

**Current Status of Traditional and Complementary Medicine use in  
Qassim Province, 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&CM as part of their indigenous inherited tradition. The main traditional practices including religious and spiritual healings, herbs, cupping (Al-Hijamah), cautery and 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 used by 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]. For detailed description of various traditional and complementary therapies and their underlying mechanisms and outcomes, these sources are very useful [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. Continuous monitoring will help 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 common complementary and alternative medicine (CAM) treatments and their contributions in 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

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

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



73  
74 Figure 1 Map of Saudi Arabia showing Qassim province

## 75 2.2 Study Population

78 The study population included adults of 18 years and above, attending the Primary  
79 Health Care (PHC) services in Qassim province. The study was conducted from May  
80 to June 2016.

## 79 2.3 Sample Size

82 Based on previously published data, the prevalence of T&CM ranged from 50-70 %  
83 [11]. Assuming a proportion of 50%, a null hypothesis of 30%, the significance of  
84 0.05 and power of 80%, a sample size of 50 was enough [18]. Taking into

82 consideration multivariable analysis and dropout of 50%, a sample size of 400 was  
83 planned.

#### 84 **2.4 Sampling Technique**

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

#### 90 **2.5 Survey instrument**

91 The questionnaire was divided into four sections. The first section included socio-  
92 demographic data including age, gender, nationality, educational level and  
93 employment status. The second section included data regarding the cause of the  
94 current visit to PHC; the use of traditional therapy for this health condition and if yes  
95 what was the type of therapy and its outcome. The third section included data  
96 concerning the use of traditional therapies in general, types and reasons. The fourth  
97 section included data on knowledge, practice and attitude towards traditional  
98 therapies. For the purpose of this study, the WHO definition of traditional medicine  
99 was used, "Traditional medicine is the sum total of the knowledge, skills, and  
100 practices based on the theories, beliefs, and experiences indigenous to different  
101 cultures, whether explicable or not, used in the maintenance of health as well as in the  
102 prevention, diagnosis, improvement or treatment of physical and mental  
103 illness" [3,19]. A list of the common traditional therapies in Saudi Arabia was  
104 included to help the interviewer.

#### 105 **2.6 Inclusion and Exclusion Criteria**

106 The inclusion criteria were age 18 years and above who were able to give oral  
107 informed consent to participate in the study. The exclusion criteria were age below 18  
108 and those with intellectual disability. Furthermore those elderly patients who were  
109 cognitively impaired were also excluded from this study.

#### 110 **2.7 Procedure**

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

## 116 2.8 Statistical analysis

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

## 123 2.9 Ethical approval

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

# 129 3. RESULTS

## 130 3.1 Survey Response

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

## 135 3.2 Sample Characteristics

136 Mean age was 42.8 ( $\pm 14.98$ ) years, and 97.4% of them were Saudis (Table 1). The  
137 T&CM use for the current PHC visit was significantly associated with male gender  
138 ( $p=0.001$ ). Health promotion as a cause for PHC consultation was higher in

139 females(55.5%) compared to males (44.5%). However, acute illness was 78.9%in  
140 males compared to 21.1% in females.

141 **Table 1**Sample Characteristics

Variables		Number (%)
Sex	M	165(58.1)*
	F	119(41.9)
	Total	284(100.0)
Nationality	Saudi	260(97.4)
	Non Saudi	7(2.6)
	Total	267(100.0)
Education	Illiterate	52(18.4)
	Primary	39(13.8)
	Intermediate	41(14.5)
	Secondary	75(26.5)
	University or above	76(26.9)
	Total	283(100.0)
Job	No job	90(33.0)
	Student	27(9.9)
	Unskilled workers	6(2.2)
	Temporary workers	37(13.6)
	Skilled workers	14(5.1)
	Clerk	46(16.8)
	High managers	18(6.6)
	Professionals	29(10.6)
	Businessman	6(2.2)
	Total	273(100.0)
Common reasons for consultation	Acute	72 (25.4)
	Chronic	101(35.7)
	Health promotion	110 (38.9)
	Total	283(100.0)
T&CM use for the current cause of visit	1(yes)	159(59.8)**
	2 (no)	107(40.2)
	Total	266(100.0)

142 \*\*T&CM user was more likely to use traditional medicines for the current cause of  
143 visit (p=0.0001)

### 144 3.3 Characteristics of theT&CM user - the current cause of visit to the PHC

145 The overall use of T&CM for the current cause of visit was 59.8 % [95% CI, 53.59-  
146 65.67]. Traditional Medicine users were significantly older (44.5 ± 14.2 years) than  
147 non-users (40.3± 15.8 years)[p=0.03]. No job (being unemployed) was significantly

148 associated with T&CM use (p=0.016). The current T&CM use was higher among  
 149 Saudis, predominantly females with lower education but without statistically  
 150 significant association (Table 2).

151 **Table 2** Sample characteristics distributed by the use of T&CMs for the current cause  
 152 of a visit to PHC

Characteristics		Yes
		Number (%)
<b>Gender</b>	M	88(56.1)
	F	71(65.7)
	Total	159(60.0)
<b>Nationality</b>	Saudi	145(59.7)
	Non Saudi	2(28.6)
	Total	147(58.8)
<b>Education</b>	Illiterate	32(71.1)
	Primary	22(61.1)
	Intermediate	27(67.5)
	Secondary	35(49.3)
	University or above	41(56.9)
	Total	157(59.5)
<b>Job*</b>	No Job	54(65.1)
	Student	7(26.9)
	Unskilled worker	3(50.0)
	Temporary W	21(63.6)
	Skilled worker	8(57.1)
	Clerk	26(59.1)
	High managers	8(44.4)
	Professionals	20(76.9)
	Businessman	4(80.0)
	Total	151(59.2)
<b>Reason for the visit</b>	Acute	40(56.3)
	Chronic	60(65.2)
	Health promotion	59(57.8)
	Total	159(60.0)

153 \*Being unemployed was significantly associated with T&CM use (p=0.016)

154

### 155 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 3).

**Table 3** Types of T&CM therapies used for the current cause of visit to PHC

Therapy	Number	%
Herbs	52	32.9%
Religious	36	22.8%
Cautery	21	13.3%
Honey	19	12.0%
Cupping	18	11.4%
Manual therapy	5	3.2%
Others	7	4.4%
<b>Total</b>	<b>158</b>	<b>100.0%</b>

### 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 4).

**Table 4** T&CM used in general (not related to the current visit) distributed by Gender, Nationality, Education, and Job

Variables		Number	%
Gender	M	97	60.2
	F	73	65.2
	Total	170	62.3
Nationality	Saudi	161	64.1
	Non- Saudi	2	28.6
	Total	163	63.2
Education	Illiterate	28	62.2
	Primary	23	59.0
	Intermediate	30	73.2
	Secondary	43	59.7
	University OR Above	45	60.0
	Total	169	62.1
Job	NO	58	68.2
	Student	15	62.5
	Unskilled worker	1	16.7



	Temporary w	23	63.9
	Skilled worker	8	57.1
	Clerk	25	54.3
	High managers	11	61.1
	Professionals	18	64.3
	Businessman	6	100.0
	Total	165	62.7

175  
176

177 In general, a T&CM user was more likely to use traditional medicines for the current  
178 cause of visit ( $p=0.0001$ ). Religious healings, herbs, cupping/Al-Hijamah, honey and  
179 cautery were the most frequent therapies used by the participants (Table 5).

180 Table 5 Traditional therapies used for any reason (not only the current)\*\*

T&CM Therapies		Number	%
	Herbs	57	30.2
	Religious	54	28.6
	Cupping (Al-Hijamah)	29	15.3
	Honey	18	9.5
	Cautery	18	9.5
	Acupuncture	2	1.1
	Manual therapy	5	2.6
	Others	6	3.2
	Total	189	100.0
Missing		96	33.7
Total		285	100.0

192  
193 \*\*More than one answer was allowed.  
194

### 195 3.6 Opinion Regarding T&CM

196 Out of the 219 participants who answered the question regarding the definition of  
197 T&CM; 57.5% said that it is part of inherited traditions, 24.7% defined T&CM as  
198 therapies linked to nature, 11.4% opined T&CM as practices not offered in modern  
199 medicine, and remaining gave different definitions. The primary sources of  
200 information regarding T&CM were; relatives (81.2%), social media (12.8%) and  
201 radio and newspaper (5.6%). A proportion of 83.8% agreed that Ministry of Health

202 should regulate and control T&CM practices. T&CM users significantly agreed that  
 203 MOH should offer T&CM in the government healthcare settings and private sector  
 204 but under close supervision. ( $p < 0.05$ ) (Table 6).

205 **Table 6** The effect of a history of T&CM use in the opinion regarding MOH control  
 206 of traditional therapies, integration in government hospitals and 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
T&CM in private sector under supervision	62	53.0	55	47.0
	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 subscript are 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.

#### 207 4. DISCUSSION

208 The current study, conducted by the National Centre for Complementary and  
 209 Alternative Medicine (NCCAM) in the Saudi Ministry of Health updated the current  
 210 knowledge, attitude and practice concerning traditional and complementary medicine  
 211 in Al-Qassim province. This research may lay the foundation for a national survey to  
 212 draw a more comprehensive picture on the T&CM use and the related current  
 213 therapies in Saudi Arabia in near future. Notably, traditional and complementary  
 214 medicine as a part of integrated health care reflecting holistic model is increasingly  
 215 visible in advanced western societies [20, 21]. Understanding individual patient's  
 216 needs in a holistic concept of health care and patient-centred model will shape the  
 217 future of healthcare services around the world [22].

218 The overall T&CM use (62%) was comparable to published studies from Saudi  
 219 Arabia [10-12]. In an updated review of 36 studies, Alrowais and Alyousefi (2017)  
 220 found that the majority of included studies were cross-sectional recently conducted in  
 221 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 Questionnaire of  
 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 reasons, the health belief system of  
 people was the main determining factor to use AM [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].  
 Females being conservative tend not to visit frequently PHCs in Qassim province.  
 Unlike the present study, spiritual therapies (prayers and reciting from the Holy  
 Quran) were most frequently used in other studies [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 overlapping  
 even findings [10-12] attributed to setting, 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 definitions offered by health providers or users, span of measurement (use of  
 T&CM within last three or 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 the epidemiological 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.

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

269 Chronic health condition was the leading cause of T&CM use in the current study  
270 consistent with studies in Saudi Arabia and other countries [28, 32, 33]. However,  
271 there was no significant association between chronic conditions and use of T&CM  
272 might be due to small sample size and gender especially females (underrepresented in  
273 this study) who present more often with chronic health conditions. Identifying the  
274 predictors of T&CM users is very important. However, the sample size was not  
275 calculated to measure the predictors or profile of T&CM users. Published data  
276 showed that being female [34] or having chronic condition are the most important  
277 predictors of T&CM use [35].

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

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

## 294 5. CONCLUSION

295 Traditional therapies especially culture-based are widely used by PHC patients in  
296 Qassim province. The National survey is needed to draw a more comprehensive  
297 epidemiology of T&CM use in Saudi Arabia. Measuring T&CM trend is highly  
298 important to identify any change in T&CM use, user profile or the common therapies,  
299 knowledge, attitude and practices over a time interval. This can be achieved by  
300 including T&CM in health information reporting system and health surveys using  
301 standard and rigorous research methods.

## 302 CONSENT

303

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

306

## 307 ETHICAL APPROVAL

308

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

311

## 312 COMPETING INTERESTS

313

314 Authors have declared that no competing interests exist.

315

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