No (Freq %) | Not sure (Freq %) |
|---|---|---|---|---|
| 1 | Do you know what is COVID-19 pandemic? | **99 (98.0)** | 0 (0) | 2 (2.0) |
| 2 | The main clinical symptoms of COVID-19 are : | | | |

| | | | | |
|---|---|---|---|---|
| | i. Fever | **96 (95.0)** | 5 (5.0) | 0 (0) |
| | ii. Fatigue | **78 (77.2)** | 13 (12.9) | 10 (9.9) |
| | iii. Coughing | **70 (69.3)** | 17 (16.8) | 14 (13.9) |
| | iv. Cold | 93 (92.1) | **6 (5.9)** | 2 (2.0) |
| 4 | COVID-19 can infect: | | | |
| | i. Baby | **97 (96.0)** | 3 (3.0) | 1 (1.0) |
| | ii. Elderly | **100 (99.0)** | 1 (1.0) | 0 (0) |
| | iii. Pregnant woman | **99 (98.0)** | 2 (2.0) | 0 (0) |
| 5 | Patient with chronic disease has high rate of mortality | **98 (97.0)** | 2 (2.0) | 1 (1.0) |
| 6 | Eating wild animals would result in the infection by the COVID-19 virus | 30 (29.7) | **35 (34.7)** | 36 (35.6) |
| 7 | Route of transmission of COVID-19 are: | | | |
| | i. Close contact | **93 (92.1)** | 5 (5.0) | 3 (3.0) |
| | ii. Sneezing | **100 (99.0)** | 0 (0) | 1 (1.0) |
| | iii. Coughing | **99 (98.0)** | 0 (0) | 2 (2.0) |
| | iv. Body's fluid | 74 (73.3) | **12 (11.9)** | 15 (14.9) |
| | v. Air borne | **85 (84.2)** | 5 (5.0) | 11 (10.9) |
| 8 | Prevention transmission of COVID-19 are | | | |
| | i. Face mask | **98 (97.0)** | 3 (3.0) | 0 (0) |
| | ii. Face shield | **98 (97.0)** | 2 (2.0) | 1 (1.0) |
| | iii. Glove | **88 (87.1)** | 9 (8.9) | 4 (4.0) |
| 9 | To prevent the infection by COVID-19, individuals should avoid going to crowded places. | **100 (99.0)** | 1 (1.0) | 0 (0) |
| 10 | Isolation of people who are infected with the COVID-19 virus are effective ways to reduce the spread of the virus. | **101 (100.0)** | 0 (0) | 0 (0) |
| 11 | Treatment of people who are infected with the COVID-19 virus are effective ways to reduce the spread of the virus | **99 (98.0)** | 1 (1.0) | 1 (1.0) |
| 12 | People who have contact with someone infected with the COVID-19 virus should be immediately isolated for 14 days in a proper place. | **97 (96.0)** | 3 (3.0) | 1 (1.0) |
| 13 | People with symptoms need to undergo swab test to detect COVID-19 virus | **100 (99.0)** | 1 (1.0) | 0 (0) |
| 14 | The is no cure treatment for | **54 (53.5)** | 21 (20.8) | 26 (25.7) |

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|---|---|---|---|---|
| | COVID-19 currently | | | |
| 15 | Vaccine is the best preventative of COVID-19 | **86 (85.1)** | 7 (6.9) | 8 (7.9) |
| 16 | Traditional complementary alternative medicine may help to treat symptoms of COVID-19 | **37 (36.6)** | 29 (28.7) | 35 (34.7) |
| 17 | I know the Standard Operating Procedure (SOP) to open my service during COVID-19 pandemic. | **97 (96.0)** | 2 (2.0) | 2 (2.0) |

**Table 4** Attitude of respondents towards the impact of COVID-19 (n= 101) showing general positive receptiveness towards COVID-19 Standard Operational Procedure.

| No | Statements | Strongly disagree (Freq%) | Disagree (Freq%) | Neutral (Freq%) | Agree (Freq%) | Strongly agree (Freq%) |
|---|---|---|---|---|---|---|
| 1. | I believe in the existence of COVID-19 viruses. | 5 (5.0) | 0 (0) | 27 (26.7) | **39 (38.6)** | 30 (29.7) |
| 2. | I feel COVID-19 is conspiracy and unnatural. | 16 (15.8) | 32 (31.7) | **34 (33.7)** | 13 (12.9) | 6 (5.9) |
| 3. | COVID-19 is dangerous to human. | 4 (4.0) | 2 (2.0) | 28 (27.7) | **36 (35.6)** | 31 (30.7) |
| 4. | COVID-19 definitely can infect huge number of people | 4 (4.0) | 1 (1.0) | 28 (27.7) | 33 (32.7) | **35 (34.7)** |
| 5. | Washing hands is essential to protect myself from COVID-19 | 4 (4.0) | 1 (1.0) | 25 (24.8) | **36 (35.6)** | 35 (34.7) |
| 6. | It is important to keep my distance from others, to avoid spreading COVID-19 | 4 (4.0) | 2 (2.0) | 29 (28.7) | 30 (29.7) | **36 (35.6)** |
| 7. | I believe vaccine is the best cure treatment for COVID-19 | 5 (5.0) | 3 (3.0) | 32(31.7) | **35 (34.7)** | 26 (25.7) |
| 8. | Vaccine is essential | | | | | |

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|---|---|---|---|---|---|---|
| | to all group of community in order to prevent the transmission | 5 (5.0) | 7 (6.9) | **33 (32.7)** | 32 (31.7) | 24 (23.8) |
| 9. | I believe Traditional Complementary Alternative Medicine may help to treat COVID-19 patients. | 5 (5.0) | 14 (13.9) | **49 (48.5)** | 20 (19.8) | 13 (12.9) |
| 10. | I feel herbal treatment may help to treat COVID-19 disease | 6 (5.9) | 12 (11.9) | **46 (45.5)** | 21 (20.8) | 16 (15.8) |
| 11. | I feel Traditional Complementary Alternative Medicine should be given opportunity to help treat COVID-19 disease. | 6 (5.9) | 13 (12.9) | **43 (42.6)** | 22 (21.8) | 17 (16.8) |
| 12. | I feel it is not appropriate to offer services during a pandemic. | 16 (15.8) | 28 (27.7) | **32 (31.7)** | 19 (18.8) | 6 (5.9) |
| 13. | I believe my treatment service can spread COVID-19 virus | 17 (16.8) | 26 (25.7) | **30 (29.7)** | 21 (20.8) | 7 (6.9) |
| 14. | I feel difficulties to generate income during COVID-19 pandemic | 5(5.0) | 11 (10.9) | **34 (33.7)** | 26 (25.7) | 25 (24.8) |
| 15. | I feel Standard Operating Procedure (SOP) by provided authority is beneficial to prevent the transmission of the virus. | 4 (4.0) | 6 (5.9) | **39 (38.6)** | 27 (26.7) | 25 (24.8) |
| 16. | I feel Standard Operating Procedure (SOP) provided by | 24 (23.8) | 33 (32.7) | **34 (33.7)** | 6 (5.9) | 4 (4.0) |

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|---|---|---|---|---|---|---|
| | government are difficult. | | | | | |
| 17. | I feel scanning QR code before entering the premise is important. | 4 (4.0) | 2 (2.0) | **34 (33.7)** | 28 (27.7) | 33 (32.7) |
| 18. | Standard Operating Procedure (SOP) during COVID-19 pandemic limiting my treatment | 4 (4.0) | 11 (10.9) | **41 (40.6)** | 33 (32.7) | 12 (11.9) |

**Table 5** The practice of the respondents in response to COVID-19 (n= 101) showing general adherence to COVID-19 Standard Operation Procedure.

| No | Statements | Never (Freq%) | Seldom (Freq%) | Sometimes (Freq %) | Often (Freq%) | Always (Freq%) |
|---|---|---|---|---|---|---|
| 1. | I do go to crowded place | 34 (33.7) | **44 (43.6)** | 23 (22.8) | 0 (0) | 0 (0) |
| 2. | I practice cultural behaviour such as shaking hands during COVID-19 pandemic | **58 (57.4)** | 29 (28.7) | 12 (11.9) | 1 (1.0) | 1 (1.0) |
| 3. | I been practicing physical distancing | 2 (2.0) | 8 (7.9) | 10 (9.9) | 22 (21.8) | **59 (58.4)** |
| 4. | Do you frequently washed your hands with soap and water especially after going to a public place? | 3 (3.0) | 2 (2.0) | 11 (10.9) | 27 (26.7) | **58 (57.4)** |
| 5. | Do you use hand sanitizer when going to public place such as supermarket? | 5 (5.0) | 2 (2.0) | 10 (9.9) | 27 (26.7) | **57 (56.4)** |
| 6. | I will advise my family members, friends and others to get COVID-19 vaccination | 8 (7.9) | 8 (7.9) | 13 (12.9) | 23 (22.8) | **49 (48.5)** |

| | | | | | |
|---|---|---|---|---|---|
| 7. I give suggestion to use Traditional Complementary Alternative Medicine during COVID-19 pandemic to the government. | **47 (46.5)** | 14 (13.9) | 20 (19.8) | 7 (6.9) | 13 (12.9) |
| 8. I follow the Standard Operating Procedure(SOP) by provided QR code, thermometer and hand sanitizer | 4 (4.0) | 6 (6.0) | 14 (13.9) | 16 (15.8) | **61 (60.4)** |
| 9. I scan QR code before entering the premises | 1 (1.0) | 2 (2.0) | 13 (12.9) | 13 (12.9) | **72 (71.3)** |
| 10. I scan patients' temperature before entering the premises | 8 (7.9) | 2 (2.0) | 13 (12.9) | 16 (15.8) | **62 (61.4)** |
| 11. I operate when I am in red zone area | **74 (73.3)** | 7 (6.9) | 9 (8.9) | 1 (1.0) | 10 (9.9) |
| 12. I do use hand sanitizer before the treatment | 4 (4.0) | 5 (5.0) | 11 (10.9) | 15 (14.9) | **66 (65.3)** |
| 13. I do washing my hands after the treatment | 4 (4.0) | 3 (3.0) | 9 (8.9) | 16 (15.8) | **69 (68.3)** |
| 14. I use glove during the treatment | 7 (6.9) | 3 (3.0) | 18 (17.8) | 16 (15.8) | **57 (56.4)** |
| 15. I do other job to generate income during outbreak | 22 (21.8) | 8 (7.9) | 18 (17.8) | 45 (44.6) | **45 (44.6)** |

Next, Kruskal-Wallis test was performed to measure the association of socio-demographic characteristics with knowledge, attitude and practice scores. Table 6 shows that there are significant association between age and marital status with knowledge regarding COVID-19 at the *p*-value of 0.001 and 0.010 respectively. However, there is no significant association between employment sector, working experience and gender with knowledge with p-value of 0.953, 0.211 and 0.129 respectively. Likewise, there is no significant association between all the socio-demographic characteristics with attitude and practice as shown in Table 7 and 8.

**Table 6** Association between socio-demographic and knowledge showing the influence of age, marital status, employment sector, working experience and gender on the level of knowledge on COVID-19.

| Variable | Knowledge Scores Mean (S.D) | *p*-value |
|---|---|---|
| **Age** | | 0.001** |
| 20-29 years old | 2.571 (0.514) | |
| 30-39 years old | 2.966 (0.186) | |
| 40-49 years old | 2.927 (0.264) | |
| 50 years and above | 2.941 (0.243) | |
| **Status** | | 0.010** |
| Single | 2.636 (0.255) | |
| Married | 2.936 (0.247) | |
| Divorced | 2.833 (0.152) | |
| **Employment** | | 0.953 |
| Government | 2.917 (0.289) | |
| Private | 2.882 (0.332) | |
| Self employed | 2.889 (0.316) | |
| **Working experience** | | 0.211 |
| Less Than 2 years | 2.778 (0.4278) | |
| Two to five years | 2.882 (0.332) | |
| 5 years and above | 2.924 (0.267) | |
| **Gender** | | 0.129 |
| Male | 2.966 (0.186) | |
| Female | 2.861 (0.348) | |

**Table 7** Association between socio-demographic and attitude scores showing that none of the socio-demographic characteristics influences the attitude towards COVID-19.

| Variable | Knowledge Scores Mean (S.D) | F | *p*-value |
|---|---|---|---|
| **Age** | | 0.310 | 0.845 |
| 20-29 years old | 1.929 (0.475) | | |
| 30-39 years old | 2.103 (0.558) | | |
| 40-49 years old | 2.049 (0.590) | | |
| 50 years and above | 2.059 (0.746) | | |
| **Status** | | 0.685 | 0.705 |
| Single | 2.091 (0.539) | | |
| Married | 2.064 (0.610) | | |
| Divorced | 1.917 (0.515) | | |
| **Employment** | | 0.055 | 0.584 |
| Government | 2.083 (0.669) | | |
| Private | 2.177 (0.728) | | |
| Self employed | 2.0139 ( 0.544) | | |
| **Working experience** | | 0.068 | 0.831 |
| Less Than 2 year | 2.000 (0.485) | | |
| Two to five years | 2.000 (0.500) | | |
| 5 years and above | 2.076 (0.640) | | |
| **Gender ( t test)** | | | 0.510 |
| Male | 2.103 (0.772) | - | |
| Female | 2.028 (0.503) | - | |

**Table 8** Association between socio-demographic and practice scores showing none of the socio demographic characteristics influencing practice scores

| Variable | Practice Scores Mean (S.D) | *p*-value |
|---|---|---|
| **Age** | | 0.786 |
| 20-29 years old | 2.286 (0.726) | |
| 30-39 years old | 2.172 (0.602) | |
| 40-49 years old | 2.098 (0.625) | |
| 50 years and above | 2.177 (0.809) | |
| **Marital Status** | | 0.775 |
| Single | 2.181 (0.751) | |
| Married | 2.141 (0.618) | |
| Divorced | 2.250 (0.866) | |
| **Employment** | | 0.863 |
| Government | 2.250 (0.622) | |
| Private | 2.177 (0.728) | |
| Self employed | 2.139 (0.657) | |
| **Years of Working Experience** | | 0.699 |
| Less Than 2 years | 2.056 (0.725) | |
| Two to five years | 2.118 (0.781) | |
| 5 years and above | 2.197 (0.613) | |
| **Gender** | | 0.425 |
| Male | 2.241 (0.636) | |
| Female | 2.125 (0.670) | |

The results of correlation analysis shows that there is a positive correlation ($r = 0.230$; $p < 0.05$) between knowledge and attitude but no positive correlation ($r = 0.100$, $p > 0.05$) between knowledge and practice. There is significantly positive correlation ($r = 0.395$, $p < 0.05$) between attitude and practice.

**Table 9** Correlation between knowledge and attitude, knowledge and practice, and attitude and practice in Malay traditional medicine practitioners towards COVID-19.

| | | |
|---|---|---|
| Knowledge and Attitude | r = 0.230 | p = 0.02 |
| Knowledge and Practice | r = 0.100 | p = 0.46 |
| Attitude and Practice | r = 0.395 | p = 0.001 |

From our study, a total score obtained for knowledge was 89.1% indicating a good level of knowledge on COVID-19 among Malay traditional practitioners. Most of respondents were aware on the common clinical symptoms such as fever (95%), fatigue (77.2%), and coughing (69.3%). Most respondents knew the five examples of common route transmission i.e close contact (92.1%), sneezing (99.0%), coughing (98.0%), and airborne (84.2%), but many are not sure regarding transmission through body fluid (11.9%). A third of the respondents were also unsure regarding transmission of COVID-19 from animal to human whereas another one-third thought wrongly that this type of transmission is very likely to happen. Regarding the prevention of COVID-19, almost all respondents exhibited good awareness on the importance of preventive measures to be taken to stop the spread of COVD-19. Most respondents used a mix of channels to get their source of information, with social media being the favourite as alsmot all respondents chose an option that include social media as their main source of information. This is in line with widespread digital literacy in Malaysia in which, as of 2020, 98.6% of Malaysians found to own smartphones, with 89.6% of them are avid internet users whose major activities are engaging in scoial networking and finding information online (Department of Statistics, 2021). As this study had been conducted in April 2021, the sampling population already

had a year of experience in the pandemic. Hence, the overall excellent score for knowledge may be due to widespread educational campaign conducted by Malaysian health authority as well as enough exposure to information on COVID-19 among the sampling population.

Contradictory to the score level on knowledge section, the respondents moderate level of attitude towards COVID-19 as the score is only 65.3%. In terms of belief on the real existence of COVID-19, 38.6 % of respondents strongly opines that COVID-19 is real whereas 33.7% of respondents choose thought that COVID-19 is part of a conspiracy and not a naturally occuring pandemic. Only 35.6% agreed that COVID-19 is dangerous to human. This corresponds to the prevalent belief among some Malaysians that COVID-19 is a created fear, and data on COVID-19-related deaths was fabricated to increase sale of moden medicine and vaccination (Lee et al., 2022). Prevention steps such as washing hands and social distancing however are received well by the respondents but may be influenced by pre-existing knowledge on health and hygiene as all respondents are traditional medical practitioners themselves. 45.4% of respondents chose to be neutral when asked if they think traditional herbal preparation can help to treat COVID-19. Although most of the respondents woud have had some knowledge of medicinal herbs, their focus area of practice were massage and post-natal care and the herbal preparations that they used would be less on treating symptoms other than muscle complaints, hence the neutral answer. In addition, there was little to no research carried out using local traditional medicine in Malaysia and coverage over the use of other traditional medicine like the Chinese traditional medicine was likewise very low. There is a discernible 30% of respondents who always appear to be ambivalence in regards to questions on attitude which may indicate some level of resistance or indignant attitude towards COVID-19 preventive and treatment strategies. Although more than 90% agreed that regulations concerning COVID-19 were not very difficult to adhere to, more than 70% felt that it was difficult to them to generate income and 45% had to resort to other osurce of income.

Our finding also revealed a moderate level of practice at 54.5% score concerning COVID-19 among respondents. This means that although the respondents knew well about COVID-19 and have moderate level of attitude towards COVID-19 preventive measures, these may not be practiced. Only about 37 - 43.6% of respondents disclosed that they seldom or will not go to a crowded place during the pandemic. However, given that most respondents are from the lower-income group, they may have done this out of necessity to find extra work and alternative source of income. This is supported by 44.6% of respondents who answered that they had to switch to other profession to generate income during COVID-19 outbreak. Regarding vaccination, only 48.5 % respondents asnwered that they will always advise family, friends and other to get COVID-19 vaccination. Hence, there is quite a significant amount of resistance or hesitancy towards COVID-19 vaccination in this segment of Malaysian society. Slightly more than half of respondents (51.5%) said that they would not advised the community to use traditional medicine. Again, this is perhaps because of the lack of official data and personal experience on possible use of Malaysian herbal medicine to treat COVID-19. Adherence to COVID-19 prevention strategies is exhibited by 60.4% respondents who claimed to have followed the recommended SOPs by providing QR code, thermometer and hand sanitiser at their premises. 61.4% of respondents scanned patients' temperature before entering the premises, 65.3% used hand sanitiser before initiating treatment, 68.3% washed their hands after the treatment and 56.4% used glove during treatment. 73.3% of respondents also said that they would not operate if their locality has been declared a red zone.

In this study, knowledge scores appeared to be associated with age ($p< 0.005$). Middle age respondents i.e. 30-39 years old, had higher knowledge scores (mean= 2.966) in term of COVID-19's definition, clinical symptoms, prevention, vaccination and SOPs. The possible reason behind this finding might be because that age group is the most active phase, has a lot of family and financial responsibility to deal with and naturally had found more reason to equip themselves with accurate information as much as possible. Marital status also influence knowledge score significantly ($p< 0.05$) as married respondents were to have a higher knowledge scores (mean=2.936) compared to single (mean=2.636) and divorced group (mean=2.833). Again, this significant result could be related to their higher sense of responsibility.

In general, our data showed that despite having good knowledge on COVID-19, the scores on attitudes and practice among the Malay traditional practitioners were stil inadequate as of April 2021. This correlates with the finding on the larger Malaysian public at around the same time which exhibited sound knowledge but had negative attitudes and inadequate practices pertaining to COVID-19 during the pandemic (20). Contributing factors to this observation includes the implementation of the strict SOPs which had severely affected the lower income group as they were not able to work or move from one place to another, leading to resentment towards the SOPs. Also, vaccination against COVID-19 had just started in February 2021 but it met some mishaps in the initial stage of its implementation, thus earning some public mistrust and contributing to the lingering belief on conspiracy theory (29).

Our data revealed that Malay traditional medicine practitioners who were more knowledgeable towards COVID-19 were more likely to develop positive attitude such as acknowledging the danger of COVID-19. As these good attitudes correspond fairly well to knowledge score among Malay traditional medicine practitioners, this presented a clear and direct target for educational messaging, and if properly disseminated could have a substantial impact on improving the management of COVID-19. Although knowledge does not correlate directly to practice, it was found that as attitude does have a positive correlation to practice, ultimately the increase in knowledge will also results in better practice.

## CONCLUSION

This study provided an interesting and rare insight into Malay traditional practitioners knowledge, attitude and practice towards modern public health policy and the impact of modern outbreak, in this case concerning COVID-19 outbreak in Malaysia. The Malay traditional medicine practitioners appeared to have means to keep themselves in tandem with current information of important diseases. They have positive attitudes towards modern strategies to tackle diseases and outbreak and if some of their concerns could be alleviated, may lead to higher scores for attitude and practice.

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## ETHICS OF STUDY

Ethical approval number IIUM/504/14/11/2/IREC 2021-KAHS (DBMS) was granted by IIUM Research Ethical Committee. All information from respondents was kept as private and confidential matter.

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