

Knowledge, attitude and practice of Saudi citizens towards complementary and traditional medicine

Ahmed Tawfik El-Olemy^{1,2*}, Tamer S Aboushanab² and Meshari S Alqaed²

¹Public Health and Community Medicine, Tanta Medical School, University of Tanta, Tanta City, Egypt

²National Center for Complementary and Alternative Medicine, Riyadh, Saudi Arabia

Abstract

Background: The use of complementary and traditional medicine (C&TM) is rising among public around the world, and this epidemiological trend is attributed to diverse cultural belief systems. C&TM in the Kingdom of Saudi Arabia (KSA), like the rest of the world, is widely used among members of society.

Objective: The aim of this study was to explore knowledge, attitudes and practice (KAP) of Saudi citizens towards C&TM.

Methods: A cross-sectional study enrolled a random sample of 1116 Saudi citizens from different regions of KSA during January, 2020. Their responses were recorded on a self-designed and self-administered structured questionnaire consists of 14 questions.

Results: 48% of the studied subjects reported that they have knowledge of the treatments used in C&TM. Herbal remedy, cupping, cauterization, roquia and therapeutic medical massage were the commonest therapies used in the following order. 52% of participants relied on family and friends as a source of C&TM information, followed by the internet, study, reading and social media. 87% of community members reported that they didn't have confidence in everything that is published on social media about C&TM. 82% of participants support the opening of C&TM clinics in primary health care centers. 47% of the society believes that awareness and educational campaigns about C&TM treatments are weak. 64% confirmed that they or one of their family members previously used one of the C&TM treatments, while 60% do not consult a specialist or pharmacist before using any of these treatments. 46% believe that C&TM is safe and medically effective, with 87% of individuals who have previously used C&TM reporting that they have not experienced any complications while using complementary therapies. 50% of participants indicated that C&TM helped treat some incurable diseases, most important of which are strokes, infections, joint pain, sciatica, bone fractures, and mental illnesses.

Conclusion: Overall, majority of participants showed good knowledge and favourable attitudes towards T&CM along with its good practice. They rely on family and friends as a source of information. They reported that C&TM helped treat some incurable diseases. T&CM needs its integration into conventional medicine along with mandatory awareness and educational campaigns to further improve their KAP.

Introduction

Most Countries of the world practice what is known as complementary and traditional medicine (C&TM). It inherited from one generation to the next, and nearly three quarters of the world's population use it to treat their ailments. This type of medicine relies on treatments and methods presumed safe by those who believe in it. It has been tested on millions of people for thousands of years. C&TM is a health system of specific economic importance. In Africa, 80% of the population uses it to achieve possible health care for them. In China, its uses represent 40% of health care system. The proportion of those who use it at least once during their live reached 80% in Germany, 70% in Canada, 49% in France, 48% in Australia and 42% in United States [1].

National Center for Complementary and Integrative Health in America (NCCIH) defined complementary and traditional medicine as 'a variety of medical systems, health care systems, practices and products not found in modern medicine' [2]. It first classified C&TM practices in 2008 into five main groups: 1) natural practices, including herbs and nutritional supplements, 2) manual therapy, including osteopathy and chiropractic, 3) mind and body medicine which include practices such as yoga and meditation, 4) alternative medical systems including ancient Chinese medicine, and 5) energy therapy including magnetic therapy and others [3,4]. In 2018 NCCIH re-classified C&TM practices into three groups: 1) natural products, which include herbs and nutritional supplements, 2) manual and mental practices such as

yoga and massage, and 3) other practices that do not fall under the previous groups, including traditional Chinese medicine [2].

WHO strategy of traditional and complementary medicine 2014-2023 reported that number of countries that recognize the use of traditional and complementary medicine has increased to 103 in 2012, and that 29 countries have legislation regulating traditional and complementary medicine services. The number of countries with research institutes or centers in the field of traditional and complementary medicine has risen to 73 [1].

C&TM in the Kingdom of Saudi Arabia (KSA), like the rest of the world, is widely used among members of society. A group of studies conducted in KSA - although limited - reported that C&TM is widely practiced among different groups of societies by up to 76%. C&TM is used more among females and those with a limited educational level. The rates of its use differ among groups of patients with different

***Correspondence to:** Ahmed Tawfik El-Olemy, National Center for Complementary and Alternative Medicine, Ministry of Health, Riyadh 11662, Saudi Arabia, Tel: 00966542955594; E-mail: a.alemy@nccam.gov.sa

Key words: complementary and traditional medicine, conventional medicine, knowledge, attitude and practice, saudi citizen

Received: April 10, 2019; **Accepted:** April 16, 2020; **Published:** April 20, 2020

diseases [5,6]. Religious and spiritual treatments ranked first, followed by the use of honey and bee products, black seed, cupping, various herbal remedies, and cautery. The National Center for Complementary and Alternative Medicine in KSA (NCCAM) did many surveys and opinion polls to show community trends and pattern of use of C&TM practices in certain regions of the kingdom [7-10]. In a survey conducted in 2011, NCCAM asked community members about C&TM practices they used at least once during their life. The answer was herbal remedy, roquia (from religious practices), honey and bee products, and cupping in the following order. While the opinions of health practitioners differed slightly, they mentioned roquia first, followed by treatment with honey and bee products, herbal treatment, then cupping [7,8]. Hence NCCAM conducted this study to explore knowledge, attitudes and practice of populations in all regions of the kingdom about C&TM.

Objectives of the study

To study knowledge, attitudes and practice of Saudi citizens regarding C&TM.

Material and methods

Study design

This was a cross-sectional survey of randomly selected sample of population at different regions of KSA.

Setting

This study was conducted in all 13 regions of KSA during January 2020.

Sample

A stratified random sample of 1116 Saudi citizens was recruited. The participants aged 18 and more were chosen from all regions of the kingdom. The population are classified into different strata according to gender and region. A simple random sample was chosen from each stratum using special computer program designed for this randomization. The National Center for Public Opinion Polls is the responsible for randomization and collection of data.

Questionnaire

The National Center for Complementary and Alternative Medicine (NCCAM) established at 2008 as a national reference for C&TM, situated in Riyadh - the capital of KSA - designed a self-administrated structured questionnaire in Arabic language that aimed to explore knowledge, attitudes and practice of diverse participants including public, professionals and medical students. A slightly modified version of this questionnaire was used in the present study. The questionnaire was piloted on 30 participants - not included in the study - who suggested minor linguistic changes. These changes were made and three C&TM and two Public Health experts agreed on the final questionnaire. This questionnaire consisted of 14 questions explored the following elements: i) Public' knowledge about C&TM and its sources; ii) utilization of several listed C&TM modalities by the participant and his/her family members; iii) participants attitudes towards C&TM; iv) causes of C&TM use and 5) Demographic data.

Inclusion and exclusion criteria

The inclusion criteria were 1) Saudi citizen, 2) aged 18 years and more, 3) able to give oral informed consent to participate in the study, and 4) understand Arabic language. The exclusion criteria were

1) expatriates, 2) aged below 18 years, 3) don't understand Arabic language, 4) with any disabling medical disease and 5) those who refuse to participate in the study.

Procedure

Participants who orally consented to participate in the study were approached through Direct telephone calls through the call center of the National Center for Public Opinion Polls to completely fill out the questionnaire whenever appropriate. Data collectors explained the items of the questionnaire to the participant and take feedback in about 15 minutes. They were also informed to feel free to further clarify any item on the questionnaire. The researchers collected the duly filled questionnaires from all participants immediately after they completed it.

Data management and analysis

Statistical Package for Social Sciences (SPSS) Software Windows Version 21 (SPSS Inc., Chicago, IL, USA) was used for data entry, coding and cleaning together with data management and analysis. The results were described as frequencies and percentages for all research variables. The associations between both participants' KAP and their responses about C&TM were determined using Pearson's Chi-square test. A p-value of ≤ 0.05 was considered significant.

Ethical considerations

The first author informed the concerned authorities of NCCAM about this study. The permission was granted to him for conducting the present study. Oral informed consent was taken from all participants prior to the distribution of questionnaire to them. Furthermore, complete answering of the questionnaire is considered as an informed consent to participate in the study. The participants were clearly informed in nontechnical language about the nature and objectives of the study. In addition, they were also informed that their anonymized data will be used only for research purpose and its confidentiality will be maintained. The participants can contact the study team for any query or to know the study results in the future. No incentives or rewards were given to the participants. Furthermore, this study did not involve any risk to the participants.

Results

The sample size reached 1116 individuals from different regions of the Kingdom. The percentage of males was 57% and females 43%. The highest percentage of the sample for individuals with a Bachelor's degree (50%), and the percentage of married couples reached 81% (Table 1).

Knowledge

Nearly half of the studied subjects reported that they have knowledge of the treatments and methods used in complementary or traditional medicine, with herbal remedy, cupping, cauterization, Roquia, and therapeutic medical massage at a rate of 40%, 16%, 16%, 6%, and 6% respectively (Table 2). The majority of studied subjects (52%) depend on family and friends as a source of complementary or traditional medicine information, while the Internet represented a second source of information by 14%, then studying, and reading at 13.8%, and social media at 11%. 46% of the subjects believes that complementary and traditional medicine is safe and medically effective, while 29% think otherwise, and 25% have no knowledge of this.

Attitude

The results of the survey confirmed the lack of confidence of most subjects (87%) in everything published on social media about complementary and traditional medicine, while only 10% have confidence in this. The majority of studied subjects (82%) support the opening of complementary and traditional medicine clinics in the primary health care centers, while 11% are not in favor of this. 76% of subjects indicated that they go first for treatment with a doctor or a specialist consultant in hospitals or medical centers, while 7% go to the pharmacist, 6% go to a licensed complementary or traditional medicine therapist, and 4% go to a complementary or traditional medicine therapist unlicensed, and 7% go to others. 47% of the subjects believes that awareness and educational campaigns about complementary or traditional medicine treatments are weak, while 11% think they are excellent, 25% think they are good, and 18% do not have knowledge of this. The percentage of studied subjects who do not consult a specialist or pharmacist before using any of the complementary and traditional forms of medicine is 60%.

Table 1. Sociodemographic data of studied subjects

| Item | | Frequency | percentage | p |
|---------------------------|-------------------------|-----------|------------|---|
| Gender | Male | 641 | 57.4% | |
| | female | 475 | 42.6% | |
| Social status | Single | 167 | 15.0% | |
| | Married | 902 | 80.8% | |
| | Divorced | 22 | 2.0% | |
| | Widow | 17 | 1.5% | |
| | No answer | 8 | 0.7% | |
| Educational status | Middle education or low | 119 | 10.7% | |
| | Secondary school | 266 | 23.8% | |
| | Diploma | 71 | 6.4% | |
| | Bachelor degree | 561 | 50.3% | |
| | Higher education | 99 | 8.9% | |
| Age | 18- | 77 | 6.9% | |
| | 25- | 293 | 26.3% | |
| | 35- | 371 | 33.2% | |
| | 45- | 231 | 20.7% | |
| | 55+ | 139 | 12.5% | |
| | No answer | 5 | 0.4% | |
| Monthly income | -5000 Riyals | 146 | 13.1% | |
| | -10000 Riyals | 240 | 21.5% | |
| | -15000 Riyals | 190 | 17.0% | |
| | -20000 Riyals | 145 | 13.0% | |
| | 20000+ Riyals | 118 | 10.6% | |
| | No answer | 277 | 24.8% | |
| Region | Riyadh | 245 | 22.0% | |
| | Mecca | 268 | 24.0% | |
| | the eastern zone | 154 | 13.8% | |
| | Aseer | 106 | 9.5% | |
| | Medina | 64 | 5.7% | |
| | Jazan | 55 | 4.9% | |
| | Qassim | 51 | 4.6% | |
| | Tabuk | 25 | 2.2% | |
| | Hail | 32 | 2.9% | |
| | Najran | 28 | 2.5% | |
| | Albaha | 29 | 2.6% | |
| | Aljouf | 35 | 3.1% | |
| Northern borders | 24 | 2.2% | | |
| Total | | 1116 | 100% | |

Table 2. Knowledge of subjects regarding CAM and their sources

| Item | Result | Frequency | Percentage | p |
|--|--|-----------|------------|---|
| Do you have knowledge of the treatments or methods used in complementary or traditional medicine? | Yes | 532 | 47.7% | |
| | No | 584 | 52.3% | |
| In your opinion, is complementary and traditional medicine safe and medically effective? | Yes | 508 | 45.5% | |
| | No | 324 | 29.0% | |
| | Don't know | 284 | 25.4% | |
| Did complementary and traditional medicine help treat some diseases? | Yes | 552 | 49.5% | |
| | No | 360 | 32.3% | |
| | Don't know | 204 | 18.3% | |
| The most important complementary and traditional medicine treatments are most familiar to the community. | Roquia | 61 | 5.8% | |
| | Zamzam water | 19 | 1.8% | |
| | Acupuncture | 35 | 3.4% | |
| | Herbal remedy | 418 | 40.1% | |
| | Therapeutic medical massage | 62 | 5.9% | |
| | Cupping | 162 | 15.5% | |
| | cauterization | 168 | 16.1% | |
| | Chiropractic | 10 | 1.0% | |
| | Osteopathy | 14 | 1.3% | |
| | bee products (honey, royal jelly, wax) | 53 | 5.1% | |
| | olive oil | 41 | 3.9% | |
| The most reliable sources of information on which society members depend on their knowledge of complementary or traditional medicine | Study and read | 72 | 13.8% | |
| | Doctors and health practitioners | 30 | 5.8% | |
| | TV channels | 3 | 0.6% | |
| | Official and electronic newspapers | 3 | 0.6% | |
| | World wide web | 74 | 14.2% | |
| | Social media (Twitter, WhatsApp, Snapchat, Instagram, YouTube) | 56 | 10.7% | |
| | Friends and family | 272 | 52.2% | |
| colleagues | 11 | 2.1% | | |
| Total | | 1116 | 100% | |

Practice

Of the studied subjects 64% confirmed that they or one of their family members previously used one of the complementary or traditional medicine treatments or methods, as 38% of them indicated that the most commonly used treatments are herbal remedy, then cupping by 15% and cauterization by 14%. 87% of individuals who previously used complementary and traditional medicine indicated that they did not experience any complications while using the treatments. 50% of community members indicated that complementary and traditional medicine helped treat some incurable diseases, most notably strokes, infections, joint pain, sciatica, bone fractures and mental illnesses by 11%, 10%, 7%, 6%, 6%, And 5%, respectively, with the remaining other diseases represented less than 5% each.

Discussion

The present survey estimated the epidemiological features and explored the public knowledge, attitudes and practice towards complementary and traditional medicine in Saudi Arabia. This study has 1116 participants which is more than our previous studies that were conducted in Riyadh region which the first one had 216 participants [9], and the other had 518 participants [7].

Table 3. Attitude of studied subjects towards CAM

| Item | Result | Frequency | Percentage | p |
|---|---|-----------|------------|---|
| Do you support the opening of complementary and traditional medicine clinics in primary health care centers? | Yes | 920 | 82.4% | |
| | Neutral | 73 | 6.5% | |
| | No | 123 | 11.0% | |
| When you feel sick, who is the first to go to treatment? | Complementary and Traditional Medicine Therapist (unlicensed) | 47 | 4.2% | |
| | A doctor or a specialist consultant in a hospital or medical center | 846 | 75.8% | |
| | Complementary and Traditional Medicine Therapist (Licensed) | 67 | 6.0% | |
| | pharmacist | 81 | 7.3% | |
| | another person | 75 | 6.7% | |
| Do you consult a specialist or pharmacist before using any form of complementary or traditional medicine? | always | 95 | 13.4% | |
| | usually | 39 | 5.5% | |
| | sometimes | 73 | 10.3% | |
| | rarely | 76 | 10.7% | |
| | never | 425 | 60.0% | |
| How do you rate awareness and educational campaigns about complementary or traditional medicine treatments? | excellent | 120 | 10.8% | |
| | good | 281 | 25.2% | |
| | weak | 520 | 46.6% | |
| | Do not know | 195 | 17.5% | |
| The extent of subjects' confidence in all that is published on social media about complementary medicine and traditional prescriptions. | I trust very much | 4 | 0.4% | |
| | I trust | 106 | 9.5% | |
| | I do not trust | 555 | 49.7% | |
| | I do not completely trust | 417 | 37.4% | |
| Total | | 1116 | 100% | |

Table 4. Practice of studied subjects towards CAM

| Item | Result | Frequency | Percentage | P |
|---|---|-----------|------------|---|
| Have you (or a member of your family) used a complementary or traditional medicine? | Yes | 709 | 63.5% | |
| | No | 407 | 36.5% | |
| The most used complementary and traditional medicine treatments that you have previously tried | Roquia | 98 | 8.4% | |
| | Zamzam water | 35 | 3.0% | |
| | Acupuncture | 15 | 1.3% | |
| | Herbal remedy | 437 | 37.6% | |
| | Manual therapy (therapeutic massage and chiropractic) | 69 | 5.9% | |
| | Cupping | 176 | 15.1% | |
| | cauterization | 165 | 14.2% | |
| | Honey and bee products | 87 | 7.5% | |
| | olive oil | 81 | 7.0% | |
| Diseases that community members believe complementary and traditional medicine has helped treat | psychological diseases | 39 | 5.0% | |
| | Hypertension | 23 | 2.9% | |
| | Infections in general | 78 | 9.9% | |
| | Pregnancy problems | 28 | 3.6% | |
| | Gangrene | 29 | 3.7% | |
| | Strokes | 87 | 11.1% | |
| | Hypercholesterolemia | 5 | 0.6% | |
| | Musculoskeletal problems | 26 | 3.3% | |
| | Sciatica | 46 | 5.9% | |
| | Arthritis | 52 | 6.6% | |
| | Spine problems | 40 | 5.1% | |
| | Skin diseases | 20 | 2.5% | |
| | Pediatric diseases | 42 | 5.4% | |
| | General gynecology | 29 | 3.7% | |
| | All kinds of headaches | 40 | 5.1% | |
| | Obesity | 5 | 0.6% | |
| | Diabetes | 34 | 4.3% | |
| | Asthma | 38 | 4.8% | |
| | Bone fractures | 45 | 5.7% | |
| Have you suffered or complained of health complications due to your use of complementary and traditional medicine treatments? | usually | 13 | 1.8% | |
| | sometimes | 22 | 3.1% | |
| | rarely | 34 | 4.8% | |
| | never | 613 | 86.7% | |
| | Do not know | 25 | 3.5% | |
| Total | | 1116 | 100% | |

In the present study, 64% of the total participants or one of their families have used complementary and alternative medicine at least once during their life. This result is in agreement with some of the previous studies which were held in Saudi Arabia such as AlFaris, *et al.* (68%) [10], AlKharfy (63%) [11], and Mohammed, *et al.* (67%) [12]. The use of C&TM ranged from 60% to 75%. It varied according to the used definition of complementary and traditional therapy [6].

In the present study 52% of participants reported that family and friends are the main source of information about C&TM. This is partially in accordance with the results of the previous study done by NCCAM that reported that family and mass media such as TV and news were the main source of information to 46.3% and 46.5% of participants respectively [7]. The majority of participants in our study (87%) didn't trust information obtained or published on social media about complementary and traditional medicine. This is in agreement with study conducted by Alduraywish, *et al.* who reported that most of participants in their study distrust health information represented by social media [13].

There are many positive responses in this study which represents the good knowledge and awareness of the public towards general health and complementary medicine. 76% of participants reported seeking medical consultation from medical doctors as their first choice. 82% of participants reported that they agreed to integrate complementary medicine clinics with primary health care services. On the other hand, 60% of participants reported that they did not consult the doctor or pharmacist before using complementary and traditional medicine. This negative response needs actions to be taken to trigger the importance of seeking medical consultation before using any complementary medicine treatment.

This study has some limitations. Most participants were married (81%) and have a bachelor degree (50%) which may not represent the whole community. More population variation will be needed in future studies. Hence, the results of this study are not generalizable. This study has many strengths as it is the first study to include all regions of Saudi Arabia. It is also having a well-designed questionnaire and reflects partially the present situation regarding the public knowledge and attitudes regarding complementary and traditional medicine. It also raises the need for more health education programs in the field of complementary and traditional medicine.

Conclusion

Overall, majority of participants showed good knowledge and favourable attitudes towards T&CM along with its good practice. They rely on family and friends as a source of information. They reported that C&TM helped treat some incurable diseases. Herbal remedy, cupping,

cautery, roquia, and therapeutic medical massage were common treatments used. T&CM needs its integration into conventional medicine along with mandatory awareness and educational campaigns to further improve their KAP.

Acknowledgments

The investigators acknowledge with thanks National Center for General Opinion Polls and its employees, for their contribution to the study.

Competing interests

Authors have declared that no competing interests exist.

References

1. World Health Organization (2013) WHO traditional medicine strategy: 2014-2023. World Health Organization.
2. National Center for Complementary and Integrative Health (NCCIH) (2018) Complementary, Alternative, or Integrative Health: What's In a Name?
3. World Health Organization (2002) Traditional, complementary and alternative medicine strategy 2002-2005].
4. Eisenberg DM (2003) Health Canada, 2001; Myanmar and Mali government in 2008, *BMJ*.
5. Aboushanab T, Khalil M, Al Ahmari Y (2019) The present state of complementary medicine regulation in Saudi Arabia. *J Integr Med* 17: 147-149.
6. Khalil MK, Al-Eidi S, Al-Qaed M, AlSanad S (2018) Cupping therapy in Saudi Arabia: from control to integration. *Integrative medicine research* 7: 214-218.
7. Elolemy AT, AlBedah AM (2012) Public knowledge, attitude and practice of complementary and alternative medicine in Riyadh region, Saudi Arabia. *Oman medical journal* 27: 20.
8. Al-Rowais NA, Al Bedah AM, Khalil MK, El Olemy AT, Khalil AA, et al. (2012) Knowledge and attitudes of primary health care physicians towards complementary and alternative medicine in the Riyadh region, Saudi Arabia. *Complement Med Res* 19: 7-12.
9. Al-Yahia OA, Al-Bedah AM, Al-Dossari DS, Salem SO, Qureshi NA (2017) Prevalence and public knowledge, attitude and practice of traditional medicine in Al-Aziziah, Riyadh, Saudi Arabia. *J Adv Med Med Res* 30: 1-4.
10. Al-Faris EA, Al-Rowais N, Mohamed AG, Al-Rukban MO, Al-Kurdi A, et al. (2008) Prevalence and pattern of alternative medicine use: the results of a household survey. *Ann Saudi Med* 28: 4-10.
11. Alkharfy KM (2010) Community pharmacists' knowledge, attitudes and practices towards herbal remedies in Riyadh, Saudi Arabia. *East Mediterr Health J* 16: 988-993.
12. Mohammad Y, Al-Ahmari A, Al-Dashash F, Al-Hussain F, Al-Masnour F, et al. (2015) Pattern of traditional medicine use by adult Saudi patients with neurological disorders. *BMC Complement Altern Med* 15: 102.
13. Alduraywish SA, Altamimi LA, Aldhuwayhi RA, AlZamil LR, Alzeghayer LY, et al. (2020) Sources of Health Information and Their Impacts on Medical Knowledge Perception Among the Saudi Arabian Population: Cross-Sectional Study. *J Med Internet Res* 22: e14414.