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Complementary and alternative medicine use: Epidemiological concerns and perceptions of cancer patients based on a pilot study

[1] Dr. Dinesh Kumar, [2] Dr. Goel NK, [3] Dr. Awadhesh K Pandey, [4] Dr. Sonia Puri

[1, 4] Associate Professor, Department of Community Medicine, GMCH, Chandigarh, Punjab, India
[2] Professor and Head, Department of Community Medicine, GMCH, Chandigarh, Punjab, India
[3] Professor and Head, Department of Radiotherapy, GMCH, Chandigarh, Punjab, India

Abstract
Background: Use of Complementary and Alternative Medicine in chronic disease conditions is increasing. A holistic approach for cancer treatment is the need of the day.
Objectives: 1) To explore knowledge, attitude and practices of complementary and alternative medicine (CAM) among cancer patients attending an allopathic health facility. 2) To investigate some epidemiological correlates of CAM use among cancer patients.
Methods: hospital-based cross-sectional pilot study among cancer patients attending Radiotherapy OPD of a tertiary health care facility in Chandigarh, North India.
Results: Survey of 140 (69 male and 71 females) cancer patients included 64.3 % from rural and 35.7% from urban background. Among all patients surveyed, 68 (48.6%) have already undergone Radiotherapy, 67% Chemotherapy and 37 (26.4%) surgery. Overall Awareness of CAM was reported by 111 (79.3%) patients and about 19% patients reported ayurvedic treatment as CAM currently/ sometimes in the past. Patients were aware of Ayurveda (74.3%) followed by Naturopathy (73.6%) and Homeopathy (63.6%) as CAM therapies. Other CAM methods practiced included Unani, Sidha, Laughter therapy, Yoga meditation and spiritual healing Spiritual Healings etc. Closure of CAM towards nature (61.4%) and easy availability (57.9%) were among main opinions of patients in favour of CAM use.
Conclusions and Suggestions: CAM use among cancer patients is prevalent irrespective of their socio-demographic characteristics. CAM therapies should not be blindly ignored without testing their efficacy on scientific basis. Detailed studies on CAM use by cancer patients should be conducted for better understanding and evaluation of holistic approach for care of cancer patients in Indian set-up.

Keywords: Complementary and Alternative Medicine (CAM); Holistic Approach Logistic Regression Analysis; Traditional Indian Medicine (TIM)

1. Introduction

Complementary and Alternative Medicine (CAM) is a group of diverse medical and health care systems, practices, and products that are not generally considered part of conventional medicine. In recent years, CAM has become popular among the general population. The growing incidence of chronic and incurable diseases, such as diabetes, cancer, HIV/AIDS etc., has led to the increased use of CAM. CAM is defined as "diagnosis, treatment and/or prevention which complements mainstream medicine by contributing to a common whole, by satisfying a demand not met by orthodoxy or by diversifying the conceptual frameworks of medicine [1]. Medical professionals divide CAM into two main categories: Complementary therapy is nonstandard treatment that is used alongside traditional treatment, while alternative therapy is nonstandard treatment used in place of traditional methods/ standard medical treatments. The number of patients seeking alternate and herbal therapy is growing exponentially [2]. According to the World Health Organization, the use of herbal remedies throughout the world exceeds that of conventional drugs by two- to three-fold [3]. Herbal medicine is still the mainstay of about 75–80% of the world population, mainly in developing countries, for primary health care [4]. A detailed account of the current and future scenario of herbal medicine is available in an earlier study [5]. A systematic review [6] of studies assessing its prevalence in 13 countries concluded that about 31% of cancer patients use some form of complementary and alternative medicine. A study of CAM use in patients with cancer found that 69 percent of cancer patients had used at least one CAM therapy as part of their cancer treatment [7]. More details on CAM use in cancer may also be found in other studies [8-17]. A number of studies [18-22] investigated reasons of opting CAM over allopathic treatment. There is a broad range of interacting positive and negative motivations found in the literature [23]. The use of CAM is not restricted to developing countries. A recent study discussed usage pattern of CAM in diabetes in an Indian community [24] and observed prevalence of CAM use to be 67.7% among individuals with diabetes. Overall CAM use was found to be 34.7% in a recent study assessing the extent of use of complementary and alternative medicine (CAM) by patients with four chronic diseases—epilepsy, HIV, rheumatoid arthritis (RA) and diabetes mellitus (DM) in India [25]. Government of India also established a separate department for Indian Systems of Medicine and Homeopathy (ISM&H) now known as AYUSH (Ayurveda, Yoga, Unani, Siddha, Homoeopathy) in March 1995 to promote indigenous systems. However, a little research has been carried out on usage patterns of CAM for cancer patients

in India. Moreover, exact reasons for the popularity of CAM are complex, varying with time, space and also from therapy to therapy. No single determinant of the present popularity of complementary and alternative medicine exists. Therefore, present study was conducted in an Indian population with the following specific objectives.

2. Objectives

1. To explore knowledge, attitude and practices of complementary and alternative medicine (CAM) among cancer patients attending an allopathic health facility.
2. To investigate some epidemiological correlates of CAM use among cancer patients.

3. Methods

Present hospital-based cross-sectional study was conducted during September 2011 to March 2012 among 140 new confirmed cancer patients attending Radiotherapy OPD of a tertiary health care facility in Chandigarh, North India. Annually, a total of about 700 new cancer patients attend the Radiotherapy OPD of studied health facility. A sample of only 140 patients could be studied in this pilot qualitative survey to explore their views in depth.

Ethical Guidelines of ICMR (2006) on human participants [26] were followed. Approval from Institutional Ethics Committee was taken for conducting the study. Consents of respondents for participation in the study were taken and confidentiality of responses was ensured. In case the patient is below 18 years of age, unable to give consent due to his/her condition or due to any other reason, consent was taken from accompanying close relative of the patients and he/she served as respondent to provide the relevant information concerning the patient. All ethical issues were explained in detail and most of selected patients agreed to participate in the study. Patients not giving consent were excluded from the study and were replaced by new participants.

Information was collected either from patients or from their family members or close relatives of patients attending the health facility. They were interviewed to collect information regarding personal and family characteristics like sex, age, educational status of the family, religion, socioeconomic status, family history of disease, date of diagnosis, treatment received, site of cancer, staging of cancer, family history, attitude regarding cancer knowledge, perceptions, beliefs and practices related with CAM, source of knowledge regarding CAM, reasons of using CAM, perceptions and beliefs regarding cancer and CAM use, methods of using CAM and their perceived reliefs, positive and negative motivations concerning CAM. Outcome Variables included CAM usage pattern, perceived reasons and benefits of CAM use.

Statistical methods like Normal test of proportions, Chi square (X^2) test, Logistic Regression Analysis for analysis of risk factors of CAM use, Analysis of Variance (ANOVA) technique etc., were applied to carry out the data analyses using SPSS-16 software package.

4. Results

A total of 140 respondents including 69 males and 71 females suffering from cancers of different sites undergoing allopathic treatment were included. Overall mean age of respondents was found to be 53.5 ± 12.7 years. There was no significant difference (P=0.43) between mean ages of CAM users and non-users (Table-1). Respondents represented different socio-economic classes and educational categories and mostly Hindus (84.3%). Among all patients studied, prevalence of present /past CAM use was found to be 48.6%. Family history of cancer was reported by only 22 (15.7%) respondents and CAM use was not significantly associated (P=0.64) with family history of the disease. Satisfaction with conventional therapy was reported by 124(88.6%) respondents and CAM users were not varying significantly in the two groups of respondents. CAM use was prevalent in case of all types of therapies being received by patients. Practice of CAM was comparatively more in case of males, younger age, respondents, middle SES, joint families, employed etc. However, associations were found to be non-significant except for religion.

Table 1: CAM Use by Background Characteristics of Respondents

Characteristic		CAM Use		Overall	
		No	Yes	No	%
Gender	Male	33(47.8)	36(52.2)	69	49.3
	Female	39(54.9)	32(45.1)	71	50.7
				X^2=0.45	**P=0.25**
Age	≤21	2(50.0)	2(50.0)	4	2.9
	21-35	2(33.3)	4(66.7)	6	4.3
	36-49	17(53.1)	15(46.9)	32	22.9
	50-59	25(54.3)	21(45.7)	46	32.9
	60 & above	26(50.0)	26(50.0)	52	37.1
Mean ± SD		**54.3±13.3**	**52.7±12.1**	**53.5±12.7**	**P=0.43**
Religion	Hindu	65(55.1)	53(44.9)	118	84.3
	Others	7(31.8)	15(68.2)	22	15.7
				X^2=4.02	**P=0.03**
Socio-economic Status	Low	42(58.3)	30(41.7)	72	51.4
	Middle	11(29.7)	26(70.3)	37	26.4
	High	19(61.3)	12(38.7)	31	22.1
				X^2=9.8	**P=0.008**

Marital Status	Married	61(52.1)	56(47.9)	117	83.6
	Unmarried	2(50.0)	2(50.0)	4	2.9
	Widow/Widower	9(50.0)	9(50.0)	18	12.9
	Divorcee	0(0.0)	1(100.0)	1	0.7
Type of Family	Joint	42(48.3)	45(51.7)	87	62.1
	Nuclear/Extended	30(56.6)	23(43.4)	23	37.8
				X^2=0.91	**P=0.21**
Dietary Habit	Vegetarian	44(50.6)	43(49.4)	87	62.1
	Non-Vegetarian	28(52.8)	25(47.2)	53	37.9
				X^2=0.007	**P=0.46**
Occupation	Unemployed	31(56.4)	24 (43.6)	55	39.3
	Service	7(38.9)	11(61.1)	18	12.9
	Business	3(50.0)	3(50.0)	6	4.3
	Laborer	8(57.1)	6(42.9)	14	10.0
	Skilled Worker	9(52.9)	8(47.1)	17	12.1
	Agriculture	7(46.7)	8(53.3)	15	10.7
	Any Other	7(46.7)	8(53.3)	15	10.7
Social Background	Rural	45(50.0)	45(50.0)	90	64.3
	Urban	24(52.2)	22(47.8)	46	32.8
	Urban Slums	3(75.0)	1(25.0)	4	2.9
Educational Status	Illiterate	34(57.6)	25(42.4)	56	40.0
	Primary	6(40.0)	9(60.0)	15	10.7
	Middle	11(52.4)	10(47.6)	21	15.0
	High School	11(44.0)	14(56.0)	25	17.9
	Intermediate	3(50.0)	3(50.0)	6	4.3
	Graduate	5(71.4)	2(28.6)	7	5.0
	Post Graduate	2(33.3)	4(66.7)	6	4.3
	Others	0 (0.0)	1(100.0)	4	2.8
Family History Of Cancer	Yes	10(45.5)	12(54.5)	22	15.7
	No	62(52.5)	56(47.5)	118	84.3
				X^2=0.37	**P=0.64**
Awareness of patient about suffering from cancer	Yes	58(51.3)	55(48.7)	113	80.7
	No	14(51.9)	13(48.1)	27	19.3
				X^2=0.46	**P=0.56**
Satisfied with Conventional Therapy	Yes	64(51.6)	60(48.4)	124	88.6
	No	8(50.0)	8(50.0)	16	11.4
Site of Cancer	Brain cancer	0(0.0)	1(100.0)	1	0.7
	Breast Cancer	10(52.6)	9(47.4)	19	13.6
	Oral cancer	13(46.4)	15(53.6)	28	20.0
	Cervical cancer	6(50.0)	6(50.0)	12	8.6
	Head & Neck Cancer	12(70.6)	5(29.4)	17	12.1
	GIT	7(63.6)	4(36.4)	11	6.4
	Others	24(46.2)	28(53.8)	52	39.2
Allopathic Therapy Received (N=140)	Radiation Therapy only	34(50.0)	34(50.0)	68	48.6
	Chemotherapy only	37(55.2)	30(44.8)	67	47.9
	Surgery only	18(48.6)	19(51.4)	37	26.4
	Others	7(53.9)	6(46.1)	13	9.3
Overall		**72(51.4)**	**68(48.6)**	**140**	**100.0**

Table-2 describes awareness and practice pattern of CAM. Among all respondents, 111(79.3) were aware of CAM while 68(48.6) were using some forms of these therapies currently or sometimes in the past. Among 111 respondents having knowledge of CAM, 68(61.3%) adopted these therapies in practice also. Awareness of 'Ayurveda' was the most common as CAM by (74.3%) respondents followed by 'Yoga/Meditation" (73.6%), and 'homeopathy' (63.6%). Practices of 'Ayurveda' and Yoga/Meditation were reported to be maximum (19.3%) for both having large gaps between knowledge and practice. Overall gap of 30.7 % was found between knowledge and practice of CAM. Other therapies like Acupuncture/Acupressure, Psychological Therapy/counseling, Laughter therapy etc., were having comparatively lower degrees of awareness as well as practice.

Table 2: Awareness and Practice of Different CAM Therapies

Type of CAM	Awareness (N= 140) No. (%)	Current /Past Use (N= 140) No (%)
1) Ayurvedic Treatment	104 (74.3)	27(19.3)
2) Unani	18(12.9)	3(2.1)
3) Siddha Treatment	4(2.9)	1(0.7)
4) Homeopathic treatment	89(63.6)	21(15.0)
5) Herbal Medicines	30(21.4)	8(5.7)
6) Acupuncture/ Acupressure	15(11.4)	3(2.1)
7) Psychological Therapy/ counseling	1(0.7)	0 (0.0)
8) Spiritual Therapy/Prayer & Faith healing	30(21.4)	12(8.5)
9) Laughter therapy	5(3.6)	0 (0.0)
10) Physiotherapy	20(14.3)	6(4.3)
11) Yoga/Meditation	103(73.6)	27(19.3)
12) Others	5(3.6)	2(1.4)
Overall	**111(79.3)**	**68(48.6)**

Table- 3 presents some opinions of respondents regarding positive/negative motivations for CAM. Closer to nature was the strongest arguments presented by respondents in favour of CAM and 86(61.4) respondents showed agreement to this motivation while 9(6.4) disagreed and rest were having indifferent attitude. Easily available (57.9), No side effect/Noninvasive (55.7%) spiritual touch/dimensions (54.3%) were among some other arguments of respondents in favor of CAM. Maximum disagreement was for the motivations of CAM like 'quick & additional relief" (47.9%) followed by "More Effective" (40.7%) and 'Heavy toxic materials in Ayurvedic medicines' (30.0%) etc.

Table 3: Opinions regarding Positive/Negative Motivations for CAM

Positive/Negative Motivations for CAM	Agree (N= 140)	Disagree (N=140)
1. Inexpensive	67(47.9)	40(28.6)
2. Easily available	81(57.9)	25(17.9)
3. More Effective	43(30.7)	57(40.7)
4. For quick & additional relief	29(20.7)	67(47.9)
5. Closer to nature	86(61.4)	9(6.4)
6. More acceptable	70(50.0)	16(11.4)
7. Has spiritual touch/dimensions	76(54.3)	8(5.7)
8. No side effect/ Non invasive	78(55.7)	16(11.4)
9. Safer than allopathic medicines	67(47.9)	20(14.3)
10. CAM providers give sufficient time to patients	46(32.9)	19(13.6)
11. No modern medicine exists for cancer	39(27.9)	25(17.9)
12. More Emphasis on holism	54(38.6)	9(6.4)
13. CAM are blessings of God	64(45.7)	16(11.4)
14. Manageable by individual patients	46(32.9)	12(8.6)
15. As per social traditions/customs	76(54.3)	4(2.9)
16. Based on long therapeutic experiences	65(46.4)	13(9.3)
17. Establish good patient/ therapist relationship	49(35.0)	13(9.3)
18. Give hope for life when no hope of life is left	57(40.7)	14(10.0)
19. Any other	10(7.1)	130(92.9)
20. Ineffective for certain conditions	81(57.9)	6(4.3)
21. No guarantee for safety	55(39.3)	37(26.4)
22. Reject science and technology	37(26.4)	29(20.7)
23. "high tech, but low touch"	35(25.0)	12(8.6)
24. heavy toxic materials in Ayurvedic medicines	39(27.9)	42(30.0)
25. Dubious use of animal products/non-vegetarian ingredients in these products	39(27.9)	20(14.3)
26. Herbal medicines" not very herbal	55(39.3)	30(21.4)
27. Unproven medical benefits	40(28.6)	13(9.3)
28. Not complete cure	70(50.0)	18(12.9)
29. Miraculous cures claimed not attained	27(19.3)	14(10.0)
30. Lack of scientific evidence	55(39.3)	12(8.6)
31. False labeling of drugs	40(28.6)	14(10.0)
32. Lack of good quality research in Ayurveda	49(35.0)	20(14.3)
33. Fake doctors are "unlearned in scriptures, experience and knowledge	39(27.9)	10(7.1)
34. No knowledge of side effects	41(29.3)	33(23.6)
35. Any other(Specify)	4(2.9)	3(2.1)

Overall reported prevalence of CAM users for cancer either currently or sometimes in the past was found to be 48.6% while only 19.3 % respondents were using CAM currently also as presented in Table-4. Among all users percentage of current users was 39.7%. CAM use was comparatively more in case of radiotherapy 48.6% and Chemotherapy (47.9%) while it was less in case of patients underwent Surgery as part of cancer treatment. Among all users only 60.3% were having faith in CAM and remaining patients used CAM even though they had no faith. Only 44.1% CAM users felt some relief due to CAM use as reported by them, which may not be attributed actually due to CAM alone. CAM use was found to be maximum (22.0%) in case of known oral cancers, though there were also so many other unclassified categories.

Table 4: Pattern of CAM Use

Pattern		No	%
CAM use among all respondents (N=140)	Currently using	27	19.3
	Used sometimes in the past	41	29.3
	Overall Use	**68**	**48.6**
Occasion of CAM use among users (N=68)	Currently using	27	39.7
	Used sometimes in the past	41	60.3
	Overall Use	**68**	**100.0**
CAM use by conventional therapy received (N=140)	Radiation Therapy only	68	48.6
	Chemotherapy only	67	47.9
	Surgery only	37	26.4
	Others	13	9.3
	Overall Use	**68**	**48.6**
Reliefs felt by CAM use(N=68)	Yes	30	44.1
	No	38	55.9
Users have faith in CAM(N=68)	Yes	41	60.3
	No	27	39.7
Site Of Cancer (N=140)	Brain cancer	1	1.5
	Breast Cancer	9	13.2
	Oral cancer	15	22.0
	Cervical cancer	6	8.8
	Head & Neck Cancer	5	7.3
	GIT	4	5.9
	Others	28	41.8
Advice regarding CAM use (N=68)	Advice by family members or friends	22	32.3
	Self desire	7	10.3
	Recommended by a physician	2	2.9
	Any other(Specify)	24	35.3
Satisfied with Conventional Therapy (N=68)	Yes	60	88.2
	No	8	11.8
	Base	**68**	100.0

Risk factor analysis by using Logistic Regression Analysis is presented in Table -5. Patients were using CAM irrespective of their ages, gender, literacy, SES, social background, marital status, dietary habit, family history of cancer, type of cancer etc. However, Hindus were more likely to use CAM in cancer as it was found to be a significant (P=0.03) correlate of CAM use based on binary multivariate Logistic Regression Analysis.

5. Discussion

Overall reported prevalence of CAM users for cancer either currently or sometimes in the past was found to be 48.6% while only 19.3 % respondents were using CAM currently also mostly using blindly keeping their treating doctors in dark. CAM use was prevalent in case of all being received by patients. Patients were using CAM irrespective of their ages, gender, literacy, SES, social background, marital status, dietary habit, family history of cancer, type of cancer, types of therapies etc. However, Hindus were more likely to use CAM in cancer. Awareness of 'Ayurveda' was the most common as CAM followed by 'Yoga/Meditation and 'homeopathy'. Overall gap of 30.7 % was found between knowledge and practice of CAM. No single determinant of the popularity of complementary and alternative medicine exists on the basis of findings of the present study. Large gaps between knowledge and practice indicates lack of actual positive effects /benefits of CAM use.

Table 5: Logistic Regression Analysis of Risk Factors of CAM Use

Risk Factor	Regression Coefficient (β)	Odds Ratio Exp (β)	95% CI for Odds Ratio		P- Value
			Lower Limit	Upper Limit	
Age (above 49 years)	-0.46	0.95	0.43	2.11	0.91
Low SES	-0.57	0.57	0.27	1.20	0.14
Gender(Male)	0.33	1.38	0.61	3.14	0.43
Background(Rural/Slum)	0.08	1.08	0.49	2.39	0.84
Religion(Hindu)	-1.12	0.32	0.12	0.89	0.03
Marital status (Married)	-0.40	0.67	0.24	1.89	0.45

Dietary Habit (Vegetarian)	0.09	1.09	0.52	2.29	0.80
Type of family(Joint)	0.24	1.27	0.58	2.75	0.55
Literacy (Illiterate)	-0.31	0.73	0.34	1.58	0.43
Having Family History of Cancer	0.28	1.32	0.49	3.56	0.14
Constant	1.21	3.36			

Prevalence of CAM use in cancer in the present study is reportedly found to be 48.6% which exists within the range of prevalence rates of 31% among cancer patients using at least one CAM therapy as part of their cancer treatment found respectively in a systematic review[6] of studies assessing its prevalence in 13 countries and that of 69 % found in an earlier study[7]. Results of a telephone survey[13] in the UK on the use of CAM showed a one year prevalence of CAM to be 20%. CAM use in cancer is also not found to that extent as CAM use in diabetes in an Indian community[24] wherein prevalence of CAM use to be 67.7% among individuals with diabetes. Awareness of 'Ayurveda' was the most common as CAM by (74.3%) respondents followed by 'Yoga/Meditation" (73.6%), and 'homeopathy' (63.6%). Practices of 'Ayurveda' and Yoga/Meditation were reported to be maximum (19.3%) for both having large gaps between knowledge and practice. Ayurveda 57.1% (95% CI 53.27–60.89) was the most frequently used CAM in a study.[25] Other therapies like Acupuncture/ Acupressure, Psychological Therapy/ counseling, Laughter therapy etc were having comparatively lower degrees of awareness as well as practice. Herbalism, aromatherapy, homoeopathy, acupuncture, massage, and reflexology were among the most popular in a survey[13] conducted in UK. A study[17] found that 28% of study participants agreed that CAM was at par with medical treatment of cancer whereas 34% disagreed. Awareness about CAM was less as only 36% could enumerate few CAM therapies like nutrition (vitamin and mineral supplements, herbs, and diets) and psychosocial therapies.

Closeness of CAM to nature was the strongest arguments presented by respondents in favour of CAM. Easy availability, No side effect/Noninvasive, spiritual touch/dimensions, were among some arguments of respondents in favor of CAM. Among all users, only 60.3% were having faith in CAM and remaining patients used CAM even though they had no faith. Only 44.1% CAM users felt some relief due to CAM use as reported by them, which may not be attributed actually due to CAM alone. Similar broad range of interacting positive and negative motivations can also be found in earlier literature.[23]

Present study has some relevance/applicability in the national Interest with implications for health policy and practice to meet challenges for cancer management and research. This study has several strengths including its ability to explore the actual usage pattern of CAM by cancer patients, their misunderstandings/ misconceptions in an Indian community wherein there is lack of literature on use of CAM in cancer. It may be helpful for clinical decision makers in resolving problems concerning optimal decisions regarding diagnosis and treatment outcomes. It provides basis for conducting further experimental studies to test the efficacy / safety, bioavailability, contaminants, and cost-effectiveness of CAM. Further detailed study in this direction may be helpful in providing scientific data on CAM use for the purpose of advising patients about CAM with an integrated/ holistic approach to care for cancer patients.

6. Conclusions and Suggestions

The study concluded that there is high degree of awareness regarding CAM among patients and practice of CAM for cancer is also high irrespective of their socio-demographic characteristics, type of cancer etc. Varied motivations in favor of CAM use are present among patients and lot of beliefs and misconceptions exist regarding CAM use and cancer. Blind use of CAM prevalent among cancer patients may affect adversely diagnostic and treatment decisions/ outcomes. Need of Holistic Approach of patient care is felt as patients have indirect preferences to this approach. Perceived benefits of CAM, if any, should not be blindly ignored. There is an urgent need of conducting further in depth epidemiological studies to evaluate the efficacy of various CAM therapies in use for cancer.

7. Key Messages

- CAM use in cancer is prevalent in Indian community irrespective of their socio-demographic characteristics.
- Blind use of CAM prevalent among cancer patients may affect adversely diagnostic and treatment decisions/ outcomes.
- Perceived benefits of CAM, if any, should also not to be blindly ignored.
- Holistic Approach of patient care should be considered as part of cancer management

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