



Determinants of Complementary and Alternative Medicine (CAM) Use among Patients Attending Outpatient Clinics of Tanta University Hospitals, Egypt; A Cross-Sectional Study

Eman Ali Younis¹, Safynaz El Saied Shalaby¹, Walaa M. Shehata¹

¹ Public Health and Community Medicine Department, Faculty of Medicine, Tanta University, Egypt.

ABSTRACT

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Background: Complementary and alternative medicine (CAM) is widely used among the Egyptian population in general and patients in particular, especially during the last few years. **Objective:** to investigate the determinants and prevalence of CAM use among patients attending Tanta University Hospitals (TUHs). **Method:** A cross-sectional study was carried out at the outpatient clinics at TUHs. A systematic random sample of 450 outpatients was interviewed and self-filled an Arabic questionnaire from March 20th to the end of April 2022. **Results:** Over half (59.6%) of the patients used CAM in the past year. The most common forms used were herbal products (78%), products of natural origin (70%), Holy Quran and Ruqyah (64%), and diet supplements (46%). Old patients, housewife (76%), and secondary school-educated participants (71%) had statistically significantly higher frequency of use than other age, occupation, and educational groups. There were no significant differences in use by gender, residence, marital status, and income. Motives of use were the beliefs that CAM has no side effects, less expensive than modern treatment, religiously and socially supported, and unsatisfactory results with modern medicine (82.8%, 79.9%, 62.7%, and 39.6%, respectively). Seventy-seven percent of the studied patients had a positive attitude toward CAM. **Conclusion:** A considerable percentage of patients were using CAM, especially herbal products and products of natural origins besides the Holy Quran. The motives of CAM use described in this study underscore the need of education of patients about CAM and its misconceptions.

INTRODUCTION

The National Centre for Complementary and Integrative Health (NCCIH) defines complementary and alternative medicine (CAM) or "nonconventional medicine" as "a group of diverse medical and healthcare practices and products that are not considered to be part of conventional medicine."¹ Alternative medicine covers numerous techniques other than customary medical therapies and interventions, which have effects but are not supported by scientific evidence. Complementary medicine, on the other hand, refers to techniques used to complete and support traditional treatments.²

Numerous CAM techniques are accessible, including acupuncture, aromatherapy, homeopathy, movement therapies, herbal medications, nutritional supplements, meditation, and prayer.³ The ancient Egyptians invented various CAM techniques, particularly cupping (Hijama), which is still used to cure and prevent many ailments. Numerous studies have demonstrated the effectiveness of cupping and how it affects patients' quality of life.⁴

The World Health Organization (WHO) 2019 reported that 93% of the total population in the Western Pacific region, including China, 80% of the total population

Corresponding Author: Eman Ali Younis, Public Health & Community Medicine Department, Faculty of Medicine, Tanta University, Egypt.
Email: eman.yonis@med.tanta.edu.eg, aya.mahmoud971@yahoo.com

in Asia and Africa, 90% of the German population, 70% of Canadians, and 50% of the people in Sweden use CAM methods, while in the United States, only 40% of adults use CAM modalities. However, no evidence supports the effectiveness of CAM as a treatment modality.⁵ According to a study conducted in Egypt in 2013, 41.7% of type II diabetic patients used CAM.⁶ Another study in Egypt among adults in 2015 reported that 77.5% used CAM.⁷ A recent study in Egypt 2022 reported a prevalence rate of 53.8% for CAM use among menopausal women to control menopausal symptoms.⁸

Despite the lack of scientific support, CAM use is growing in acceptance among patients for various reasons, such as the belief of family, friends, the media, or prior experiences and opinions on CAM safety and effectiveness. Other causes, such as patients' discontent with the ineffectiveness of modern medicine, its high prices, a lack of confidence in the current healthcare system, and the perceived connection between CAM and spirituality, may also contribute to the rise in prevalence.^{9, 10}

The prevalence of the most widely practiced CAM modalities varies significantly globally.¹¹ For instance, 38% of CAM users in Taiwan primarily used medicinal herbs and dietary supplements.¹² Although acupuncture, massage, and aromatherapy are the most popular CAM therapies in England.¹³ The situation is different in the Middle East, where nutritional techniques, massage therapy, and herbal medicine are the most commonly used CAM therapies among Iranians.¹⁴ Acupuncture, massage, and food therapy are the most popular treatments in Qatar¹⁵, while 71% of Kuwaitis use herbal remedies as their primary treatment.¹⁶ The most popular treatments in Egypt were herbal medicine and honey.¹⁷

Combining CAM, particularly plant-derived natural products, with medical treatment runs the risk of toxicity and medication interactions. Many patients who use CAM do not disclose this to their healthcare practitioners.¹⁸

However, significant and fatal adverse drug reactions (ADRs) have been identified in 26-41% of the currently available literature, with the majority of these ADRs being liver and biliary system problems, followed by skin and appendage disorders.¹⁹ Herbal medicine uses have increased in popularity in developing nations, raising various health problems, particularly among patients.²⁰

There has been a significant change in the economic, social, and cultural beliefs of Egyptians in general and patients, particularly in light of the country's recent internet boom that heavily promotes CAM products. Also, there has been a change in the pathological map of Egypt, especially after the emergence of the COVID-19 epidemic and other diseases. So, has there been a change in the prevalence and determinants of using these products among patients? It is imperative to study the determinants (predictors) and prevalence of CAM use as a first step to planning effective strategies for promoting the safe usage of CAM as well as preventing or reducing the undesirable consequences of these methods among patients.

Study hypothesis and research question: There has been a change in the prevalence and determinants of using CAM products among patients due to changes in the pathological map in Egypt. By the end of this study, the authors should have answered these questions, what is the prevalence of CAM use among Egyptian patients attending outpatient clinics at Tanta University Hospitals? and what are the determinants of CAM use among them?

METHODS

A cross-sectional study was carried out in the outpatient clinics of Tanta University Hospitals, a tertiary educational hospital in Tanta City, 100 km from Cairo (the country's capital). It is the biggest referral hospital, serving all residents of the Delta governorates freely.

The target population of our study was patients attending the outpatient clinics of Tanta University Hospitals, e.g., internal medicine, tropical medicine, gynecology, cardiology, urology, orthopedics, dermatology, nephrology, chest. The sample size was calculated using EpiInfo 7.2.3.0, a software statistical package from the Centre for Disease Control and Prevention, Atlanta, Georgia, USA. Based on a past literature review that estimated 53% as a proportion (p) of patients use CAM⁸ at a 95% confidence level and a margin of error (d) of 5%, based on the previous criteria, the minimal sample size calculation was 384. Fifteen percent was added to the sample size of 384 to compensate for the missing data and increase the validity. Inclusion criteria included patients attending the outpatient clinics of Tanta University Hospitals of both sexes aged over 18 years.

Table 1: Relationship between sociodemographic data and using CAM among studied patients

	Did you use CAM in the last year?						Test of significance	P value
	Yes (N=268)		No (N=176)		Total (N=444)			
	n	%	n	%	n	%		
Age (years)								
Range		19-73		19-68		19-73		
Mean + SD		39.4+12.9		36+12.9		38+13	t = 2.635	0.009*
Gender								
Male	114	42.5	86	48.9	200	45.0		
Female	154	57.5	90	51.1	244	55.0	X ² =1.718	0.190
Residence								
Urban	128	47.8	80	45.5	208	46.8		
Rural	140	52.2	96	54.5	236	53.2	X ² =.227	0.634
Occupation								
Governmental employee	88	32.8	58	33.0	146	32.9		
Private	84	31.3	64	36.4	148	33.3		
Retired	16	6.0	4	2.3	20	4.5		
Student	38	14.2	32	18.2	70	15.8	X ² =11.951	0.035*
Housewife	38	14.2	12	6.8	50	11.3		
Not working	4	1.5	6	3.4	10	2.3		
Educational level								
Illiterate	22	8.2	12	6.8	34	7.7		
Primary	28	10.4	38	21.6	66	14.9		
Secondary	78	29.1	32	18.2	110	24.8	X ² =14.286	0.003*
University	140	52.2	94	53.4	234	52.7		
Marital status								
Single	60	22.4	56	31.8	116	26.1		
Married	172	64.2	100	56.8	272	61.3		
Divorced	12	4.5	8	4.5	20	4.5	X ² =5.155	0.161
Widowed	24	9.0	12	6.8	36	8.1		
Income								
Enough and spare	52	19.4	30	17.0	82	18.5		
Enough	160	59.7	118	67.0	278	62.6	X ² =2.631	0.268
Not enough	56	20.9	28	15.9	84	18.9		
Presence of chronic diseases								
Yes	118	44.0	66	37.5	184	41.4		
No	150	56.0	110	62.5	260	58.6	X ² =1.867	0.172
Taking conventional treatment regularly								
Yes	108	40.6	68	38.6	176	39.8		
No	158	59.4	108	61.4	266	60.2	X ² =.171	0.679

t= student t-test X²= Chi-square test

Exclusion criteria included severely ill patients and mentally disabled patients.

A systematic random sampling technique was used to select the patients. There is no sampling frame for the outpatients, but the authors used the mean expected number of total outpatients in one month (obtained from the patient affairs in the hospital), which is 15000. The sampling interval was determined by dividing the expected number of outpatients per month (15000) by the calculated sample size (450), giving a sample interval of 33. Thus, every 33rd patient was included until the total sample size was reached. The starting point was determined using a

computer-generated random number; "7" was selected as the starting point.

The authors collected the questionnaire used in data collection after reviewing similar published national and international papers.²¹⁻²³ The questionnaire was created in English, translated into Arabic, and then back into English (under WHO double translation requirements). The final Arabic questionnaire consisted of four parts with 40 questions. Part 1 (Sociodemographic Data) included nine questions regarding personal characteristics: age, gender, residence, educational level, marital status, occupation, income, presence of chronic diseases, and

Table 2: Use of CAM therapy by studied patients in the past year.

Use of CAM therapy	Studied patients (N = 450)	
Used CAM in the past year	n	%
Yes	268	59.6
No	176	39.1
I do not know	6	1.3
Are there any side effects (N=268)		
Yes	52	19.4
No	216	80.6
Forms used (N=268)		
Diet/Supplements	124	46.3
Herbal medicine	210	78.4
Cupping	88	32.8
Acupuncture	22	8.2
Massage	68	25.4
Ruqyah and treatment of the Holy Quran	172	64.0
Treatment with natural substances such as honey and bee products	188	70.0
Chiropractic	12	4.5
Hypnosis	2	0.7
Others	18	6.7
Did you inform your treating physician?		
Yes	10	3.7
No	258	96.3
Who recommended it for you?		
TV	82	23.7
Internet	80	23
books	10	2.9
Friends	22	6.4
Relatives	26	7.5
Physicians	10	2.9
More than one source	116	33.5

taking traditional medical treatment. Part 2 (Practice of CAM): included five questions assessing practice during the last year, side effects, different forms used, telling the treating physician about using CAM, and who recommended it. Part 3 (Reasons for using CAM therapy and reasons for not using it) included five questions assessing reasons for using CAM and seven for not using it. Another seven questions inquire about circumstances in which non-users can consider using CAM. All were given a yes or no rating. Part 4 (Attitude) included seven questions about attitude rated on a five-point Likert scale.

Table 3: Motives, barriers, and circumstances for which non-user patients consider the use of CAM

Reasons for using CAM (N=268)	n	%
It has no side effects	222	82.8
Less expensive than modern treatment	214	79.9
Modern medicine treatment fails	106	39.6
Religious and social beliefs	168	62.7
Other causes	6	2.2
Reasons for not using CAM (N=176)		
Not convinced of it	130	73.7
Insufficient information and evidence to prove its effectiveness	140	79.5
The financial inability to afford alternative medicine	40	22.7
The relatively longer treatment time required for alternative medicine	84	47.7
Not authorized for use in official health institutions	116	65.9
Lack of experience for those practicing alternative medicine	106	60.2
The unavailability of some devices and tools required for alternative medicine	110	62.5
Circumstances for which the use of CAM can be considered by nonusers (N=176)		
When no known medical treatment existed,	129	73.0
Long waiting times in private clinics and general hospitals,	102	57.9
Expensive traditional treatments,	88	50.0
With traditional treatments to help speed recovery,	104	59.1
At the start of a medical problem,	71	40.0
To prevent disease	108	61.0
To treat only minor illnesses.	92	52.3

Validity of the study tools: Three Egyptian professors from Tanta University's College of Medicine's public health department evaluated the questionnaire's validity and recommended simplifying some questions and proposing minor changes. Regarding the time required to finish the questionnaire by participants, experts stated that all questions were straightforward, and participants could fill it out in 10 to 15 minutes. In a pilot study, the authors recruited 20 patients who were not a part of the current survey to test the reliability of the questionnaire. For one section of the questionnaire (reasons for using, reasons for not using, and circumstances), we used data to analyze internal consistency using alpha Cronbach. Cronbach's alpha = 0.793 demonstrated satisfactory internal consistency.

Table 4: Multivariate logistic regression of the most relevant indicators of CAM use by studied patients^a

	OR (95% CI) ^b	P value
Age (ref. less than or equal to 20 years)		
>20-40Ys	2.226 (1.084-4.570)	.029*
>40-60Ys	2.852 (1.350-6.025)	.006*
> 60 Ys	7.857 (2.217-27.852)	.001*
Occupation (ref. not working)		
Governmental employee	.169 (.001-19.342)	0.527
Private	.078 (.001-9.651)	0.386
Retired	.544 (.003-89.319)	0.844
Student	.086 (.001-11.837)	0.355
Housewife	.240 (.002-31.552)	0.630
Educational level (ref. university)		
Illiterate	.715 (.066-7.796)	0.778
Primary	1.827 (.234-14.276)	0.426
Secondary	.616 (.174-2.175)	0.866
It has no side effects (ref. yes)		
No	.018 (.004-.077)	<0.001*
Less expensive than modern treatment (ref. yes)		
No	.531 (.138-2.039)	0.842
Modern medicine treatment fails (ref. yes)		
No	.058 (.013-.250)	<0.001*
Religious and social beliefs (ref. yes)		
No	.003 (.001-.019)	<0.001*

^a significant variable in the univariate analyses were included in this regression model; ^bOR (95% CI) refers to Odds Ratios, and their corresponding Confidence Intervals, OR, found to be significant at p less than 0.05, were bolded.

Cronbach, and the result was 0.823, which indicates good internal consistency.

Informed consent was taken first from the study participants, then with the assistance of skilled eighth-semester students at the faculty of medicine, the data were gathered from the patients by a self-administered questionnaire with literate patients and a face-to-face interview with illiterate patients using Arabic questionnaire form (local language of the Egyptians) during their waiting time at the single patients' gathering area, which is the pharmacy, during the dispensing of treatment for them from March 20th to the end of April 2022. The data were collected throughout most of the weekdays. Each interview/self-filling lasted for 15 to 20 minutes.

Statistical analysis: The collected data was extracted from a master Excel sheet and copied to SPSS (the Statistical Package for the Social Sciences) version 21. For quantitative variables, means and standard deviations were calculated. For categorical data, frequencies were used. A chi-square and a t-test with a 95% confidence interval were used as appropriate significance levels were set at $p \leq 0.05$. Logistic

regression analyses were conducted to investigate the factors influencing CAM use among studied patients. Attitude questions were rated on a five-Likert scale (5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, 1 = strongly disagree) and computed to have a total grading of 7-35, then scored negative (7-12) and positive (13-35) based on the method described by Hashemzaei M. 2021.²⁴

RESULTS

Four hundred forty-four participants were involved in our statistical analysis, with a mean age of 38 ± 13.2 years. About sixty percent (59.6%) used CAM in the past year. There was a statistically significant difference between the mean age of users and non-users (39.37 ± 13 vs. 36 ± 13.1 years), respectively (P value = .009). Governmental employees (32.8%) and university-educated participants (52.2%) were more users, with a statistically significant difference between users and non-users (P values of 0.35 and 0.03, respectively). The following variables showed insignificant differences between users' and non-users sex, residence, marital status, income, presence of

chronic diseases, and taking conventional treatment regularly (Table 1).

Table 5 :Attitude of the studied patients regarding CAM

		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Do you think CAM is more effective than conventional?	n	60	94	132	112	52
	%	13.3	20.9	29.3	24.9	11.6
Do you think CAM is safer than the conventional?	n	60	136	136	90	28
	%	13.3	30.2	30.2	20.0	6.2
Should CAM be integrated into modern medicine?	n	98	176	110	36	30
	%	21.8	39.1	24.4	8.0	6.7
Do you prefer to visit a CAM practitioner first?	n	38	116	116	132	48
	%	8.4	25.8	25.8	29.3	10.7
Do you recommend that a sick person visit a CAM practitioner first?	n	40	110	112	114	74
	%	8.9	24.4	24.9	25.3	16.4
Do you think CAM is more affordable than conventional?	n	88	136	116	80	30
	%	19.6	30.2	25.8	17.8	6.7
Do you think we need to develop an authorized center for CAM Practice?	n	76	160	124	58	32
	%	16.9	35.6	27.6	12.9	7.1

A considerable percentage of the patients (59.6%) used CAM in the past year, and 19.4% had side effects after using it. The most common forms used were herbal products (78.4%), followed by natural substances (70%), and Ruqyah, Holy Quran, and diet products (64% and 46.3%, respectively). Only 3.7% of users informed their treating physician about CAM use. TV and the Internet were the most familiar recommendation sources (23.7% and 23%, respectively), and 33.5% had more than one source (Table 2).

The most common reasons for using CAM among users were that it has no side effects (82.8%), is less expensive than modern treatment (79.9%), is religious and socially acceptable (62.7%) and that current medicine treatment fails (39.6%). The most common reasons for not using it among non-users were insufficient information and evidence to prove its effectiveness (79.5%), not being convinced of it (73.7%), not being authorized for use in official health institutions (65.9%), unavailability of some devices and tools required for alternative medicine (62.5%), and the relatively more extended treatment period required for alternative medicine (47.7%). Regarding circumstances in which non-users can consider the use of CAM, 73% may use it when no medical treatment exists for illness, 61% to prevent diseases,

59% with traditional therapy to speed recovery, 58% may resort to it because of long waiting times in hospitals and clinics, 52.3% to treat only minor illnesses, 50% because of expensive medical treatments, and 40% at the beginning of the disease (Table 3).

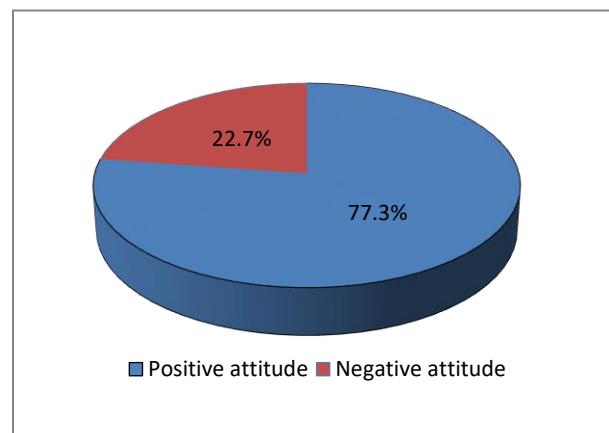


Figure 1: Total attitude among the studied patients

The results of logistic regression analyses conducted to investigate factors that influence CAM use in the research population are shown in Table 4. A variable has to be statistically linked with CAM use in the first model to be included in the multiple ones. The analysis's findings showed that age as a categorical

variable is a significant predictor, i.e., older patients (those over 60 years old) had higher rates of CAM use than younger patients (those under or equal to 20 years old), the absence of side effects from CAM OR:.003, 95% CI: (.001-.019), the failure of modern medicine treatment OR:.058, 95% CI: (.013-.250), and religious and social beliefs OR:.003, 95% CI: (.001-.019).

Regarding attitude of patients, about one-third thought CAM therapy is more effective and safer than conventional medicine, preferred to visit a CAM practitioner first, and recommended CAM to sick people. Sixty percent (60.9 %) preferred CAM integration to modern medicine. About half (49.8%) thought CAM was more affordable than conventional therapy, and 52.5% felt we needed to develop an authorized center for CAM practice (Table 5). Figure 1 shows that 77% of the studied patients had a positive attitude toward CAM.

DISCUSSION

CAM is widely used in developed and developing nations, including China and the United States, and in African and Middle Eastern countries, including Egypt, Saudi Arabia, and Lebanon. As a result, several clinical investigations were conducted globally to determine the causes of this widespread use.²⁵⁻²⁷

The present study revealed that more than half of the included patients used CAM (Table 1). Almost the same percentage was recorded by Alarbash and his colleagues in 2019 in Saudi Arabia among patients attending a family medicine clinic, where they found that 59.2% of the included patients practiced CAM.²⁷ Also, Altunkurek and Edanur in Turkey 2020 found that 53.3% of individuals applying to family health centers used CAM.²²

The high prevalence rate of CAM use in our study and Turkish may be attributed to the COVID-19 pandemic during the study conduction time, and Dehghan et al. (2022) supported that in their research. They reported that at least one CAM was used by 84% of people during the COVID-19 pandemic in Iran.²⁸ Moreover, these products are heavily promoted on television and social media, particularly in light of the country's recent internet boom.²⁹ Also, some can be purchased from markets in many countries, as well as from herbalists and online retailers without a prescription. The most common CAM forms used in the present study were herbal products, natural substances,

Ruqyah, the Holy Quran, and diet products (Table 2). Another study in Egypt in 2018 among elderly attending health insurance outpatient clinics found that the most common CAM methods used by patients were herbs (36.7%), cupping (15.3%), and honey products (8%).²¹

Different findings were found in the Saudi Arabian study 2019, as they found that the most commonest CAM used was incantation (36.0%), followed by herbal medicine (33.6%), cupping (33.6%), and finally honey use (27.6%).²⁷ A Turkish study in 2020 found that the most commonly used CAM methods were praying, which was practiced by 80.6% of the participants, followed by thermal water (72.7%), hijamah (72.1%), and finally, herbal treatments (71.9%).²² Kayhan and Dilekci 2020 reported that the most used CAM applications in Turkey were acupuncture (48.1%), ozone therapy (34.3%), and mug treatment (13%), respectively.³⁰

The vast differences in CAM forms can be explained by the wide variations in religious beliefs, cultures, and traditions among different populations in different countries.³¹ Also, using a particular type of CAM in Kayhan and Dilekci's study depends on the illness a patient is experiencing, as the study was done in a tertiary referral center, which may cause a disparity in prevalence. The wide use of herbal medicine in other studies is due to the misconception of its safety and affordability.^{32, 33}

Regarding side effects associated with CAM use, about one-fifth of patients reported its occurrence (Table 2). Similarly, a study in Turkey 2020 reported that 19.9% of patients applying to family health centers experienced side effects.²² Cevik & Selcuk 2019 reported less percent (15.1%) of the side effects among studied rural adults in western Turkey.³⁴

All medications come with dangers tied to how they are used and taken. Modern medicine's severe toxicities and adverse responses are frequently well-understood and regulated. The inherent toxicity of CAM products is typically underappreciated, mainly when consumed as dietary supplements or over extended periods.³³ Also, concomitant CAM and conventional medicine use occur daily and cause adverse effects without physician supervision.³⁵ This can be reduced by increasing the level of knowledge and awareness about CAM.³⁶

The current study reported that CAM users commonly neglect to disclose their CAM use to their healthcare

providers. (Table 2) Radwan et al., 2020, supported our results among type II diabetes in the United Arab Emirates.³⁷ A systematic review supported our results, with total disclosure rates varying from 7% to 80%.³⁵ Patients may feel it is optional to disclose their use to doctors considering the safety of CAM, and also, the doctor does not ask them.

Regarding the source of knowledge for CAM use, the most familiar sources in the present study were TV and the Internet (Table 2). Similarly, a Turkish study in 2021 stated that 62.7% watched advertisements on TV, 25.5% searched the web, 24.4% consulted relatives or family members, 8.2% consulted healthcare practitioners, and 6.4% read newspapers.³⁸ Khattab et al., (2018), in their Egyptian study, found that the source of knowledge of patients about CAM was the media (56%), followed by the patient's family and friends.²¹

Social media was the most familiar source of knowledge of CAM (49.2%), followed by families and friends (30.4%) in the Alarbash et al. study in Saudi Arabia 2019.³⁹ Also, Alwhaibi and Sambamoorthi 2016 reported that social media was an effective source of information and a way to increase knowledge about CAM among adults with chronic conditions in the United States.⁴⁰ However, Altunkurek and Edanur found in their study in Turkey in 2020 that 47% of their participants obtained their knowledge about CAM methods from people close to them (e.g., family, friends, relatives, and neighbors).²²

It is observed that social media and the Internet are familiar sources in all studies, and this is attributed to the fact that an estimated 5.3 billion people, or 66% of the world's population, use the Internet.⁴⁰ Another cause of this discrepancy may be the degree to which TV and newspaper use was prevalent among study participants.⁴¹

Alarbash et al. (2019) found that patients' educational levels were significantly associated with CAM use, consistent with our findings (Table 1). However, respondents with lower educational levels used CAM methods more frequently than other respondents, which is inconsistent with our finding that patients with a university education used CAM more regularly.²⁷ Additionally, Khattab et al. (2018) discovered that the educational level of the patients they evaluated substantially impacted how often CAM was used.²¹

Educational level is related to people's awareness of and capacity for seeking CAM information. This fact is supported by the finding that whereas chiropractic was related to lower education, acupuncture, and relaxation were associated with higher education.⁴²

In line with our findings, a European study in 2020 indicated that employed people reported using CAM more frequently than jobless or retired.⁴³ This finding would suggest that while consumable CAM treatments do not always require paying a fee and seeing a licensed practitioner, physical CAM treatments frequently do. The ability to pay for more expensive CAM therapies is better suited to those with more finances.⁴³

In the present study, marital status and the presence of chronic diseases were not significantly associated with CAM use. Meanwhile, Altunkürek and Edanur 2020 found a statistically significant association between CAM application and participants' marital status and the presence of chronic diseases.²² Additionally, other studies show a relationship between using CAM and factors including sex, marital status, and chronic disease.³⁹ This may be explained by differences in the sociodemographic characteristics between Egyptian patients and those attending outpatient clinics.

In our study, females used more CAM than males. Men and women may have different values and personality qualities, such as a propensity for taking risks.⁴⁴

Various reasons for using CAM were stated by our studied patients (Table 3). Similarly, Khattab et al. found that 28.7% of patients used CAM because they believed in its safety, 19.3% because it was not expensive compared to drugs, and only 8.5% because medications failed.²¹ Moreover, 74.4% of patients used CAM because they believed it was safe, as found by Alarbash in 2019.²⁷ Reduced side effects (43.29%) and religious beliefs (21.64%) were the main reasons for CAM usage among healthcare workers.⁴⁵

Our study participants reported various reasons for not using CAM (Table 3). A similar Swedish study in 2015 said that the main barriers to CAM usage were a lack of knowledge, scientific evidence, and little knowledge on legislative issues.⁴⁶ Another study reported another barrier as being healthy (55.8%), having no familiarity with it (49.5%), and having a lack of recommendation by the treating physician (37.1%).⁴⁷

It is suggested that the reasons identified by these investigations typically fall into two primary categories: 1) Arguments that emphasize the CAM's perceived benefits, or "pull" considerations, and 2) Arguments that highlight the perceived drawbacks of conventional medicine, or "push" ones. Among the more frequently mentioned "pull" motivations are the desire to take a more proactive role in one's health and holistic health ideas. Typical "push" factors cited by CAM users include dissatisfaction with parts of conventional medicine, such as unpleasant side effects, poor treatments, and aspects of the doctor-patient relationship.⁹

Some non-users considered using CAM on certain occasions as a last resort. (Table 3) A study among cancer patients in 2015 reported using CAM as a last resort.⁴⁸ A systematic review concluded the same circumstances for using CAM.⁹

Regarding the patients' attitudes towards CAM, more than three-quarters of the patients included in the present study had a positive attitude towards CAM (Figure 1). Similarly, most patients included in analyses by Altunkurek and Edanur and Ozturk et al. held positive and moderate attitudes toward CAM.^{22,49} Also, another Swedish study supported our results.⁵⁰ However, Alazmi 2020 in Saudi Arabia reported negative attitudes among patients who did not believe that CAM methods were safer than traditional treatments (51.1%), and nearly 40% were not persuaded that alternative treatment was superior to conventional medicine.⁵¹

Different attitudes revealed in various studies may be based on personal or relatives' experiences using these products. However, evidence-based information concerning CAM benefits should be present to solve this debate.

The current research found that CAM use among outpatients was significantly predicted by old age, the absence of side effects from CAM, the failure of modern medicine treatment, and religious and social beliefs (Table 4). Radwan et al., 2020 recorded other indicators among people with type II diabetes: older age, female sex, a secondary education degree, having a job, and health insurance.³⁷ The positive relationship between age and CAM use in our study is consistent with Radwan et al., who showed that older persons reported using CAM more frequently than younger adults.

CONCLUSIONS

A considerable percentage of patients attending outpatient clinics of Tanta University Hospital were using CAM, especially herbal products and products of natural origins besides the Holy Quran, without telling their treating physician. Motives for use were the low cost, the religious beliefs, and the unsatisfactory results of traditional medicine. Over three-quarters of them showed a positive attitude regarding CAM, whether users or non-users. Older patients, the absence of side effects from CAM, the failure of modern medicine treatment, and religious and social beliefs were predictors for CAM use.

Study limitations: As the study relies on interviews and self-filing assessments about CAM use in the past year, under-reporting is more likely due to patients' forgetfulness (recall bias). Data was collected in the hospital waiting area; participants, therefore, probably changed their answers to satisfy their interviewer. Also, they were in a hurry due to overcrowding. As a result, CAM use among patients may need to be more reported. Overcrowding and patients' hurry were limiting factors for health education for patients.

Recommendations: The authors recommended increasing patient knowledge regarding CAM's possible and adverse side effects and emphasized telling the treating physician. More research is required to study the challenges and factors influencing the disclosure rate among Egyptian patients. Evidence-based research on the benefits and risks of commonly used CAM products emphasizes health outcomes while documenting biological mechanisms of action to resolve conflicts between CAM's "art" and evidence-based medicine's science. Resolving these conflicts is the key to distinguishing evidence-based complementary medicine from practices based on anecdotes.

Ethical Consideration

The study obtained all required approvals from the Institutional Review Board of the Faculty of Medicine at Tanta University approved it (35847922). The study's protocols followed the 1964 Helsinki Declaration and its later amendments. The study's purpose and goals were thoroughly explained at the outset of the survey, and each respondent's consent to

participate was obtained before they were included in the

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