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Knowledge, Attitude, and Practices of Complementary and Alternative Medicine: A Patients' Perspective

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Abstract

Background: Complementary and alternative medicine (CAM) includes a wide set of domains, including mind-body interventions, herbs and supplements, and alternative medical systems. Although CAM is commonly practiced in Lebanon, it is still not integrated into mainstream medicine. There is a paucity of data regarding patients' utilization, familiarity, and attitudes toward CAM.

Objectives: The main aim of this study was to assess the knowledge, attitudes, and practices toward CAM among patients.

Material and Methods: A cross-sectional, questionnaire-based survey was conducted among 213 patients attending family medicine clinics at the American University of Beirut Medical Center (AUBMC).

Results: Among the respondents, 78.9% indicated that they had used CAM in the past six months. Thirty-three percent use CAM regularly as daily activity and as a way for health and immunity maintenance. The motive behind using CAM was related to CAM's accessibility (63.3%), experience with CAM (64.8%), and not its less expensiveness (82%) or failure of traditional medicine (91.3%). Patients were most familiar with relaxation therapy (90.4%), massage (89.6%), meditation (87.3%), herbal medicine (86.5%), naturopathy (85.1%), yoga (81.7%), spiritual healing/ prayer (60.4%) as well as garlic (93.9%) and ginger (93%). Moderately favorable attitudes towards CAM were reflected by the patients as signified by the slightly above-mean average towards CAM permissiveness (M = 3.67, SD = .56). Approximately 90% of participants indicated that their physicians have never asked them about CAM usage, 76.5% indicated that they did not inform their physician about CAM use, and 70.8% indicated they would utilize CAM services if provided at the AUBMC.

Conclusion: The study findings indicate limited familiarity with CAM, high utilization rates, and positive attitudes toward it. This is the first study in Lebanon to assess knowledge, attitudes, and practices of all 5 CAM domains among patients within a healthcare setting in a major academic medical center as a follow-up on a study that assessed the knowledge, practices, and attitudes of physicians and nurses towards CAM at the same institution.

Introduction

According to the National Center for Complementary and Integrative Health (NCCIH), complementary and alternative medicine (CAM) is defined as any form of medicine or treatment that is not currently regarded as "conventional" or "standard" health care. [1] The NCCIH divides complementary and alternative medicine into 5 domains: manipulative & body-based methods, mind-body medicine, alternative medical systems, energy therapies, and biologically based therapies. [1,2]

Over the past decade, the usage of CAM has progressively expanded in both developed and developing countries.[3,4] On a global scale, the prevalence of CAM use was documented to vary between 10% and 76%, with chronic disease patients constituting the majority of CAM users. [5]

In accordance with the global trend, the Middle East and North Africa (MENA) region is experiencing an expanding market for CAM products.[3] Lebanon, a country in the MENA region, has been characterized by a high usage of CAM whereby one-third of Lebanese adults are considered CAM users,[3] with herbal remedies being the most popular variety. Numerous national studies revealed that CAM use among the Lebanese population ranges from 15 to 89%. [5-7]

Despite the potential advantages of CAM use for health and quality of life, such use must be weighed against the associated risks.[3] CAM use may interfere with the efficacy of mainstream/conventional treatments and hinder adherence to mainstream medicine. This could be worsened by safety misconceptions, non-disclosure of use, and deficient regulatory framework.[8] A number of studies have revealed that the widespread use of CAM therapies in Lebanon is accompanied by poor disclosure rates to healthcare professionals, little public awareness of the safety and negative effects of CAM usage, as well as a lack of national regulatory frameworks that maximize public safety and encourage CAM's proper integration into the healthcare system. [3, 6-8] In a recent study in Lebanon, results indicated that the majority of physicians and nurses employed at a major academic medical center believed that CAM practice in Lebanon poses a potential threat to the public health.[9] Since scientific evidence to validate its safety and effectiveness is minimally established in Lebanon, [5] it becomes crucial for healthcare providers to look into people's knowledge, attitudes, and practices regarding CAM to manage or prevent any negative drug interactions or reactions that may occur with its usage. Subsequently, healthcare providers need to devise programs that increase patients' knowledge of CAM as well as educate them on the efficacy, safety issues, and potential interactions of the most commonly practiced CAM therapies.[10]

Previous studies in Lebanon mainly investigated the prevalence of CAM use and its correlates across Lebanese nationals. They only assessed CAM use of biologically based practices, including natural substances, such as herbs, dietary supplements, multivitamins, and mineral supplements. The 4 other categories of CAM were not included. As such, this study aims to assess the knowledge, attitude, and practices of patients attending the American University of Beirut Medical Center (AUBMC) regarding all 5 CAM modalities. Specifically, the study aims at answering the following questions: What are the patients' attitudes towards CAM, and how familiar were they with certain CAM modalities? To what extent were patients utilizing CAM services in the past 6 months, and what were the main motives behind using CAM? Whether the patient and the health practitioner discuss using CAM?

This is the first study in Lebanon to assess the aforementioned information regarding all 5 CAM domains for patients within a healthcare setting in a major academic medical center as a follow-up on a study that assessed the knowledge, practices, and attitudes of physicians and nurses towards CAM at the same institution.

Material and Methods

Participants and Sample Size

A total of 231 patients participated in the study. No exclusion was done based on sex, ethnicity, and social or economic factors; however, those under 18 were excluded given that the study aims to investigate the practices, knowledge, and attitudes towards CAM of patients that can be generalizable to the outer population of adults.

The sample size was calculated by assuming a high prevalence rate of 50% (Based on previous work from Lebanon and estimates from the Arab world about CAM use and positive attitudes towards CAM) with a confidence level of 95%, a precision of 5% and a contingency rate of 10%.

Research Design and Procedure

A cross-sectional survey was conducted on patients attending the family medicine clinics at AUBMC in Beirut, Lebanon. This study was approved by the Institutional Review Board (IRB) at the AUBMC. Before the start of the study, all the volunteers involved in data collection attended a presentation highlighting the key principles of the CITI course and were trained in data collection. A pilot study involving 10 patients was also conducted to check for the clarity and cultural sensitivity of the questionnaires and then revised and adapted to the Lebanese context accordingly.

Participants were selected using a convenience sampling method. Patients who visited the family medicine clinics at AUBMC between May 2022 and September 2022 and met the inclusion criteria were recruited.

The volunteers randomly approached patients in waiting areas and offered to participate in this research. Patients were briefly introduced to the study and, following verbal consent were allowed to complete the questionnaire independently. They were also asked to put the completed questionnaire in a provided envelope which they sealed before returning it to the volunteers. An Arabic verbal informed consent was attached to each questionnaire, emphasizing confidentiality and explaining the participant's right to decline participation. It delineated the aim of the study, the procedures, the benefits and risks, and their right to participate or withdraw, as well as the contact information of the principal investigator and the IRB office. It was stated in the consent form that completion and return of the questionnaire were considered as evidence of voluntary consent. Participant recruitment occurred 2 days a week in the morning clinics (9 AM-1 PM) and 2 days a week during the afternoon clinic (2-5 PM).

Materials

Attitudes towards CAM

The Attitudes Toward Alternative Medicine Scale (AAMS) assessed patients' attitudes toward complementary and alternative medicine. This measure was developed by Finnigan in 1991. The scale consists of 14 items, and it is scored on a 6-point Likert scale, ranging from "strongly agree" to "strongly disagree". Possible scores on the AAMS range from 14 to 84, with lower scores indicating more positive attitudes.[11] Sample items of AAMS include items such as: "Alternative medicine should only be used as a

last resort when conventional treatment has nothing to offer" and "Alternative medicine works to restore the body's balance." The AAMS was found to have good construct-related validity, objectivity, and statistical power. [11] Its validity was supported by several studies. [12] Fay, Fay & Walla, 2016). Concerning its reliability, a study conducted by Lewith and colleagues (2002) yielded an acceptable test-retest reliability for the AAMS,[12] and a high test–retest reliability of .82 was obtained for its six items that were selected to construct the CAM subscale of the Holistic Complementary and Alternative medicine questionnaire.[14]

Familiarity and Utilization of CAM

Patients' familiarity and utilization were measured by the items used from the CAM questionnaire initially created by Wahner-Roedler and colleagues, who conducted a study on patients" attitudes toward complementary and alternative medicine and their familiarity with specific therapies available at Mayo Clinic (2006). [15] The items were adapted in terms of context, and any clinic terminologies related to the Mayo Clinic were changed to AUBMC. The most widely utilized CAM therapies in Lebanon were included in the questionnaire to measure patients' familiarity. The authors of the Mayo clinic study granted permission to use the above items.

Demographics

The patients' demographic questionnaire included the following items: Age, gender, education, presence or absence of chronic illness, and the rating of one's perception of overall health.

Translation of Scales

Since not all patients were expected to know English, the surveys presented to them were translated into Arabic. A combined forward translation procedure and a committee approach were adopted. [16-18] Based on this procedure, the following steps were applied. Two bilingual forward translators (Masters level psychology students and a family medicine specialist), independently translated the scale into Arabic. All items were translated into Modern Standard Arabic. The translators did not use a dictionary to avoid the use of terms that may be unfamiliar to participants, especially given that not all Lebanese are fluent in formal Arabic. Following the translation procedure, the two translators and a medical professor who is also bilingual met and reviewed the two documents to generate one document that includes items that convey the same meaning as in the English version and is grammatically correct. Next, the same committee reviewed the scales and provided feedback on the cultural relevance and appropriateness of the items.

Statistical Analyses

At the end of the study, all the data were pooled and expressed as counts and percentages. The percentage comparison between the two groups was analyzed using Pearson's Chi-squared, a statistic used to assess whether there is a statistically significant relationship between categorical variables. To

determine whether there is a statistically significant difference among participants across demographic variables, the T-test and Analysis of Variance (ANOVA), statistical techniques used to analyze mean variation in response to variables across two or two or more groups, were also used. Results with a P-value <0.05 were regarded as significant.

Results

3.1 Patients' Demographics

As shown in Table 1, the sample comprised 54% females and 46% males. Most participants were between 18 and 45 (61.7%), and the mean age average was 33.40 (13.63). Around 44.1% of the participants were educated up to university level, followed by those who were educated up to a high school degree (28.8%). Overall health was rated by most participants as good (81.7%), and a large percentage reported that they do not suffer from any chronic illness (73.4%).

Table 1.Patient Demographics

	Patients
N (%)	231(100%)
Age (years)	
18-24	36.8%
25-35	24.9%
36-45	17.4%
46-55	11.7%
56 or older	8.1%
Gender	
Male	46%
Female	54%
Education Level	
Primary	3.5%
Secondary/High school	28.8%
University Degree	44.1%
Post-Graduate	23.6%
Overall Health Rate	
Excellent	13.8%
Good	81.7%
Poor	4.5%
Chronic Illness	
No	73.4%
Yes	26.6%

3.1 Patients' Attitudes towards CAM

The mean of participants' attitudes towards CAM (M = 3.67, SD = .56) was slightly above the midpoint score of 3, indicating that participants moderately expressed favorable attitudes toward CAM

A series of independent sample t-tests and Analysis of Variance (ANOVA) was conducted to investigate the difference in patient attitudes towards CAM across variables. Results revealed significant differences in attitude toward CAM based on previous CAM usage, with those who had previously used CAM

reporting more permissive attitudes (*M*=3.76, *SD*=.53) compared to those who reported not using CAM before (*M*=3.33, *SD*=.56) (*t* (224) = 4.869, *p* = .000). Additional analyses indicated that attitudes towards CAM significantly differed across the frequency of previous CAM usage, such as those using CAM almost always (*M*=4.03, *SD*=.41) reported more favorable attitudes compared to those who use CAM sometimes (*M*=3.65, *SD*=.55) or rarely (*M*=3.54, *SD*= .52) (*F* (3,197) = 4.922, *p* = .003). Results also revealed that more favorable attitudes towards CAM were expressed by those who were strongly satisfied by previous CAM usage (*M*=4.19, *SD*=.65) as compared to those who were satisfied (*M*=3.96, *SD*=.54), slightly satisfied (*M*=3.70, *SD*=.46), neither agree nor disagree (*M*=3.52, *SD*=.45), slightly dissatisfied (*M*=3.39, *SD*=.41), dissatisfied (*M*=3.11, *SD*=.48) and strongly dissatisfied (*M*=3.23, *SD*=.57) (*F* (6, 210) = 10.856, *p* = .000). Furthermore results indicated that those who agreed that they would use CAM services if available at AUBMC (*M*=3.79, SD= .53) reported more permissive attitudes towards CAM compared to those who were not sure about (*M*=3.37, SD=.53) or didn't agree (*M*=3.36, SD=.51), (*F* (2, 224) = 14.580, *p* = .000).

Further analyses to investigate the difference of patient attitudes towards CAM across demographics and as per item response were generated. Significant results were reported for 8 items. The significant results are presented in Table 2.

Table 2: Per item attitude scores across variables

Variable	Attitude Item	Score (SD)	P-value
Degree			
University	Item 9	3.54 (1.37)	0.05
Postgraduate		2.90(1.40)	
Chronic disease			
Yes	Item 4	4.95 (0.95)	0.013
No		4.48 (1.3)	
Yes	Item 2	5.36 (0.85)	0.013
No		4.93 (1.3)	
Overall health			
Excellent	Item 14	2.77 (1.52)	0.025
Good		2.20 (1.09)	
Excellent	Item 10	3.64 (1.76)	0.019
Good		2.82 (1.47)	
Asked physician about CAM use			
Yes	Item 4	5.42 (0.91)	0.009
No		4.93 (1.19)	
Yes	Item 11	2.81 (0.87)	0.0008
No		4.03 (1.30)	

Note. Item 2: Alternative medicines are merely a financial con trick; item 4: Alternative medicine is merely a fashionable fad which will soon disappear; item 9: Conventional medicines have so many side effects that most doctors are not as well informed about them as they should be; item 10: Many alternative medicines could be prescribed instead of giving people repeat prescriptions of drugs such as tranquilizers; item 11: Alternative medicine produces longer lasting and more complete results; item 14: Alternative medicine works to restore the body's own balance.

3.2 Patients' Familiarity with CAM

Most participants had low levels of familiarity with different CAM modalities. The lowest level of familiarity based on the summation of responses "Never Heard of it before", "Heard of it before" and "Limited Familiarity", was related to acupuncture (80%), aromatherapy (82.1%), energy healing (81%), chiropractic/osteopathy (76.1%), hypnosis (71.9%) and probiotics (61.1%). A high percentage of participants reported that they have never heard of Homeopathy and Tai Chi before (87.8% and 77.6%,

respectively). As for the most familiar CAM methods, a high familiarity was related to relaxation therapy (90.4%), massage (89.6%), meditation (87.3%), herbal medicine (86.5%), naturopathy (85.1%), yoga (81.7%), and spiritual healing/ prayer (60.4%). Of the listed herbs (garlic, ginger, valerian, Ginseng, Gingko Biloba), patients were most familiar with garlic (93.9%) and ginger (93%) and least familiar with ginseng (86.8%), and a high percentage reported that they have never heard before of valerian and gingko biloba (85.5% and 78.5%, respectively).

Those who did not have any chronic illness reported as opposed to those who do that they have never heard before of the following CAM modalities, probiotics (80.6% and 18.1%, respectively; $\chi^2(6, 228) = 15.335$, $p = .018$), Tai Chi (80.6% and 19.4%, respectively; $\chi^2(6, 227) = 13.262$, $p = .039$), and Ginseng (80.2% and 19.08%, respectively; $\chi^2(6,226 = 14.612$, $p = .024$).

Further analyses illustrated a significantly higher percentage of participants with good overall health as opposed to those with excellent or poor overall health indicating an increased familiarity with spiritual healing/prayer (85.6%, 9.4% and 5%, respectively; $\chi^2(6, 224) = 19.938$, $p = .003$), and naturopathy (85.3%, 9.9% and 4.7%, respectively; $\chi^2(6, 222 = 15.802$, $p = .015$).

3.3 Patients' Utilization of CAM

78.9% of participants indicated that they had used CAM modality in the past six months, whereas 36.9% reported using CAM "almost always" or "always," and 40.9% reported using CAM "sometimes." Most participants who use CAM reported that they commonly use CAM as a daily activity and a means to maintain their health and immunity (33.1%). Many participants also indicated using CAM in sickness (20.5%) and common flu (16.5%). Several participants indicated using CAM for mental health (2.4%), relaxation, and meditation (1.7%) as well as abdominal pain (1.3%). Health conditions for which patients use CAM include common cold, mental health, migraine, back pain, insomnia, menstrual pain, hypertension, and inflammatory bowel disease. Pearson's Chi-squared analyses indicated that most of the participants who reported previous usage of CAM indicated that they were satisfied as compared to those who were dissatisfied or neutral about it (64.6%, 15%, and 30%, respectively; $\chi^2(6, 222) = 14.571$, $p = .024$).

When asked about the motive behind using CAM, most participants indicated that it is related to CAM's accessibility (63.3%) and their experience with CAM (64.8%). Most of the participants (82%) also indicated that their motive is not based on CAM's less expensiveness, and 91.3% indicated that they did not choose CAM due to the failure of traditional medicine. Several participants further stated that they chose CAM due to a preference for natural therapy (5.3%), fewer adverse effects of CAM treatment compared to conventional medicine (2.4%), and adherence to tradition and culture (2.4%). Shortage of certain medications due to the economic crisis in Lebanon was among the motives for utilizing CAM.

A higher percentage of those who indicated previously using CAM "almost always", "always" and "sometimes" reported that the motive behind using CAM is its accessibility as compared to those who

reported using CAM rarely in the past 6 months (82.1% and 17.9%, respectively; $\chi^2(3, 198) = 8.233$, $p = .041$.). Additionally, those who indicated previously using CAM “almost always”, “always” and “sometimes” reported a significantly higher satisfaction with CAM use as compared to those who reported using CAM rarely in the past 6 months (80% and 20%, respectively; $\chi^2(18, 190) = 8.233$, $p = .041$).

3.4 Patient-Physician Communication about CAM

90.2% of participants indicated that their physicians have never asked them about CAM usage. Only a few participants indicated that their physician asked them whether they engaged in yoga, meditation, and exercises (1.7%), used herbs for tinnitus and gingivitis (.9%), or engaged in chiropractic therapy for back pain (.9%). Pearson’s Chi-squared analyses revealed that a significantly higher number of participants who held a university and post graduate degree were not asked by their physician if they use CAM as compared to those who held a secondary/high school degree and primary degree (66% and 34% respectively; $\chi^2(6, 225) = 13.186$, $p = .041$).

Regarding the voluntary sharing of CAM use with physicians, 76.5% of the participants indicated that they did not inform their physicians about CAM use. Among the reasons for not discussing CAM use, most participants indicated that CAM was irrelevant to be brought up (35.2%). 9.8% of participants indicated that the topic of CAM never came up from both ends. Among those who discussed CAM use with their physicians, several indicated they inquired about using herbs for menstrual cramps and abdominal pain (4.8%). Some inquired about yoga, meditation, and relaxation (1.7%) and about the use of herbs for health maintenance (1.3%). Numerous CAM modalities were also inquired about, such as the use of chiropractic therapy, vitamins, home remedies, ginseng for vertigo, naturopathy for abdominal pain, probiotics for health maintenance, CAM treatment for abdominal cramp post-delivery and chronic urinary tract infections, herbal medicine for migraine, honey for throat pain, homeopathy for sinusitis, herbs for fatigue and ginger for impaired reflex. Two participants also separately indicated that they discussed CAM due to a lack of relief from medication and limited knowledge of CAM.

Pearson’s Chi-squared analyses revealed that a significantly higher percentage of participants who do not have a chronic illness reported that they do not voluntarily ask their physicians about CAM as compared to those with a chronic illness (76.3% and 23.7%, respectively; $\chi^2(4, 226) = 11.650$, $p = .020$). When patients were asked whether they would utilize CAM services if provided at the AUBMC, 70.8% indicated they would. Pearson’s Chi-squared analyses indicated that significantly more participants with past CAM experience reported that they would use CAM services if provided at AUBMC compared to those who stated that they would not use these services or are not sure about it (78.5%, 12.%, and 9.4%, respectively; $\chi^2(1, 224) = 4.335$, $p = .037$). Furthermore, t-test analyses indicated that significantly more males (M=1.54, SD= .75) compared to females (M=1.30, SD= .65) indicated that they would utilize CAM services if these services would be provided at AUBMC ($t(221) = -2.577$, p=.011).

Discussion

This study aims to evaluate the attitude, familiarity, and utilization of common CAM modalities among a sample of patients attending the Family Medicine clinics in a major academic medical center in Lebanon. The study's sample of patients moderately expressed permissive attitudes toward CAM. Patients who had previously used CAM, used CAM more frequently, and were satisfied with such use expressed higher levels of permissive attitudes towards CAM. Patients who agreed to use CAM services if available at AUBMC also expressed permissive attitudes. Most participants indicated that they would use CAM services if available at AUBMC, thus, reflecting a positive attitude. Positive attitudes towards CAM were similarly reported in previous studies conducted across different countries among patients and the general population, such as Saudi Arabia, [19] Australia, [20,] and Malaysia.[21] The increasing acceptance of CAM by patients, specifically across Asia and developing nations, has been attributed to several factors, including their lack of trust in pharmaceutical products, poor patient-healthcare provider relationships, their perception of CAM's efficacy and safety, unpreventable adverse effects of many mainstream treatments and the accessibility and affordability of CAM. [3, 22, 23] A prevailing high percentage (78.9%) of the study's participants utilized CAM. This finding is in accordance with numerous national studies, which indicated a high percentage of CAM use among the Lebanese population ranging between 15 to 89%. [5-7] The participants reported multiple motives behind using CAM. The majority indicated CAM's accessibility and previous experience as the most common motives behind using CAM. Given that the Middle East and North Africa (MENA) region is observed as an expanding market for CAM products, [3] and given that Lebanon is characterized by high CAM usage across its population,[3] this renders easy accessibility to CAM products and a high percentage of those who report previous usage of CAM. Few participants also reported that their usage of CAM was a form of adherence to tradition and culture. This finding further accentuates that CAM utilization could be partly attributed to historical, social, and cultural reasons, as documented in previous studies. [24,25]

Although numerous studies in the literature indicated that the main motive behind CAM utilization is related to the failure of conventional therapy, [26] or its affordable costs, [8,25] these factors were not the main motives behind CAM utilization in the present study. This suggests that patients are unlikely to stop using conventional medicine to substitute it with CAM. This comes in accordance with studies conducted in Asia and the Middle East that noted that populations in these countries tend not to use CAM in substitution of conventional medicine. [27, 28] Additionally, a sample of Lebanese adults and CAM practitioners also revealed that, despite acknowledging the inadequacies and dissatisfaction of conventional medicine, participants opted to utilize CAM as a complementary treatment rather than as a replacement.[8] This may reflect Lebanon's population's lack of confidence in CAM as an alternative to conventional medicine.[8] Nevertheless, this should be considered a positive finding since patients are never advised to drop conventional therapy and substitute it with CAM rather than using both hand in hand, which forms the foundation of integrative medicine.

Most of the patients in the present study reported that they commonly use CAM as a day-to- day activity and as a means to maintain their health and immunity. According to the WHO, there is a long history of CAM utilization in health maintenance and in the prevention, diagnosis, improvement, and treatment of

disease and mental illness.[29] Numerous studies indicated that health maintenance was one of the most common reasons behind CAM utilization. [30-32] In a sample of Iranian patients, the main reason behind using CAM, such as vitamins, minerals, and herbal medicine, was reported to be health maintenance and promotion of well-being. [31]

Despite the reported high utilization of CAM, limited familiarity with CAM modalities was demonstrated among the study's sample, whereby participants were unfamiliar with 8 CAM modalities out of 15 and with 3 herb types out of 5. Limited CAM familiarity among patients was reported in previous studies. In a recent national study, overall knowledge of acupuncture among patients in a primary care setting in Lebanon was below 50%; such limited familiarity was attributed to the acupuncture modality not being efficiently regulated in Lebanon. [33] Despite the limited overall familiarity with CAM modalities, participants expressed a high familiarity with relaxation therapy, followed by massage, meditation, herbal medicine, naturopathy, yoga, spiritual healing/ prayer, and the 2 herbs, garlic and ginger. This result is consistent with a research study done by the same authors on a sample of physicians and nurses at the AUBMC. In the study, physicians were also most familiar with yoga, massage, and meditation, and nurses were found to be more familiar with massage, relaxation therapy, and Spiritual Healing/Prayer. Both physicians and nurses were most familiar with garlic and ginger as well.[9] The similarly attributed familiarity to the aforementioned modalities by three sample groups from the same medical center might reflect the role of context and culture in dictating the most widely popular CAM modalities in a specified cultural context. [8, 24] Previous studies conducted in Lebanon indicated that herbs, herbal products, and spiritual healing practices were reported to be among the country's most commonly utilized CAM modalities. [8,34] Herbal medicine contends as a practice deeply ingrained in Lebanese tradition, culture, and religion and is part of the collective memory of the Arab people.[34] Arab families still include herbs in their inventory of medicines because they are frequently passed down through generations as parts of family and cultural heritage.[6,8] As for spiritual healing practices, Lebanon is considered a country where religion highly influences people's daily practices, with prayer as a focal aspect of the culture.[35] In contrast to the studies conducted in Lebanon in the past ten years, the present study pointed to patients' high familiarity not only with herbs, herbal medicine, and spiritual healing/prayer but also with relaxation therapy, yoga, massage, meditation, and naturopathy. This reflects the present rising acceptance of the global CAM modalities into the practice of medicine across many countries in the Middle East, including Lebanon.[9] An additional finding regarding familiarity with CAM indicated that participants who reported having good health exhibited higher familiarity with complementary and alternative medicine methods than those with poor or excellent health. Given that higher familiarity with CAM reflects CAM usage, individuals with good health might exhibit high familiarity with CAM, as they are prone to use CAM due to its benefits related to holistic care, health maintenance, health promotion, and improvement in life quality. [36] Similar to this, a study discovered that healthy individuals reported intentional CAM use and not solely by individuals who suffer from poor health and aim to be cured. [37] The use of CAM by healthy individuals might reflect their desire to use natural products with few side effects to maintain their health and enhance their quality of life. [37, 38] Concordantly, another study also indicated that individuals who

perceive themselves as more susceptible to the disease are more likely to use CAM; specifically, in the pursuit of wellness and prevention of future illness are regarded as significant predictors of CAM. [39]

Results of the present study revealed that participants with chronic illness reported higher familiarity with CAM modalities. Previous studies have mainly demonstrated that individuals with chronic disease constitute the majority of CAM users.[5,8] Despite literature extensively demonstrating that females are more likely to use CAM as compared to males, [19-40] findings of this study significantly indicated that more males compared to females indicated that they would utilize CAM services if these services would be provided at AUBMC. Although this finding contrasts the findings obtained in previous studies, our study shows that males also have a propensity to use CAM. Literature has demonstrated a significant level of CAM use among the male population. Yet, the analysis of men's use of CAM is regarded as underdeveloped compared to studies focusing on female use. [41] Additionally, numerous findings in previous studies did not obtain statistically significant differences regarding CAM use between males and females. [41,42] As such, more extensive research needs to be conducted to study the use of CAM more in-depth across the male population.

The vast majority of the participants indicated that their physicians have never asked them about CAM usage and that they did not inform their physicians about such use. Among the reasons for not discussing CAM use with the physicians were the patients' belief that CAM was irrelevant to be brought up and the topic of CAM never coming up from both ends. In line with the findings of previous studies conducted in Lebanon, patients' disclosure of their CAM usage to their physicians is low. In a study examining the use of CAM among lung cancer patients, 58% reported that they did not disclose CAM usage to their physicians. [6] Similarly, among a sample of People living with HIV and AIDS, 44.4% did not disclose the use of CAM to their physician.[7] This is regarded as one of the important findings from the present study, with the majority of CAM users not communicating CAM usage to their physicians. The patient's lack of disclosure of CAM to the physician is regarded as problematic given the risk of adverse effects and drug interactions, particularly in female and elderly patients. [40] With the CAM market in Lebanon being mainly unregulated and unsupervised, [8] it becomes crucial to encourage patients to share information regarding their CAM usage with their healthcare practitioners to control any misuse. Additionally, healthcare practitioners should be aware of their patients' CAM usage to reduce drug interactions caused by the use of CAM. [40] This will also help practitioners prioritize education and research on the effectiveness and safety of CAM use and notify their patients about CAM modalities' benefits and side effects.

A significantly higher number of participants who held a university and post-graduate degree were not asked by their physician if they use CAM compared to those with a secondary/high school degree or primary degree. Findings from the literature indicated that individuals with low levels of education were more likely to utilize CAM compared to individuals with higher education levels who prefer receiving modern conventional medicine. [19] In congruence with this finding, a national study also indicated that people with higher education levels had lower CAM use rates.[6] CAM use was positively correlated with

middle education level in a study conducted among diabetic patients in the United Arab Emirates. [43] Yet, these results are in contrast with findings conducted in the West whereby people with higher education are more likely to utilize CAM, such as in Australia,[20] and Europe.[44]

Conclusion

Limited familiarity and knowledge of CAM on behalf of patients, physicians, and nurses are regarded as a barrier to proper communication between physicians, nurses, and patients, thus, endangering the safe and effective use of CAM. Subsequently, discussing patients' CAM use is crucial to encourage safe therapy choices. As such, the results of this study and previous studies show that there is a need for change and potential for interventions to improve physicians', nurses', and patients' knowledge and familiarity with CAM in Lebanon. This would help to enhance patients' safe experiences and facilitate the integration of CAM within the conventional healthcare system. Subsequently, to safeguard the health and well-being of patients, health policymakers and decision-makers should pay special attention to facilitating adequate regulation and integration of CAM within conventional medicine. Additionally, medical schools and public health agencies should work together to promote awareness of CAM therapies among healthcare professionals and patients. A nationwide investigation examining the types and forms of CAM use among patients is advised to validate the study's findings.

Limitations and Recommendations

One of the limitations of the present study is related to the composition of the sample of patients from one academic medical center, which limits the generalization of results to the entire Lebanese population. Furthermore, the study's sample mainly consisted of young patients, limiting the generalization of results to the whole population. Also, due to the data collection method through self-report questionnaires, the study was confined to the literate population and missed learning about CAM use among the illiterate community. Subsequently, it is recommended that future studies look more closely at how CAM products are used across different socioeconomic categories to better inform policy and practice recommendations. An additional limitation of the study is related to the use of instruments that included items not validated in previous studies and in the Lebanese context, posing a threat to internal validity. However, a pilot study was conducted to check for the clarity and cultural sensitivity of the questionnaires, and the questionnaires were then revised and adapted to the Lebanese context accordingly. Also, the instrument used is a self-report questionnaire which might have led to social desirability and influenced the internal validity. Despite the potential response bias, the design of this study was controlled for bias by implementing a standardization in the administration of the surveys and maintaining proper data cleaning procedures.

Declarations

Authors statement: NM contributed to study design, overseeing the study, and writing of the manuscript. DB contributed to data entry and analysis and writing the manuscript. SS and AS contributed to data

collection and writing the discussion section. MR reviewed the final manuscript and gave her input.

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