

## Use of Complementary and Alternatives Medicine among Cancer Patients

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## ABSTRACT

### Introduction

Complementary and alternative medicine (CAM) use is common among cancer patients with the hope to manage symptoms arising from the cancer related treatment or to improve the quality of life. In this study, we aimed to describe various CAM practices among cancer patients.

### Methods

A descriptive cross-sectional study was conducted in Bhaktapur Cancer Hospital. Convenient sampling technique was used to select the participants. Data was collected from cancer patients attending in out-patient department of Bhaktapur Cancer Hospital with a structured questionnaire. The collected data and analyzed using Statistical Package for the Social Sciences (SPSS) version 16.

### Results

The use of CAM was found in 40.7% (37/91) of the studied cancer patients. Among them, Ayurveda 18 (56.2%) was the most common type of CAM used. Among CAM users, the most common reason for using CAM was to reduce side effects of cancer related treatment (22, 59.4%). The majority of the respondents 33 (89.1%) were satisfied with CAM use. Only 14 (37.8%) of respondents consulted with their doctor about the initiation of CAM use. Gynecological cancer 38 (41.7%) was the most common site of cancer seen among the respondents followed by respiratory 18 (19.7%) and gastro-intestinal 17 (18.6%) respectively. Twenty eight (30.8%) of the respondents were in the third stage of cancer.

### Conclusion

Less than half of the cancer patients were using CAM, Ayurvedic medicine being the most common form. Majority of the users were satisfied with CAM use. Further studies on potential risk and benefits associated with CAM therapy is needed as its use has been increasing.

### Keywords

Cancer patient, complementary medicine, alternative medicine

## INTRODUCTION

Complementary medicine refers to treatments used alongside cancer-related care to reduce therapy side effects, ease chronic disease symptoms, and improve wellness.<sup>1</sup> Patient demand for complementary and alternative medicine (CAM) clinics has increased due to a desire for more control, symptom management, high costs, or dissatisfaction with conventional treatments.<sup>2</sup> In developing countries, over 70% of people rely on CAM due to limited access and high costs of cancer therapy.

Cultural beliefs and traditional healers play a significant role, with Ayurveda being the oldest system of medicine in Nepal and India.<sup>3</sup> In Nepal, with its rich cultural heritage, over 85% rely on traditional medicine, often using multiple healthcare systems based on their needs and beliefs. Traditional healers' knowledge, largely transmitted orally, has been used for centuries.<sup>3</sup> Most cancer patients use CAM regularly, influenced by illness stage, comorbidity, income, and education. The reported benefits of CAM are to reduce the side effects of cancer related treatment, boost immune system, managing the cancer symptoms and emotional support.<sup>2</sup> Healthcare practitioners should discuss CAM use with patients to avoid potential drug interactions.<sup>4</sup>

In 2020, cancer caused 10 million deaths globally, with the highest new cases being breast, lung, colon, rectal, prostate, non-melanoma skin, and stomach cancers.<sup>5</sup> A study from Kathmandu has reported that 31.6% of cancer patients used traditional and complementary medicine, mainly Ayurveda and Yoga, with 46% discussing it with their doctors.<sup>6</sup> With simultaneous use of CAM and cancer related treatment, the drug interaction and related complication may occur in the cancer patients.<sup>7,8</sup> Healthcare providers should be aware of CAM use in cancer patients to prevent drug interactions, especially in the older population.<sup>8,9</sup> Hence, this study aimed to explore the use of CAM in cancer patients.

## METHODS

This was a descriptive cross-sectional study conducted among cancer patients in Bhaktapur Cancer Hospital using a structured interview guide from August 2022 to December 2022.

The total sample of the study was calculated using Cochran's formula of sample size calculation i.e. sample size (n) =  $z^2pq/e^2$

Where, p (prevalence) = 31.6%<sup>6</sup>

q = (100-p) = 68.4%

e (allowable/ permissible error) = 10%

z (reliability coefficient) = 1.96

Required sample size =  $(1.96)^2 \times 0.316 \times 0.684 / (0.10)^2$

After the calculation using Cochran formula, sample size was 83.03, which can be rounded off as 83. So the sample size was 83.

Now, adding 10% possible non-response rate;

Final sample size = 83 + 10% of 83

= 91.3 ~ 91

Non-probability convenient sampling technique was used to select the cancer patients attending the OPD of Bhaktapur Cancer Hospital for the study based on sample size. Patients aged above 20 years who were diagnosed as having cancer irrespective of duration and types of treatments as well as any types of cancer patients attending in the OPD of Bhaktapur Cancer Hospital were selected for the study population. A structured questionnaire was developed in English language by researchers by thoroughly reviewing the related literature, consulting with research advisor, subject teachers and peers. The English language was translated to Nepali language and back translated to English language for validity. While taking in-person interview, disease related information of the patients such as type of cancer, site of cancer, and stage of cancer were taken by reviewing the patient's chart.

The questionnaire included three main sections:

- Section 1 included background characteristics: age, sex, religion, marital status, ethnicity, educational status, occupation.
- Section 2 included disease related information: diagnosis, type of cancer, stage of cancer, duration of diagnosis, undergoing treatment and other comorbidities factors.
- Section 3 included questions related to the information on CAM: prevalence of CAM, type of CAM used, reason for CAM use, factors affecting the use of CAM including satisfaction, etc.

To establish reliability of the tool, pretesting of the translated instrument was done in 10% of total sample size (n=10) in Oncology Ward of Tribhuvan University Teaching Hospital. Necessary modification on the interview guide was made based on the response of the participants in the pre-testing.

Data was collected after the approval of the research proposal from Research Management Cell of Maharajgunj Nursing Campus and Institutional Research Committee of Institute of Medicine (Reference number 119(6-11)E2). Formal approval was also obtained from Bhaktapur Cancer Hospital for the study.

Firstly, the researcher introduced herself and the purpose of study was explained to the respondents. They were informed that they could decide whether

or not to participate in the study. Informed consent was taken from each respondent prior to data collection. It was an in-person interview at OPD corner using a structured questionnaire. Time taken for data collection procedure was 10-15 minutes per individual.

The filled questionnaires were quickly checked for completeness. The respondents were thanked for their valuable time and information. All collected data were reviewed and checked daily for their completeness, consistency and accuracy. Data was edited, organized, coded and entered into Statistical Package for Social Science (SPSS) version 16. The data obtained was analyzed on the basis of the objectives of the study using descriptive statistics (frequency, percentage, mean and standard deviation).

## RESULTS

There were 91 participants in the study. Among

them, more than half (52, 57.1%) were females. The mean age of participants was  $52.6 \pm 11.2$  years.

Table 1 shows the socio-demographic characteristics of respondents where the majority of the respondents 31 (34.1%) belonged to the age group 51-60 years. Most of the respondents 75 (82.4%) followed Hindu religion. Likewise, 72 (79.1%) of the respondents were married. Regarding ethnicity, 42 (46.2%) of respondents were of Brahmin and Chhetri caste, while 30 (33%) of the respondents had completed secondary level of education.

Gynecological cancer (38, 41.7%) was the most common site of cancer seen among the respondents followed by respiratory 18 (19.7%) and gastro-intestinal 17 (18.6%) respectively (Table 2). Regarding stage, 28 (30.8%) of the respondents were in the third stage of cancer. Forty two (46.1%) respondents had cancer for less than 12 months. Only 16 (17.5%) of the respondents had presence of comorbidity, among them 11 (68.7%) had

**Table 1.** Socio-demographic characteristics of cancer patients

Characteristics	Number (%)
Age in completed year	
21-30	3 (3.3)
31-40	11 (12.1)
41-50	25 (27.5)
51-60	31 (34.1)
61-70	16 (17.6)
71-80	5 (5.5)
Mean age $\pm$ SD	$52.6 \pm 11.2$
Sex	
Female	52 (57.1)
Male	39 (42.9)
Religion	
Hindu	75 (82.4)
Christian	10 (11.0)
Buddhist	5 (5.5)
Kirant	1 (1.1)
Marital Status	
Married	72 (79.1)
Widowed	11 (12.1)
Unmarried	8 (8.8)
Ethnicity	
Brahmin and Chhetri	42 (46.2)
Janajati	41 (45.1)
Dalit	8 (8.8)
Educational Status	
Cannot read and write	6 (6.6)
General Literate	22 (24.2)
Basic level	21 (23.1)
Secondary level	30 (33.0)
Higher Education	12 (13.2)

**Table 2.** Disease related characteristics of cancer patients

Characteristics	Number (%)
Site of cancer	
Gynecological	38 (41.7)
Respiratory	18 (19.7)
Gastrointestinal	17 (18.6)
Urologic	10 (10.9)
Bone cancer	5 (5.4)
Hematological	2 (2.1)
Endocrinology	1 (1.0)
Stage of cancer	
First stage	25 (27.5)
Second stage	26 (28.6)
Third stage	28 (30.8)
Fourth stage	12 (13.2)
Duration of cancer diagnosis	
<12 months	42 (46.1)
12-36 months	30 (33.1)
$\geq 36$ months	19 (20.8)
Presence of comorbidity	
Present	16 (17.5)
Absent	75 (82.4)
Types of comorbidities (n=16)	
Hypertension	11 (68.7)
Diabetes mellitus	4 (25.0)
Arthritis	1 (6.2)
Cancer related treatment modalities*	
Chemotherapy	70 (76.9)
Surgery	48 (52.7)
Radiation therapy	39 (42.9)
Hormonal therapy	1 (1.1)



**Table 3.** Use of CAM among cancer patients

Characteristics	Number (%)
CAM use ever after diagnosis of cancer	
Yes	37 (40.7)
No	54 (59.3)
Reason for CAM use*(n=37)	
Reduce the side effects of cancer related treatment	22 (59.4)
Slowing the progression of disease	20 (54.0)
Managing the cancer symptoms	18 (48.6)
Cure the cancer completely	17 (45.9)
Belief on advantage of CAM	8 (21.6)
Boost immune system	7 (18.9)
Emotional support	1 (2.7)
Use of CAM (n=37)	
Current user	32 (86.4)
Past user	5 (13.6)

hypertension. Seventy (76.9%) of the respondents were receiving chemotherapy.

Among 91 respondents, 37 (40.7%) reported that they ever used CAM after the diagnosis of cancer, among them, 37 (86.4%) reported the current use of CAM (Table 3). Among CAM users, the most common reason for using CAM was to reduce side effects of cancer related treatment (22, 59.4%).

Table 4 presents that 18 (56.2%) of the respondents had used Ayurveda followed by Naturopathy by 11 (34.3%) patients. In concern to duration of CAM use, 24 (64.8%) of the respondents reported more than one year. Twenty one (56.7%) of them got CAM service from Ayurvedic centers from Ayurvedic healers.

Table 5 demonstrates that 22 (59.4%) of the respondents initiated using CAM after starting cancer related treatment. Only 14 (37.8%) of respondents consulted with their doctor about the initiation of CAM use. Majority of the doctors 13 (92.8%) were neutral about using. Twenty five (67.6%) of the respondents reported that CAM was helpful a lot. In regard to monthly expenses, nearly half of respondents 19 (51.4%) spend less than NRs. 5000 per month on CAM use. Thirty three (89.1%) of the respondents were satisfied with CAM use. Likewise, 33 (89.2%) of the CAM users will recommend others to use CAM.

## DISCUSSION

This study was conducted to explore the prevalence and patterns of CAM among cancer patients undergoing cancer related treatment at Bhaktapur Cancer Hospital, Bhaktapur.

The use of CAM have been reported to reduce the side effects of cancer related treatment, boost immune system, managing the cancer symptoms

and providing emotional support to the patients.<sup>27,28</sup>

The study population consisted of 91 participants, among them 57.1% were women. The median age of respondents was 52 years, the majority of the respondents (34.1%) were of the age range 51-60 years. The most common site of cancer seen among the respondents was gynecological related cancer (41.7%) followed by respiratory (19.7%) and gastrointestinal (18.6%) respectively. More of the respondents (30.8%) were in the third stage of cancer. Nearly half of the respondents (46.1%) were having cancer for less than 12 months. Only 17.6% of the respondents had comorbidity.

**Table 4.** Types of CAM used by respondents

Characteristics	Number (%)
Type of CAM use*(n=32)	
Ayurveda	18 (56.2)
Naturopathy	11 (34.3)
Homeopathy	5 (15.6)
Yoga	4 (12.5)
Duration of CAM use	
≤1 year	13 (35.1)
>1 year	24 (64.8)
CAM service center*(n=37)	
Ayurvedic center	21 (56.7)
Naturopath center	12 (32.4)
Homeopath center	6 (16.2)
Yoga center	4 (10.8)
Meditation center	1 (2.7)
CAM service provider*(n=37)	
Ayurvedic healer	21 (56.7)
Naturopath	13 (35.1)
Homeopath	6 (16.2)

**Table 5.** Information on CAM use among cancer patients

Characteristics	Number (%)
Initiation of using CAM	
After starting cancer treatment	22 (59.4)
Before starting cancer treatment	11 (29.7)
Immediately after cancer diagnosis	4 (10.8)
Informing the treating doctor about use of CAM	
Yes	14 (37.8)
No	23 (62.1)
If yes, doctor's response (n=14)	
Was neutral about using CAM	13 (92.8)
Encouraged to use CAM	1 (7.1)
Perceived effectiveness of CAM (n=37)	
A lot	25 (67.6)
Some	8 (21.6)
Not at all	4 (10.8)
Satisfaction on CAM use	
Yes	33 (89.2)
No	4 (10.8)
Recommendation for CAM use	
Yes	33 (89.2)
No	4 (10.8)
Expenses on CAM per month (NRs)	
≤5,000	19 (51.4)
>5,000	18 (48.6)
Mean expense per month	NRs. 5354±1465

In the present study, the prevalence of use of CAM was 40.7% which is very similar to study done in Brazil (34.2%).<sup>10</sup> Similarly, the prevalence of use of CAM among cancer patients in two National hospitals of Nepal was 31.6% and 46.2% in Sub-Himalayan city of India.<sup>11</sup> However, the prevalence of CAM in Australia is estimated to be 17% to 87% and in Taiwan, 75.5% and 85.63% in 2002 and 2007, respectively.<sup>12,13</sup> The variation in the prevalence of CAM use across the country can be due to differences in sociocultural and economic background, perception of importance of CAM and differences in the accessibility of modern medicine.<sup>5</sup>

In the present study, the most commonly used CAM modality was Ayurvedic (56.2%) which is very similar with the study conducted in tertiary hospital in Sub-Himalayan city of India<sup>11</sup> and two National hospitals of Kathmandu.<sup>6</sup> Whereas in the study done on Ethiopia among cancer patients receiving chemotherapy, the most commonly used form of CAM was herbal therapies,<sup>4</sup> United States,<sup>14</sup> Trinidad and Tobago.<sup>15</sup> However, study done at a tertiary hospital of Malaysia, the most commonly

used form of CAM was vitamin and Islamic medical practices<sup>9</sup> and vitamins (37%) in Hungary among breast cancer patients.<sup>16</sup> Ayurveda is the oldest medical system in Nepal, India and still is in trend. Due to the widespread belief that the Ayurvedic medicines are safe with less side effects, a large percentage of Ayurveda are used.<sup>3</sup>

The most common reason for CAM use in this study was to reduce side effects of cancer related treatments (59.45%) followed by slowing progression of cancer (54.05%) which was similar with the study done on France among different cancer patients by.<sup>17</sup> While the studies done on Germany among breast cancer patients showed that the reason for use of CAM was to boost the immune system,<sup>18</sup> a survey among European countries showed that common reason was to increase the body's ability to fight cancer or improve physical and emotional well-being.<sup>19,20</sup> These variations might be due to differences in perception and attitudes of CAM users.

In this study, many respondents (59.45%) used CAM after diagnosis of cancer and together with cancer related treatment. This is similar with the findings of a previous study from California.<sup>20</sup> An important finding of the study was that 62.16% of the CAM users did not inform their treating physician about the use of CAM. This finding is correspondence by a study done among cancer patients in two cancer centers in Brazil and Ethiopia.<sup>4,10</sup> The communication between doctors and patients with respect to CAM use is extremely important to prevent the effects of drug interaction.<sup>8</sup>

In this study, the major sources of information regarding CAM among CAM users are media (64.8%) whereas the study done in Japan showed that CAM users get information about CAM from family and friends (77.7%).<sup>21</sup> Studies from Ethiopia,<sup>4</sup> Rural Australia<sup>22</sup> and Mongolia<sup>7</sup> showed that CAM users get information from other CAM users. That might be because an individual's health-seeking behavior varies on a variety of factors.

In the present study, regarding the perceived satisfaction, most (89.2%) of the CAM users were satisfied with CAM use. The satisfied users will recommend others too, as they found CAM beneficial and helpful to reduce side effects of cancer related treatment. This finding supports various other studies which were done in Ethiopia<sup>4</sup> among cancer patients receiving chemotherapy and study done among breast cancer patients in Saudi Arabia.<sup>23</sup> More than half of the CAM users reported that CAM is helpful to them. This result is supported by the study conducted in Mongolia.<sup>7</sup>

In this study, as majority of the respondents did not experience any side effects by CAM use which is concordance with the findings of study done among patients with early-stage breast cancer.<sup>24</sup> This



supported the assumption that CAM are “natural” and “safe.” The CAM therapies are widely used due to popular belief, although they have not yet been carried out or evaluated in a clinical context.<sup>25</sup> There may be the possibility of drug interaction, which could be the challenge in the field of oncology.<sup>7</sup>

## CONCLUSION

Less than half of the cancer patients were using complementary and alternative medicine along with cancer treatment; among which majority were using Ayurvedic medicine. The most common reason for using CAM was to reduce side effects of cancer related treatment. Majority of the respondents were satisfied with CAM use and found it effective. Although many cancer patients use CAM along with cancer treatment, they do not disclose it to their doctors.

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## CONFLICT OF INTEREST

The author(s) declare that they do not have any conflicts of interest with respect to the research, authorship, and/or publication of this article.

## AUTHOR CONTRIBUTIONS

Concept and design of the work: SN, RG. Data collection, data analysis and interpretation: SN, RG. Drafting the article and critical revision of the article: SN, RG, LS, SS. All authors read and approved the final manuscript.

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