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Knowledge, Attitudes and Practices Regarding Traditional and Complimentary Medicine in Oman

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Abstract

Objectives: The aim of the study was to assess the knowledge, attitudes and practices with regards to traditional medicine in Oman and to assess the factors that lead to its use. ***Methods:*** This was a cross sectional questionnaire-based study. All Omani nationals above the age of 18 were eligible to be enrolled. The questionnaire consisted of questions regarding the knowledge, attitudes and use of traditional medicine. ***Results:*** There were 598 (out of 700) responses to the questionnaire (response rate of 85.4%) of which 552 (mean age 33.6±7.7 years; 345 or 62.5% male) were complete. Majority of the respondents (90%) are aware of the different types of traditional medicine(TM). A high percentage (81.5%) feel that it is effective. 67.8% had tried at least one method. These were older (34.5±7.8 years vs 31.8±7.2 years, $p<0.001$) and mostly male (72.1% vs 42.1%, $p<0.001$) and in full time employment (73% vs 27%). Herbal medications (65.7%) and traditional massage (60.4%) were the most common form of TM that was practiced. Women tended to go more for herbal medications (69.2%) and massage (63.4%), while, for men cupping was the most popular (65.1%) followed by herbal medications (64.4%) and massage (59.2%). Back pain was the most common condition for which TM was used with only a small

percentage reporting any side effects. ***Conclusion:*** There is widespread use of TM among the urban population in Oman. Better understanding of their benefits will help incorporate them into modern health care services.

Keywords: Traditional and complementary medicine; knowledge and attitudes

Advances in Knowledge

- This study is the first in the region to evaluate the knowledge attitudes and practices of traditional medicine among the urban population in Oman
- It shows that traditional medicine is still widely practiced in Oman

Application to Patient Care

- Understanding the use of traditional medicinal practices will help physicians evaluate patients better and helps get better histories from patients when they present in hospitals with side effects or complications related to any of these practices
- This will help to formulate plans from a governmental level to try to integrate better these traditional practices with modern health care

Introduction

Traditional medicine (TM) is a term broadly used to refer to various forms of indigenous medicine that are practiced by communities native to a particular region, such as the traditional Chinese medicine system, the Indian Ayurvedic system and the Greco-Arabian Unani system of medicine. The WHO defines TM as health practices, approach, knowledge, and beliefs incorporating plant, animal, and mineral based medicines, spiritual therapies, manual techniques, and exercises applied singularly or in combination to treat, diagnose, and prevent illness or maintain wellbeing.[1;2] The terms "complementary" and "alternative" medicine are used to refer to a broad set of health care practices that are not part of a country's own tradition, or not integrated into its dominant health care system, but part of another countries traditional practices.[1] For example, Acupuncture and Indian ayurvedic practices are part of traditional Chinese and Indian medicine respectively, but many western countries consider them as a complimentary or alternative practice as it is not part of their own traditional practices. Traditional, complementary and alternative health practices are

very common and the WHO estimates that around 70-80% of the population in both developing and developed countries use it either on its own or alongside modern therapies.[2]

The use and form of TM practices varies from country to country and indeed even between regions in a particular country.[3] It forms part of the culture in many Asian and African countries.[3;4] Many of these practices like the Indian Ayurvedic system or the African or Chinese systems are centuries old and have been handed down from generation to generation either by word of mouth or by written script. Some of these practices are related to the use of herbs or animal or plant products or might be related to physical practices such as traditional massages, acupuncture, exercises, or other practices such as cupping and branding.[2;4] In the past, in many developing countries, practitioners of TM were the only source of health care in remote villages due to poor access to modern hospitals and doctors which were expensive and at times miles away.[5] With improved access to modern health care in developing countries, the number of these practitioners of TM has dwindled considerably.[6] Despite this, many of these practices are embedded in the culture and customs of many communities and these traditional practices coexist along with modern hospitals and modern medicine.[4]

There is now a renewed interest in traditional and complementary practices in the western world and indeed even in many developing countries.[4;7] They are considered to be more natural and therefore free from side effects of harmful chemicals. Patients also tend to turn to them for chronic conditions such as diabetes, hypertension or chronic aches and pains typically back pain. Even a decade ago, a study from Australia suggested that around 70% of the population has used at least one form of complementary medication with an estimated annual expenditure of more than US dollars 3 billion in 2007 on traditional and complementary medications.[8] More recently, in the United states around 32 billion dollars were spent on complimentary medicine in 2012 and it is expected to reach around 60 billion dollars in 2021.(7) The Global market for complimentary medicines is estimated to be around 100 billion US dollars and expected to rise to more than 400 billion US dollars in 2028.[9]

In Oman, there is a rich heritage in the use of traditional health medicine which has been practiced for centuries.[10] Oman has a rich biodiverse flora and fauna due to its varied terrain of mountains,

deserts and river beds (Wadis) which has led to herbal medications that are unique to this region.[11] They have also been influenced greatly by their historic ties with other civilisations. Oman has a history of trade for many centuries with countries in Africa, the Indian subcontinent and even far off places such as Europe and China. As a result, some of the traditional practices in Oman have derived important aspects from these civilisations.[11;12] Some of the common practices in Oman include traditional massages with herbal oils, branding (known locally as Wassam), cupping (known locally as hijama), herbal medications and more recently acupuncture.[12]

With urbanisation of the Omani population and the improved access to modern health care even in rural areas of the country, it is not clear whether patients still seek out these traditional practices. The aim of this study is to assess the knowledge, attitudes, and practices among the general Omani population with regards to the traditional medical practices. We also sought to find out the factors that affect the utilisation of these practices. The findings of this study can help governmental institutions devise strategies to control and incorporate the use of traditional practices in modern medicine.

Methods

Patient recruitment:

This was a cross-sectional questionnaire based study conducted among general population in Muscat, Oman. Ethical approval was granted by the medical research ethics committee, college of medicine and health sciences at sultan Qaboos University prior to commencing the study. The study was conducted between November 2019 and March 2020. All adults above the age of 18 were eligible to take part in the study. We excluded those under the age of 18 and those not willing to participate. A convenience sampling method was employed. The subjects were recruited from malls and public places during health promotion events. It was also posted as a link and circulated on social media. Prior to filling in the questionnaire, the rationale and reason for conducting the study was explained to the participants and they signed a consent statement on the questionnaire. Those filling in the electronic questionnaire had to tick a box stating that they have read the rationale for the study and understood it and consented to taking part.

Questionnaire development:

The questionnaire was self-developed and derived from other similar studies.[6, 8, 13, 14, 15] It consisted of 21 items in two sections. The first part comprised of the demographic data of the participants and consisted of five questions. The second part of the questionnaire (16 items) collected data about the participants' knowledge, attitudes and practices with regards to the traditional medical practices. To test knowledge, each participant was asked five (yes or no) questions about the use of the TMs, potential risks of TMs, side effects of TMs, and the need of TMs training. The respondents' attitudes and practices were measured using 11 (yes or no) questions that focussed on the history of TM use, promoting these methods to others, method efficacy, and desire to use it again. This questionnaire was devised in Arabic, and was modified, reviewed and adjusted based on interviewing lay members of the public regarding the various traditional practices that are available in Oman. It was piloted on 50 volunteers and minor adjustments were made to the language to remove ambiguity and improve clarity and used in the final questionnaire. No questions were deleted following the pilot. The final chronbachs alpha was around 0.78, 0.83 and 0.79 for the knowledge, attitude and practice questions respectively with the overall alpha value of 0.81, which is acceptable level of reproducibility.

Statistics:

Sample size estimations were made according recommendations for population based cross sectional questionnaire studies, where a minimum of 384 to 400 participants are required for a standard error of 5%.[16] The data were analyzed using SPSS version 21 software (IBM corp. Armonk, NewYork USA). All data are described as either percentages or mean ± standard deviation or median (interquartile range). Students t test, Mann-Whiney U test or chi-square test were used as appropriate. Binary logistic regression was used to predict use of any TM practice as a whole or individually. The demographic factors were used as predictors. A p value of <0.05 was considered to be significant. The data has been stored securely in a password protected file that is only accessible by the investigators.

Results

A total of 700 questionaires were distributed of which 598 replies were received (response rate of 85.4%), of which 46 were incomplete. Therefore 552 (mean age 33.6±7.7 years; 345 or 62.5% male) responses were included in the final analysis. There were 32 diabetics (5.8%), 22 (4%)

hypertensive, 14(2.5%) with heart disease. Majority of the respondents (491 or 88.4%) who did not have any of these risk factors. Most of the respondents were in full time employment (78.1%) with another 3.4% in full time education. Nearly three quarters of the respondents had completed a university diploma degree or higher [Table 1].

Table 2 shows the results of the general knowledge and attitudes towards traditional medicine practices. Majority of people know about/are aware of the different types of traditional methods such as Wassam – 476 (86.2%), cupping 495(89.7%), traditional massage 427 (77.4%) herbal medications 461 (83.5%) and acupuncture 384 (69.6%). Although most feel that traditional medicine is not better than modern medicines (80.3%), a high percentage (81.5%) feel that it is effective and around two-thirds (374 or 67.8%) said that they had tried at least one traditional method. Of those who had tried it, majority (310 out of 374 or 82.8%) found it was useful with only a small percentage 31 out of 374(8.2%) saying they had some form of side effects.

Most of those who had used it said they would try it again (85.2%), though only a small percentage said they would recommend its use to others(36.1%). Of those who have not tried it, most did not have any specific reason for not trying, but 30.8% said that they did not know enough of it to try it. There was no significant difference between the attitudes and practices between men and women apart from the fact that there was a significant higher proportion of men who had tried some form of traditional medicine than women($p<0.001$), with men also more likely to try it again ($p<0.001$).

Those who had tried at least one traditional practice were older (34.5±7.8 years vs 31.8±7.2 years, $p<0.001$) and mostly male (72.1% vs 42.1%, $p<0.001$) as compared to those who did not try it [Table 3]. 78.2% of males had tried some form of traditional medicine as compared to 50.2% of women. Most of those who had tried a traditional practice were in active employment (73% of those employed) with only a third of those in full time education and just over half of those who were unemployed or retired. However, there was no difference with regards to educational status. Similarly having any cardiovascular risk factor also did not influence their use of TM practices.

The type of TM practice utilised did not vary according to age, sex employment status or educational status [Table 4]. Herbal medications (65.7%) and traditional massage (60.4%) were

the most common form of TM that was practiced. Women tended to go more for herbal medications (69.2%) and massage (63.4%) rather the other forms of TCA (cupping 29.8%, wassam 24%, and acupuncture 11.5%). Meanwhile, more than half of men have tried all forms of TM practices apart from wassam (46.6%) and acupuncture (21.8%), with cupping being the most common (65.1%) followed by herbal medications (64.4%) and massage (59.2%). A high proportion of patients with diabetes (66.6%) and hypertension (72%) have tried herbal medications, with a high proportion saying that they specifically used it to lower blood sugar (56.2%) or blood pressure (77.2%).

Table 5 shows the distribution of the type of TCA practice with the condition treated. Back pain was the most common condition for which TM was used and majority had tried traditional massage (74.2%), cupping (69.3%) and herbal medications (62.3%) for this. Acupuncture was the least common practice, and again, when tried, was mainly for back pain. The other conditions for which TM was used were headache, abdominal pain, "nerve" pain and swelling.

Binary logistic regression revealed that age ($p<0..001$) and gender ($p<0.001$) strongly predicted the use of any traditional practice. The other factors such as educational or employment status were not predictive. Gender also specifically predicted the use of Wassam ($p<0.001$), cupping ($p<0.001$), and acupuncture ($p>0.001$). Knowledge regarding a specific practice predicted their use in wassam ($p=0.04$), cupping ($p<0.001$), massage ($p<0.001$) and herbal medications ($p<0.001$). Employment status was only predictive of the use of herbal medication ($p=0.01$)

Discussion

In Oman, there appears to be continued widespread use of TM practices for a range of ailments. The proportion of people who had used some form of TM in this study is 67.8% which is similar to that reported in other studies from countries such as Ethiopia,[13] Nigeria,[14] Ghana,[15] India,[6] China,[17] and South Africa.[18] As in other countries, it is usually used mainly for chronic conditions that do not respond to modern medications or for which there is no cure such as diabetes, low back pain, muscular pain etc. It is interesting that many of those who have used it say that they tolerated it well and found it useful and would recommend its use. Patterns of use however suggest that the more physical forms of traditional practices such as massage, acupuncture, branding and cupping

are used more by men, whilst women tend to use herbal medications more than other forms. This is consistent across different cultures.[6, 13-18]

Consistent with other studies, herbal therapy was the most common form of TM that was utilised in this study group.[15;19] Herbal medications can be used for a wide variety of ailments and are considered to be safe and generally free from side effects as it is derived from naturally occurring plants and herbs. Traditional herbal therapy is common in many cultures usually with the indigenous herbs and plants that are unique to that particular country or region. Studies from the Middle-East have demonstrated a high level of use of herbal medications for many ailments and especially during pregnancy. [20,21] Many of the traditional Omani herbal medications contain rose water, lime and local honey which are plentiful in the hilly ranges of Jebal Akhdar.[11;12] The leaves, resin, bark and sap of plants found in these hills are also used extensively in the herbal preparations. [11;12] In addition, the Dhofar region of Oman is famous for frankincense which has been used for centuries as an incense as well as for its medicinal properties.[22] Frankincense forms a part of many of the Omani herbal medications, both as a paste, as an inhalant, an ointment or even for ingestion. In view of this abundance of local medicinal herbs and plants, it is therefore not surprising that this was the most common form of TM in this study. The use of herbal medications is widespread and generally unregulated in most countries and although they appear to be well tolerated in the current study, patients may develop unexpected side effects especially with prolonged or excessive use. It is therefore recommended to include a history of ingestion of herbal medications as part of the routine work up of patients. [21]

Traditional Massage therapy is common all over the world and is used for a variety of conditions. It has been shown to decrease muscular and joint pain, labour pain, improve mood, reduce anxiety, improve quality of sleep and reduce blood pressure in the short term,[23] although data on long term benefits are lacking.[24] However, it is readily available, presumed safe and often has an immediate effect on pain and mood and hence its popularity.[25] There are various mechanisms to explain the effects of massage on pain and mood. The pressure and local heat caused by rubbing and massaging improves blood flow and local vasodilatation. There are also neuro-hormonal changes such as increased dopamine and decreased noradrenaline levels, changes in parasympathetic activity, and changes in neuronal excitability after massage.[26] This was the second most common

form of TM practice among the current study population. However as with the other forms of TM, it appears to be predominantly used by males and employed individuals. It was the second most common form of TM used by women. and used for most indications.

Branding is a common practice among many countries.[27] This involves applying a hot metal object to the affected part of the body and the third degree burns so caused are considered to be a form of counter irritant to the original disease. Although this is dangerous and potentially harmful,[28] it is widely practiced in many countries and known by different names such as "Wassam" in Oman, "Guboow" in Somalia, "kaiy" in Libya etc.[27] Despite its popularity, there have been many case reports of complications related to branding.[12;28] It was not the most commonly used practice in the present study cohort and was used mainly by older men. However, interestingly, almost half of the men who had practiced some form of TM said that they had used it, suggesting that it is still popular despite the pain and the potential harm.

Cupping therapy is another common traditional physical method of treatment in many parts of Asia and the Middle-east and is growing in popularity in the west. There are two types of cupping either wet cupping (Or Hijama as it is known in Oman)or dry cupping. It involves the application of a bamboo, glass or plastic cup at the area of treatment. Vacuum is then created either manually or by electromagnetic suction inside the cup to draw the skin into the cup. In wet cupping, blood is drawn into the cup via a small incision made prior to the application of the cup, while in dry cupping, no blood is drawn. The mechanism of action of cupping is not clear, and many theories have been proposed. Some suggest that it acts by triggering a diffuse noxious inhibitory control or by the removal of oxidants and the decrease of oxidative stress locally. Others hypothesise that this therapy drains excess fluids; increases blood flow to skin and muscles; and stimulates the peripheral nervous, neurohormone, circulatory, and immune systems.[29] There are numerous clinical trials and meta-analysis of its use in a variety of conditions such as back pain, neck pain migraine, hypertension and chronic obstructive pulmonary disease.[29-31] The results are variable, with some studies showing benefit compared to placebo or standard therapy whilst others did not. Interest in cupping has increased after some celebrity athletes have been shown to use it.[32] In this cohort, less than half of those who had used some form of TM had used cupping, similar to Wassam, demonstrating that there is still considerable interest in this form of therapy.

Acupuncture was the least common of the TM utilised in this study. Acupuncture is a Chinese TM practice that involves the placing of needles in special locations that can affect the pain sensations. It is suggested that by affecting afferent nerve signalling, acupuncture can lead to the release of endogenous opioids and thereby reduce pain.[33] Although it has been around in Chinese traditional practice for many centuries, it is only within the last few decades that it has been gaining popularity and acceptance in much of the western world.[34] Inconsistent clinical results, limited availability (as it has to be provided by specially trained professionals) and misconceptions about its use such as pain and other complications limit its availability and overall appeal as compared to other forms of TM.[35] It is interesting to note that other "painful" and potentially harmful practices such as wassam (branding) were more popular than acupuncture. This could be due to familiarity with wassam as it has been practiced in the region for a long time.

There were no clear demographic factors that could predict the use of TM. As in other studies from the region, massage therapy and herbal medications were used by both men and women, while men also used the more "painful" physical therapies such as wassam, cupping and acupuncture.[19] TM was used by a high proportion of those in active employment as compared to students and those not in active employment, perhaps reflecting the cost implications of using TM.

One of the limitations of this study was that this was confined to the urban areas of the capital city of Muscat in Oman. The use and views of the population living in rural areas might be different. Similarly, the present cohort had a high proportion of young, educated and employed individuals suggesting a higher socioeconomic status (although we did not collect data on household income). The views and practices of those who are older and who have not got formal education beyond primary school might be different and are not represented in the current survey. Similarly, the practices and attitudes towards traditional medicine in the rural areas of Oman, might be different. Despite these limitations, the sample size of this study was high and it gives an insight into the knowledge, attitudes and practices relating to traditional medicine in modern day Oman. Additionally this is the first study to assess the attitudes of the Omani population regarding traditional medical practices.

This study has demonstrated the widespread use of TM practices among the urban population in Oman. The use of TM practices is deeply embedded in the social culture of the population with many using it and feeling benefit. In many countries, efforts have been undertaken to try and integrate these practices to complement modern health care.[2,3,5,6] Although this study has given an insight into the practices and attitudes, more research is required to help understand the local TM practices better, so that they can be fully integrated into the local health care. Many patients seem to find benefit in these traditional practices, and utlising them to complement modern health care can go a long way in improving the overall health of the population. Care should also be given to educate the population regarding the ill effects of some of the poorly understood practices such as branding or untested herbal concoctions, which can give rise to serious complications

Conclusion

Despite the availability and ease of access to modern health care, there is still widespread use of traditional medicinal practices alongside modern medicine in urban Oman. Traditional practices are part of the culture and heritage of various communities, though these practices appears to be used less frequently by the younger age group as compared to the older population. More needs to be done to educate the public regarding the ill effects of some of the more harmful methods of TM, while at the same time a better understanding of the mechanisms underlying the benefits of some of these practices is needed to help integrate them better into the local health services.

Conflict of Interest

The authors declare no conflicts of interest.

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Authors' Contribution

HAR and AAM collected the data. AAM, SN and MAM contributed to the manuscript writing. SN analysed the data.

References

(1) Traditional medicine: Definitions. 2021. 22-5-2021. Availabe at https://www.who.int/traditional-complementary-integrative-medicine/en/ Accessesd on 14 July 2021

(2) WHO: traditional medicine strategy 2014-2023. 2021. Availabe at WHO traditional medicine strategy: 2014-2023 Accessesd on 14 July 2021

(3) Oyebode O, Kandala NB, Chilton PJ, Lilford RJ. Use of traditional medicine in middle-income countries: a WHO-SAGE study. Health Policy Plan 2016 Oct;31(8):984-91.

(4) WHO global report on traditional complimentary and integrative medicine 2019. 2021. Availabe at https://www.who.int/traditional-complementary-integrative-medicine/WhoGlobalReportOnTraditionalAndComplementaryMedicine2019.pdf Accessesd on 14 July 2021

(5) Birhan W, Giday M, Teklehaymanot T. The contribution of traditional healers' clinics to public health care system in Addis Ababa, Ethiopia: a cross-sectional study. J Ethnobiol Ethnomed 2011 Dec 2;7:39.

(6) Angmo K, Adhikari BS, Rawat GS. Changing aspects of traditional healthcare system in western Ladakh, India. J Ethnopharmacol 2012 Sep 28;143(2):621-30.

(7) The state of the nutritional supplements market. 2021. Availabe at Nutritional Supplements Flexing Muscles As Growth Industry (forbes.com) Accessesd on 14 July 2021

(8) Xue CC, Zhang AL, Lin V, Da CC, Story DF. Complementary and alternative medicine use in Australia: a national population-based survey. J Altern Complement Med 2007 Jul;13(6):643-50.

(9) Complementary and Alternative medicines market report. 2021. Availabe at https://www.grandviewresearch.com/industry-analysis/complementary-alternative-medicine-market Accessesd on 14 July 2021

(10) Azaizeh H, Saad B, Cooper E, Said O. Traditional Arabic and Islamic Medicine, a Re-emerging Health Aid. Evid Based Complement Alternat Med 2010 Dec;7(4):419-24.

(11) Divakar MC, Al-Siyabi A, Varghese SS, Rubaie MA. The Practice of Ethnomedicine in the Northern and Southern Provinces of Oman. Oman Med J 2016 Jul;31(4):245-52.

(12) Shenoy R, Bialasiewicz A, Khandekar R, Al BB, Al BH. Traditional medicine in oman: its role in ophthalmology. Middle East Afr J Ophthalmol 2009 Apr;16(2):92-6.

(13) Wassie SM, Aragie LL, Taye BW, Mekonnen LB. Knowledge, Attitude, and Utilization of Traditional Medicine among the Communities of Merawi Town, Northwest Ethiopia: A Cross-Sectional Study. Evid Based Complement Alternat Med 2015;2015:138073.

(14) Aina O, Gautam L, Simkhada P, Hall S. Prevalence, determinants and knowledge about herbal medicine and non-hospital utilisation in southwest Nigeria: a cross-sectional study. BMJ Open 2020 Sep 10;10(9):e040769.

(15) Sato A. Revealing the popularity of traditional medicine in light of multiple recourses and outcome measurements from a user's perspective in Ghana. Health Policy Plan 2012 Dec;27(8):625-37.

(16) Sample size calculations for questionairre based studies. 2015. https://issuu.com/medecinsdumonde/docs/47-the-kap-survey-model-knowledge-a/9 Accessed on 19 August 2021

(17) Xin B, Mu S, Tan T, Yeung A, Gu D, Feng Q. Belief in and use of traditional Chinese medicine in Shanghai older adults: a cross-sectional study. BMC Complement Med Ther 2020 Apr 28;20(1):128.

(18) Nxumalo N, Alaba O, Harris B, Chersich M, Goudge J. Utilization of traditional healers in South Africa and costs to patients: findings from a national household survey. J Public Health Policy 2011;32 Suppl 1:S124-S136.

(19) AlBedah AM. Use of complementary and alternative medicine by cancer patients in Saudi Arabia: a paradox in healthcare. J Altern Complement Med 2013 Nov;19(11):918-9.

(20) Aljofan M, Alkhamaiseh S. Prevalence and Factors Influencing Use of Herbal Medicines During Pregnancy in Hail, Saudi Arabia: A cross-sectional study. *Sultan Qaboos Univ Med J*. 2020;20(1):e71-e76. doi:10.18295/squmj.2020.20.01.010

(21) Alkhamaiseh SI, Aljofan M. Prevalence of use and reported side effects of herbal medicine among adults in Saudi Arabia. Complement Ther Med. 2020 Jan;48:102255. doi: 10.1016/j.ctim.2019.102255

(22) Al-Yasiry AR, Kiczorowska B. Frankincense--therapeutic properties. Postepy Hig Med Dosw (Online) 2016 Jan 4;70:380-91.

(23) Boyd C, Crawford C, Paat CF, Price A, Xenakis L, Zhang W. The Impact of Massage Therapy on Function in Pain Populations-A Systematic Review and Meta-Analysis of

Randomized Controlled Trials: Part III, Surgical Pain Populations. Pain Med 2016 Sep;17(9):1757-72.

(24) Krinock M, Goyal D, Goel H, Nadar SK. Wanted: long term studies on massage therapy in hypertension. J Hum Hypertens 2020 Nov;34(11):741-4.

(25) Perlman A, Fogerite SG, Glass O, Bechard E, Ali A, Njike VY, et al. Efficacy and Safety of Massage for Osteoarthritis of the Knee: a Randomized Clinical Trial. J Gen Intern Med 2019 Mar;34(3):379-86.

(26) Nelson NL. Massage therapy: understanding the mechanisms of action on blood pressure. A scoping review. J Am Soc Hypertens 2015 Oct;9(10):785-93.

(27) Ghazanfar SA. Wasm: a traditional method of healing by cauterisation. J Ethnopharmacol 1995 Jul 28;47(3):125-8.

(28) Raza S, Mahmood K, Hakeem A, Polsky S, Haemel A, Rai S, et al. Adverse clinical sequelae after skin branding: a case series. J Med Case Rep 2009 Jan 23;3:25.

(29) Kaki A, Sawsan R, Samiha M, Al JS, Elalah MA, Ibrahim N. Wet Cupping Reduces Pain and Improves Health-related Quality of Life Among Patients with Migraine: A Prospective Observational Study. Oman Med J 2019 Mar;34(2):105-9.

(30) Kim S, Lee SH, Kim MR, Kim EJ, Hwang DS, Lee J, et al. Is cupping therapy effective in patients with neck pain? A systematic review and meta-analysis. BMJ Open 2018 Nov 5;8(11):e021070.

(31) Moura CC, Chaves ECL, Cardoso ACLR, Nogueira DA, Correa HP, Chianca TCM. Cupping therapy and chronic back pain: systematic review and meta-analysis. Rev Lat Am Enfermagem 2018 Nov 14;26:e3094.

(32) Increased interest in cupping after celebrity use. 2021. Availabe at https://www.theguardian.com/sport/2016/aug/08/cupping-therapy-interest-spikes-michael-phelps-rio-olympics Accessesd on 14 July 2021

(33) Vanderploeg K, Yi X. Acupuncture in modern society. J Acupunct Meridian Stud 2009 Mar;2(1):26-33.

(34) Hao JJ, Mittelman M. Acupuncture: past, present, and future. Glob Adv Health Med 2014 Jul;3(4):6-8.

(35) Deng S, Zhao X, DU R, He SI, Wen Y, Huang L, et al. Is acupuncture no more than a placebo? Extensive discussion required about possible bias. Exp Ther Med 2015 Oct;10(4):1247-52.

Table 1: Demographic features of the respondents

	Numbers (%)
Age (years)	33.6±7.7
Gender	
Male	345 (62.5)
Female	207(37.5)
Diabetic	32 (5.8)
Hypertensive	22 (4)
Heart disease	14 (2.5)
No cardiovascular risk factors	491 (88.9)
Employment	
Student	19 (3.4)
Full time employed	431 (78.1)
Retired/Unemployed	102 (18.5)
Educational status	
Less than secondary school	24 (4.3)
Completed secondary school	118(21.4)
Diploma or higher	410 (74.3)

Table 2: Knowledge and attitudes regarding traditional and complementary medicine practices

	Number (%)	Male (n=345)(%)	Female(n=207)(%)	P value
Are you aware of:				
Wassam	476 (86.2)	291(84.3)	185(89.3)	0.09
Cupping	495 (89.7)	314(91)	181(87.4)	0.1
Massage	427 (77.4)	253(73.3)	174(84.1)	0.04
Herbal medications	461(83.5)	286(82.8)	175(84.5)	0.6
Accupuncture	384 (69.6)	232(67.2)	152(73.4)	0.1
Do you feel traditional medicine is effective?	450 (81.5)	291(84.3)	159(76.8)	0.02
Do you think it is better than modern medicine?	109 (19.7)	69(20)	40(19.3)	0.8
Have you ever tried any?	374 (67.8)	270(78.2)	104(50.2)	<0.001
Did you try it for Hypertension (n=22)	17 (77.2)	(n=15) 13(86.6)	(n=7) 4 (57.1)	0.1
Did you try it for reducing blood sugar (n=32)	18 (56.2)	(n=17) 10(58.8)	(n=15) 8(53.3)	0.6

For those who had tried it (n=374)		(n=270)	(n=104)	
Was it useful?	315 (84.2)	228(84.4)	87(83.6)	0.5
Did you have any side effects?	31 (8.2)	21(7.7)	10(9.6)	0.6
Will you try it again in future	319 (85.2)	163(78.7)	89(85.5)	<0.001
Did you use it alongside modern medications	186 (49.7)	125(60.3)	61(58.6)	0.07
Would you recommend its use	135 (36.1)	103(49.7)	31(29.8)	0.1
If you have not used any, why not? (n=178)		(n=75)	(n=103)	
Not effective	67 (37.6)	37(49.3)	30(29.1)	
Don't know where available	4(2.2)	4(5.3)	0	
Expensive	8(4.4)	7(9.3)	1(0.9)	
Don't know enough of it	55 (30.8)	32(42.6)	23(22.3)	0.04
No specific reason	168 (94.3)	70(93.3)	98(95.1)	

Analysis by Chi-square test

Table 3: Characteristics of respondents who have tried any form of traditional treatment

	Not tried (n=178)(%)	Tried (n=374)(%)	P value
Age (years)	31.8±7.2	34.5±7.8	<0.001*
Sex			
Male	75 (42.1%)	270 (72.1%)	
Female	103(57.9%)	104 (27.9%)	<0.001
Employment status			
Student	13(7.3%)	6 (1.6%)	
Employed	116(65.1%)	315(84.2%)	
Unemployed/retired	49 (27.6%)	53 (14.2%)	<0.001
Educational status			
Primary school or less	8(4.4%)	18(4.8%)	
Secondary school	34(19.1%)	84(22.4%)	
Diploma or higher	138(76.5%)	272(72.8%)	0.4
Co-morbidites			
Diabetes	7(3.9%)	15(4%)	0.9
Hypertension	7(3.9%)	25(6.6%)	0.19
Heart disease	3(1.6%)	11(2.9%)	0.38

*Analysis by chi-square test, except * which is by students t-test*

443 **Table 4**: Characteristics of those trying each different modality of traditional practice (n=374).

	Tried Wassam (n=151)	Tried cupping (n=207)	Tried massage (n=226)	Tried Herbal (n=246)	Tried acupuncture (n=71)
Age (years)	34.6±7.8	34.8±7.5	34.2±8.2	34.9±8.5	35.9±9.4
Sex					
Male(n=270)	126(83.4%)	176(85%)	160(70.7%)	174(70.7%)	59(83%)
Female(n=104)	25(16.6%)	31(15%)	66(29.3%)	72(29.3%)	12(17%)
Employment status					
Student	2(1.3%)	2 (0.9%)	3(1.3%)	3(1.3%)	0
Employed	135(89.4%)	180 (86.9%)	192(84.9%)	199(80.8%)	62(87.3%)
Unemployed	14 (9.3%)	25 (12.2%)	31(13.8%)	44 (17.9%)	9(12.7%)
Educational status					
Primary school or less	6 (3.9%)	13(6.2%)	10(4.4%)	16(6.5%)	5(7%)
Secondary school	40 (26.4%)	53(25.6%)	62(27.4%)	50(20.3%)	20(28.1%)
Diploma or higher	105(69.7%)	141(68.2%)	154(68.2%)	170(69.2%)	46(64.2%)
Diabetic (n=15)	7 (4.6%)	7 (3.3%)	6(2.6%)	10(4%)	3(4.2%)
Hypertensive (n=25)	7 (4.6%)	17(8.2%)	14(6.1%)	18(7.3%)	6(8.4%)
Heart disease (n=11)	7 (4.6%)	7 (3.3%)	5(2.2%)	7(2.8%)	3(4.2%)

444

445 **Table 5**: Distribution of the traditional practice with the symptom

	Wassam (n=151)	Cupping (n=207)	Traditional massage (n=226)	Herbal medications (n=246)	Acupuncture (n=71)
For headache (n=110)	44	77	69	73	28
For backpain (n=202)	75	140	150	126	43
For abdominal pain (n=126)	55	43	67	100	10
For nerve pain (n=147)	57	97	106	103	31
For Jaundice (n=62)	48	34	25	31	7
For swelling (n=36)	19	18	22	29	4

446