

## Pharmacoepidemiologic Study of the Complementary and Alternative Medicine (CAM) Use in Patient with Cancer in Benghazi, Libya

### Authors:

Aisha M. Alfituri<sup>1</sup>, Faiza A. Elhamdy<sup>2</sup>, Nour Alagory<sup>1</sup>, Almonther Rizq Ateeq<sup>1</sup>, Almoatasim Bellh Mustafa<sup>1</sup>

*Libyan International Medical University, Faculty of Pharmacy, PharmD, Benghazi, Libya<sup>1</sup>  
University of Benghazi, Faculty of Medicine, Department of Physiology, Benghazi, Libya<sup>2</sup>.*

### Corresponding Author:

Dr. Aisha. Alfituri, Faculty of Pharmacy, PharmD, Libyan International Medical University, Kairawan Road, Benghazi, Libya

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### **ABSTRACT:**

**Background:** Cancer patients are increasingly turning to complementary and alternative medicine (CAM) to improve their physical and psychological well-being. This study aimed to explore the prevalence of complementary and alternative medicine (CAM) use by Libyan populations in Benghazi city. **Methods:** This cross-sectional survey was conducted among 100 patients attending the National Cancer Center at Howari Hospital in Benghazi city. A 16-item questionnaire was used to collect the data. The questionnaire addressed the sociodemographic characteristics, cancer conditions, and use of CAM. The main outcome of interest was “use of any CAM therapy since cancer diagnosis.” **Results:** The total prevalence of CAM among cancer patients was 100%, regardless of cancer type. Lung and breast cancer were the most prevalent in our study (23 and 22%), with stage 2 being the most common cancer (47%). Prayer was the most widely used CAM modality among study participants (100%). Our data also showed that males had a higher number (57%), and the age group 40-59 was the most common. The highest percentage of participants had a diploma or bachelor degree (54%). Similarly, those living in the city had the highest rates (69%). As well, our results revealed that the most prevalent reason for using CAM was to improve sleep and reduce pain (68%). **Conclusions:** This study revealed a prevalent CAM use among cancer patients in the city of Benghazi. It is necessary to promote a patient-centered approach to CAM use.

**Keywords:** Complementary and alternative medicine (CAM), Cancer, Benghazi, Adult, pharmacoepidemiologic survey.

### **INTRODUCTION:**

The use of complementary and alternative medicine (CAM) is common among cancer patients and has been observed to provide benefits and satisfaction. Complementary and alternative medicine (CAM) refers to the use of non-conventional treatments alongside conventional medical treatments (CM) for a particular health condition, including cancer.<sup>1</sup> Complementary medicine is intended to complement, enhance, or support the effectiveness of standard medical practices. Alternative medicine, on the other hand, involves treatments and therapies that are used in place of CM.<sup>1</sup> Some common CAM used in cancer care include Spiritual therapy (prayers, faith healing, predictions, meditation, psychic therapy, and mind-body techniques), Acupuncture, Cautery, Massage, Yoga, Chinese medicine, Hypnosis and Dietary supplements.<sup>2</sup> CM focuses on curative aspects without focusing on the

social, psychological, and spiritual needs of the patient.<sup>3</sup> Despite the perceived benefits and influences, a number of patients refuse CM and prefer CAM alone.<sup>4</sup> The CAM use and practices among cancer patients in the east of Libya are unknown. This study therefore explored the prevalence, patterns, and perceived value of CAM among adult cancer patients in the east of Libya. As well as to decide whether CAM treatments have any beneficial results on cancer; remedy consequences, symptom control, satisfaction, survival rates, and moreover, enhancing the effects of conventional treatments, alleviate side outcomes, or improve usual well-being. The prevalence of CAM use in the overall population can range from 10 to 76% worldwide.<sup>6</sup> in the United Kingdom, the prevalence of CAM use was 15%, whereas in Norway, Brazil and in Czech Republic were 12.6%, 4.5% and 76% respectively. In the united-state it was 33.3%.<sup>7</sup>

CAM are controlled and recorded in Asian and Western Pacific countries because of their localized norms and traditions. Reviews from South Korea, Japan, and Singapore found comparable CAM use prevalence (75, 76, and 76%, respectively), more than Malaysia, Thailand, and Australia, which found 52%, 55.6, and 68.9%, respectively.<sup>8</sup>

In the Middle East the prevalence was variable; Jordan (nearly 100%), Saudi Arabia (90%), Turkey (57%), Morocco (46%), and Iran (35%).<sup>9</sup>

For different reasons, between 20% and 70% of patients who use complementary and alternative medicine, do not inform their physician. As a result, the estimation of CAM use may be unreliable.<sup>8</sup>

Because of the physical and emotional issues associated with a cancer diagnosis, as well as the restricted treatment options, the debilitating side effects of treatment and the lack of significant survival improvements in advanced malignancies, cancer patients were motivated to use CAM.<sup>9</sup>

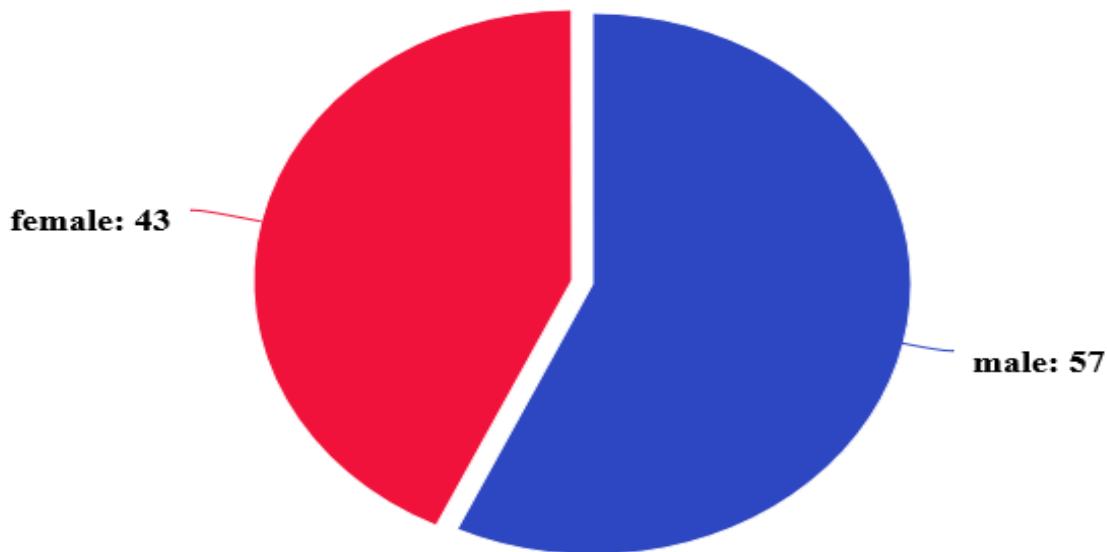
The decisions on CAM usage impacted by a variety of factors, including attitudes and beliefs, gender, illness states, socioeconomic status, cultural backgrounds, health literacy, and even regional variances.<sup>9</sup>

### **METHODOLOGY:**

A cross-sectional study was carried out among cancer patients receiving treatment at the National Cancer Center at Howari Hospital, which served the entire eastern region of Libya from January 15, 2023, to March 5, 2023. A 16-item questionnaire was used to collect the data. It was translated into Arabic to be understood by the patients. The participants were advised that their participation was entirely voluntary and that their replies would be kept anonymous and confidential. The inclusion criteria were all adult Libyans of all cancer types and all stages of cancer. The study included both genders. We excluded non-Libyan patients, patients who have no cancer and those less than 18 years old. Data obtained from the study were analyzed and compared using frequency. The data was represented as graphs.

### **RESULTS:**

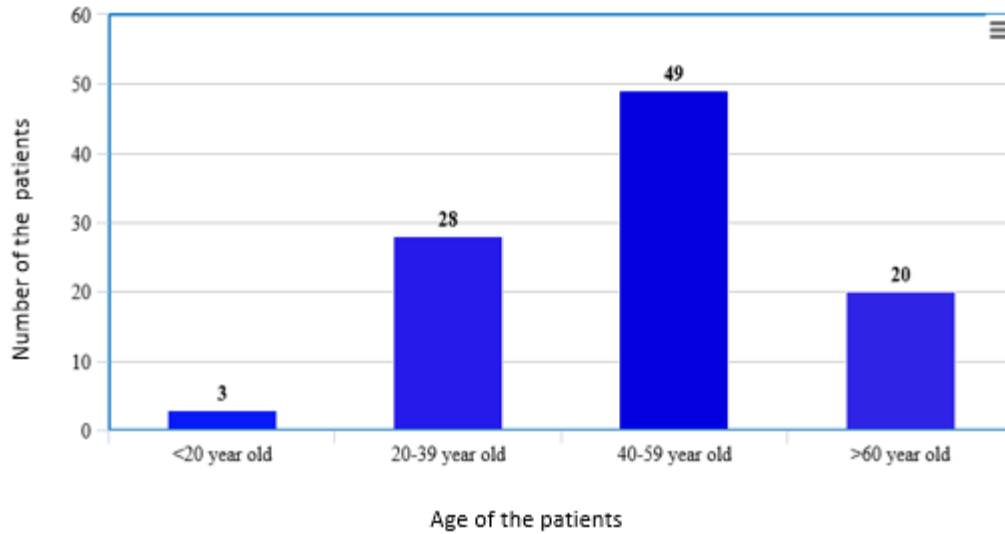
**Gender:** As shown the gender in (Figure 1). The percentage of males was higher than females (57 and 43) respectively.



**Figure 1 Gender.**

### **Age Category:**

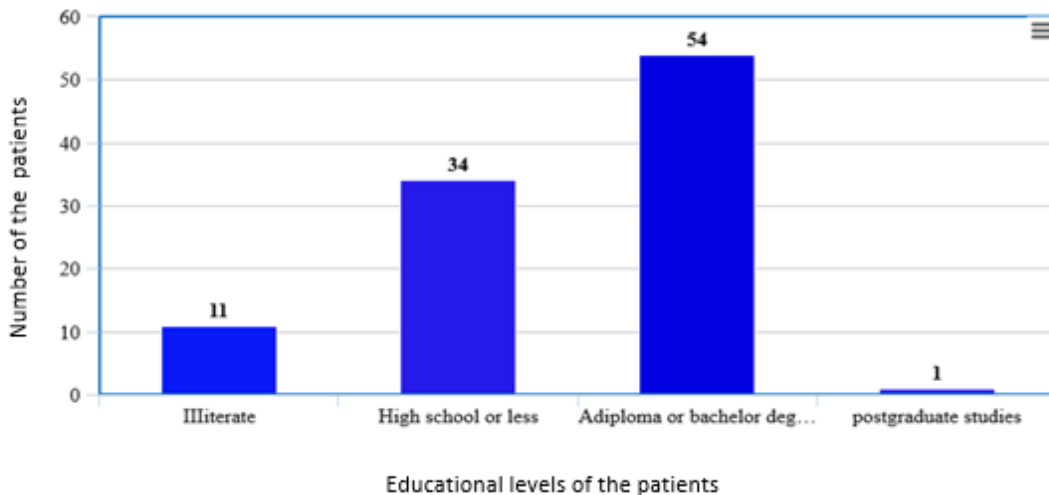
As shown in (figure 2), which indicates a significant difference in the age category. The age range of 40 to 59 years has the greatest percentage (49%), followed by the age range of 20 to 39 years old (28%) and those older than 60-year-old (20%). Finally, 3% are under the age of 20.



**Figure 2 Age categories.**

**Educational level:**

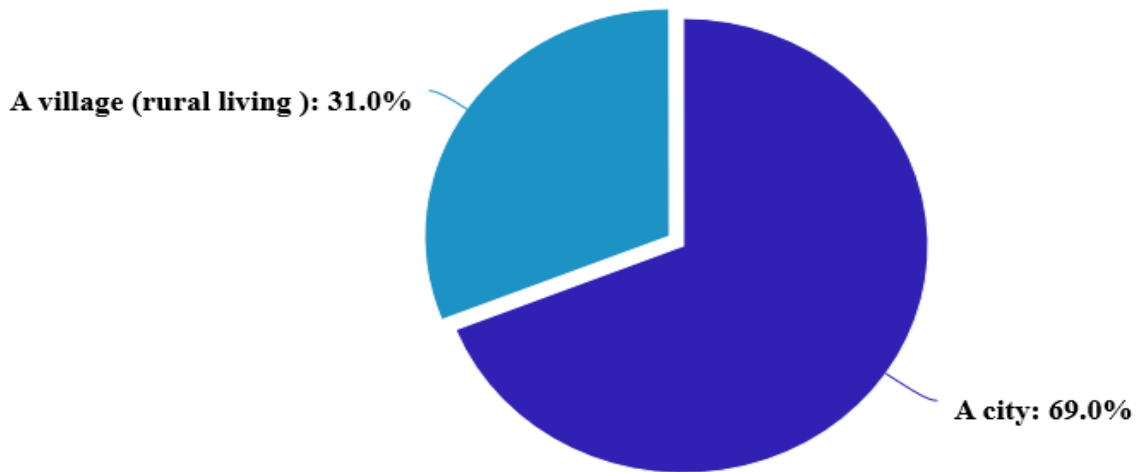
As shown in the bar chart (figure 3), the highest percentage of participants was those having a diploma or bachelor degree (54%), the second one was high school (34%) and the third one was illiterate (11%). Finally, in postgraduate studies, where the percentage was very low (1%).



**Figure 3 Educational level.**

**Place of Residence:**

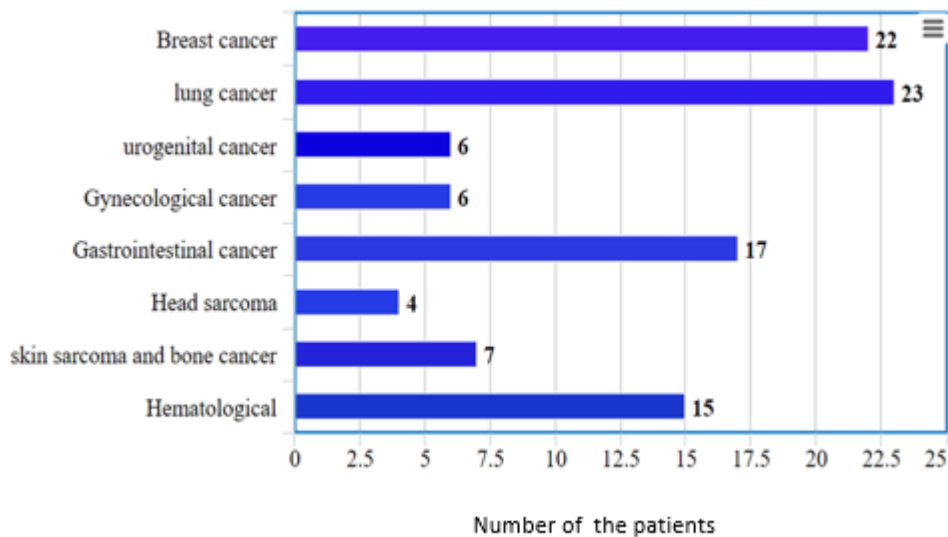
There was a rather big difference in the ratio of participants living in the city and village, shown in (figure 4). The percentage of patients living in the city’s area was more than double that of those living in the village (31%).



**Figure 4 Place of residence.**

**Type of Cancer:**

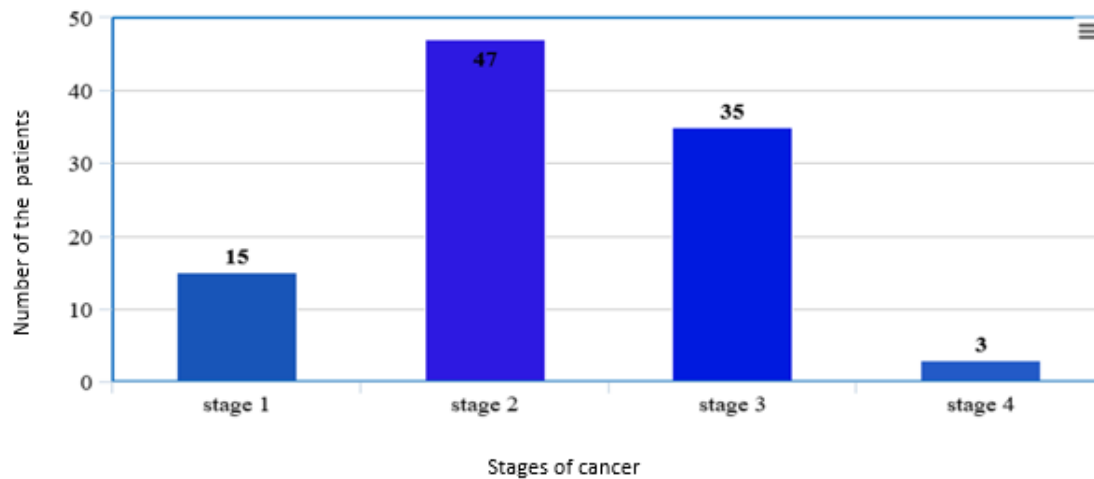
There were many types of cancer, as shown in the representation (figure 5). The percentages of patients with lung and breast cancer were the highest (23% and 22%), respectively, and the least percentage was for head sarcoma and bone cancer (4%). Also, the urogenital and gynecological cancer, where the percentages were in each (6%).



**Figure 5 type of cancer.**

**Stage of Ccancer:**

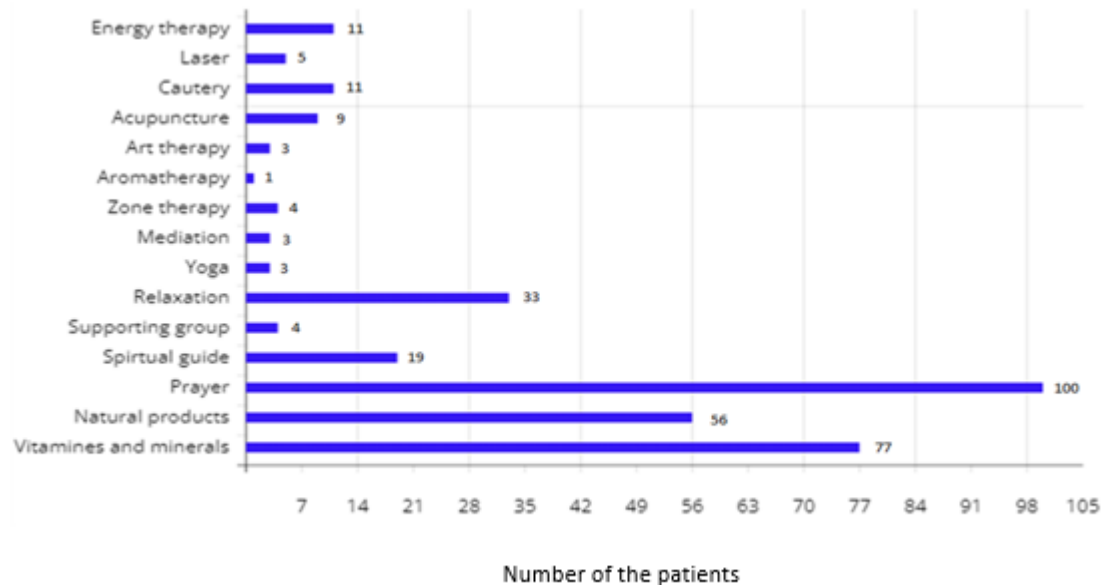
As shown in (figure 6), Regarding cancer stages, the second stage had the highest percentage (47%), followed by stage 3 (35%). Stage 1 and stage 4 had the lowest percentages. (15% and 3%), respectively.



**Figure 6 stage of cancer.**

**Type of CAM:**

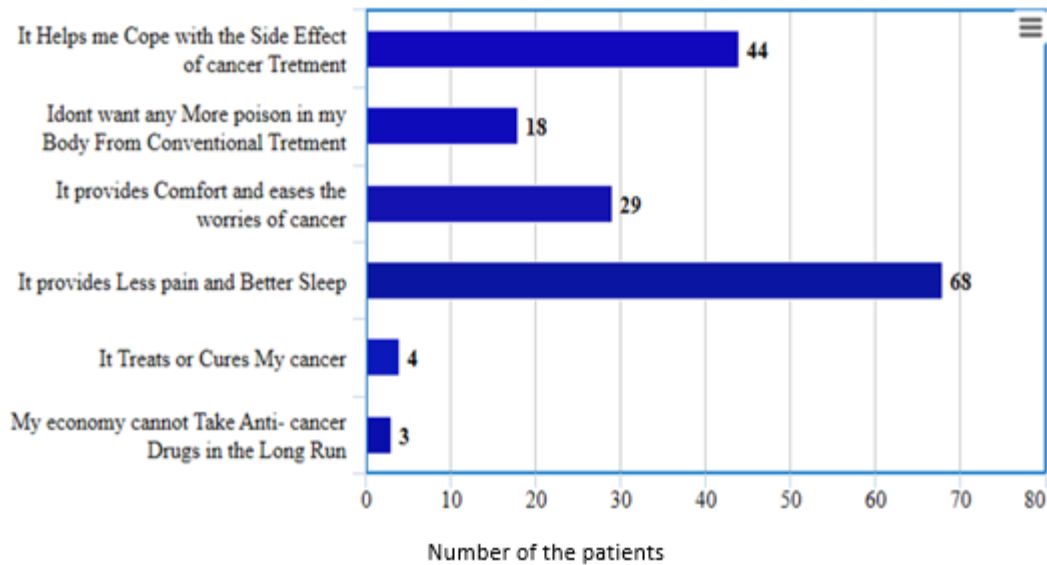
The following chart shows the different modalities of CAM used by the participants in this study in (figure 7). Pray was used by all the participants (100%). Vitamins and minerals had 77%, and natural products had 56%, which were higher percentages. Relaxation had a modest percentage (33%). The least common modality used in this study was aromatherapy (1%). The other modalities had the following percentages: art therapy had 3%, yoga and meditation, each had 3%, supporting guide and zone therapy each had 4%, acupuncture had 9%, and cautery had 11%.



**Figure 7 type of CAM.**

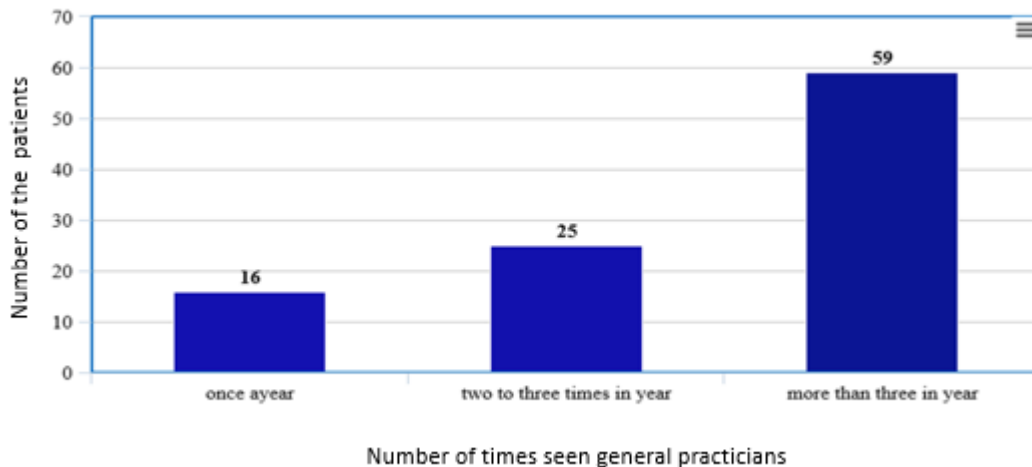
**Reason for CAM use:**

As shown in (figure 8), Most of the patients were taking CAM because it provided less pain and better sleep (68%), and it helped them cope with the side effects of cancer treatment (44%). The least likely reason was because of their economy; they cannot take anti-cancer drugs in the long run (3%). Also, to treat or cure their cancer (4%).



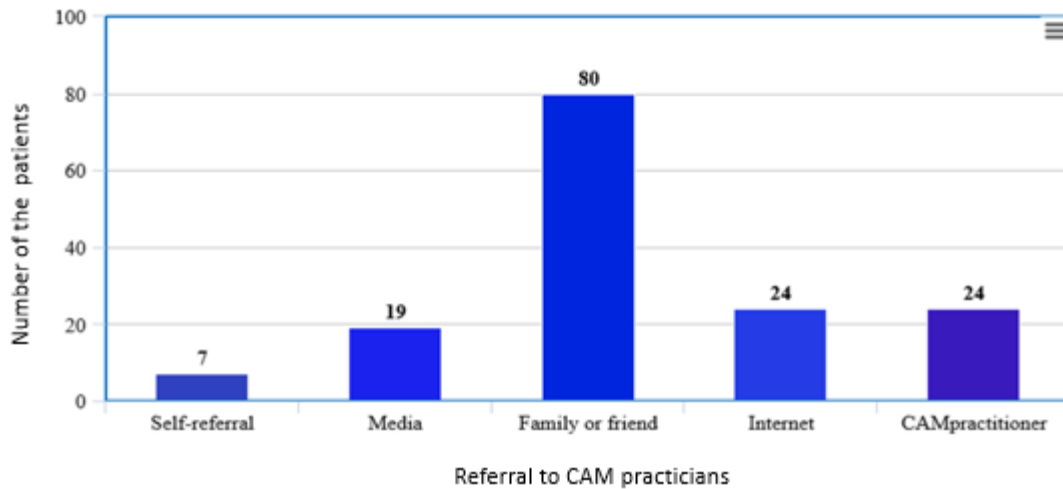
**Figure 8 reason for CAM use.**

**How many times have you seen the CAM practitioner?** As shown in (figure 9), According to this bar chart, which shows most patients visit the CAM practitioner more than three times in the year (59%), two to three times in the year (25%), and finally once in the year (16%).



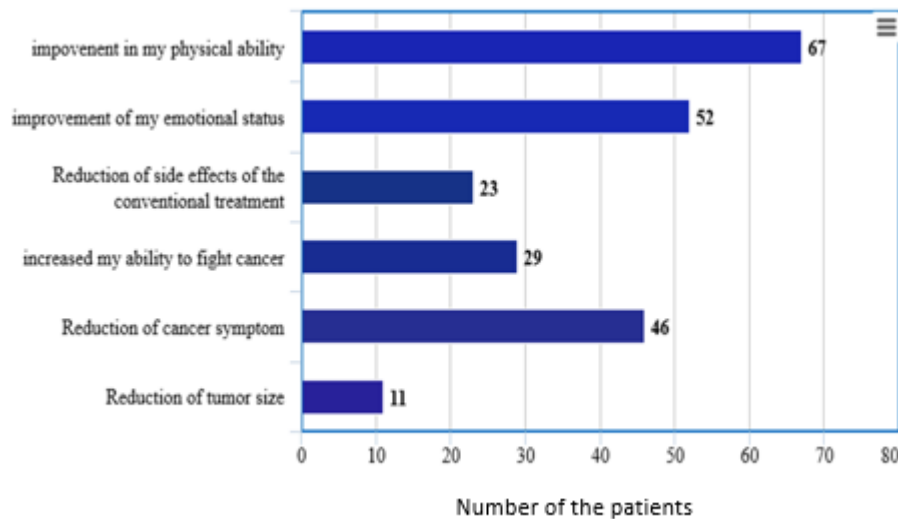
**Figure 9 How many times have you seen the CAM practitioner?**

**Who referred you to the CAM practitioner?** In answering this question, most patients know about CAM from family or friends (80%), the internet and CAM practitioners (24%), and the media (19%). The least source of referral was self-referral (7%), and shows in (figure 10).



**Figure 10 Who referred you to the CAM practitioner?**

**Did you feel better after using CAM?** Most patients feel better after using the CAM (97%),  
**What benefits did you gain from using CAM?** In terms of the benefit of CAM, we found it to be an improvement in their physical activity, shown in (figure12) it has the highest percentage of patients (67%). This was followed by the improvement in the emotional state (52%), and a reduction in cancer symptoms (46%). The other reasons were the increased ability to fight cancer (29%) and the reduction of the side effects of the conventional treatment. The lowest percentage reported by patients was the reduction of tumor size, which was 11%.



**Figure 12 What benefits did you gain from using CAM?**

**Did you think CAM is worth the money you spent?** 97% of patients agreed and 3% disagreed.

**Do you think cancer care providers should inform about CAM?** 99% of patients agreed that the care provider should be informed. only 1% disagreed.

**Do you think certain CAM modalities should be offered to cancer patients?** All patients agreed and supported giving CAM modalities to cancer patients (100%).

**DISCUSSION:**

In this study, the total prevalence of CAM among cancer patients was 100%, regardless of cancer type. Our results were comparable to those obtained in Jordan.<sup>9</sup> However, when compared to other research, our data showed some differences which showed the overall prevalence of CAM among cancer patients to be 39.1%.<sup>3</sup> Regarding the socio-demographic variable, the literature contains inconsistent information. Concerning sex, our data showed that the percentage of males was higher than that of females (57 and 43), respectively. Our result was in contrast with that of the study which showed females were predominant.<sup>10</sup> On the other hand, the age range of 40 to 59 years has the greatest percentage (49%), followed by the age range of 20 to 39 years old (28%), those older than 60-year-old (20%) and 3% are under the age of 20. Again, this was in disagreement with a study, which shows CAM use was more prevalent in the younger age group.<sup>10</sup> About educational levels, we found that the highest percentage of participants had a diploma or bachelor degree (54%). The second one was high school (34%), and the third one was illiterate (11%). Finally, in postgraduate studies, where the percentage was very low (1%). According to NCCAM and National Center for Health Statistics December 2015 data, CAM use is more widespread among persons with greater levels of education,<sup>10</sup> Which agreed with our result. On the other hand, our result was in disagreement with two research studies done in Saudi Arabia and turkey, which showed a lesser level of education utilized CAM more frequently Which it doesn't agree with our results.<sup>10</sup> Moreover, in our study, the prevalence of CAM varied for different cancers. The most cancer type for such patients was lung and breast cancer with percentage of 23% and 22% respectively, and the least percentage was head sarcoma and bone cancer (4%), also other types came with percentage of 6% (urogenital and Gynecological cancer). In a different study, 39.1% of 350 cancer patients were found to have used complementary and alternative medicine (CAM) (39.6% for breast cancer, 44.4% for prostate cancer, 37% for ovarian cancer, and 38.7% for colon cancer patients).<sup>11</sup> These results have certain aspects of agreement with our results in regard to type of cancer, particularly for breast cancer which ranked the second in this study.<sup>12</sup> Concerning the types of CAM, our study showed that various types of CAM had been used in the treatment of cancer, like pray (100%), as well as vitamins and minerals (77%), and natural products (56%). These were the most commonly used treatment for cancer, while the least common types of CAM were Aromatherapy with

parentage (1%), Art therapy (3%), yoga and meditation (3%). In another study, prayer, herbal remedies, vitamin supplements, music therapy, and art therapy were the most commonly used types of CAM. These results are in agreement with our result, particularly in pray and vitamin supplements, although there were some different aspects of others in our result.<sup>13</sup> The relationship between CAM use and the cancer localization, and stage of the disease has been investigated in this study. The second stage was accounting for the highest percentage (47%) also the stage 3 (35%), stage 1 (15%) and least was the fourth stage (3%). Another study done showed that the duration and stage of the disease and cancer localization were related with CAM use.<sup>3</sup> There were no statistically significant differences between the cancer localization and rate of applying for CAM<sup>3</sup>. Significant relationship was found between the stage at the time of diagnosis and the rate of CAM applications. Early-stage cancer patients applied less frequently and advanced-stage cancer patients applied more frequently to CAM applications<sup>3</sup>. The present study confirms that the patients, particularly in the advanced stage of the disease, may feel hopeless because of the failure of the present conventional method of cancer treatment and resort to CAM applications more frequently. These results are in contrast with our results.

Regarding the benefit of CAM, results revealed that the improvement in the physical activity has the highest percentage of patients (67%), also the reduction of cancer symptom (46%), the lowest percentage was reported by patients is the reduction of side effect of the conventional treatment (23%), and the reduction of tumor size (11%). In other study the benefits of using CAM medicine were also investigated, 37.9% said they improved, 42.8% said they did not, and 19.3% said they did not know. On the other hand, when asked if the herbal remedies were harmful, 6.7% of the patients said yes and 93.3% said no<sup>9</sup>. Comparing these findings with ours is a kind of unreliable, because of the differences in parameters that reflect this aspect of the research.

**CONCLUSION:**

According to our research, CAM was being used by all of our participants; the most popular technique was prayer. It was more common in men and in patients between the ages of 40 and 59. Those with a bachelor's or diploma were the most users. The most prevalent cancers among CAM users were lung and breast cancers, and most of them were city dwellers. The main reason CAM was used was to treat pain, with improved sleep being the most frequent justification. Using CAM



improved physical activity, according to the majority of patients. To sum up, the use of was so prevalent among Libyan adult patient in the city of Benghazi and was of beneficial effect to cancer patients.

**Conflict of interest statement:**

The authors declare that they have no competing interests.

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**Declarations:**

**Ethics approval and consent to participate:**

Ethical approval had been taken from the Libyan International Medical University. Permission was obtained from university and faculty dean. Study participant's consent was taken however the study did not use identifiable data. The data collected for this research will not be used for any other purposes.

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CAM

## Survey of the use of complementary medicine in Libyan patients with cancer

- + This survey aims to study the prevalence of the use of complementary alternative medicine (CAM) in adult Libyan patients with cancer
  - + This survey targets all types of CAM in all types of cancer and all cancer stages in Libya
  - + This survey does not include the names or identifying information about the participants.
- 

### SECTION 1: Participant consent

By participating in this study, you are contributing to a study investigating the prevalence of the use, safety, and side effects of complementary medicine in cancer in Libya.

Do you agree to participate in this study?

- Yes
- No

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## **SECTION 2: Participant information**

### **1. Gender:**

- Male
- Female

### **2. Age category:**

- Less than 20 years
- 20 – 39 years
- 40 - 59 years
- More than 60 years

### **3. Educational level:**

- Illiterate
- High school or less
- A Diploma or a Bachelor's degree
- Postgraduate studies

### **4. Place of residence:**

- A city
- A village (rural living)

### **5. What type of cancer do you have?**

- Breast cancer
- Lung cancer
- Urogenital cancer
- Gynecological cancer
- Gastrointestinal
- Head and neck cancer
- Skin sarcoma and bone cancer
- Hematological
- unknown

### **6. Which stage of cancer are you in?**

- Stage 1
- Stage 2
- Stage 3
- Stage 4

### **7. Have you used CAM after being diagnosed with cancer?**

- Yes (answer the next section)
  - No (submit your answers)
-

## 8. Which type of CAM have you used?

### ○ **Category Natural products**

Vitamins, minerals

Natural products

Injection of mistletoe preparations

Aromatherapy

### ○ **Category Mind and Body Practices**

Relaxation

Massage

Yoga

Meditation

Acupuncture

Mindfulness

Prayer

Naprapathy, chiropractic

Tai chi, Qigong

Spiritual guidance, healing

Supporting group(s)

Art therapy

Zone therapy

Rosen Method Bodywork

Shiatsu

Hypnosis

Feldenkrais method

Hyperthermia

Acupressure

Eurythmy therapy

### ○ **Category Other Complementary Health Approaches**

Changes in diet

Anthroposophic medicine

Homeopathy

Energy medicine

Traditional Chinese Medicine

Ayurveda

Laser therapy

**9. How many times have you seen the CAM practitioner since your cancer diagnosis?**

- Once a year
- Two to three times
- More than three years

**10. Who referred you to the CAM practitioner?**

- Self-referral
- Media
- Family or friend
- Internet
- CAM practitioner

**11. What is the reason for CAM use?**

- It helps me cope with the side effects of cancer treatments
- I don't want any more poison in my body from conventional treatment
- It provides comfort and eases the worries of cancer treatment and related stress
- It provides less pain and better sleep
- It treats or cures my cancer
- My economy cannot take anti-cancer drugs in the long run
- Other please specify

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**12. Did you feel better after using CAM?**

- Yes
- No

**13. What were the benefits you gained from using CAM?**

- No benefit
- Improvement in my physical ability
- Improvement of my emotional status
- Reduction of the side effects of the conventional treatment
- Increased my ability to fight cancer
- Reduction of cancer symptom
- Reduction of tumor size
- Other please specify

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**14. Do you think CAM is worth the money you spent?**

- Yes
- No

**15. Do you think cancer care providers should inform about CAM?**

- Yes
- No

**16. Do you think certain CAM modalities Should be offered to cancer patients?**

- Yes
- No

Thanks

ج.د.ك.ص / 2023/11/1/1  
التاريخ: 2023/1/7

السيد رئيس مركز البحوث والاستشارات بالجامعة الدولية

تحية طيبة وبعد،

نحيل إليكم رسالة الموافقة من كلية الصيدلة عن مشروع تخرج بعنوان:

(Pharmaco-epidemiologic study of the Complementary and  
Alternative Medicine (CAM) use in patients with cancer in  
Benghazi, Libya) .

تحت إشراف د. عائشة الفيتوري.

07.01.2023  
للسيد

د. سالمه بوخطوة  
عميد كلية الصيدلة



Tel: 0916313130 - 0614706647  
E - mail: limu@limu.edu.ly  
Kairouan street - Benghazi - Libya  
شارع القيروان - بنغازي - ليبيا

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