Use of Traditional Chinese Medicine in Malaysia: A Knowledge and Practice Study among General Population toward Complementary and Alternative Medicine in Relation to Health and Quality of Life in Malaysia

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Purpose: There is a wide range of use of complementary and alternative medicine (CAM), which has increased drastically and affected treatments overall. The knowledge and practice of Chinese herbal medicine among the general population is considered as positive. Literature shows that the effectiveness and acceptance of alternative therapies is still debatable among the general population. Materials and Methods: Study design was cross-sectional, in which sociodemographic data of respondents were collected through a validated questionnaire; results were analyzed by using validated data collection tool. The results were concluded on the basis of good, moderate, and poor response, which was evaluated through data analysis by the Statistical Package for the Social Sciences (SPSS) software, version 20.0. A P < 0.05 was considered as statistically significant. Results: Respondents were 182 (44.4%) males and 228 (55.6%) females; better knowledge was recognized among the females (P < 0.001) with mean knowledge of 15.55 ± 2.7. Chinese population had good knowledge with statistically strong correlation with mean knowledge of 15.63 (P = 0.006). Likewise, Buddhism was reported to have good knowledge among all the religions. Rural population was underlined with lesser family income and they showed good practice and understanding (P = 0.006). Comparatively positive attitude was noticed among the females (P < 0.001) with mean attitude of 15.55 ± 2.7. The highest level of education in this study was postgraduate, which showed 77.1% good attitude. Postgraduate participants were having varied results with standard deviation of ±6.23. Statistically highly significant association was seen between the religion and attitude of respondents with the P < 0.001. Chinese medicine is widely used, but religious difference was found among the races. Similar difference was found in knowledge and practice among the population of rural side and low family income compared to urban population with higher income and access to allopathic medicine. Conclusions: Despite having better practice among the Malaysian population, still the knowledge needs to be disseminated among the population for the overall use of traditional Chinese medicine with safety to improve health and quality of life in Malaysia.
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**KEYWORDS:** Alternative therapies, complementary and alternative medicine, Knowledge Attitude and Practice (KAP), quality of life, supportive therapies, traditional Chinese medicine

**INTRODUCTION**

Customary Chinese medicine is in use since the ancient times by the population of China. [1] Despite of having other ways of treatment like animal organs and natural minerals, herbs were mainly used. Around 5000 herbal remedies are available for use in China, which approximately covers one-fifth of the whole of Chinese pharmaceutical businesses. [2] The principle fundamentals of the traditional Chinese medicine (TCM) theories are to find the equilibrium between the Yin and Yang. [3] Yin and Yang are the two terms, which actually describe the two opposite poles. There are levels of Yin and Yang in everybody, which are in fluctuation leading to imbalances within the body; there are considered as four imbalanced states possible in a system which are used to describe two polar opposites. [4] However, in general population, an increased use has been found with their own personal beliefs and understanding.

**MATERIALS AND METHODS**

A cross-sectional observational study was conducted for the evaluation of outcomes based on independent variables from the general population living in Malaysia. Different demographic factors were included for surveying knowledge, attitude, and practice. The duration of the study was 6 months, during which data collection and analysis were performed. This survey-based study was performed with the help of the validated questionnaire, which was prepared to evaluate the knowledge, attitude, and practice. Multiple literature from around the world were used to design a questionnaire, which was used to get accurate data from general population, [5-7] and modified questionnaire was validated by the experts in the field of TCM and complementary and alternative medicine (CAM).

A score of 0 was credited to each wrong question, whereas a score of 1 was credited to each right answer. The criteria for scoring were taken from former studies performed in Malaysia and India by Gawde et al. [9] and Mohiuddin et al., [8-11] and they were as follows:

- 0–5 right answers (<59%) were considered as poor knowledge, attitude, and practice
- 6–7 right answers (60%–79%) were considered as moderate knowledge, attitude, and practice
- 8–10 right answers (≥80%) were considered as good knowledge, attitude, and practice

A total of 396 respondents from varied demographical categories were assessed in the duration of 12 months and included in the study. The sample size was calculated using the Raosoft online software with the following: Necessary sample size = (Z score) × SD × (1 − SD)/(margin of error), Estimated sample size = 384 (Total population = 31.62 million), Margin of error, ±5%, and CI = 95%.

**Problem statement and rational**

This study explained the mindset of people in Malaysia toward the complementary and alternative therapy, providing information regarding the level of knowledge and practice of the general population toward TCM use among different communities. The study provided foundational information, which will act as a logical step for developing intervention in the future to increase knowledge about this therapy. There are very few studies performed on general population to assess their attitude toward traditional medicine, which acts as a barrier between allopathic medicines.

**Statistical analysis**

Normality of data was tested with the help of Statistical Package for the Social Sciences (SPSS) software, version 20.0, (SPSS Inc., Chicago, IL, USA) by using Kolmogorov–Smirnov test (K-S test), and P value was found significant at >0.05, which reveals that data were nonparametric. Nonparametric tests were applied for the analysis of data. Chi-square test, Fisher’s exact test, Mann–Whitney U test, and Kruskal–Wallis test were used for obtaining statistical significance, and effect size was calculated using Phi–Cramer test. P value less than 0.05 was considered statistically significant. The internal consistency of the questionnaire was determined by Cronbach’s α, which was found to be 0.696, which after the deletion of a question was judged as 0.784 and was considered reliable.

**Ethical approval**

The study proposal was submitted to the institutional review board for human ethics clearance from Asian Institute of Medicine Science and Technology (Ref No.: AUHAEC/FOP/2016/16).

**RESULTS**

**Sociodemographic features**

Table 1 shows the overall sociodemographic features of the population participated in this study; a total of 410...
samples were taken, of which 182 (44.4%) were males, and the remaining number, that is, 228 (55.6%) were females. The questionnaire was designed accordingly to the required data among population such as the educational level: because of the good educational level of Malaysia, the major portion of the population (297, 72.4%) had least degree, and the remaining were postgraduates (35, 8.5%). Another major division was on the basis of race, which shows that major race was Chinese (179, 43.7%), and other races were Malay (108, 26.3%), Indians (93, 22.7%), and the other races (30, 7.3%).

**Knowledge toward traditional Chinese medicine**

Table 2 shows the knowledge of general population regarding different types of TCM, including faith healing as well as electromagnetic therapies. Overall female population was found more knowledgeable as compared to males; 192 (84.2%) females gave correct answers with the weak association of 0.112 effect size. Apart from gender, good knowledge was found among higher educated respondents, that is, 243 (81.8%) undergraduates and 33 (94.3%) postgraduates compared to no formal education holders with 33% correct answers. According to racial and religious comparison, Malay and Chinese were considered as good in the knowledge of TCM, but Chinese population was the most knowledgeable as 161 (89.9%) gave correct answers compared to 82 (75%) from Malay race. Similarly, followers of Buddhism (119, 87.5%) were found with good knowledge compared to followers of Islam (48, 44.4%) and Hinduism (38, 45.8%).

**Practice toward traditional Chinese medicine**

Table 3 shows the overall response to practice questions. There was a significant association based on the religion, race, and place of living. The impact of education level on the use of TCM can also be observed in the table as different variables with significant \( P \) value. Serious recommendations of TCM were found over allopathic medication, which were linked to religious and economic views. Comparatively, Malay population of 103 (95.4%) were having good practice as well as Chinese population with 136 (76%).

**DISCUSSION**

**Knowledge toward traditional Chinese medicine**

This study focuses on substantial knowledge among general population on the use of TCM as CAM and moreover on the difference of their knowledge in relation to health and quality of life (QoL).

More or less equally good knowledge was shown among male and female respondents. Similarly, multiple studies are performed, which shows the effect of gender on CAM acceptance and knowledge. \cite{12,13} This study showed that female respondents were slightly better, as 80% had good and 15% had moderate or fair knowledge toward TCM. Impact of gender on knowledge was also reported in a former Knowledge Attitude and Practice (KAP) study performed in Bangladesh, the study showed better knowledge among working females as compared to the working males, which had a greater effect on the results of study. \cite{14} The main difference related to female knowledge was explained in a previous study, which was due to their eagerness to gain knowledge and learn. \cite{15}

On the basis of racial differences on knowledge, this study showed that Malay and Chinese population had

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**Table 1: Sociodemographic features**

| Variables       | \( n \) (%)|
|-----------------|------------|
| **Gender**      |            |
| Male            | 182 (44.4)|
| Female          | 228 (55.6)|
| **Age**         |            |
| \( \leq 25 \)   | 289 (70.5)|
| 26–30           | 80 (19.5)|
| 31–35           | 37 (9.0)|
| 36–40           | 3 (0.7)|
| \( \geq 41 \)   | 1 (0.2)|
| **Ethnicity**   |            |
| Malay           | 108 (26.3)|
| Chinese         | 179 (43.7)|
| Indian          | 93 (22.7)|
| Others          | 30 (7.3)|
| **Religion**    |            |
| Islam           | 108 (26.3)|
| Buddhism        | 136 (33.2)|
| Hinduism        | 83 (20.2)|
| Christians      | 81 (19.8)|
| Others          | 2 (0.5)|
| **Place of living** | |
| Rural           | 87 (21.2)|
| Urban           | 323 (78.8)|
| **Employment status** | |
| Government      | 62 (15.1)|
| Private         | 135 (32.9)|
| Unemployed      | 213 (52.0)|
| **Education level** | |
| No formal education | 6 (1.5)|
| Primary         | 4 (1.0)|
| Secondary       | 68 (16.6)|
| Undergraduate    | 297 (72.4)|
| Postgraduate     | 35 (8.5)|
| **Family income** | |
| \( \leq RM 2000 \) | 120 (29.3)|
| RM 2001–4000    | 95 (23.2)|
| \( \geq RM 4001 \) | 195 (47.6)|
comparatively good knowledge with 103 (95.4%) and 136 (76%) respondents, and 29 (16%) Chinese respondents had fair knowledge toward the use of TCM as CAM. Former study evaluated the differences of knowledge, races used were Hispanics, non-Hispanics, and Asians, which came out with marked differences.\[16\] This study demarcated major ethnic differences in knowledge, showing association of race on the level of knowledge. Current ethnic backgrounds contribute in peoples belief in the use of TCM, these beliefs are due to local customs and religious beliefs and contribute in creating interest to develop knowledge on complementary medicines. Similar study was performed among CAM users with type 2 diabetes mellitus in the capital city of Malaysia (Kuala Lumpur), and the results were same, that is, Malay and Chinese population had better knowledge among the three main ethnic groups (Malay, Chinese, and Indian).\[17\] Impact of religion was seen in this study, difference in religious beliefs and understanding leads to the difference in knowledge among population. Respondents belonging to Islam were good in overall knowledge (95.4%); apart from that, lesser knowledge was found among Buddhists respondents as 74% gave correct answers to questions related to types of CAM techniques. In accordance to this study, survey was performed in Malaysia on CAM with similar religious groups, and data were analyzed, and Muslims were found to be the dominant religious group with better knowledge in comparison to other religions.\[18\] Another KAP study was performed in Democratic Republic of Congo, which showed some really good difference in knowledge among different religious groups, which are similar to this study.\[19\]

### Practice toward traditional Chinese medicine

This study on TCM explained the racial differences and their effect on practice. Statistically high significant association was seen in ethnic groups on the practice with $P < 0.001$. This study identified that Malay population was having (95%) good practice, which is better among all the existing ethnicities. Therefore, Chinese and Indian populations were having comparatively moderate practice and weaker association between ethnic groups. Many other previous studies highlighted on the ethnic groups, and identified the racial gap on the practice pattern among different races observed.\[9,20\] Another study performed in Malaysia on CAM showed different ethnic groups and their strong effect on the practice pattern; the results of the study showed better practice pattern in Malay population followed by Chinese population.\[21\] The better practice pattern may be found due to religious and traditional beliefs despite

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**Table 2 : Knowledge toward the use of traditional Chinese medicine**

| Variables       | Correct, n (%) | Wrong, n (%) | $P$ value | Effect sizea |
|-----------------|----------------|--------------|-----------|--------------|
| Gender          |                |              |           |              |
| Male            | 137 (75.3)     | 45 (24.7)    | 0.024**   | 0.112        |
| Female          | 192 (84.2)     | 36 (15.8)    |           |              |
| Education level |                |              |           |              |
| No formal education | 2 (33.3)   | 4 (66.7)     |           |              |
| Primary         | 3 (75.0)       | 1 (25.0)     | 0.002     | 0.205        |
| Secondary       | 48 (70.6)      | 20 (29.4)    |           |              |
| Undergraduate   | 243 (81.8)     | 54 (18.2)    |           |              |
| Postgraduate    | 33 (94.3)      | 2 (5.7)      |           |              |
| Ethnicity       |                |              |           |              |
| Malay           | 82 (75.9)      | 26 (24.1)    |           |              |
| Chinese         | 161 (89.9)     | 18 (10.1)    | <0.001*   | 0.323        |
| Indian          | 56 (60)        | 37 (39.8)    |           |              |
| Others          | 30 (100)       | 0 (0.0)      |           |              |
| Family income   |                |              |           |              |
| ≤2000           | 72 (60.0)      | 48 (40.0)    | <0.001    | 0.394        |
| 2001–4000       | 70 (73.7)      | 25 (26.3)    |           |              |
| ≥4001           | 187 (95.9)     | 8 (19.8)     |           |              |
| Religion        |                |              |           |              |
| Islam           | 48 (44.4)      | 26 (24.1)    |           |              |
| Buddhism        | 119 (87.5)     | 12 (8.8)     | <0.001    | 0.366        |
| Hinduism        | 38 (45.8)      | 33 (39.8)    |           |              |
| Christianity    | 50 (61.7)      | 8 (9.9)      |           |              |
| Others          | 2 (100)        | 2 (100.0)    |           |              |

**Fisher’s exact test, *Chi-square test, #Phi-Cramer’s value**
having not so proper knowledge about the therapy and still being practiced widely and recommended among the race. The respondents belonging to Islam and Buddhism were good in overall practice regarding CAM. Apparently, lesser practice was found in Hindu respondents along with other religious groups such as Christians, who were also having weaker practice. Religion is always considered as one of the differentiating parameters to discuss or explain the practice pattern and acceptance of the respondents as expressed in earlier studies.[22,23] Similar to this study on CAM, another Malaysian KAP study showed same results for practice pattern among Muslims, Christians, Buddhists, and Hindu. Similar results were found, that is, Buddhism followers were better in knowledge and good in practice compared to other groups.[24] This study highlighted the better treatment-seeking behavior of Buddhist population, which may be due to their religious consideration toward the use of TCM.

**Conclusions**

Significant association was observed among different religious and ethnic groups; the study highlights the one-sided knowledge and practice in a particular group among Malaysian population. To increase the practice and better attitude of whole population there is a need to make and implement certain strategies regarding the educational interventions. This study explains

| Variables          | Poor, n (%) | Fair, n (%) | Good, n (%) | P value | Effect size# |
|--------------------|-------------|-------------|-------------|---------|--------------|
| Gender             |             |             |             |         |              |
| Male               | 150 (82.4)  | 24 (13.2)   | 8 (4.4)     | 0.763** |              |
| Female             | 182 (79.8)  | 33 (14.5)   | 13 (5.7)    |         |              |
| Age                |             |             |             |         |              |
| 25-29              | 228 (78.9)  | 46 (15.9)   | 15 (5.2)    | 0.457   |              |
| 26-30              | 71 (88.8)   | 7 (8.8)     | 2 (2.5)     |         |              |
| 31-35              | 29 (78.4)   | 4 (10.8)    | 4 (10.8)    |         |              |
| 36-40              | 3 (100.0)   | 0 (0.0)     | 0 (0.0)     |         |              |
| ≥41                | 1 (100.0)   | 0 (0.0)     | 0 (0.0)     |         |              |
| Ethnicity          |             |             |             |         |              |
| Malay              | 103 (95.4)  | 3 (2.8)     | 2 (1.9)     | <0.001* | 0.275        |
| Chinese            | 136 (76.0)  | 29 (16.2)   | 29 (16.2)   |         |              |
| Indian             | 65 (69.9)   | 23 (24.7)   | 23 (24.7)   |         |              |
| Others             | 28 (93.3)   | 2 (6.7)     | 2 (6.7)     |         |              |
| Religion           |             |             |             |         |              |
| Islam              | 103 (95.4)  | 3 (2.8)     | 2 (1.9)     | <0.001  | 0.289        |
| Buddhism           | 102 (75.0)  | 23 (16.9)   | 11 (8.1)    |         |              |
| Hinduism           | 55 (63.3)   | 23 (27.7)   | 5 (6.0)     |         |              |
| Christians         | 70 (86.4)   | 8 (9.9)     | 3 (7.5)     |         |              |
| Others             | 2 (100.0)   | 0 (0.0)     | 0 (0.0)     |         |              |
| Place of living    |             |             |             |         |              |
| Rural              | 60 (69.0)   | 20 (23.0)   | 7 (8.0)     | 0.006** | 0.159        |
| Urban              | 272 (84.2)  | 37 (11.5)   | 14 (4.3)    |         |              |
| Employment status  |             |             |             |         |              |
| Government         | 50 (80.6)   | 6 (9.7)     | 6 (9.7)     | 0.099   |              |
| Private            | 17 (84.0)   | 28 (13.1)   | 6 (2.8)     |         |              |
| Unemployed         | 103 (76.3)  | 23 (17.0)   | 9 (6.7)     |         |              |
| Education level    |             |             |             |         |              |
| No formal education| 4 (66.7)    | 2 (33.3)    | 0 (0.0)     | 0.002   | 0.112        |
| Primary            | 4 (100.0)   | 0 (0.00)    | 0 (0.0)     |         |              |
| Secondary          | 60 (88.2)   | 3 (4.4)     | 5 (7.4)     |         |              |
| Undergraduate      | 239 (80.5)  | 42 (14.2)   | 16 (5.4)    |         |              |
| Postgraduate       | 2 (5.7)     | 8 (22.9)    | 25 (71.4)   |         |              |
| Family income      |             |             |             |         |              |
| ≤RM 2000           | 95 (79.2)   | 8 (6.7)     | 17 (14.2)   | 0.327   |              |
| RM 2001-4000       | 73 (76.8)   | 20 (20.1)   | 2 (2.1)     |         |              |
| ≥RM 4001           | 164 (84.1)  | 20 (10.3)   | 11 (5.6)    |         |              |

**Fisher’s exact test, *Chi-square test, #Phi–Cramer’s value**
the overall knowledge and practice of the general population, which is the end user of TCM therapies, shedding light on racial and socioeconomic reasons for CAM selection for major and minor illnesses. Certain studies prove that better knowledge of population resulted in better attitude and practice. Promotional and informative campaigns on CAM should be encouraged by the Ministry of Health Malaysia, to improve the overall acceptance, utilization, and health-related QoL.

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Conflicts of interest
There are no conflicts of interest.

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