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### Holistic Healing: CAM Use, Motivational Factors, and Impact Among Women Diagnosed with Breast Cancer

#### Authors

Omnia Ahmed Msbah Agha<sup>1</sup> & Salwa Hazim Al Mukhtar<sup>1\*</sup>

#### Affiliation

College of Nursing, University of Mosul, City of Mosul, Iraq

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#### Abstract

**Background:** Breast cancer remains the most commonly diagnosed cancer among women globally, posing serious physical, emotional, and societal burdens. In recent years, Complementary and Alternative Medicine (CAM) has emerged as a popular approach among breast cancer patients to manage symptoms, alleviate treatment side effects, and enhance overall well-being.

**Objective:** This study aimed to explore the prevalence, motivations, and outcomes associated with CAM use among women diagnosed with breast cancer in Mosul, Iraq. It also assessed their knowledge and attitudes toward various CAM therapies.

**Methods:** A descriptive cross-sectional study was conducted involving 150 breast cancer patients from three major oncology hospitals in Mosul. Data were gathered through a validated structured questionnaire covering sociodemographic data, CAM usage, motivations, perceived outcomes, and attitudes. Descriptive and bivariate statistical analyses were used to examine trends and associations.

**Results:** All participants reported using at least one form of CAM in the past year. Herbal remedies and dietary supplements were the most commonly used modalities. Primary motivations included improving physical well-being (40%), belief in natural healing (30.7%), and alleviating side effects of conventional treatments (19.3%). While most participants exhibited a high level of CAM knowledge, misconceptions regarding its safety and compatibility with conventional medicine were noted. Positive outcomes included increased energy (65.3%) and pain reduction (23.3%). Significant associations were observed between CAM knowledge/attitudes and demographic variables such as age and education level.

**Conclusion:** CAM is widely utilized by women with breast cancer in Mosul, often driven by holistic health motivations. Despite its perceived benefits, there is a need for structured educational interventions to correct misconceptions and promote safe, evidence-based integration of CAM into cancer care. These findings highlight the importance of culturally sensitive, patient-centered approaches to oncology care in Iraq.

#### What is already known about the topic?

- A significant proportion of women with breast cancer globally use CAM therapies alongside conventional treatments.
- Prevalence rates vary by country and region, often ranging from 30% to over 80% depending on the population studied.

\* Corresponding author.

E-mail address:

DOI:

Date

Salwa Hazim Al Mukhtar

[dr.salwa@uomosul.edu.iq](mailto:dr.salwa@uomosul.edu.iq)

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## Introduction

Breast cancer is the most frequently diagnosed malignancy and one of the leading causes of cancer-related morbidity and mortality among women globally, accounting for approximately 11.7% of all new cancer cases, with over 2.3 million diagnoses annually (Hammersen et al., 2020; Wang et al., 2020). Despite advancements in early detection, surgical interventions, chemotherapy, and radiotherapy, the physical and psychological burden of breast cancer remains substantial. Patients often endure a wide range of side effects, including fatigue, pain, nausea, and emotional distress, which can significantly diminish their quality of life (Lello et al., 2023; Topaloğlu Ören et al., 2024).

In recent years, many breast cancer patients have turned to **Complementary and Alternative Medicine (CAM)** to manage treatment side effects, enhance overall well-being, and regain a sense of control over their health. CAM includes a diverse set of practices such as herbal remedies, acupuncture, yoga, meditation, and dietary supplements, which are often used alongside or in place of conventional therapies (Grimm et al., 2021; Choi et al., 2022).

The popularity of CAM reflects a growing patient preference for holistic, integrative approaches that address not only the physical but also the emotional, spiritual, and psychological dimensions of healing (Paepke et al., 2020). However, the increased use of CAM raises concerns regarding its efficacy, safety, and interaction with standard treatments. Furthermore, limited research exists in Middle Eastern contexts, including Iraq, where cultural beliefs and healthcare access may significantly influence CAM practices.

Understanding the **trends, motivations, and outcomes** associated with CAM use among breast cancer patients in Mosul, Iraq, is essential to developing informed, culturally appropriate healthcare strategies. This study aims to fill this knowledge gap and contribute valuable insights to support patient-centered, integrative oncology care.

## Aim of the Study

This study aims to investigate the prevalence, motivations, types, and perceived outcomes of Complementary and Alternative Medicine (CAM) use among women diagnosed with breast cancer in Mosul, Iraq. It also seeks to assess their knowledge and attitudes regarding CAM therapies and explore associations with demographic characteristics.

## Methods

### *Study Design*

This study employed a **descriptive cross-sectional design** to investigate the patterns, motivations, and outcomes associated with the use of Complementary and Alternative Medicine (CAM) among women diagnosed with breast cancer. This design enabled the collection of data at a single point in time, providing a snapshot of CAM usage trends within the targeted population.

### *Study Setting*

The research was conducted in **Mosul, Iraq**, across three major oncology hospitals: the Oncology and Nuclear Medicine Hospital, Ibn Sina Hospital, and the Research Hospital. These centers were selected due to their central role in breast cancer diagnosis and treatment in the region.

### *Study Population and Sample*

The study population included **women diagnosed with breast cancer** who were receiving treatment or follow-up care at the selected hospitals. A total of **150 participants** were recruited using **non-probability purposive sampling** based on inclusion criteria such as confirmed diagnosis of breast cancer, age above 18, and willingness to participate in the study.

### *Inclusion and Exclusion Criteria*

- **Inclusion Criteria:** Women diagnosed with breast cancer, aged 18 years and above, receiving care at the selected hospitals, and who provided informed consent.
- **Exclusion Criteria:** Patients with cognitive impairments or psychological conditions affecting their ability to respond accurately, or those unwilling to participate.

### *Data Collection Tool*

Data were gathered using a **structured, self-administered questionnaire** developed based on existing literature and expert input. The questionnaire consisted of five sections:

1. **Demographic and clinical characteristics**
2. **Types of CAM therapies used**
3. **Motivations for CAM use**
4. **Perceived outcomes of CAM**
5. **Knowledge and attitudes toward CAM**

The questionnaire was reviewed by a panel of experts for content validity and was pilot-tested to ensure clarity and reliability.

### *Data Collection Procedure*

Data collection took place over a period of **three months**, from January to March 2025. Participants were approached in the hospital setting, informed about the study's purpose, and invited to complete the questionnaire in a private and comfortable environment. Researchers provided assistance to participants who had difficulty reading or writing.

### *Ethical Considerations*

Ethical approval was obtained from the **Institutional Review Board (IRB)** of the University of Mosul. Written informed consent was obtained from all participants prior to data collection. Confidentiality and anonymity were maintained throughout the study, and participants had the right to withdraw at any time without any consequences.

### *Validity and Reliability*

Content validity was ensured through expert review. The reliability of the questionnaire was assessed using **Cronbach's alpha**, with a score of **0.82**, indicating acceptable internal consistency.

### *Data Analysis*

Data were analyzed using **SPSS version 25**. Descriptive statistics (frequencies, percentages, means, and standard deviations) were used to describe sample characteristics and CAM usage patterns. Bivariate analyses, including **Chi-square tests**, were performed to explore associations between CAM usage, knowledge, attitudes, and demographic variables such as age, education level, and occupation. A significance level of  **$p < 0.05$**  was considered statistically significant.

### *Limitations of the Study*

- The use of **non-probability sampling** limits the generalizability of the findings.
- **Self-reported data** may be subject to recall bias or social desirability bias.
- The study was conducted only in Mosul, which may not reflect CAM usage trends in other parts of Iraq.

### **Results**

The study involved 150 women diagnosed with breast cancer in Mosul, Iraq. Most participants were between 40 and 59 years old, with a majority being married and unemployed. Educational levels varied, with a significant portion having completed

secondary school or higher education. Clinically, a large proportion of participants were in stage II or III of breast cancer, with the most commonly received treatments being chemotherapy (82.7%), surgery (68.7%), and hormonal therapy (42.0%). The time since diagnosis varied, with 36.0% diagnosed within the past year and 45.3% between one to three years.

All participants reported using at least one type of Complementary and Alternative Medicine (CAM) in the past year. Herbal remedies (78.0%) and dietary supplements (61.3%) were the most commonly used, followed by spiritual practices like prayer (54.7%), massage therapy (28.7%), and yoga/meditation (17.3%). The primary motivations for CAM use included improving physical well-being (40.0%), belief in natural healing (30.7%), and alleviating side effects of conventional treatments (19.3%). Perceived benefits of CAM included increased energy (65.3%), reduced pain (23.3%), and improved emotional well-being and sleep quality (20.7%). However, a minority (12.0%) experienced side effects such as gastrointestinal discomfort or allergic reactions.

Regarding knowledge and attitudes toward CAM, 63.3% of participants demonstrated high knowledge, while 72.0% expressed positive attitudes, reflecting a strong belief in the safety and benefits of CAM when properly used. Statistical analysis showed significant associations between CAM knowledge and educational level ( $p = 0.03$ ), and between attitudes and occupation ( $p = 0.04$ ). However, no significant association was found between age and CAM use ( $p > 0.05$ ). These findings highlight a strong cultural inclination toward CAM use among breast cancer patients, driven by both health-related and psychosocial factors.

Table 1: Demographic Characteristics of Participants (N = 150)

Variable	Category	Frequency (n)	Percentage (%)
<b>Age</b>	18–39	34	22.7
	40–59	88	58.7
	≥60	28	18.6
<b>Education Level</b>	Primary	42	28.0
	Secondary	63	42.0
	University and above	45	30.0
<b>Occupation</b>	Housewife	92	61.3
	Employed	42	28.0
	Other	16	10.7
<b>Marital Status</b>	Married	112	74.7
	Single/Widowed/Divorced	38	25.3

Table 2: Clinical Characteristics of Participants

Variable	Category	Frequency (n)	Percentage (%)
Time Since Diagnosis	<1 year	54	36.0
	1–3 years	68	45.3
	>3 years	28	18.7
Cancer Stage	Stage I	32	21.3
	Stage II	62	41.3
	Stage III	57	38.0
	Stage IV	3	2.0
Type of Treatment Received	Chemotherapy	124	82.7
	Surgery	103	68.7
	Hormonal Therapy	63	42.0

Table 3: Types of CAM Therapies Used

Type of CAM	Frequency (n)	Percentage (%)
<b>Herbal Remedies</b>	117	78.0
<b>Dietary Supplements</b>	92	61.3
<b>Spiritual/Prayer</b>	82	54.7
<b>Massage Therapy</b>	43	28.7
<b>Yoga/Meditation</b>	26	17.3

Table 4: Motivations for CAM Use

Motivation	Frequency (n)	Percentage (%)
<b>Improve Physical Well-being</b>	60	40.0
<b>Belief in Natural Healing</b>	46	30.7
<b>Reduce Treatment Side Effects</b>	29	19.3
<b>Emotional/Psychological Comfort</b>	15	10.0

Table 5: Perceived Benefits of CAM Use

Perceived Benefit	Frequency (n)	Percentage (%)
<b>Increased Energy Levels</b>	98	65.3
<b>Pain Reduction</b>	35	23.3
<b>Improved Sleep and Mood</b>	31	20.7

Table 6: Knowledge and Attitudes Toward CAM

Variable	Level/Response	Frequency (n)	Percentage (%)
<b>Knowledge</b>	High	95	63.3
	Moderate to Low	55	36.7
<b>Attitude</b>	Positive	108	72.0
	Neutral/Negative	42	28.0

Table 7: Significant Associations Between Demographics and CAM Knowledge/Attitudes

Variable	Associated Outcome	p-value
<b>Education Level</b>	Knowledge	0.03*
<b>Occupation</b>	Attitudes	0.04*
<b>Age</b>	Knowledge/Attitudes	>0.05

\*p < 0.05 = statistically significant

## Discussion

This study investigated the prevalence, motivations, and perceived outcomes of Complementary and Alternative Medicine (CAM) use among women with breast cancer in Mosul, Iraq. The findings revealed a **100% prevalence** of CAM use among participants, indicating a widespread cultural and personal inclination toward integrative health practices. This rate is consistent with previous studies conducted in the Middle East, such as Naja et al. (2015), who reported that 40% of Lebanese women with breast



cancer used CAM, and Albabtain et al. (2018), who found CAM usage rates of over 80% in Saudi Arabia. The dominant use of herbal remedies and dietary supplements in the current study echoes the findings of Jaradat et al. (2016), who documented similar trends in Palestinian breast cancer patients. The high usage in Mosul may reflect limited access to comprehensive psychosocial support and a strong cultural reliance on traditional remedies for symptom relief and emotional comfort.

The **motivations** for CAM use among participants were multifaceted. The most frequently cited reason was the **improvement of physical well-being**, followed by a **belief in natural healing**, and the **desire to reduce side effects of conventional treatments**. These findings are consistent with international literature, including Can et al. (2013) and Helyer et al. (2006), who found that CAM users sought ways to manage the physical and psychological burden of cancer treatment. Importantly, the **desire for holistic care**—which includes emotional, spiritual, and psychological well-being—was also a key motivator. This reflects the growing global shift toward **patient-centered care**, where patients actively seek methods that align with their personal beliefs and cultural backgrounds (Choi et al., 2022; Adams, 2019). These motivations underscore the importance of considering psychosocial factors when discussing CAM use with patients.

In terms of **perceived outcomes**, the majority of women in this study reported **positive effects**, including improved energy, reduced pain, and enhanced mood and sleep quality. However, some reported mild side effects such as gastrointestinal upset or allergic reactions, highlighting the need for better **education and guidance** on CAM usage. Similar benefits and risks have been reported by Huebner et al. (2014), who emphasized that while CAM may improve quality of life, it can also interact adversely with conventional therapies if not properly monitored. The study also found **significant associations** between CAM knowledge and educational level, and between attitudes and occupation. This aligns with findings from Ashikaga et al. (2002), who noted that younger and more educated women were more likely to use CAM and disclose it to their physicians. These results suggest the necessity for **healthcare professionals to engage in open, non-judgmental communication** with patients regarding CAM practices, to encourage safe, evidence-based integration into cancer care.

## Conclusion

This study explored the prevalence, motivations, and outcomes associated with the use of Complementary and Alternative Medicine (CAM) among women diagnosed with breast cancer in Mosul, Iraq. The findings demonstrated a notably high prevalence of CAM use, with all participants reporting the adoption of at least one form of CAM during their treatment journey. Herbal remedies, dietary supplements, and spiritual practices were the most commonly used modalities, reflecting deep cultural beliefs and a desire for holistic approaches to health.

The primary motivations for CAM use included improving physical well-being, reducing the side effects of conventional treatments, and believing in the healing power of natural methods. Most participants reported positive experiences and perceived health benefits from CAM, though a small number experienced minor side effects. The results also highlighted significant associations between educational level and CAM knowledge, as well as between occupation and attitudes toward CAM, emphasizing the influence of sociodemographic factors on CAM usage patterns.

In conclusion, the study underscores the vital role CAM plays in the lives of women with breast cancer in Iraq. It calls for increased awareness and structured educational programs to promote safe, evidence-based CAM use and enhance communication between patients and healthcare providers. Integrating CAM discussions into routine oncology care can ensure safer outcomes and support the delivery of holistic, patient-centered healthcare.

## Conflict of interest

I declare that there are NO conflicts of interest

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## *Institutional Review Board Statement*

Ethical approval was obtained from the **College of Nursing, University of Mosul** (Code: CCMRE-Nur-24-8). Administrative permission was secured from the Nineveh Directorate of

Health (**Approval No. 37**). All participants signed informed consent forms after being informed of the study objectives, confidentiality policies, and their right to withdraw at any time without repercussions.

**Data privacy and participant confidentiality** were maintained throughout the study. Identifiable information was anonymized and securely stored, accessible only to the research team for analysis.

Informed Consent Statement: Not applicable.

**Data Availability Statement:** Available from the corresponding author upon reasonable request.

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