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Utilization of Complementary and Alternative Medicine Among Adults in Riyadh

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Abstract: The interest in the use of complementary and alternative medicine (CAM) has been well documented. Knowledge, Attitude, and Practices (KAP) studies in CAM are critical for paving the way for intervention efforts to raise awareness. The aim was to measure the knowledge and attitudes of adults and to identify the factors associated with the use and practice of Complementary and Alternative Medicine (CAM) in Riyadh, Saudi Arabia. An observational cross-sectional, community-based, and multi-center study was conducted. After receiving consent, data were collected using a Google form-based online questionnaire. Most of the participants (82.5%) preferred to use CAM in combination with conventional medicine. The most common health problems were menstrual pain (49.5%) and abdominal pain (24.5%). The commonly used CAM remedies in this study were honey (65%) and Zamzam (Believed to be blessed holy water in the Islamic faith) (59.6%). The common causes given by the participants for preferring CAM remedies were because they were natural products (34%) and also avoiding the side effects of drugs (33.5%). Participants younger than 18 were the most supportive age group. Honey was the most chosen modality, contrary to the findings of the Qassim study. It was found that the common cold was the commonest reason for CAM use in the study's population, whereas in the Bahrain study diabetes mellitus was the reason. In conclusion, awareness about CAM was remarkably high among the participants of this study. A high proportion of respondents prefer to use CAM along with traditional medicines. The high proportion use of CAM encountered in this study was remarkable for the health education that addresses both advantages and drawbacks of CAM. Proper scientific research into safety and effectiveness is needed.

Keywords: Attitude, Awareness, Complementary and Alternative medicine (CAM), Knowledge, and Use.

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1. INTRODUCTION

There has always been widespread use of Complementary and Alternative Medicine (CAM) in Saudi Arabian society and research on the subject has been conducted.[1,2,3] CAM is defined as, "a collection of different field of health care systems, practices, and products that aren't presently considered to be a part of conventional medicine.[4] " Plants are a natural source and often have acted as precursors to different medicinal compounds. The use of plants themselves as herbal medicines has been a long-standing practice as a part of complementary and alternative medicine all over the world, as in India and the middle east.[5] The type of CAM decided as a focus in our research are medical herbs, prayer, bee products, honey, hijama, medical massage, camel milk, camel urine, and nutritional supplements.[6] People use CAM to prevent and treat their medical conditions; chronic ailments such as asthma, migraine, colon, diabetes mellitus, hypertension, arthritis, allergies, mensuration, abdominal pain, headache, flu, insomnia, underweight, and pregnancy. Saudi Arabia's Ministry of Health provides free health care to its people, although this does not include CAM. However, the ministerial directive created a center for complementary and alternative medicine (No. 236) dated 10/8/1429 H (11/8/2008 G). The aim of the center includes serving as a resource tool for all CAM-related issues, monitoring CAM practices for the healthcare settings, and to employ evidence-based supplemental medicine in addition to traditional treatment.[7] People underestimate and misuse CAM. Unfortunately, the absence of FDA rules and safety data for these products makes it difficult to adapt current hospital policies and pharmacy procedures to patients' usage of dietary supplements. In addition, health care practitioners are often unaware and misinformed about the undesirable effects and pharmaceutical interactions that can happen with nutritional supplements. Women who followed a weight loss regimen that include the use of Chinese herbs were seen with at least 100 cases of extensive interstitial fibrosis of the kidney.[8,9] Overall at least a single usage of complementary and alternative medicine approaches were observed at about 62.5%. The most common problems were as follows: digestive problems, obesity, hyperlipidemia, as well as anxiety and depression.[10] Fourteen individuals (4.4%) experienced adverse effects from their treatment modality, those with side-effects claimed those who were all related to the use of herbs and minerals. These side-effects included stomach aches, gastric upset, and nausea from using nettle tea, itching, headaches and migraine, diarrhea, and poor renal status/accumulation of body acid.[11] The aim of CAM is to bring about a condition of individual optimum health, not just the absence of symptoms of the disease. It is this focus upon health instead of disease which is essentially liable for the character of medical care and its effectiveness for disease prevention, early diagnosis, and the treatment of sub-clinical and chronic disease. The pre-disease state, the area between complete symptom-free wellbeing and actual disease is viewed as a lack of health needing attention.[12, 13] Research on CAM is of importance as it will increase the available data on the different methods of CAM, also aiding in identifying possible limits toward the conduction of research on the topic. Enough research on CAM will help in raising physician awareness and improving physician understanding of the research results. In a study conducted on physicians, it was found that their awareness regarding CAM research was high whereas the physician's score if they thought they could interpret research results was low, with most physicians choosing moderate confidence in their interpretation. Research on the different CAM modalities would provide information to perhaps integrate CAM into primary healthcare or establish a center that would regulate institutions providing CAM services.[14] Alternative medicine encompasses a wide range of treatments, and they are nearly usually thought to be far safer than conventional medication. It does not have a negative side effect. Complementary therapies seek to alleviate pain and sickness by rebalancing other elements of your life. It does not provide possibilities for addiction therapy. Even health care experts are growing more open to alternative medicine and the benefits it may have on the body. This theory integrates the focus of treating the patient with CAM, that effects of aliments use by a different type of CAM practice and therapies are proven safe and effective. In contrast the dangers and possible benefits of many complementary and alternative treatments remain unproven. In this study we expect to find that there is the widespread use of CAM in individuals with chronic illnesses (such as diabetes, hypertension, eczema), the significant difference in the awareness of the different effects (adverse and beneficial) of CAM among young adults' vs older adults due to the widespread use of social media platforms. It also includes the influence of the natural history of the disease, disease prevention, and general well-being promotion, symptom relief, boosting the immune system; emotional support, improving quality of life, relief of side effects of conventional medicine, coping better with illness, supporting the natural healing process and availability of treatment. This research aims to assess adult knowledge, attitude, uses of CAM, and the factors associated with its use in Riyadh.

2. MATERIAL AND METHOD

2.1. Study design and Setting

This was a cross-sectional study conducted in Riyadh, Saudi Arabia, among 660 adults above the age of 18years old from June 16, 2019, to January 25, 2021, by using an online questionnaire. The survey was distributed electronically by Google Forms through social media platforms (WhatsApp, Twitter, and others). Once a participant agreed to participate in the study, they were regarded to have consented. The information was securely kept in a trusted distant server with the required security requirements. All participants had the option to exit the questionnaire at any moment.

2.2. Study population

Riyadh is the capital of Saudi Arabia; it is the largest city in the Arabian Peninsula. It is in the eastern part of the Najd plateau, with a population of 8,446,866 (2018.) It is the center of the kingdom for political and administrative enters, as well as the kingdom's central government bodies. The study took place over an online survey that counts only the answers by individuals in Riyadh. The sample population were adults both genders. The sampling method was a convenient quota sample method. Our initial sample included all adults between the ages of 21-49 years of age.

2.3. Study tool and questionnaire development

The questionnaire was adjusted to fit the study objectives. The questionnaire was first written in the English version it was face validated by 4 experts in the field. Then the

questionnaire was translated to the Arabic language by 2 of the authors and was validated by an assistant professor of community medicine fluent in Arabic. A structured questionnaire was designed as a data collection tool consisting of three main categories of questions, knowledge, attitude, and uses. A scoring system was set to measure the awareness and knowledge of the participants. If a participant scored more than or equal to 8 out of 10 then his/her awareness is excellent, 4-7 very good, less than 4 poor. An attitude scoring system was responses based on an estimated score of 4 or less have a poor attitude, a score of 4-8 is moderate, and a score of 9 and above is excellent attitude. A pilot study was conducted by all 11 co-authors who provided further suggestions and feedback and helped in distributing the questionnaire. The last version of the questionnaire started with the following question: CAM has contributed to medical advancement? (Strongly Agree, Agree, Disagree, Strongly Disagree). The Answers were depending on the following questions form according to their opinion. The first part included demographic data of personal information and general knowledge of Complementary and Alternative Medicine. Then the second part was related to details of CAM knowledge including, their beliefs and attitudes towards CAM. The third part included the side effects, and whether medical attention was needed to use CAM. Last but not least the solicited using, within three weeks following the administration and included the following uses and practice towards CAM: Myrrh, Fenugreek, Hypnosis, Fennel Flower, Massage Therapy, Aroma therapy, Quran, Exorcism, Zamzam, Honey, Olive oil, Kohl, Breast milk, Wet cupping, Acupuncture, Yoga, Dates, Vitamins, and minerals. Part (5) the aim was to measure the knowledge, the attitude of adults and to identify the factors associated with the uses and practice of Complementary and Alternative Medicine (CAM) in Riyadh, Saudi Arabia.

2.4. Ethical Consideration

Ethical approval was obtained from the Institutional Review Board (IRB) vide Letter No. (2/203) dated June 2nd, 2021, and informed written consent was taken from all participants, at Almaarefa University, Riyadh, Saudi Arabia. Once a participant agreed to take part in the study, they were regarded to have consented. The information was securely kept in a trusted distant server with the required security requirements. All participants had the choice to exit the questionnaire at any moment.

3. STATISTICAL ANALYSIS

Data was collected online using a questionnaire website Google Forms Platform. After data were extracted, it was cleaned, coded, and entered using SPSS. Data were assessed by the analysis was done using two-tailed tests. P -value less than 0.05 was statistically significance. Regarding participant's adult knowledge, attitude, uses of CAM, and the factors associated with its use in Riyadh. Participants who chose to continue (by clicking on yes) were considered to consent to taking part in the study. Participants that were not from Riyadh, Saudi Arabia were excluded from the questionnaire. This study aimed to measure the knowledge of adults, describe attitudes, and determine the use of CAM, to identify factors associated with the use of complementary and alternative medicine in adults in Riyadh, Saudi Arabia.

4. RESULT

An online survey was distributed in January 2020. It was filled with (1027) responses as the study are focused on adults in Riyadh, we excluded all the other regions, and the responses from Riyadh were (64.3%) 660 individuals. Table 1: The majority of responders were of Saudi nationality (48%) with the age group (18-25) years 36.5%, (74.55%) were females, around (47.6%) had a bachelor's education level, the occupation of the responders was mostly from Non-Healthcare Professionals (81%), while the Healthcare Professionals were (18.8%). CAM was used for treating medical conditions the commonest were the, common cold (66.50%), menstrual cycle (51.40%), and constipation/diarrhea (48.40%).

Table 1: Demographic characteristics of the study population

Demography:		Frequency: (660)	Percentage: (100)
Age:	Younger than 18	32	4.8
	18-25	241	36.5
	26-35	138	20.9
	36-45	125	18.9
	Older than 45	123	18.6
Gender:	Female	492	74.5
	Male	168	25.5
Nationality:	Non-Saudi	167	16.3
	Saudi	493	48
Residence:	Central Region	660	100
Education:	Intermediate School	32	4.8
	Secondary School	191	28.9
	Diploma	76	11.5
	Bachelors	314	47.6
	Masters	33	5
	PhD	14	2.1
Occupation:	Healthcare Professional	124	18.8
	Teacher	89	13.5
	Business	26	3.9

	Engineer	10	1.5
	Computer Science	16	2.4
	Other	395	59.8
Medical Condition:	Common Cold	438	66.50%
	Menstrual Cycles	339	51.40%
	Constipation\Diarrhea	319	48.40%
	Pharyngitis	273	41.40%
	Headache\Migraine	220	33.40%
Total:	660		

***Demographic data of the study population including their relevant medical conditions.**
Basic epidemiology, past medical conditions among a cohort of adults in Complementary and Alternative Medicine in Riyadh, Saudi Arabia recruited through an online questionnaire.

Table 2: Commonest CAM modalities used

Modality:	Frequency:	Percentage:
Honey	510	77.40%
Zamzam	500	76%
Quran	493	74.80%
Wet cupping	488	74.10%
Exorcism	483	73.30%
Olive oil	469	71.20%
Myrrh	425	64.50%
Fenugreek	349	53%
Massage Therapy	346	52.50%

***(N=660) Zamzam is considered to be blessed holy water obtained from Makkah in Islamic faith. Commonest modalities used according to all patients, among a list of 14 different modality options. According to how many users identified using the modality and the total % of users among the study population.**

Table 2: The most common types known were Honey (77.40%), Zamzam (76%), Quran (74.80%) and Wet cupping (74.10%). Whereas the least known type was Massage therapy (52.50%). The study showed that (86%) of participants used CAM at some time in their life. Honey was the most frequently used food supplement type of CAM, along with Zamzam, olive oil, and myrrh (53%).

Table 3: The study showed that out of a total (86.5%), (83.7%) of the participants had a supportive attitude were using CAM and 16.3% had a supportive attitude with a total out of 13.5%. (91.8%) of users showed a neutral attitude for using CAM. On the other hand, (8.2%) of non-users of CAM had a neutral attitude. (100%) of users showed to be against CAM in their attitude.

Table 3: Attitude towards CAM based on usage

Attitude: Use:	Supportive	Neutral	Against	Total
User:	359 (83.7%)	191 (91.8%)	6 (100%)	556 (86.5%)
Non-User:	70 (16.3%)	17 (8.2%)	0 (0.0%)	87 (13.5%)
Total:	429	208	6	660

*** P value = 0.012. The attitudes of different usage groups in the study population.**

Table 4: The difference according to gender was statistically significant (p=0.328). The females' attitude towards CAM was (66.8%) and males (66.5%) which shows both are supported with a p-value (0.341).

Table 4: Gender influence on attitude towards CAM

Attitude:		Gender		Total
		Male	Female	
Attitude	Supportive	109(66.5%)	320(66.8%)	429(66.7%)
	Neutral	55(33.5%)	153(31.9%)	208(32.3%)
	Against	0(0.0%)	6(100%)	6(0.9%)
Total		164(25.5%)	479(74.5%)	660(100.0%

*** P value = (0.341) The influence of gender on CAM in general. Right side the attitude and middle section is gender**

Table 5**:** This study found that (90.6%) were using CAM among the group aged younger than 18, (86.2%) older than 25yrs. The age group 36-45 had the highest percentage among CAM users while the age group 18-25 had the lowest. 19.8% of non-User were age group 18-25 and 9.4% were below 18 yrs. This difference was statistically significant (P=0.0091). That denoted association between the age of the participant and their use of CAM.

Table 5: CAM usage based on age							
Use:		Age					
		Younger than 18	18-25	26-35	36-45	Older than 45	Total
General Use	User	29 90.6%	194 80.5%	119 86.2%	116 92.8%	111 90.2%	569 86.3%
	Non-user	3 9.4%	47 19.5%	19 13.8%	9 7.2%	12 9.8%	90 13.7%
Total		32 100%	241 100%	138 100%	125 100%	123 100%	659 100%

*** *P value* = (*0*.0091). Different age groups and their reports on CAM usage. Table best read from right and horizontally**

Table 6**:** The university and above educational level attitude of the participants towards CAM was (73.2%), and below university educational level attitude of the participants towards CAM was (%67.9), (p=0.0298) this difference is statistically significant which denoted an association between the attitude and the education. 57.1% of participants whose educational level is Ph.D. had a supportive attitude, while 42.9% had a neutral attitude. The highest supportive attitude was with the educational Diploma level, while the least was with master level.

Table 6: Educational level and its relationship with CAM attitude				
Educational Level Attitude	Supportive	Neutral	Against	Total
Intermediate School	22 (71%)	8 25.8%)	1 (3.2%)	31
Secondary school	127(67.9%)	59(31.6%)	1 (0.5%)	178
Diploma	52(73.2%)	18(25.4%)	1 (1.4%)	71
Bachelor	204(66.2%)	101(32.8%)	3 (1%)	308
Master	16 (50.0%)	16(50.0%)	0 (0.0%)	32
PhD	8 (57.1%)	6(42.9%)	0 (0.0%)	14
Total	429(66.7%)	208(32.3%)	6 (0.9%)	600

*** P value = (0.0298). Attitude and its correlation to support. Best read from bottom to top, as higher education levels. Secondary school is equivalent to high school in American school systems**

Table 7**:** The attitude of the participants who work as health care professionals towards CAM was (70.5%) had a supportive attitude and (28.7%) had a neutral attitude. On the other hand, the attitude of the participants who are not health care professionals and others (65.9%) had a supportive attitude, (33.6%) had a neutral attitude. The highest supportive attitude was with healthcare professionals while the lowest was with engineers, with a (p=0.101) this difference is statistically significant which denoted an association between the attitude and occupation.

Table 7: Attitude towards CAM and the users' occupation								
Attitude: / Occupation:		Occupation						
		Healthcare professional	Teacher	Business	Engineer	Computer science	Other	Total
Attitude:	Supportive	86 70.5%	60 69.0%	15 60.0%	4 44.4%	11 68.8%	253 65.9%	429 66.7%
	Neutral	35 28.7%	25 28.7%	10 40.0%	4 44.4%	5 31.3%	129 33.6%	208 32.3%
	Against	10.8%	2 2.3%	0 0.0%	1 11.1%	0 0.0%	2 0.5%	6 0.9%
Total		122 100.0%	87 100.0%	25 100.0%	9 100.0%	16 100.0%	384 100.0%	659 100.0%

*** P Value - (0.101).**

5. DISCUSSION

In this population-based survey in the Kingdom of Saudi Arabia, it was found that two thirds of the participants chose honey as the most frequently used type of CAM. In comparison to a study performed in 2017 in the Qassim region, where herbs were the most commonly used modality at 30% and honey only at 10%.[12] This result was similar to the study conducted by Tyler *et al* regarding the herbs users [15]. Whereas a study done by Sharma *et al* showed that Ayurveda was the most popular practice with many elderly patients.[16] Whereas in the Mahish study the most commonly used herbs differed from our study, they were Amla and aloe vera.[17] This variation may be attributed to the difference in participant age or culture. In Bahrain, study participants reported that the commonest medical condition in which they used CAM to control was, diabetes (64%).[18] Also Vimal *et al* study reported that the most troublesome condition among CAM users were diabetes mellitus.[20] A study conducted by Mahish showed that the most common reason for herbal use was cosmetics followed by dental care and digestive problems.[17] Whereas our study results had yielded the commonest medical ailment leading to CAM use was the common cold. In contrast to a study done in India in 2018 showed that the most common indication for CAM uses were body ache and dyspepsia.[17] An American study reported that the most common reason for using CAM was for non-serious medical condition, health promotion or disease prevention.[21] A difference in the educational level between these studies populations is a possible contributing factor to why there is a difference of medical conditions. The participants in this study were of higher educational levels (Masters and Ph.D.)

when compared with others, thus they prefer to use CAM in milder clinical conditions as opposed to more serious leading to a preference of conventional medicine in such cases. This was similar to the Indian study where awareness was higher in individuals of higher education levels as in our study.[17] The most known CAM modalities reported by three-quarters of our study participants were Honey, Zamzam, and Quran this is different from the modalities reported in the Turkey 2012 study, where herbal treatment (81%), acupuncture (81%) and hypnosis (79%) were the most commonly identified[1]. This difference stems from a difference in culture and the variety of religion. Concerning the relation between the attitude towards CAM and some demographic factors, particularly age and gender in our study the most supportive group were those '*younger than 18 years*'. Also, two-thirds of all genders were supportive to the use. These findings were similar to those reported in a study performed on adolescents in Saudi Arabia, where participants between 15-19 years of age were found to be of positive attitude towards CAM (43%). Such a similarity is probably due to the awareness levels of both study population. Although similarities existed in age, a gender difference was present, reporting that women (42.6%) were more supportive than men (34.6%) and only one-third of both genders are supportive of CAM. Moreover, our study agrees with the mentioned, in terms of the supportive age group but differs in the factor of gender, where women were more than men. This can be explained by the findings that CAM modalities are believed to be safe.[1] Regarding to the use of CAM and gender, two-thirds of males and females reported using CAM. Whereas a study done by Nahed *et al.* showed that females (64%) used CAM more than males (36%).[23] As for the relationship between the participant's education level and the use of CAM modalities, findings between our study and the previously mentioned study were consistent but differed in proportion. This is similar to a study was done by Sawsan-Abdalla *et al* which showed that the females used CAM more frequently than males.[20] Also Tyler *et al* study reported the similar finding regarding the use of CAM and gender.[15] Use was greater with higher educational levels (47%) and declined with lower educational level. Although, the use of CAM in this study is higher than the Tyler *et al.* study. As for an occupational classification, the highest response in our study came from those in a business while, in 2008 by Al-Faris *et al.* reported housewives had the highest participation (81.4%).[3] This mentioned difference is highly due to the differences in participant classification between our study and the previous studies. This study found that among the different occupations, healthcare professionals had the most supportive attitude towards CAM. This is similar to a study conducted by Wahner-Roedler *et al.* in an academic medical center that reported the physicians had an open outlook to CAM based on their agreement with different statements. They also reported that physicians required further evidence before suggesting CAM to their patients. Visser and Peters conducted a study in the Netherlands were reported findings consistent with this study that most professionals had a positive attitude towards CAM and wanted to become involved in the practice. A study in Italy by Giannelli *et al.* reported that most physicians' attitudes were that they recommended CAM to their patients or functioned as CAM practitioners. A positive healthcare attitude towards CAM may be attributed to the increasing research performed on the topic. Although not all CAM modalities have been proven scientifically, healthcare professionals are actively researching the topic.[24,25,26]

6. CONCLUSION

In conclusion, this study measures an elevated level of awareness of CAM which causes a widespread use among the adult population of Riyadh, Saudi Arabia. CAM may inspire a positive reframing of many diseases as a result of individual experience, which leads to benefit discovery. The major sources of information were the mass media, families, and friends, some think that applying specific alternative therapies can help them feel better by reducing their symptoms and side effects, as well as controlling or curing their condition. Young adults, educated adults, and employees tend to be more likely to utilize (CAM). Most of the participants are confident using (CAM), that they use multiple types. The most common uses were honey and Zamzam. The most common users of (CAM) those were of a high educational level as Bachelor's degree and occupations such as healthcare professionals This appears to be a positive effect in improving the Attitude, Practice and Knowledge among adults' usage. Raising awareness is important to regulate CAM practices within the health-care services. This research came in a time with the quarantine of COVID19 that prevented the group members from effectively communicating and created a time barrier to get the work done.

7. AUTHOR CONTRIBUTION STATEMENT

All authors contributed to the conceptualization participation in the execution, planning, sample preparation, and discussion, as well as simulations (idea, objectives, and literature review). The experiment was conducted by Mona A Alfadeel. The introduction was written by Haya H. Al-Anazi, Malak M. AlShabi, Ghuzlan A. Zubaidi, Kholod K. AlSharari, Ghada A. AlOtaibi, and Razan S. Abudeyah. Haya H. AlAnazi and Ghuzlan A. Zubaidi analyzed the data with the support of Mashael T. AlAnzi and Alaa M. Abdi. The methodology was written by Haya H. AlAnazi and Ghuzlan A. Zubaidi by the support of Malak M. AlShabi. All authors Haya H. AlAnazi, Malak M. AlShabi, Ghuzlan A. Zubaidi, Kholod K. AlSharari, Dalal S. AlHaregi, Mashael T. AlAnzi, Ghada A. AlOtaibi, Alaa M. Abdi, Razan S. Abudeyah, and Renad S. Alfawaz wrote the drafting of the results and discussion of the manuscript by the support of Mona A Alfadeel. The conclusion was written by Ghuzlan A. Zubaidi and Malak M. Alshabi. The general direction was overseen by Malak M. AlShabi. Haya H. AlAnazi, Malak M. AlShabi, Ghuzlan A. Zubaidi, and Mona A Alfadeel edited and reviewed the last version of the manuscript. Mona A Alfadeel supervised the project.

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9. CONFLICTS OF INTEREST

Conflict of interest declared none.

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