Research

Surgical Patients and Cancer: Exploring Complementary and Alternative Medicine (CAM) Products Usage in Port Harcourt, Nigeria

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Abstract

Background: The methods employed to treat cancer differs based on the knowledge available in the era. This study explored complementary and alternative medicine (CAM) products usage among surgical cancer patients in Port Harcourt, Nigeria

Methods: An analytical cross-sectional study was done among surgical cancer patients and marketers of CAM products in Port Harcourt, Nigeria. Data obtained was analysed using the IBM Statistical Package for the Social Sciences (SPSS) version 20.0, and tabulated.

Results: There were 171 (41.9%) male and 237 (58.1%) female respondents. Fifty-five (13.5%) had primary education, 133 (32.6%) had secondary, and 220 (53.9%) had tertiary education. Two hundred and seven (50.7%) respondents had heard about cancer before their cancer diagnosis. While 242 (59.3%) respondents had preference for Orthodox/Conventional/English/Hospital treatment, 47 (11.5%) were inclined to CAM products, and 117 (28.7%) choose both types of treatment options. One hundred and seventy-six (43.1%) respondents had used some form of CAM products, and 64 (15.7%) opined that such treatment was effective. Breast cancer (36 = 8.8%), prostate cancer (46 = 11.3%), colon cancer (10 = 2.5%), liver cancer (10 = 2.5%), bone cancer (17 = 4.2%), were the common cancers for which CAM products had been used by the patients. Respondents with tertiary education were the least to use the CAM products.

Conclusion: Although over half of respondents preferred orthodox cancer care, close to half of them had used CAM products for varied types of cancer care. Only 15.7% of the patients found it effective.

Keywords: Surgical Cancer Patients, CAM Products Usage, Prevalence, Port Harcourt, Nigeria.

Introduction

Cancers are reported to have cells that exhibit some form of autonomy and immortality[1-3], deviating from the "normal rule" of cell-to-cell coexistence. The reason(s) for this transition from normal to abnormal cell behaviour is often multifactorial and unclear[4-10]. There has been some evolution with many theories used over the ages to explain the occurrence of cancer: the humoral theory by Hippocrates in the middle ages, the lymph theory in 17th century, the blastema theory by Muller in 1838, chronic irritation theory proposed by Virchow and latter Karl Thiersch in 1860s, the trauma theory of late 1800s to 1920s, parasite theory of the 18th century, oncogenes and tumour suppressor genes by the middle of the 20th century, and the modern-day carcinogens[11-13]. The methods employed to treat cancer also differs based on the knowledge available in the era. Conventionally known methods include: surgery, chemotherapy, hormonal therapy, radiation therapy, immunotherapy, targeted cancer treatment, etc., with future treatment evolving[11, 14].

In recent decades, there have been discussions and information on complementary and alternative medicine

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(CAM)[15,16], with integration of CAM into medical school curriculums in some parts of the world[17, 18]. CAM has also been subject of scientific investigations and attempts have been made to distinguish between unproven and proven treatments[19]. In the opinion of the World Health organization, "the sum total of the knowledge, skills and practices based on the theories, beliefs and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health, as well as in the prevention, diagnosis, improvement or treatment of physical and mental illnesses" defines complementary and alternative medicine.[20, 21] It has been reported that patients use some CAM products in the search for solution to their problems[22]. The relationship between cultural perceptions and cancer care have been described severally, especially how this delays treatment and creates disparity in morbidity and mortality of cancers[23-25]. In a recent Nigerian study that highlighted societal perceptions of breast cancer, the need for workshops, awareness creation, and engagement of social workers was emphasized[26]. Also, in a literature review evaluating late presentation of breast cancer in Africa, several factors came to the fore amongst which was belief in alternative medicine and lack of trust - /- confidence in orthodox medicine[27].

The worrisome issue of late presentation of our patients in tropical surgical practice has often been partly linked to challenges associated with inadequacy or absence of cancer screening/treatment services[28-32]. However, we also see patients in our practice who decline the offer of conventional cancer treatment in favor of use of CAM products, and sometimes latter represent to us in worse clinical state. Some of the conventional options of care are considered intolerable (especially chemotherapy), while others like surgical amputation / mastectomy may be avoided because they are partly perceived to be culturally unacceptable[33, 34]. To dismiss these issues will be an expression of insensitivity that will only propagate the associated negative consequences. There is scanty information on the description, effectiveness or otherwise of products used by patients as alternative to conventional cancer treatment in our environment. This study therefore sets out to explore complementary and alternative medicine products usage among surgical cancer patients in Port Harcourt, Nigeria, with a view to ascertaining the proportion of users, description of products, and usefulness or otherwise of the products.

Method

Research Design: An analytical cross-sectional study was done.

Study Area: The study was carried out in Port Harcourt, the host city of two large government tertiary health institutions – the University of Port Harcourt Teaching Hospital and the Rivers State University Teaching Hospital, both in Rivers State, South-South of the Federal Republic of Nigeria.

Study Setting / Sites: The study sites were the surgical outpatient clinics, surgical wards, and the oncology clinics of the University of Port Harcourt Teaching Hospital, and the Rivers State University Teaching Hospital. The exhibition center of the Annual General meeting and Scientific Conference of the Pharmaceutical Society of Nigeria held in Port Harcourt, Nigeria in December 2021 was the study site where information on the marketers of CAM products was obtained.

Study Participants / Population: Surgical patients with cancers in Port Harcourt and marketers of complementary and alternative products constituted the study population. Study questionnaires were given to surgical patients with cancers (of any type) and the marketers of CAM products in Port Harcourt were identified therefrom. Also, the marketers of CAM products at conference exhibition ground who gave their consent were given a study proforma.

Sample Size Determination: Total population was used, targeting all volunteering respondents with a minimum of 400 surgical cancer patients recruited within a three-month period (September to December 2021).

Sampling Method: Total population of cancer patients was used, and a proforma was used to obtain data from all available CAM marketers at conference exhibition centre whose products were for cancer care.

Study Instruments: A self-administered semi-structured questionnaires was used to obtain information from patients. Another one-page proforma was used to obtain data from marketers of CAM products.

Study (Outcome) Variables: The semi-structured questionnaire for surgical patients with cancer contained the following variables: socio-demographic data, awareness / knowledge of cancer, source of information about cancer, description of CAM products, attitude to conventional cancer treatment, perceived challenges with conventional cancer treatment, opinion on CAM

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products, and actual use of CAM products. The one-page proforma extracted the following information from the CAM product marketers: type of product, what it does, and the type of cancer it is used for.

Bias: The authors were mostly surgeons and were interested in the impact of CAM products on surgical patients hence the restriction of study population to surgical patients. We were also aware of the challenges of recall bias on the part of the respondents.

Validity / Reliability of Instrument: The information in the study instruments were scrutinized and critiqued by all authors to ensure that they achieved the set objectives before use. The study was also pretested in a similar study environment. The Cronbach alpha (in SPSS) was used for the reliability of the study instrument (0.858).

Data Analysis: Data obtained was formed into tables and analysed using the IBM Statistical Package for the Social Sciences (SPSS) version 20.0. Percentages were computed, and Chi-square was used for inferential statistical test.

Results

A total of four hundred and eight (408) respondents who were patients with different types of cancers in surgical departments of the two tertiary healthcare institutions were included in the study.

Table 1: Socio-demographic characteristics of respondents (n = 408)

Variables	Freq	Percent
Sex		
Male	171	41.9
Female	237	58.1
Age		
Less than 10 years	8	2.0
10- 19 Years	22	5.4
20 - 29 years	23	5.6
30 - 39 years	53	13.0
40 - 49 years	92	22.5
50 - 59 years	69	16.9
60 - 69 years	88	21.6
70 - 79 years	47	11.5
80 years and above	6	1.5
Marital Status		
Single	80	19.6
Married	312	76.5
Separated	7	1.7
Divorced	9	2.2
Educational qualification		
Primary	55	13.5
Secondary	133	32.6
Tertiary	220	53.9
Religion		
Christianity	391	95.8
Islam	5	1.2
Traditional	7	1.7
No religion	5	1.2
Occupation		
Civil Servant	130	31.9
Company worker	46	11.3
Lecturing	3	0.7
Self-employed/Private Trading	74	18.1
Fishing	107	26.2
Farming	1	0.2
Others	30	7.4
	17	4.2

The demographic characteristics of the respondents is presented in Table 1. There were 171 (41.9%) male and 237 (58.1%) female respondents. Three hundred and twelve (76.5%) were married and 80 (19.6%) were single. Three hundred and ninety-one (95.8%) were Christians. Fifty-five (13.5%) had primary education, 133 (32.6%) had secondary, and 220 (53.9%) had tertiary education. One hundred and thirty (31.9%) respondents were civil servants, 46 (11.3%) were company workers, 107 (26.3%) were traders, and 74 (18.1%) were self-employed.

Table 2: Awareness/Knowledge of Cancer, and Source of information on cancer/CAM (n = 408)

Variables	Freq	Percent
Heard about Cancer before diagnosis		
Yes	207	50.7
No	75	18.4
Don't know	126	30.9
What Cancer was understood to be		
Abnormal cell growth	141	34.6
Killer disease	37	9.1
Incurable disease	8	2.0
Tumour in the body	109	26.7
An infection affecting body organs	36	8.8

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Dead cells in the body	1	.2
No response	76	18.6
How someone can prevent cancer		
Healthy lifestyle	227	55.6
Through prayers and doctor's directives	8	2.0
Healthy Eating	24	5.9
Cannot be prevented	11	2.7
No response	138	33.8
Other ways to prevent cancer		
Routine medical screening	225	55.1
Avoid smoking	20	4.9
Healthy eating	15	3.7
Taking Supplements	2	.5
Cannot be prevented	6	1.5
No response	140	34.3

Source of information on cancer/CAM, and Description of CAM Products (n=408)

	Yes		No		No response	
Source of information about cancer						
Hospital	215	52.7	83	20.3	110	27.0
Church	62	15.2	236	57.8	110	27.0
Television/Radio /Newspaper	245	60.0	53	13.0	110	27.0
Social media	110	27.0	188	46.0	110	27.0
No response	110	27.0	188	46.0	110	27.0
Source of information on complementary and alternative medicine						
Radio advertisement	100	24.5	99	24.3	209	51.2
Roadside loudspeaker announcement	105	25.7	94	23.1	209	51.2
From friends and relatives	179	43.9	20	4.9	209	51.2
From Church	131	32.1	68	16.7	209	51.2
Social media	129	31.6	70	17.2	209	51.2

Table 2 shows respondents' awareness/knowledge of cancer. Two hundred and seven (50.7%) respondents had heard about cancer before their cancer diagnosis, while 75 (18.4%) had not. Some respondents (141 = 34.6%) described cancer as abnormal cell growth, 37 (9.1%) as a killer disease, and 109 (26.7%) as tumour in the body. However, 36 (8.8%) respondents described cancer as an infection affecting body organs. Two hundred and twenty-seven (55.6%) respondents opined that cancer can be prevented through healthy lifestyle, while 11 (2.7%) felt that cancer cannot be prevented. Routine medical screening and smoking avoidance were other suggested ways to prevent cancer as opined by 225 (55.1%) and 20 (4.9%) respondents respectively. Also shown are the respondents' sources of information on cancer and CAM products, and description or type of CAM products used. Respondents got information from multiple sources. Two hundred and fifteen (52.7%) respondents had their source from hospital setting, while it was television / radio / newspaper for 245 (60.0%) respondents, social media for 110 (27.0%), and from churches for 62 (15.2%) of respondents. The respondents' source of information on CAM products were from radio advertisement (100 = 24.5%), from road-side loudspeaker announcement (105 = 25.7%), friends and relatives (179 = 43.9%), church members (131 = 32.1%), and social media (129 = 31.6%).

Table 3: Attitude and Perceived Challenges with Conventional Cancer Treatment (n=408)

Variables	**Freq**	Percentage
Type of Treatment to Choose if Given Opportunity		
Orthodox / Conventional / English / Hospital treatment	242	59.3
Complementary and alternative Medicine / Traditional / Herbal / Spiritual Treatment	47	11.5
Both 1 and 2 above	117	28.7
None of the above	2	0.5
Have issue or problem with Orthodox /Conventional / English / Hospital Treatment		
Yes	52	12.7
No	346	84.8
May be	10	2.5
Concerns with Orthodox / Hospital Treatment	*Yes*	
Too expensive	46	11.3
They don't know how to really treat it	13	3.2

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Distance to health facilities	24	5.9
Health workers bad attitude	4	1.0
Hospital visit is time consuming	6	1.5
Stigma	8	2.0
Cutting Cancer makes it worse	28	6.9

Table 3 shows the respondents' attitude and perceived challenges with conventional cancer treatment. Given the opportunity to choose, 242 (59.3%) of the respondents preferred orthodox / conventional / English / hospital treatment, 47 (11.5%) were inclined to complementary and alternative medicine (traditional / herbal / spiritual Treatment), and 117 (28.7%) choose both types of treatment options. Fifty-two (12.7%) respondents raised issues or problems with the orthodox / conventional treatment; and these issues bothers on the cost or expensive nature (46 = 11.3%), lack of confidence (13 = 3.2%), distance to health facility (24 = 5.9), bad attitude of health workers (4 = 1.0%), time-consuming nature of hospital visit (6 = 1.5%), stigma issues (8 = 2.0%), aversion for cutting of cancer 'which makes it worse' (28 = 6.9%).

Table 4: Use and Opinion on Complementary and Alternative Medicine Products (n = 408)

Variables	Freq	Percent
Ever used any complementary and alternative medicine as cancer treatment		
Yes	176	43.1
No	227	55.6
May be	5	1.2
Type of cancer using complementary and alternative medicine for		
Breast Cancer	36	8.8
prostate Cancer	46	11.3
Colon Cancer	10	2.5
Liver Cancer	10	2.5
Lung Cancer	14	3.4
Bone Cancer	17	4.2
Ovarian Cancer	13	3.2
Uterine Cancer	13	3.2
None/No response	223	54.7
Cervical Cancer	24	5.9
Lymphoma	2	.5
Complementary and alternative medicine used is effective		
Yes	64	15.7
No	27	6.6
May be	92	22.5
No response	225	55.1
Opinion on Complementary and Alternative Medicine Products		
Variables	**Freq**	**Percent**
What the complementary and alternative medicine/products use for		
To remove the cancer	139	34.1
Breast Lumps	4	1.0
Many Disease	18	4.4
Don't know	2	0.5
No response	245	60.0
Frequency of the complementary and alternative medicine/products use		
Regularly	109	26.7
occasionally	62	15.2
Rarely	4	1.0
No response	233	57.1
How effective the complementary and alternative medicine/products use was		
Very effective	63	15.4

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Not effective	25	6.1
Not Sure	105	25.7
No response	215	52.7
Which is more expensive – Hospital treatment or CAM product treatment		
Hospital / Orthodox treatment	121	29.7
Not Sure	275	67.4
No response	12	2.9

Table 4 shows surgical cancer patients' usage of complementary and alternative medicine (CAM) products. One hundred and seventy-six (43.1%) respondents had used some form of CAM products, and 64 (15.7%) opined that such treatment was effective. The type of cancer that patients had for which some form of CAM products was used included breast cancer (36 = 8.8%), prostate cancer (46 = 11.3%), colon cancer (10 = 2.5%), liver cancer (10 = 2.5%), bone cancer (17 = 4.2%), and others. Table 4 also shows the opinion of respondents on CAM Products. One hundred and nine (26.7%) respondents used CAM products regularly, while 62 (15.2%) used it occasionally. One hundred and thirty-nine (34.1%) respondents opined that some of the CAM products "remove cancer", and 18 (4.4%) believed that the products could treat many diseases of the body including cancer. One hundred and twenty-one (29.7%) respondents affirmed that hospital / orthodox treatment was more expensive than the use of CAM products.

Table 5: Relationship between "ever used any CAM product as cancer treatment" and "educational qualification" (n = 408); Relationship between ever used any complementary and alternative medicine and awareness about cancer; and Description of the CAM products

	Ever used any complementary and alternative medicine				X^2	**p- value**
Educational qualification	Yes	No	May be	Total		
Primary	22 (40.0%)	31 (56.4%)	2 (3.6%)	55	34.20	
Secondary	83 (62.4%)	50 (37.6%)	0 (0.0%)	133	3	0.000
Tertiary	71 (32.3%)	146 (66.4%)	3 (1.4%)	220		
Total	**176**	**227**	**5**	**408**		
	Ever used any complementary and alternative medicine					
Educational qualification	Yes	No	May be	Total	(X^2)	P-Value
Primary	22 (40.0%)	31 (56.4%)	2 (3.6%)	55	34.20	
Secondary	83 (62.4%)	50 (37.6%)	0 (0.0%)	133	3	0.000
Tertiary	71 (32.3%)	146 (66.4%)	3 (1.4%)	220		
Total	**176**	**227**	**5**	**408**		

The relationship between educational qualification and the prevalence of complementary and alternative medicine product usage is shown in Table 5. Respondents with tertiary education were the least to use the Complementary and Alternative Medicine (and they were also the highest proportion to reject its use) and this association was statistically significant. ($P<0.05$). The association between knowledge / awareness on cancer and usage of CAM products is also highlighted. Increased knowledge / awareness on cancer was associated with lower usage of CAM products and this relationship was statistically significant. ($P<0.05$). The CAM products used were described by patients to be Forever living products / Langrick products (126 = 30.9%), Prayers / Faith (130 = 31.9%), GLND products (117 = 28.7%), Neem oil / Mustard seed (110 = 27.0%), Blackstone (31 = 7.6%), Moringa, and Moringa / Chinese tea / other products (94 = 23.0%). Also shown is a description of the CAM

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products / claims of uses by marketers. Seven CAM products were marketed for cancer use in Nigeria for varying periods of 1 to 15 years. Rain Soul and Rain Core, Alpha Meta / Alpha Spine, Calyovit Rasberry, Potentiator (Arginine Aspartate 5G), Maxone and Cellgevity (Riboceine), Jobelyn, and Bitter-leave Capsules were in the public domain mainly for preventive purposes.

Discussion

There were more female patients with cancers in the Surgery Departments. The explanation for female predominance in the study could be related to the fact that the commonest cancer among adult population is breast cancer which is mostly found among women[35, 36]. Most patients had tertiary education. This is not surprising as the study was conducted in a Southern Nigerian State known to be relatively more educated than their northern counterparts[37]. The level of education of the respondents also implies a higher likelihood of good recall of information contained the study. Respondents' awareness of cancer before their cancer diagnosis, and knowledge of cancer prevention were found in about half of respondents. The finding of this study is relatively less than the 78.3% cancer awareness found in a survey among the public in a study conducted in Nigeria more than 20 years ago[38]. Although the study was not carried out in the same Nigerian environment, it seems to suggest some decline in cancer awareness, calling for action.

The main information sources for cancer were the audio-visual and print media, followed by hospitals, the social media, and religious organizations. Information on CAM products used by cancer patients, in decreasing order, came from friends and relatives, Churches, social media, roadside loud-speaker announcements, and radio advertisements. These multiple sources accounted for how respondents obtained information. The quality of information obtained also directly or indirectly determine patients' preferences, acceptability (or otherwise) of modern/orthodox cancer care, delays in cancer care, and consequent disparity in morbidity and mortality of cancers as reported in previous reports[23-25]. Several CAM products were named as being currently in-use by cancer patients, apparently self-administered. There is need for detailed description and regulation of these products as earlier advocated in a study in Nigeria which encouraged research and imposition of regulations in this area[39]. This will help to limit the demerits and explore the inherent benefits of the CAM products.

Additionally, although 59.3% expressed their preference for Orthodox / Conventional / English / Hospital cancer treatment, 11.5% were in favour of using only CAM products, while 28.7% of these respondents crave for the use of a combination of conventional treatment and CAM products for cancer care. These findings suggest that the Nigerian public is a good market for use of CAM products. This is not surprising as African Traditional Medicine (a component of CAM) has been part of the Nigerian people. This may explain the observed preferences in this study, and similar preferences reported among Nigerians[40-45]. The reasons that probably shaped these opinions were the cost of conventional cancer care, lack of confidence, distance to health facility, bad attitude of health workers, time-consuming nature of hospital visit, stigma issues, and aversion for cutting of cancer. However, respondents with tertiary educational qualifications were less likely to use CAM products without official prescription, and those who were more informed (increased awareness) about cancer were associated with lower usage of CAM products.

About a quarter of cancer patients used the CAM products regularly, and they had varied beliefs or assumptions about the efficacy of CAM products different from the official information from the CAM marketers. Several CAM products were marketed for use among cancer patients in this study, and almost all of them were for preventive purposes. However, patients who have cancers, who were the users of the products, most times used these products as a replacement for conventional cancer therapy. Additionally, this study revealed that 43.1% respondents (surgical cancer patients) had used some form of CAM products (for some cancers: breast, prostate, colon cancer, liver, bone cancer, etc.), and only 15.7% admitted to its effectiveness. The percentage usage in this study is less than that observed in a study in Orlu in Eastern Nigeria where 77.5% was quoted[40]. However, the Orlu study was carried out among households and not restricted to use of CAM products in cancer care.

Patients' sources of information directly or indirectly influence their preferences to treatment offered, irrespective of their quality. In our study, information from friends/relatives, Churches, social media, and roadside loud-speaker announcements dominated those from "hospitals". The implication of this in our practice is that we may also be dealing with the consequences of poor-quality information reaching patients faster and easily, and not only poor knowledge and

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poverty/financial constraints. Again, mixed preferences for CAM exist in this study, with the more educated and the more informed showing less tendency for usage. This also implies that if good quality information is provided through the right sources, the public will be better placed to make the right choices. It is also important for practice to note that out of the 43.1% respondents who asserted to using CAM products, only 15.7% found it effective. This information is often unavailable to care-givers in the hospital setting at the time of administering conventional treatment for cancers. The outcome of cancer care (morbidity and mortality) in our environment, therefore, may not only depend on the disease and conventional treatment, but also the interactions of CAM products. Another area of research therefore could be seeking to understand drug interactions with some available CAM products.

Study Limitations: This is a cross-sectional questionnaire – based study, and hence is limited by the recall bias associated with such study. The named CAM products are not exhaustive and are those seen by marketers at the described conference exhibition Centre. Also, only surgical patients who had cancers were included due to the preference of the authors.

Conclusion

Almost half of the surgical cancer patients had used some form of CAM products for their cancer care. The high cost and inconveniences encountered in accessing conventional cancer care, hope of a cure, and other reasons partly drive patients to use CAM products for cancer treatment. While a few (15.7%) admitted to the efficacy of these CAM products, most others misuse the products and did not experience the desired benefits. Level of education and prior awareness of cancer to a large extent are associated with patronage of these CAM products for cancer care. The government should therefore take the lead in informing the public on issues of cancer. There is need to regulate information dissemination on health issues to the public. The CAM products should be further investigated and characterized, to harness its useful aspect for public good.

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Authors Contributions

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Ethical Considerations: The Research Ethics Committee approval of the University of Port Harcourt Teaching Hospital and the Rivers State University Teaching Hospital were obtained before commencement of the study.

Conflict of Interest: None declared

Appendices

Study Questionnaire for surgical cancer patients
Study Proforma for CAM products marketers

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