Patient Factors Associated with Complementary and Alternative Medicine Use Among Cancer Patients at a County Referral Hospital, Kenya

Bravin George Etole*, Sherry Oluchina, and Bernard Wambua Mbithi

School of Nursing, Jomo Kenyatta University of Agriculture and Technology, Nairobi, Kenya

*Corresponding author: Mr. Bravin George Etole. Email address: bravinetole@gmail.com

Abstract

BACKGROUND

Despite numerous global reports on the use of complementary and alternative medicine (CAM), no studies have been published regarding its use at Machakos Level 5 Hospital. Therefore, this study aims to identify patient-related factors associated with CAM use among cancer patients at this Level 5 hospital in Kenya.

METHODOLOGY

A mixed method, cross-sectional design was implemented at Machakos level five hospital in Kenya. A Census was carried out, using a face-to-face researcher-administered questionnaire among 80 cancer patients receiving treatment at the clinic. Critically ill and mentally unstable patients were excluded. A Chi-square test assessed variable associations, considering $p < 0.05$ as statistically significant. Logistic regression analyzed variable relationships.

RESULTS

Gender was significantly associated with CAM use (p=0.014). Regression analysis revealed that Male patients were 79% less likely to use CAM (OR=0.21, 95% CI 0.042-1.003, p=0.050). Patients who had received radiotherapy were likely to use CAM (p=0.032), however, on regression analysis there was no significant association. Believes that CAM improves health (χ^2=9.231, p-0.010), supports conventional treatment (χ^2=15.620, p-0.001), cures cancer (χ^2=12.661, p-0.002), manages treatment side effects (χ^2=11.045, p-0.004), relieves cancer symptoms (χ^2=9.008, p-0.011), promotes self-healing (χ^2=16.969, p-0.001), and gives hope (χ^2=17.512, p-0.001) were significantly associated with CAM use.

CONCLUSION AND RECOMMENDATION

There was a significant association between patient characteristics and CAM use among cancer patients. Improving patient-healthcare worker communication could encourage reporting of CAM usage. Further research is needed to explore the efficacy, safety, and tolerability of CAM in cancer patients.

Keywords: Complementary Medicines, Alternative Medicines, Alternative Therapy

Introduction

Cancer, as per GLOBOCAN data, is the leading cause of global mortality, with approximately 9.6 million deaths annually (1). The global burden of cancer escalated to 18.2 million cases in 2018 and is projected to reach 24 million by 2040 (1). Africa and Asia exhibit a higher proportion of cancer deaths (57.3% and 7.3%, respectively) compared to their incidences (48.4% and 5.8%) (1). A cancer diagnosis imposes significant distress on patients, who must navigate physical symptoms, treatment, and psychological anguish (2). In an endeavour to enhance survival prospects and manage treatment side effects, cancer patients often turn to Complementary and Alternative Medicine

(CAM) despite lacking scientific endorsement (3).

CAM, as delineated by the National Center for Complementary and Alternative Medicine (NCCAM), comprises diverse medical practices outside conventional Western medicine (4). Complementary medicine integrates CAM with conventional treatment, whereas alternative medicine replaces conventional approaches, albeit with interchangeable usage (5). The prevalence of CAM utilization among cancer patients has surged globally, ranging from 9.8% to 76%, with notable increases in developed and developing nations (2, 6, 7). Sub-Saharan Africa notably reports elevated CAM usage rates, such as Nigeria (65%), Ghana (73%), and Ethiopia (79%) (8).

In Kenya, despite the availability of conventional cancer treatments, CAM usage among cancer patients persists, evidenced by reported prevalences of 47.9% and 14.1% in different studies (9, 10). At Machakos Cancer Care and Research Centre (MCCRC), although patients acknowledge CAM usage, no comprehensive study has quantified its prevalence and determinants. Therefore, this study aimed to address this gap by investigating CAM usage among cancer patients at MCCRC, providing insights into locally employed CAM practices and guiding healthcare providers and policymakers in optimizing patient care and policy formulation.

Materials and Methods
Study design and setting
This study adopted a mixed cross-sectional analytical design and was conducted at Machakos Level Five Hospital.

Study population and sample
The study included all adult cancer patients (above 18 years) receiving treatment at the cancer treatment centre during the study period. With an average of 80 patients treated per month, the sample size was determined using Cochran's formula, yielding a sample of 65

patients. However, due to the small sample size relative to the hospital's monthly patient load (finite population), all eligible patients (80) were purposively included in the study. The study included adult cancer patients above 18 years with a histopathologic cancer diagnosis, excluding critically ill and mentally unstable patients.

Data collection and analysis
A researcher-administered semi-structured questionnaire was utilized for data collection. Eligible participants who provided consent were purposively sampled and interviewed privately. A total of 80 patients were interviewed during the study period. Pre-testing was conducted at in a similar setting at Makueni Level Five Hospital Cancer Center with 8 interviews (10% of the total sample).

Data analysis was aided by SPSS software version 26.0. Chi-square tests assessed associations between independent and dependent variables, with statistical significance set at an alpha level of 0.05 and a 95% confidence interval. Logistic regression analysis evaluated the strength and direction of associations between variables.

Ethical considerations
Ethical clearance was obtained from the University of Eastern African, Baraton Research and Ethical Committee, and permission to conduct the research was sought from the National Commission for Science, Technology, and Innovation. Written consent was obtained from all participating patients.

Results
Socio-demographic characteristics
This study included 80 patients with 100% participation over one month. The majority, 30% (n=24) of the respondents were aged above 67 years.
Females were the majority at 63.8% (n=51) and most of the respondents, 76.3% (n=61) were married. Further, 47.5% (n=38) of the

respondents had attained secondary education while 65% (n=52) resided in Machakos county, and 82.5% (n=66) employed. Table 1.

The majority, 38.8% (n=31) of the respondents had a total monthly household income of less than 5000 Kenya shillings. On chi-square association, gender (χ^2=6.062, P=0.014), was significantly associated with CAM use.

Clinical characteristics

Breast cancer was the most prevalent cancer [50%, n=40] and quite a number of the respondents, 42.5% (n=34) were already at stage III cancer. When asked about the period since diagnosis, 45% (n=36) of the respondents had been diagnosed more than 12 months before the period of the interview. Treatment chemotherapy was the most prevalent treatment modality at 90% (n=72). Patients who had received radiotherapy were associated with CAM use (χ^2=4.600, Sig.=0.032). Table 2.

Respondent's health beliefs and CAM usage

As illustrated in Table 3, 37.5% (n=30) of respondents were in agreement that CAM use improved general health.

Table 1:

Sociodemographic Characteristics of the Study Respondents

Variable	Categories	CAM use		%	χ^2	Df	Sig.
		Yes	No	100%			
Age	18-27	3	3	7.5	6.853	5	0.232
	28-37	4	3	8.8			
	38-47	8	10	22.5			
	48-57	5	4	11.3			
	58-67	8	8	20			
	>67	8	16	30			
Gender	Male	7	22	36.3	6.062	1	0.014
	Female	29	22	63.8			
Education	Never gone to school	0	1	1.3	5.250	3	0.154
	Primary	9	16	31.3			
	Secondary	15	23	47.5			
	Tertiary	12	4	20			
Marital	Single	1	3	5.0	2.259	3	0.520
	Married	29	32	76.3			
	Separated/divorced	2	3	6.3			
	Widowed	4	6	12.5			
Residency	Machakos	21	31	65	3.745	5	0.587
	Makueni	9	4	16.3			
	Kitui	5	6	13.8			
	Nairobi	1	0	1.3			
	Kajiado	0	1	1.3			
	Muranga	0	2	2.5			
Employment	Unemployed	8	6	17.5	0.710	4	0.950
	Formal employment	5	8	82.5			
	Informal employment	2	3				
	Farmer	14	20				
	Business person	7	7				
Income	<5000	14	17	38.8	2.229	4	0.694
	5001-10000	9	16	31.3			
	10001-15000	7	6	16.3			
	15001-20000	3	3	7.5			
	>20000	3	2	6.3			

However, an equal proportion [37.5%, n=30] disagreed with this statement. Further, the majority, 48.8% (n=39) of respondents were in agreement that CAM use relieves cancer symptoms while 46.3% (n=37) felt that CAM use boosts immunity. The majority 40.0% (n=32) of respondents were not in agreement that CAM use was a last resort of treatment while 36.3% (n=29) believed that CAM use promotes self-healing.

Looking at the association between the respondent's health beliefs and CAM use, it was established that perceptions regarding CAM use as health improving (χ^2=9.231, p-0.010), supports conventional treatment (χ^2=15.620, p-0.001), cures cancer (χ^2=12.661, p-0.002), manages treatment side effects (χ^2=11.045, p-0.004), relieves cancer symptoms (χ^2=9.008, p-0.011), promotes self-healing (χ^2=16.969, p-0.001), and gives hope (χ^2=17.512, p-0.001) were significantly associated with CAM use. Table 4.

Association between patient-related factors and CAM use

Male patients' participants were 79% less likely to use CAM compared to their female counterparts (OR=0.21, 95% CI 0.042-1.003, p=0.050). Patients who somehow agreed that CAM supports conventional medicines were 95% less likely to use CAM compared to those who were in total agreement (OR=0.05, 95% CI 0.003-0.756, p=0.031).

Table 2:
Clinical Factors Characteristics of the Respondents

Variable	Categories	CAM use		χ^2	df	Sig.
		Yes	No			
Cancer type	Breast	21	19	13.476	10	0.198
	Cervical	2	0			
	Prostrate	2	13			
	Lung cancer	2	2			
	Colorectal	1	2			
	Esophageal	3	2			
	Bone	1	2			
	Choriocarcinoma	3	0			
	Ovarian	1	1			
	Gastric	0	2			
	Skin	0	1			
Staging	Stage I	7	4	2.026	3	0.567
	Stage II	7	16			
	Stage III	17	17			
	Stage IV	5	7			
Period since diagnosis	<3months	3	10	1.606	4	0.808
	3-6months	11	10			
	6-9months	4	1			
	9-12months	3	2			
	>12months	15	21			
Treatment modality						
Chemotherapy	Yes	35	37	2.370	1	0.124
	No	1	7			
Radiotherapy	Yes	12	3	4.600	1	0.032
	No	24	41			
Surgery	Yes	12	15	1.077	1	0.299
	No	24	29			
Hormonal therapy	Yes	4	8	0.941	1	0.332
	No	32	36			

Likewise, patients who somehow agreed that CAM promotes self-healing were 94% less likely to use CAM compared to those who were in total agreement (OR=0.06, 95% CI 0.012-0.861, p=0.016). Further, patients who somehow agreed that CAM gives hope were 99% less likely to use CAM compared to those who were in total agreement (OR=0.10, 95% CI 0.012-0.861, p=0.036). Table 4.

Discussion

This study sought to investigate Complementary and Alternative Medicine (CAM) usage among cancer patients in Machakos, Kenya. In terms of sociodemographic characteristics, the current findings align with other literature emanating from the sub-Saharan region. For instance, 30% of the respondents in the current study were elderly, aged above 67 years. A similar study conducted in Nigeria reported a 29.9% proportion of respondents aged 70 years and above[11]. Another study in Nigeria reported an age range of 10–79 years with a mean age of 45 years[12].

The age differences could likely be attributed to variations in the targeted populations and sociodemographic characteristics across the different study settings.

Table 3:

Participant Health beliefs and their Association with CAM Use

Variable	Categories	CAM Use (n=80) _	% 100%	χ^2	df	P-value
CAM improves health	Disagree	26	32.5	9.231	2	0.010
	Somehow agree	24	30.0			
	Agree	30	37.5			
CAM supports conventional Treatment	Disagree	30	37.5	15.620	2	0.001
	Somehow agree	27	33.8			
	Agree	23	28.8			
CAM cures cancer	Disagree	26	32.5	12.661	2	0.002
	Somehow agree	25	31.3			
	Agree	29	36.3			
CAM manages treatment side effects	Disagree	20	25.0	11.045	2	0.004
	Somehow agree	35	43.8			
	Agree	25	31.3			
CAM relieves cancer symptoms	Disagree	24	30.0	9..008	2	0.011
	Somehow agree	17	21.3			
	Agree	39	48.8			
CAM boosts immunity	Disagree	27	33.8	5.420	2	0.067
	Somehow agree	16	20.0			
	Agree	37	46.3			
CAM promotes self-healing	Disagree	26	32.5	16.969	2	0.001
	Somehow agree	25	31.3			
	Agree	29	36.3			
CAM gives hope	Disagree	29	36.3	17.512	2	0.001
	Somehow agree	25	31.3			
	Agree	26	32.5			
CAM is the last resort	Disagree	32	40.0	5.391	2	0.068
	Somehow agree	29	36.3			
	Agree	19	23.8			
Disagree= (Strongly disagree + Disagree); Agree= (Strongly agree + Agree) CAM=Complementary and Alternative Medicine						

As per the findings of the present study, the majority of the cancer patients were female (63.8%), similarly reported by a study on CAM use at Kenyatta National Hospital, in Kenya where the majority (55%) of the respondents were female (10). Moreover, a study on CAM use among cancer patients in Italy, reported that 65.1% of the its respondents were females(11). However, contrary to these findings, another study reported that male and female patients were almost equal in number, 50.2% and 49.8%, respectively(6). This kind of variation in gender disparity could simply be attributed to gender disparity trends in those populations.

Table 4:

Binary Logistic Regression on the Level of Association between Significant Factors and CAM Use

Variable	B	Sig.	Exp(B)	95% C.I. for EXP(B)	
				Lower	Upper
Binary Logistic Regression: CAM use (No; Yes (Ref))					
Socio-demographic factors					
Gender: Male (Female; Ref)	-1.579	0.050	0.21	0.042	1.003
Clinical factors					
Radiotherapy: Yes (No; Ref)	1.057	0.301	2.89	0.389	21.318
Health-related beliefs and CAM use					
CAM improves health					
Disagree	-0.664	0.586	0.52	0.047	5.614
Somehow Agree	0.762	0.466	2.14	0.276	16.615
Agree (Ref)					
CAM supports conventional treatment					
Disagree	-1.913	0.157	0.15	0.010	2.086
Somehow Agree	-3.090	0.031	0.05	0.003	0.756
Agree (Ref)					
CAM cures cancer					
Disagree	-0.667	0.492	0.51	0.077	3.441
Somehow Agree	0.058	0.959	1.06	0.119	9.444
Agree (Ref)					
CAM manages treatment side effects					
Disagree	2.348	0.114	10.46	0.570	192.045
Somehow Agree	1.586	0.257	4.88	0.315	75.701
Agree (Ref)					
CAM relieves cancer symptoms					
Disagree	-0.294	0.813	0.75	0.065	8.536
Somehow Agree	-0.587	0.681	0.56	0.034	9.114
Agree (Ref)					
CAM promotes self-healing					
Disagree	-0.698	0.489	0.49	0.069	3.596
Somehow Agree	-2.881	0.016	0.06	0.005	0.590
Agree (Ref)					
CAM gives hope					
Disagree	-1.232	0.219	0.29	0.041	2.081
Somehow Agree	-2.277	0.036	0.10	0.012	0.861
Agree (Ref)					
Disagree= (Strongly disagree + Disagree); Agree = (Strongly agree + Agree)					
CAM= Complementary and Alternative Medicine					

Looking at marital status, a majority (76.3%) of the respondents in the current study were married. This is in agreement with what other studies reported. Findings from studies conducted in both Africa and Europe reported proportions of 71.4%, 76.8%, and 81.8 respectively (11,6 & 10).

The current study found that 47.5% of the respondents had attained secondary education, the highest level of education. Similar results were reported at KNH where a majority of the respondents had only secondary education (10). The similarity between these two studies could be explained by the fact that they share an almost similar setting. Machakos and Nairobi cities are both in Kenya and share the same educational dynamics.

This study found that males were 79% more likely not to use CAM compared to their female counterparts. This is in agreement with what another study reported, where CAM use was more associated with the female gender than the male(13)

The current study reported that participants who had used radiotherapy were associated with the use of CAM. These findings contradict what another study reported, where patients who were using chemotherapy were more likely to use CAM than those who were on radiotherapy(6)

On binary analysis, participants who somehow believed that CAM supports conventional treatment were 95% less likely to use CAM compared to those who were in total agreement (OR-18, 95% CI, 1.053-303.673, P=0.046). These findings are in agreement with what a systemic review on CAM use among the general population reported, where 25.2% of the respondents in their study believe that CAM could assist conventional treatment modalities in the management of Cancer(14). Additionally, 46.8% of the respondents reported that CAM use relieves Cancer symptoms. This is in agreement with what other studies reported, where CAM

was believed to manage cancer pain, fatigue, constipation, nausea and vomiting, anxiety and depression among other symptoms (9,13,15). The similarities in this outcome could be associated with the similarities in the demographics of the study participants between these three studies. The current study reported that participants who somehow agreed that CAM promotes self-healing were 94% less likely to use CAM compared to those who were in total agreement (OR=0.06, 95% CI 0.012-0.861, p=0.016). These findings are similar to those of a similar study conducted in Malaysia, where CAM was found to increase the patient's immunity which ultimately led to self-healing (16)

Patients who somehow agreed that CAM use gives hope were 99% less likely to use CAM compared to those who were in total agreement. This could be explained by the fact that a cancer diagnosis comes with a lot of psychological disturbance for the patients and the patients tend to find hope in anything that they think or believe could help in the management of their condition.

Limitations

This study was hospital-based, potentially excluding CAM users not accessing hospital care, thus limiting generalizability.

Conclusion

CAM prevalence was notable in this study, with female gender, missed treatment, beliefs in CAM's curative properties, self-healing promotion, and hope association significantly associated with CAM use. Patients utilized CAM primarily for cancer treatment, managing treatment side effects, and supplementing conventional treatments.

Recommendations

Based on these findings, guidelines must be developed for integrating CAM into cancer care to ensure safe and informed use. Additionally, we recommend that community-based studies be conducted to capture CAM use among non-hospitalized cancer patients and

explore CAM integration into conventional cancer care pathways.

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Conflict of interest statement. I have no conflict of interest to declare.

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