Original Research Article

Current Status of Traditional and Complementary Medicine use in QassimProvince, Saudi Arabia

Running title: Traditional and Complementary Medicine

ABSTRACT

Background: Traditional medicine is an ancient nonconventional method of treating a variety of diseases in diverse cultures of the Eastern world, and currently its potential value has been recognized around the world. **Objective:**The aim of this study was to evaluate the current use of traditional and complementary medicine (T&CM) in Qassim province and to determine the users' profile and the most common T&CM therapies used in Saudi Arabia.**Methods:** A cross-sectional study of primary healthcare (PHC, n=16) attendees(n=285, response rate=71.3%) using a self-designed reliable questionnaire concerning their sociodemographic variables and T&CM use. **Results:**Besides revealing some sociodemographic characteristics and associations with traditional medicine, about 62% of participants used T&CM and 57.5% of participants reported T&CMas part of their indigenous inherited tradition.The main traditional practices including religious and spiritual healings, herbs, cupping(Al-Hijamah), cauteryand honey and bee products were used most importantly for the treatment of diverse chronic health conditions by females, the two predictors of T&CM use.Ministry of Health (MOH) should offer T&CM in all public healthcare settings and should regulate its practice in private sector in order to safeguard patient affairs including holistic care and patient-centered medicine.**Conclusion:**Traditional indigenous therapies especially culture-based are widely usedby PHC patients in Qassim province. The National Survey is needed to draw a more comprehensive epidemiological trend of T&CM use in Saudi Arabia and by extension in other Gulf countries.

Keywords: Traditional and complementary therapies; Primary healthcare attendees; Ministry of Health; Al-Qassim province; Saudi Arabia.

1. INTRODUCTION

Traditional and Complementary Medicine (T&CM) involves a variety of different medical therapies that are mainly used outside conventional healthcare. However, T&CM and modern medicine are now offered together in an integrative healthcare approach in many modern medicine centers[1, 2].Traditional medicine refers to practices based on the indigenous culture. The terms “complementary medicine therapies” refers to practices that are not part of the country’s own traditions[3].The growing interest in Traditional and Complementary Medicine (T&CM)[4-6]reflects the need to resort to alternative/complementary healing modalities which cannot be found in modern medicine[7, 8].However, patient surveys suggest that most T&CM users prefer to have access to safe, cost-effective and regulated T&CM services[9].In Saudi Arabia, prevalence of T&CM use is reported to ranging from 50-70% according to different regional studies[10-12].Even with the availability of advanced modern medical services, Saudi patients are reported to seek traditional therapies as a method of healings[13, 14].In a recent review of relevant literature, the most frequently used complementary and alternative medicine (CAM) therapies in decreasing frequency in Saudi Arabia were spiritual type such as prayer and reciting Quran alone or on water/oil (9-95.6%), different herbs (8–76%), dietary products/ nutritional supplement (6–82%), and honeybee and its products (14–73%).Other less frequently used CAM therapies in Saudi Arabia were medical massage (up to 62%), zamzam water (up to 60%), cautery (up to 56%), acupuncture (up to 55%), camel milk and urine (up to 53%), cupping (Al-hijamah) (45%), movement therapy (up to 29%), relaxation (up to 26%), aromatherapy (25%), physical therapy (24%), chiropractic (4%), relaxation (3%) and homeopathy (0.1%) [10]. Notably, these CAM therapieswere used for a variety of acute (49%) and chronic (53%) diseases associated with pain and concerningdiverse body systems especially gastrointestinal, respiratory, cardiovascular, neurological, psychiatric and musculoskeletal. For detailed description of various traditional and complementary therapies and their underlying mechanisms and outcomes, these sources are very useful[10,15-17].

In the absence of national T&CM surveys, multiple regional surveys can be the only feasible methods to evaluate T&CM use. It is important to continue to monitor the use of these Traditional and complementary health approaches in Saudi Arabia. Continous monitoring willhelp healthcare researchers to draw a more comprehensive picture for

T&CM users'profile, and to identify the most prevalent T&CM modalities. Then, we can focus on the most commoncomplementary and alternative medicine (CAM) treatments and their contributionsin the managements of common, chronic disabling,and costly health conditions in Saudi Arabia.The aim of this study was to evaluate the current use of T&CM in Qassim province in Saudi Arabia and to determine the user profile and the most common T&CM therapies.

2. METHODS

2.1 Study design

This was a cross-sectional analytic survey study conducted in Qassim province, Saudi Arabia. A face-to-face interview by trained interviewers was used to collect the data using pre-structured questionnaire format.

The Qassim province (Figure 1) is relatively more conservative region of Saudi Arabia with agriculture production especially of dates, vegetables,fruits and wheat. From the perspectives of health and socioeconomic status, this region is at par with other provinces. Furthermore the clinical wisdom suggests that relatively a large number of Qassim people useT&CM.In addition, most of coauthors on this paper have long experience of working in Qassim province linked with high feasibility of conducting this research successfully.Another important point is to compare this study with published papers from Saudi Arabia.

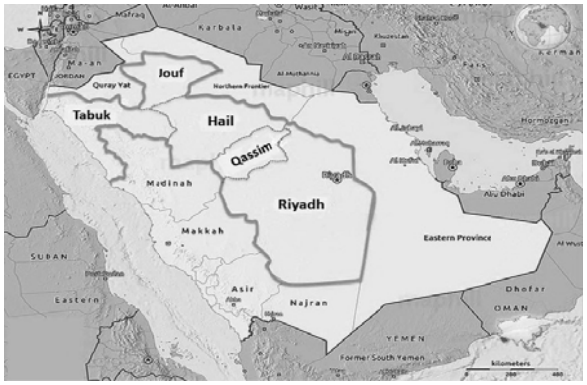

Figure 1 Map of Saudi Arabia showing Qassim province

2.2 Study Population

The study population included adults of 18 yearsand above, attending the Primary Health Care (PHC) services in Qassim province. The studywas conductedfrom May to June 2016.

2.3 Sample Size

Based on previously published data, the prevalence of T&CMranged from 50-70 %[11]. Assuming a proportion of 50%, a null hypothesis of 30%, thesignificance of 0.05 and power of 80%, a sample size of 50 was enough[18].Taking into consideration multivariable analysis and dropout of 50%, a sample size of 400 was planned.

2.4 Sampling Technique

Multistage sampling technique was used. In the first stage,out of the 178 PHCs in Qassimprovince, 20 were selected using randomly a computer generated random numbers. In the second stage 20 participants recruited from each of the selected PHCs, ten males and ten females, two each day during the field work period. The sequence number was generated every day.

2.5 Survey instrument

A pre-designed, structured questionnaire was used for the purpose of this study, which was developed by five bilingual experts in Arabic language after a literature review of the topic of research, i.e., the use of CAM therapies in primary healthcare setting to tap primary healthcare attendees' use of traditional and complementary medicine in Qassim province. The questionnaire was translated into English and then back into Arabic by two bilingual experts and one neutral expert to check its accuracy, with modifications applicable to the community of Saudi Arabia. This questionnaire comprised of 20 questions to be answered some in 'yes' or 'no' and some were open ended questions. For example, one of the questions was "did you use traditional therapies in the past? Another related question was if yes, what therapies from the following you used; spiritual therapy (Roqia –Quranic reading), herbal therapies, cupping therapy, honey therapy, cautery, acupuncture, manual therapy like massage and others. One example of open ended question was, "did you develop any

complications from using traditional and complementary medicine? All the experts reached 98% agreement on all questions that were includedin this questionnaire. This two-page questionnaire was pilot tested on a sample of 20 subjects for testing the logistics, suitability, and clarity of the data collection along with administration time. These subjects were not included in the present study. The PHC attendees suggested minor changes in Arabic version, and the modifications were made with the agreement of all the experts with regard to any question included in this questionnaire. The questions were rearranged for the sake of clear coding system and the data entry. Finally, all the experts reached consensus regarding this questionnaire, its English and Arabic versions. This developmental process and final selection of 20 questions based on bilingual experts' consensus may reflect acceptable psychometric properties especially reliability. English language version was necessary because some participants (non-Saudis) requested it (both versions are available upon request from NAQ). The time taken to fill out the questionnaire was about 20 to 30 minutes.

Overall the questionnaire was divided into four sections. The first section included socio-demographic data including age, gender, nationality, educational level and employment status. The second section included data regarding thecause of the current visit to PHC; the use of traditional therapy for this health condition and if yes what was the type of therapy and its outcome. The third section included data concerning the use of traditional therapies in general, types and reasons. The fourth section included data on knowledge, practice and attitude towards traditional therapies.A list of the common traditional therapies in Saudi Arabia was included to help the interviewer.

For the purpose of this study, the WHO definition of traditional medicine was used, “Traditional medicine is the sum total of the knowledge, skills, and practices based on the theories, beliefs, and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness”[3,19].

2.6 Inclusion and Exclusion Criteria

The inclusion criteria were age 18 years and above who were able to give oral informed consent to participate in the study. The exclusion criteria were age below 18

and those with intellectual disability. Furthermore those elderly patients who were cognitively impaired were also excluded from this study.

2.7 Procedure

The questionnaire was anonymous and was handed out to the patients by trained nurses after they received information about the study, agreed to participate and signed the consent form. Patients completed the questionnaire while they were waiting at the outpatient clinic to be seen by their physician. Any query raised by the participant was clarified by the attentivenurses.

2.8Statistical analysis

The Statistical Package for Social Sciences (SPSS) Version 20 was used for data entry and analysis. Results are presented as absolute number and proportion. Differences in sociodemographic characteristics between T&CM users and nonusers were assessed using the Chi-square test. Spearman correlation coefficients were also calculated between T&CM use and other variables of interest, where p value <0.05 was considered as significant.

2.9Ethical approval

The study was reviewed and approved by the National Center for Complementary and Alternative Medicine (NCCAM), Ministry of Health, Riyadh, Saudi Arabia.The Ethical Committee Registration Number is 224/19344, dated 23/02/2010. Information and nature of the research were explained to the study participants and consent was collected. This study did not involve any risk to the participants.

3. RESULTS

3.1 Survey Response

Out of the 20 PHCs selected and invited during the first phase, 16 PHCs responded and agreed to participate in the study. Four hundred questionnaires (25 for each PHC) were sent to 16 PHCs. From the 16 PHCs,285 filled outquestionnaires were received. The response rate was 71.3%.

3.2 Sample Characteristics

Mean age was 42.8 (±14.98) years, and 97.4% of them were Saudis (Table 1).The T&CM use for the current PHC visitwas significantly associated with male gender (p=0.001). Health promotion as a cause for PHC consultation was higher in females(55.5%) compared to males (44.5%). However, acute illness was 78.9%in males compared to 21.1% in females.

Table 1 Characterization of the total sample, current users of T & CM and users in general, by sex, nationality, education and work, Qassim province, 2016".

Variables		**Number (%)**	**T&CM use - Yes[#] Number (%)**	**T&CM use[@] Number %**	
Gender	M	165(58.1)*	88(56.1)	97	60.2
	F	119(41.9)	71(65.7)	73	65.2
	Total	284(100.0)	159(60.0)	170	62.3
Nationality	Saudi	260(97.4)	145(59.7)	161	64.1
	Non Saudi	7(2.6)	2(28.6)	2	28.6
	Total	267(100.0)	147(58.8)	163	63.2
Education	Illiterate	52(18.4)	32(71.1)	28	62.2
	Primary	39(13.8)	22(61.1)	23	59.0
	Intermediate	41(14.5)	27(67.5)	30	73.2
	Secondary	75(26.5)	35(49.3)	43	59.7
	University or above	76(26.9)	41(56.9)	45	60.0
	Total	283(100.0)	157(59.5)	169	62.1
Job	No job	90(33.0)	54(65.1)*	58	68.2
	Student	27(9.9)	7(26.9)	15	62.5
	Unskilled workers	6(2.2)	3(50.0)	1	16.7
	Temporary workers	37(13.6)	21(63.6)	23	63.9
	Skilled workers	14(5.1)	8(57.1)	8	57.1
	Clerk	46(16.8)	26(59.1)	25	54.3
	High managers	18(6.6)	8(44.4)	11	61.1
	Professionals	29(10.6)	20(76.9)	18	64.3
	Businessman	6(2.2)	4(80.0)	6	100.0
	Total	273(100.0)	151(59.2)	165	62.7
Common reasons for consultation	Acute	72 (25.4)	40(56.3)	-	-
	Chronic	101(35.7)	60(65.2)	-	-
	Health promotion	110 (38.9)	59(57.8)	-	-
	Total	283(100.0)	159(60.0)	-	-
T&CM use for the current	1(yes)	159(59.8)**	88(56.1)	-	-
	2 (no)	107(40.2)	71(65.7)	-	-

cause of visit	Total	266(100.0)	159(60.0)	-	-

*Significant use and being unemployed was significantly associated with T&CM use (p=0.016); #current cause of visit; @ therapies used for any reason;**T&CM user was more likely to use traditional medicines for the current cause of visit (p=0.0001)

3.3 Characteristics of theT&CM user - the current cause of visit to the PHC

The overall use of T&CM for the current cause of visit was 59.8 % [95% CI, 53.59-65.67]. Traditional Medicine users were significantly older (44.5 ± 14.2 years) than non-users (40.3± 15.8 years)[p=0.03].No job(being unemployed)was significantly associated with T&CM use (p=0.016). The current T&CM use was higher among Saudis,predominantly females with lower education but without statistically significant association(Table 1).

3.4 T&CM users– therapies used for the current cause of visit to the PHC

Herbs (32.9%), religious healings (22.8%), cautery (13.3%), honey (12.0%) and cupping (11.4%) were the most frequent therapies used in studied subjects. None of the participants used camel products and acupuncture (Table 2).

Table 2 Types of T&CM therapies used for the current and anycause of visit to PHC

Therapy	**Number***	**%**	**Number****	**%**
Herbs	52	32.9%	57	30.2
Religious	36	22.8%	54	28.6
Cautery	21	13.3%	18	9.5
Honey	19	12.0%	18	9.5
Cupping	18	11.4%	29	15.3
Manual therapy	5	3.2%	5	2.6
Others	7	4.4%	6	3.2
Missing	1	-	96	33.7
Total	**159**	**100.0%**	**285**	**100.0**

* For the current cause of visit to PHC;** T&CM used for any reason (not only the current) and more than one answer was allowed

3.5 T&CM use in general (not related to the current visit):

Out of 274 who answered the question, T&CM use for any reason before the current visit was 62.4%, [95% CI, 56.35- 68.11]. History of T&CM use was not significantly associated with gender, nationality, education, or job(Table 1).In general,a

T&CMuserwas more likely to use traditional medicines for the current cause of visit(p=0.0001).Religious healings, herbs, cupping/Al-Hijamah, honey and cautery were the most frequent therapies used by the participants(Table 2).

3.6 Opinion Regarding T&CM

Out of the 219 participants who answered the question regarding the definition of T&CM; 57.5% said that it is part of inherited traditions, 24.7% defined T&CM as therapies linked to nature, 11.4% opined T&CM as practices not offered in modern medicine, and remaining gave different definitions.The primary sources of information regarding T&CM were; relatives (81.2%), social media (12.8%) and radio and newspaper (5.6%). A proportion of 83.8% agreed that Ministry of Health should regulate and control T&CM practices. T&CM users significantly agreed that MOH should offer T&CM in the government healthcare settings and private sector but under close supervision. (p=<0.05)(Table 3).

Table 3 The effect of ahistory of T&CM use in the opinion regarding MOH control of traditional therapies, integration ingovernment hospitalsand private health sector

Opinions	T&CM Users			
	Yes		No	
	N	**%**	**N**	**%**
MOH should control and regulate T&CM	141	63.2	82	36.8
	24	55.8	19	44.2
*MOH should offer T&CM in health settings	101	68.7	46	31.3
	62	53.0	55	47.0
*T&CM in private sectorunder supervision	123	68.0	58	32.0
	40	48.8	42	51.2

Note: Values in the same row and sub table not sharing the same subscript are significantly different at p< .05 in the two-sided test of equality for column proportions. Cells with no subscriptare not included in the test. Tests assume equal variances.1. Tests are adjusted for all pairwise comparisons within a row of each innermost sub table using the Bonferroni correction.*significant

4. DISCUSSION

The current study, conducted by the National Centre for Complementary and Alternative Medicine (NCCAM) in the Saudi Ministry of Health updated the current knowledge, attitude and practiceconcerning traditional and complementary medicine in Al-Qassim province. Thisresearch may lay the foundation for a national survey to

draw a more comprehensive picture on the T&CM use and the related current therapies in Saudi Arabia in near future. Notably, traditional and complementary medicine as a part of integrated health care reflecting holistic model is increasingly visible in advanced western societies[20, 21].Understanding individual patient's needs in a holistic concept of health care and patient-centred model will shape the future of healthcare services around the world[22].

The overall T&CM use (62%) was comparable to published studies from Saudi Arabia[10-12].In an updated review of 36 studies, Alrowais and Alyousefi (2017) found that the majority of included studies were cross-sectional recently conducted in Riyadh, and spiritual therapy (prayers and reciting the Holy Quran) was most frequently used followed by herbs (8–76%), honey (14–73%) and dietary supplements (6–82%). According to this review, CAM is widely used in Saudi Arabia and future research need to focus on individual CAM therapy in Saudi Arabia [10]. In a cross-sectional study from Qassim province using customized International Questionnaireof Complementary and Alternative medicine (I-CAM-Q), Al-Bedah et al (2013) found similar findings [10], in addition to the studied subjects who spent 350000 US$ on CAM visits and 300000US$ purchasing CAM products[11].In a multistage cluster cross-sectional survey from Riyadh, 68% of participants used alternative medicine (AM) during the last one year. The reading from the Holy Quran as a therapy was most frequently used (50.3%) followed by honey (40.1%), black seed (39.2%) and myrrh (35.4%).In addition to other independent reasonssuch as easy accessibility, cost-effectiveness, mostly no adverse effects and no benefits from modern medicine, the health belief system of people was the main determiningfactor to use CAM[12].According to the present study, males constituted higher number, and unemployment associated significantly with current users of T&CM which are not consistent with other studies [12]. Conversely females being religiously conservative and requiring mahram (a person legally married to her or legally related but not allowed to marry her) tend not to visit frequently PHCs in Qassim province, and, therefore, they were underrepresented in the present study. Unlike the present study (29% of participants used religious therapies) , spiritual therapies (prayers and reciting from the Holy Quran) were most frequently usedin other studies(used by up to 76% of study subjects)[10,12].Old age as found in the present study was significantly associated with the use of T&CM. Overall all studies found more inconsistent results

regarding sociodemographic variables such as male/female gender, unemployment, and current users of T&CM than overlappingeven findings [10-12]attributed to setting (PHC), research design and other methodological factors including used questionnaires and sample size.Almost all the used therapies can be categorized as indigenous traditional therapies rather than complementary medicine[3].This may explain why 57.5% of participants said that it is part of our inherited traditions when they were asked about definition of T&CM. Comparing the results of the present study with other surveys, methodological concerns such as T&CM definitionsoffered by heath providers or users, span of measurement (use of T&CM within last threeor six months or last year), adequate and proper sample size and its selection technique and standard questionnaire need to be unambiguous in order to find out theepidemiological trend in the same population of a province or nationwide. These are some of the important parameters if not taken into consideration while conducting surveys will produce inconsistent results across studies.

The leading traditional practices in the current studies were religious or spiritual healings, herbs, cupping/Al-Hijamah, cautery and honey. Thisepidemiological trend was the main conclusion of other published studies from Qassim [11]and other regions in Saudi Arabia[12,23]. These practices are part of the traditional prophetic medicine (Tibb al-Nabawi). Prophetic medicine[24], the indigenous remedies used and recommended by the last prophet of Islam, Mohammad (PBUH),is strongly linked to the Saudi culture and other Muslim countries. The wide use of Prophetic therapies,also explains the interest in clinical studies in this field in Saudi Arabia and other Muslims countries[25-29]. Religious and spiritual healings are more often the leading modalities in T&CM in these countries[10].Notably religious prayers as a traditionaltherapy has increased the estimates of T&CM use[30].Accordingly, when the results of the present research are compared with other communitieshavinga diverse religious background, it is preferred to compare the results with and without religious healings[31].

Chronic health condition was the leading cause of T&CM use in the current studyconsistent with studies in Saudi Arabia and other countries[28, 32, 33].However, there was no significant association between chronic conditions and use of T&CM might be due to small sample size and gender especially females (underrepresented in this study) who present more often with chronic health conditions.Identifying the

predictors of T&CM users is very important. However, the sample size was not calculated to measure the predictors or profile of T&CM users. Published data showed that being female [34]or having chronic condition are the most important predictors of T&CM use[35].

According to this study, even T&CM users opined that governments should offer traditional therapies in public healthcare system itself and also regulate clinical practice in private healthcare sectors[21, 36,37].The implication of this finding is that this suggested integration will underlie the healthcare transformation process in order to eventually provide a holistic care for patients at different healthcare settings. Evidently the resultsof the present study supportsthe tremendous importance of social media as a source of information for T&CM users as it bypassed the conventional media (Television, Radio, and newspapers) concerning information source of T&CM. The insight from this finding is that the public awareness campaigns in Saudi Arabia should depend more on social media[38, 39].

The study has some limitations. This survey has small sample size which was calculated to evaluate the overall T&CM. Another weakness of this study is that multivariable analysis cannot be conducted. However the study was feasible taken into consideration the limited resources. The strength of this study is that it substantiated and identified the most common epidemiological trend concerning T&CM therapies found in a study conducted in Qassim province five years ago[11].

5. CONCLUSION

Traditional therapiesespecially culture-based are widely usedby PHC patients in Qassim province. The present research updated the current knowledge and practice of primary healthcare patients regarding traditional and complementary medicine in Qassim region. The implication of this study is that it might be used as a reference for followup cross-sectional analytical study to be conducted five to ten years later for measuring the important epidemiological trend of T&CM in this province.The National survey is needed to draw a more comprehensive epidemiology of T&CM use in Saudi Arabia. Measuring T&CM trend is highly important to identify any change in T&CM use, user profile or the common therapies, knowledge, attitude and practices over a time interval. This can be achieved by including T&CM in health information reporting system and health surveys using standard and rigorous research methods.

CONSENT

As per international standard or university standard, patient's written consent has been collected and preserved by the authors.

ETHICAL APPROVAL

As per international standard or university standard, written approval of Ethics committee has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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