British Journal of Medicine & Medical Research
20(9): 1-14, 2017; Article no.BJMMR.32749
ISSN: 2231-0614, NLM ID: 101570965

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Prevalence and Public Knowledge, Attitude and Practice of Traditional Medicine in Al-Aziziah, Riyadh, Saudi Arabia

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Authors' contributions

This work was carried out in collaboration between all authors. Authors OAAY and AMAB designed the study. Authors NAQ, DSAD, SOS and OAAY performed the statistical analysis and wrote the protocol. Authors OAAY and NAQ wrote the first draft of the manuscript. Authors OAAY, AMAB and NAQ managed the analyses of the study. All authors managed the literature searches. Authors NAQ and DSAD revised the paper a number of times. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/BJMMR/2017/32749
Editor(s):
(1) Nurhan Cucer, Erciyes University, Medical Biology Department, Turkey.
Reviewers:
(1) Viduranga Waisundara, Rajarata University of Sri Lanka, Mihintale, Sri Lanka.
(2) Tsabang Nolé, Institute of Medical Research and Medicinal Plants Studies, Cameroon, Higher Institute of Environmental Science, Yaounde, Cameroon.
Complete Peer review History: http://www.sciencedomain.org/review-history/18425

Original Research Article

Received 14th March 2017
Accepted 27th March 2017
Published 30th March 2017

ABSTRACT

Background: For several reasons, the use of traditional medicine (TM) related to complementary and alternative medicine (CAM) has been rising globally. Therefore, the extent to which people are involved in TM/CAM therapies needs regular studies around the world.
Objective: This cross-sectional study aims to estimate prevalence and explore public knowledge, attitude and practice (KAP) of TM in Al-Aziziah, Riyadh city.
Methods: A self-designed questionnaire was administered to 276 Saudi adults living in Al-Azziziah.

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Results: Only 19.9% of participants had used TM during the past 6 months preceding the study. Most of the participants did not seek help from conventional medicine (CM) practitioners for the treatment of their disease. Furthermore, no significant association was found between education and seeking or belief in TM. Most of the responders opined that the traditional remedies have limited use in some diseases.

Conclusion: The findings of this study have important implications for physicians dealing with public beliefs concerning TM and for health planners to adopt strategies to address a growing rise in traditional medicine use by healthcare users in the Kingdom of Saudi Arabia.

Keywords: Traditional medicine; complementary and alternative medicine; conventional medicine; knowledge; attitude and practice; belief system.

1. INTRODUCTION

What options should we bear in our mind with this question? "The father of the father of the child has received it (i.e., traditional therapy), so what's the harm?" This challenging statement about conventional wisdom and practice passed from generation to generation should actually force researchers to think deeply for better understanding of the favorable or unfavorable outcomes of traditional medicine (TM) use in the community. The defining concept of TM is shrouded in dilemmas, and several terms such as alternative, complementary, complementary and alternative medicine (CAM), nonconventional, integrative medicine, and folk remedies seem to be used to differentiate this model from the modern conventional medical approach [1]. TM has no universal definition but this term is commonly used to describe healthcare that does not fall within the modern and scientific healthcare system. According to World Health Organization (WHO), "traditional medicine is the sum total of all the knowledge and practices whether explicable or not, used in diagnosis, prevention and elimination of physical, mental or social imbalance and relying exclusively on practical experience and observation handed from generation to generation, whether verbally or in writing [2]. The term TM seems unsatisfactory because it does not distinguish between the all-embracing and complex systems of healthcare delivery [3]. TM is an integral part of all human civilizations and cultures around the world. Hence, its acceptance by a population is largely conditioned by cultural factors and much of TM, therefore, may or may not be readily transferable from one culture to another [4]. The culture is the sum total of the life style, society patterns, beliefs, attitudes and the commonly accepted organized ways in which a community attempts to solve its life problem [2].

Traditional medicine is used by public around the world. Furthermore, several TM practices are prevalent across the world because TM is characterized by a wide range of therapies [1]. Three main categories of TM have been described that include systems of medicine with a definite body of knowledge which is written down and taught formally, like, Traditional Chinese Medicine (TCM, Category 1) in China, Ayurvedic and Unani system in India (Category 2) and homeopathy (Category 3) in Europe. Category two refers to the folk healers such as herbalists, bone setters, cauterizers and spiritualists who learn from a special teacher. The third category is the simple "home" remedies made using recipes that have been learnt from older relatives. Notably, TM still remains an important source and sometimes the only source of healthcare for millions of people in the low and middle income countries. A WHO survey in 1975 revealed that the traditional rural midwives play a major role in maternal and child healthcare for about 99% of mothers in Pakistan, 80% in Iraq, and 50% in Egypt [1]. Another separate survey concerning Jordan people living in urban and rural areas showed that the midwives tend to attend about 40% of deliveries. Majority (60.9%) of participants consulted traditional healers mostly bonesetters, circumcisers, midwives, herbalists and sorcerers once or more. Furthermore, education and rural status but not age impacted belief in efficacy of TM. Notably, each participant spent about 46$ on TM [5]. A university project for training of traditional practitioners in the Philippine revealed that 59% of villagers first sought the advice of traditional practitioners in spite of the availability of health professionals, and 96% believed in their healing ability [6].

Traditional medicine also has a greater role in other Asian countries. Organized health services in India provide only 10% of the medical care. Another 10% is provided by qualified physicians and the balance (80%) is split between home medical care and indigenous practitioners [7]. About 65% of rural mothers in Indian preferred

delivery to be conducted by the traditional birth attendant because the service was culturally acceptable and easily accessible, despite the presence of hospitals in rural areas [8]. Similar healthcare delivery scenarios are found in other countries in South East Asia [9]. In Africa where rural communities represent 80% [10], the traditional remedies are more commonly used. In Nigeria the majority of people use traditional rather than Western medicine for reasons of culture, cost and availability [11]. Similar epidemiological trends are found in other African countries [10,12,13]. WHO has categorized African TM practitioners into several categories including herbalist, spiritualist (use of metaphysical ways and believe in various doctrines maintaining that the ultimate reality is spirit or mind), the great spiritualist healer (uses incantations and rites) and diviners (like herbalist but also practice divination and metaphysical diagnosis [10]. According to one African survey, most physicians and medical students agreed that traditional practices are useful to some extent in medical diseases [11].

Notably, various traditional research councils and national centers were established in late 20th century in European countries to meet the ever rising public needs concerning traditional remedies [1,14]. In western world, a cross-sectional family practice study explored the experiences and beliefs of 207 patients in faith healing practices. Majority of participants reported that faith healers are quacks. Another 25% believed that faith healers can help some people with chronic diseases, and surprisingly, family physicians relatively fail to manage such patients. Furthermore, 21% of participants had attended a faith healing service. Another six percent participants stated that they had actually been cured by a faith healer [15]. In another study, faculty administered a questionnaire to 72 students for improving their ability to recognize and work effectively with the lay health beliefs and practices of their patients. A proportion of students (37.5%) replied that their patients were using some form of alternative therapy for either therapeutic or preventive purpose. About 11% of participants reported having been treated by alternative healthcare practitioners [16].

1.1 Local Scenario

Traditional medicine continues to be practiced widely in the Kingdom of Saudi Arabia, though little literature is available on its scope and magnitude. In one study, about half the patients admitted to the Central Hospital in Buraidah city had cautery marks on their bodies [17]. Other main TM practices used were bone setting, bleeding, circumcision, and herbals in various diseases. Overall, these traditional remedies continue to play important therapeutic role in the community. Besides, faith healers need continuous training in TM as they in coordination with allopathic physicians will continue to provide holistic care to health users. Watts [1989] conducted a study over a period of eleven months also in Buraidah city. The main finding reported was that 22% of the pediatric patients at King Fahad Specialist Hospital had undergone cauterization of the skin for various neurologic disorders. Cautery was generally sought when conventional medical therapies had failed. The parents' education did not appear to influence the decision to seek cautery. Majority of participants expressed that cautery did not help them. Interestingly, 35% of parents paid from 1 to 2000 SR per treatment (mean SR 737). The aggregate cost for these treatments for all patients was 71,300 SR [18]. In a related study, Rathi and colleagues [1993] found three traditional remedies used commonly in pediatric patients at General Hospital of Zilfi City. These remedies were massage for sugat**,** kowie (skin cautery) for a variety of ailments, and massae for chest trauma [19]. Massae is a diagnostic term signifying suspected trauma to the chest accompanied by pain indicating lobar pneumonia. The local healers mostly experienced women with strong beliefs in TM manage trauma of chest wall by tightly applying a large amount of sticky plaster over the entire chest with other additional instructions. Sugat is a description of depressed fontanel due to dehydration accompanied by upper respiratory tract infection and managed by massage of the tonsillar area with the finger impregnated with salt water accompanied by upward pressure in an attempt at lifting the depressed anterior fontanel from inside together with herbal paste application over anterior fontanel [19]. Gupta and Chaudhary [1992] reported from Zahran Al-Janoub Hospital, Asir region, that 73.4% pediatric admission (from a total of 1090) had a history of oral and nasal administration of oil and ghee (in Arabic Samna Ganam). These were local prevalent remedies used for pediatric patients but often associated with the development of lipoid pneumonia. The parental education had no influence on the decision regarding use of oil and ghee [20]. Other forms of TM used in pediatric cases included kohl paste over the scalp, chest and around the umbilicus

[21]. Native manual tonsillectomy is an invasive method of TM. This procedure was reported from Tihamat, Asir, and South Western region of Saudi Arabia. This surgical traditional method was carried out in four children with sore throat or difficulty in swallowing and co-morbid seizures. As a result, all children had a complicated course [22]. Traditional remedies have other adverse effects reported from King Khalid University Hospital, Riyadh. These are lead poisoning among children attributed to the use of teething powder known as "saoot" and "cabagin" [23] and accidental poisoning due to ingestion of castor oil seeds [24]. Al-Shammary [1992] studied the help seeking behavior of 566 participants with health problems during the 4 weeks preceding the study. Only 17% cases consulted local healers [25]. Overall, the continuous use of TM since ancient time is based on a number of dynamic factors including people beliefs and faith, easily accessible to the healthcare users even in the most remote areas, less costly, no need of sophisticated equipment and satisfactory outcome [14]. There have been continuing advances in several aspects of TM including research domain around the world since 1993 and a summary of this pertinent international literature is available in our two recent studies [26,27]. We did not include this introductory summary here just for avoiding repetition.

A PubMed search of regional literature using keyword 'complementary AND alternative medicine' retrieved more than a dozen articles on CAM. Notably, these studies have explored KAP of public, medical students and professionals towards CAM in Saudi Arabia and other Gulf countries [28-44]. In these studies, up to 85% of the participants used CAM therapies especially green tea and other medicinal herbs, nutrition and food supplements, roqia (reading from holy Quran), honey and other bee products, wet cupping (hijama), prayers, black seed (in Arabic Habba Aswad), myrrh (a natural gum or resin extracted from a number of small, thorny trees and used in perfumery, medicines and incense), and cautery. The traditional practitioners were spiritual healers, religious faith healers, herbalists, apitherapist (expert in honey and honey products) and wet cupping therapists. Overall, there is an increasing literature on TM in Saudi Arabia and other Arabian Gulf countries. The important findings of the present study will be discussed in light of the current traditional researches done globally for identifying the epidemiological trend and uptake of public knowledge, attitude and practice.

1.2 Aims of the Study

This study estimated the prevalence of TM and explored the public knowledge, attitude and practice of health seekers with physical problems in Al-Azziziah catchment area, Riyadh, Saudi Arabia. The significance of this study is that it will inform researchers about how epidemiological trends and public KAP in TM have been developing over the past two decades or so.

2. METHODS

2.1 Study Design

This was a cross-sectional, quantitative primary healthcare and partly community-based survey of randomly selected sample of participants and their attendants and staff of five schools from the Al-Azziziah area in Riyadh city.

2.2 Setting

The study was carried out in Azziziah area which is relatively new industrial area in South of Riyadh City. The total population of the Azziziah is about 25882 persons. This estimated population includes also the nearby new Gibs area. Of this figure, 14.1% are non-Saudis who do labor work. The remaining population (n=22234) is much similar to the characteristic young population with limited financial resources. Notably, most of them (46.4%) are under 15 years, and 1.5% is above 65 years. The families are mainly middle social class. About 95% of families make use of the governmental healthcare services. Al-Azziziah is served by a single primary healthcare center (PHC). This PHC also provides health services to the nearby Gibs area occupied by low social class population. After a pilot study, the main study was conducted using self- administered as well as interview-based questionnaires, and across-sectional sample of Saudi adult patients or their attendants was randomly selected for this purpose. The participants were between 15-65 years old attending Al-Azziziah PHC during 3 weeks period from 6-25/9/93.

2.3 Inclusion and Exclusion Criteria

The inclusion criteria were age 15 years and above (≤ 65) who were able to give informed

consent to participate in the study, and Saudi nationals who can understand at least Arabic language. The age between 15 to 65 years was considered because about 52% of population falls within this age band. The population below and above this range is possibly compromized to give precise information on the questionnaire. The exclusion criteria were expatriates, age below 15 and those with intellectual disability, and those who cannot read or write Arabic.

2.4 Procedure

The interview was conducted usually either during the consultation or in the waiting area by an assigned Arabic-speaking physician or paramedical staffs who were briefed by the investigator (OAY).By the end of third week, 210 questionnaires(females=140, males=70) were collected. The smaller sample of males may be due to poor cooperation by male doctors in the administration of questionnaires. This may also be due to poor compliance by male patients in completing the questionnaire. The study was aimed to include equal sample size from male and female participants. Therefore, an additional number of 66 male participants including teachers, administrators and servants were randomly selected from five schools, out of 15 schools, located in the same area. The time taken to fill out the questionnaire was about 15 to 20 minutes. Notably, none of the participants were exposed to formal courses of TM.

2.5 Sample

The sample comprised of participants (n=276) drawn from single PHC and a number of schools in Al-Azziziah catchment area. The participants were selected using simple random sampling technique, and they fulfilled inclusion and exclusion criteria of this study.

2.6 Questionnaire

An anonymous 3-page questionnaire with open and closed questions included the following points: 1) the personal socio-demographic data including age, sex, marital status, education and job, 2) the responder's experience in seeking traditional medical help during the previous six months. The six-month period was chosen to reduce the error of recall, 3) specification of type of traditional therapies, 4) source of information for traditional remedies, 5) identifying reasons for seeking TM, 6) seeking any conventional medical advice for their disorder, 7) to state whether the consultation was beneficial, and 8) specify reasons in case no benefit from CM. Finally, some additional facets of participants' attitude, knowledge, source of knowledge, and practice of the three chosen traditional therapies including oral herbs, skin cautery (ancient technique of burning skin/abnormal tissue), and bone-setting (joint manipulation, reduction of joint dislocation and resetting bone fractures) or any other type of alternative remedies were explored. More details of this questionnaire are available upon request from OAY/NAQ.

2.7 Ethical Considerations

The first author (OAY) informed the concerned authorities of General Health Directorate, Riyadh about this study. The permission was granted to him for conducting this study. Informed consent was taken from all participants prior to the distribution of questionnaire. The participants were clearly informed 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 participant can withdraw from this study at any time and they can contact the study team for any query or to know the study results in the future. Their continuing treatment will not be affected upon withdrawal from the study. No incentives or rewards were given to the participants. Furthermore, this study did not involve any risk to the participants.

2.8 Data Management and Analysis

Statistical Package for Social Sciences (SPSS) Software V.6 was used for data entry, coding, cleaning the data, data management and analysis. The results were described as frequencies and percentages for all research variables, continuous and categorical. The association between sociodemographic variables of participants and their responses about TM were determined using Pearson's Chi-square test. A p-value of ≤0.05 was considered significant.

3. RESULTS

A total of 276 subjects completed the questionnaire and fulfilled the study inclusion and exclusion criteria. The sociodemographic variables of TM help seekers are shown in Table 1. About 20% of participants sought traditional

medicine (n=55, 19.9%).The age group of 26-45 years old participants was more than 60% of the study population reflecting the common trend of adults consulting PHC. The participants with soldier job represented a good percentage concerning the "other" occupational category.

The distribution of most commonly presented disorders and remedies used by health seekers are shown in Table 2. In addition, the other health problems mentioned by the responders included headache, diabetes mellitus, obesity, infertility and post-natal problems. Some participants used some traditional diagnostic terms like massae and Sugat as defined up.

The three common types of TM and health problems are shown in Table 2. The most common disorders presented were gastrointestinal (23.6%), followed by musculoskeletal disorders (14.5%), and psychiatric disorders (9.1%). The herbal oral remedies (60%) were the most common therapies used by health seekers. The sources of these remedies in order of decreasing frequency were traditional practitioners (34.5%) in Riyadh, family members and friends (29.1%), and 7.3% of participants self-medicated with TM especially over-the-counter herbal preparation. About 47% of participants seeking TM did not consult in the past the CM services for their disorders. About 52.7% of participants who had consulted a physician (general practitioners, specialist or a private doctor), most of them (96.9%) had partial or no benefit. In particular, 35.5% felt that their modern medical treatment failed. Six participants (19.4%) reported that consulting physicians informed them about the self-limiting nature of the disease. Some participants (9.5%) reported that the physician did not mention the diagnosis and an equal number of participants (9.5%) were told that their disease was incurable.

Table 1. Sociodemographic (SD) variables of participants (n=276)

SD variables	Total no.	No. of TM seekers	Percentage
Sex -Male	136	30	22.1
-Female	140	25	17.9
Age -15-25 yrs.	67	13	19.4
-26-45 yrs.	175	33	18.85
-46-65 yrs.	34	9	26.5
Education			
-Illiterate	68	13	19.1
-Read & write	11	1	9.1
-Elementary	78	16	20.5
-High school	47	11	23.4
-Higher	72	14	19.4
Occupation			
-Student	38	6	15.8
-Officer	49	17	34.7
-Teacher	55	8	14.5
-Housewife	100	17	17
-Other	34	7	20.6

Table 2. The participants' health problems and use of TM

Type of disorders	CPD	GID	GUD	PD	MSD	Other	Total
Type of remedy							
Herbal	3	10	3	0	2	15	33
Cautery	1	0	0	1	1	2	5
Bone setting	0	0	0	0	2	0	2
Others*	0	3	0	4	3	5	15
Total	4	13	3	5	8	22	55
%	7.2	23.6	5.4	9.1	14.5	40.0	

*CPD= Cardiopulmonary disease, GID= Gastrointestinal disease, GUD= Genitourinary disease, PD= Psychiatric disease, MS= Musculoskeletal disease, *or combined*

Table 3 showed the attitude of participants towards traditional remedies. About 12 to 20 percent of responders scored “do not know” to the various traditional therapies, and which were omitted. However, individual participant responses were more than one on some items of the KAP. Moreover, seventy eight responders have added other traditional remedies. The most common traditional methods used by the participants for treating health problems were the Holy Quran (roqia), black seeds (Nigella Sativa, used in many diseases like diabetes, hypertension and asthma) for oral or topical application, honey and dietary supplements, folklore medicinal plants and herbs like Cassia (cinnamon used as a cooking spice), Senna (a natural, laxative medicine for constipation), and Harmal (used in jealousy). Other less commonly used methods or herbs mentioned by the participants were Hantal (Cirtrullus colocynthis, a bitter gourd/cucumber used for growing hairs), Helbah/fenugreek (Trigonella feonum graecum, used for increasing breast size), Ka La Houm (elephant ear, a vegetable), and dry ginger powder (Sonth/Saunth, used for sore throat and weight loss). For all types of remedy, the participants’ most significant opinion was that they were partially useful ($p<0.05$). There was no significant difference in attitude concerning seekers and non-seekers of traditional remedies ($p>0.05$).

Tables 4, 5 and 6 showed the participants sex, age, and marital status and attitudes towards three common types of traditional medicines, i.e., herbs, cautery and bone setting, respectively. In general, the women were less convinced than men regarding the three types of medicine of which herbs were the most acceptable and favored and cautery the least popular.

The participants with older age were more in favor of cautery and bone setting compared with other age groups ($p<0.05$). The participants with middle age were not in favor of even one type of traditional remedy, and regarded it usually as “harmful” rather than “useless” compared to the younger age group. The unmarried participants thought that the bone setting procedure is harmful compared to the married participants. Interestingly, the opposite trend was revealed concerning cautery. In general, participants from all groups expressed that all three types of traditional modality are partially useful.

Table 3. Participants’ attitude towards TM

TM	Useful no. (%)	P* useful no. (%)	Useless no. (%)	Harmful no. (%)
Herbs	44 (18.1)	151 (62.3)	11 (4.6)	8 (3.3)
Cautery	21 (9.4)	112 (50.0)	23 (10.1)	27 (12.0)
Bone setting	57 (26.8)	81 (38.4)	13 (6.2)	11(5.4)

** P=Partially*

Table 4. Participants' (n=276) attitude towards herbal therapy

SD variables	Useful no. (%)	P* useful no. (%)	Useless no. (%)	Harmful no. (%)	P value
Sex Male	29(21.3)	93(68.4)	3(2.2)	4(2.9)	>0.05
Female	21 (15)	79 (56.4)	8(5.7)	5(3.6)	
Age					
15-25	15(22.7)	35(53.0)	7(10.6)	1(1.5)	
26-45	22(14.9)	100(67.8)	3(1.7)	7(4.6)	<0.05
46-65	9(27.3)	16(48.5)	3(1.0)	0 (0.0)	
Marital status					
Single	13(24.5)	30(56.6)	6 (11.3)	1(1.9)	>0.05
Married	34(16.7)	131(64.2)	4(2.0)	8(3.9)	
Widow / divorced	3(18.8)	8(50)	1(6.3)	0 (0.0)	

**P= Partially, SD= Sociodemographic*

The participants' education level did not significantly influence their attitude towards all three types of TM (Table 7). The participants' sources of knowledge in TM are shown in Table 8. The source of knowledge related to "advice from others" included family, relatives and friends, and it was significantly different across the five educational groups.

Table 5. Participants' attitude towards cautery

SD variables	Useful no. (%)	P* useful no. (%)	Useless no. (%)	Harmful no. (%)	P. value
Sex					
Male	18(13.2)	84(61.8)	6(4.4)	6(4.4)	<0.05
Female	8(5.7)	54(38.6)	22(15.7)	27(19.3)	
Age					
15-25	8(12.1)	29(43.9)	11(16.7)	6(9.1)	
26-45	10(5.7)	89(51.1)	15(8.6)	26(14.9)	<0.01
46-65	7(21.2)	18(54.5)	2(6.1)	1 (3.0)	
Marital status					
Single	7(13.2)	25(47.2)	8(15.1)	3(5.7)	>0.05
Married	16(7.8)	107(52.5)	19(9.3)	27(13.2)	
Widow / divorced	2(12.5)	5(31.3)	1(6.25)	2(12.5)	

P= Partially, SD= Sociodemographic*

Table 6. Participants' attitude towards bone setting

SD variables	Useful no. (%)	P* useful no. (%)	Useless no. (%)	Harmful no. (%)	P. value
Sex					
Male	54(40.0)	48(35.3)	7(5.1)	3(2.2)	<0.05
Female	20(14.3)	58(41.4)	10(7.1)	12(8.6)	
Age					
15-25	16(24.2)	23(34.8)	7(10.6)	4(6.1)	>0.05
26-45	52(29.9)	68(39.1)	10(5.7)	11(6.3)	
46-65	10(33.3)	14(42.4)	0(0.0)	0(0.0)	
Marital status					
Single	16(30.2)	14(26.4)	5(9.4)	6(11.3)	>0.05
Married	54(26.5)	87(42.6)	10(4.9)	9(4.4)	
Widow / divorced	3(18.8)	3(18.8)	2(12.5)	0 (0.0)	

P= Partially, SD= Sociodemographic,*

Table 7. Education and participants' attitude towards herbs, cautery and bone setting

Type of TM	Illiterate no. (%)	R&W Elementary no. (%)	High school no. (%)	Higher no. (%)
Herbal				
A. Useful	10(20.6)	9(18)	10(19.1)	8(15.3)
B. P useful	78(45.6)	104(60.7)	114(66.0)	134(77.8)
C. Useless	1(1.5)	1(7.9)	1(2.1)	1(2.8)
D. Harmful	1(2.9)	1(2.2)	1(4.3)	1(4.2)
Cautery				
A. Useful	3(10.3)	4(13.5)	2(6.4)	2(5.6)
B. P useful	61(44.1)	56(40.4)	73(53.2)	90(65.3)
C. Useless	2(7.4)	5(16.9)	1(4.3)	2(8.3)
D. Harmful	4(13.2)	4(12.4)	4(12.8)	3(9.7)
Bone setting				
A. Useful	15(20.6)	17(22.5)	19(25.5)	29(38.9)
B. P useful	41(38.2)	44(41.5)	41(38.3)	37(34.7)
C. Useless	1(4.4)	1(7.9)	1(4.3)	1(6.9)
D. Harmful	1(5.9)	1(5.6)	1(4.3)	1(5.5)

P= Partially, R & W= Read and write, p>0.05*

Table 8. Participants' education by source of knowledge in TM

Source of knowledge	Illiterate N (%)	Read & write N (%)	Elementary & intermediate N (%)	High school N (%)	Higher N (%)
Personal reading	0(0.0)	2(4.7)	10(23.2)	9(20.9)	22(51.1)
Personal experience	28(25.9)	6(5.5)	28(25.9)	15(13.8)	31(28.7)
Advice from others*	46(27.9)	5(3.0)	45(27.3)	25(15.2)	44(26.7)
Advice from traditional healers	5(25)	1(5.0)	8(40.0)	4(20.0)	2(10)

**P = <0.05*

4. DISCUSSION

The present study estimated the epidemiological trend and explored public knowledge, attitude and practice of traditional medicine. In addition, this research determined associations between sociodemographic features of participants with health problems and herbal preparations, cautery, bone setting and other traditional therapies in Riyadh city. The results of this research showed that about 20% of patients (22% males and 18% females) seek TM which is consistent with other studies conducted in Riyadh [18,25]. The studies conducted after 1993 reported that about 17% -72.8% of participants with chronic diseases used CAM therapies, which included dietary interventions and non-vitamin/non-mineral dietary supplements, nutritional supplements, herbal medicines, spiritual healing, naturopathy, manipulative-body based therapy, energy therapy, and relaxation techniques [28,29,32,45,46]. In our recent study, 30.5% of the participants with type 2 diabetes mellitus used CAM therapies mostly herbs, cupping, and nutritional supplements. Most of them were adults (51.6±10.6) and the number of females (56.6%) was slightly higher than males [27]. In our another study involving 208 participants (mothers=61, their medical student daughters=147), 28.8% of them auto-used herbs for skin diseases, 58.6% of them used TM for common cold, 68.7% used TM for any forms of illness and 39.5% of participants used TM for cosmetic purpose [26]. According to this study, the self-medication of TM including OTC drugs and herbs was 7.3%. The self-medication of TM including over-the-counter drugs and herbal preparations, dietary supplements and conventional medications such as antibiotics globally varies across many studies, (up to 82% use CAM therapies) and this practice is associated with harms (resistance to antibiotics and cost increment) and benefits (decrease in stroke event) [26,30,47,48]. Since 1993, the overall trend concerning TM use in communities has been globally increasing [26,27,49]. A study reported contradictory finding, i.e., decreasing TM use (2% to 19%) and provided reasons for its decline (use of modern medicine) in middle-income countries [50]. Overall, the extent of patients' KAP concerning TM may well provide insights into their expectations of physicians, use of TM and shed light on their poor adherence to conventional medicines prescribed by physician.

Evidently, the health users have been exposed and used a variety of traditional therapies over the past two decades [26,27]. In the present study, the participants were asked the use of three main traditional therapies; nonetheless they added a variety of other therapies including reading from holy Quran, cupping (hijama), use of honey and a number of herbs such as black cumin, ginger, and fenugreek which they used for the benefits of their health problems including throat infection, liver diseases, skin disorders, gastric diseases and other conditions [26-29,42, 43,46,51]. Prophet Mohammed (PBUH) had also advised to use honey and cupping but cautery was suggested to be the last option in difficult-to-treat cases such as psychiatric disorders [52,53]. Notably, religion-spirituality dimension associated with better health outcome, enhanced satisfaction and cost reductions [54] often drives people to use traditional therapies. Furthermore, TM including herbs and cupping (hijamah) are receiving global attention concerning research ethics including scientific validity, participants' rights and benefit-risk ratio. The financial investment is also on the rise around the world with approaching huge market for traditional therapies [52,55,56].

The present study found that a fair number of patients revealed beliefs and experiences in traditional healing practices while still maintaining a relationship with an allopathic family physician. This is a common trend and, hence, researchers have supported the integration of traditional practices into allopathic medicine. Both allopathic and non-allopathic practitioners need to coordinate for providing holistic care to patients with cancer and other chronic conditions [26,27, 57,58]. The important implication of this finding is that allopathic physicians need to identify the beliefs and taboos, perceptions and medications of patients concerning traditional practices for discussion. Only thereafter clinicians can offer patients the best integrated treatment plan. In turn, patients should disclose their traditional healing methods to physicians for healthy discussion and better outcome, though many patients do not follow this judicious advice [59]. From the perspective of modern medicines including over-the-counter medication use combined with complementary and alternative therapies such as herbal preparations, there is converging evidence of multiple interactions and, consequently, the development of mild to potentially severe adverse effects [60,61,62]. Old literature had also reported adverse effects of some therapeutic methods of traditional medicine such as Sugat, saoot and cabagin and massae [19,23]. Overall, patients' disclosure to the consulting physician about TM use concomitant with pharmaceuticals is highly important for their safety and good outcome.

Patients with chronic diseases often consult traditional healers around the world and this trend has been on the rise attributed to multiple reasons including high cost and cultural factors [26,27,56,60,63]. The common problems of health seekers include non-communicable diseases such as diabetes mellitus, hypertension, rheumatoid arthritis, nonspecific low back pain, psychiatric and neurological disorders, various cancers, skin diseases, and communicable ailments such as common cold. Some patients use TM for cosmetic purpose [25-27,56,60,63,64]. Like the present study, participants presented similar common medical problems to seek health from traditional medical practitioners [25]. According to this study, most patients tend to use traditional therapies including herbs [64,65] in conjunction with conventional medications especially OTC drugs [26,30,47,48]. Traditional therapies including herbs are uncommonly used as alternative medicines. In a nutshell, patients with chronic diseases mostly consult TM practitioners and healers because TM is associated with less adverse effects and no major complications, less costly and safe, reflects self-care paradigm (including self-herbal medication), enhanced patient satisfaction, and promotes health and healing and general wellbeing of people [26,27,56,63-66].

According to this study, the sources of TM information were mainly from traditional practitioners and family members consistent with other studies [6]. Although the elderly patients tend to believe strongly in TM, the attitude, education and occupation were not significantly associated with the use of alternative remedies [17,20]. Conversely, education was found to have inverse relationship with seeking TM [5,15,25]. Overall, most of those seeking help from religious and traditional healers; they tend to have strong religious, cultural background and faith in using traditional therapies [11,15].

This study has some limitations. This survey possibly underestimated the prevalence of TM. This may be because of some female patients may have felt inhibited in the physician's office for admitting to seeing traditional practitioners and using traditional remedies. Furthermore, patients who rely totally upon traditional therapies would not go to a physician. Hence, the results of this study are not generalizable. The strength of this study is that it has good design, assessment questionnaire and well conducted, and its results virtually reflect modern trend of recent surveys concerning KAP towards traditional therapies in Saudi Arabia. Notably, the findings of this study have several other implications both for family physicians and non-allopathic practitioners. Since a large number of patients take traditional medicines with modern medicine mostly linked with their belief system, it is important to develop strategies for dealing with their traditional and modern beliefs in order to open channels of trustful communications between them. Allopathic physicians need to have basic knowledge of traditional therapies and should focus on discussion about their benefits and harmful effects with the clients. Similarly, traditional practitioners should have some knowledge about modern medicine to offer holistic treatment to the patient. Integration of modern medicines and traditional therapies is often required to holistically serve patients especially with chronic non-communicable diseases. Overall, the public belief system tends to have an impact on clinical practice and may

also explain why some patients miss appointments, stop medications and reject modern treatment.

5. CONCLUSION

In conclusion, this study and discussion of pertinent literature found epidemiological trend and public knowledge, attitude and use of traditional therapies compatible with national and international data published prior and subsequent to the nineteen nineties. Further studies are needed to regularly explore traditional therapies standalone and also their combined use with modern medicines in larger samples in Saudi Arabia and other Arabian Gulf countries.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Peer-review history:
The peer review history for this paper can be accessed here:
http://sciencedomain.org/review-history/18425