

**TREATMENT PATHWAYS AND DELAYS IN TREATMENT AMONG CANCER PATIENTS ATTENDING A TERTIARY CARE HEALTH FACILITY IN CHANDIGARH, NORTH INDIA**<sup>1</sup>\*Dr. Dinesh Kumar, <sup>2</sup>Dr. Naveen Krishan Goel, <sup>3</sup>Dr. Awadhesh K Pandey and <sup>4</sup>Dr. Meenu Kalita<sup>1</sup>Professor, Department of Community Medicine, Government Medical College and Hospital, Chandigarh, India.<sup>2</sup>Professor and Head, Department of Community Medicine, Government Medical College and Hospital, Chandigarh, India.<sup>3</sup>Professor and Head, Department of Radiation Oncology, Government Medical College and Hospital, Chandigarh, India.<sup>4</sup>Assistant Professor, Department of Community Medicine, Government Medical College and Hospital, Chandigarh, India.**\*Corresponding Author: Dr. Dinesh Kumar**

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**ABSTRACT**

**Background:** Approaching to various alternative therapies by cancer patients before adopting standard therapies may delay in diagnosis and treatment initiation resulting in poor clinical outcomes for cancer patients. Present study attempts to investigate treatment pathways adopted by cancer patients and resulting delays in seeking treatment by them and other delays in a tertiary allopathic health care facility. **Methods:** Hospital based cross sectional study conducted 1117 among cancer patients attending a tertiary health facility. A systematic sampling design was adopted to select patients of different types of cancer at different stages approaching for allopathic treatment at the health facility. Data variables included personal and family characteristics, beliefs and practices related with CAM, reasons of adopting CAM therapies, delay in seeking treatment, prior treatment availed, perceived reasons of delays in approaching for current treatment along with related information. Elementary statistical methods were applied for data analysis. **Results:** Among 1117 cancer patients surveyed including 44.9% males and 55.1% females, Study reported only 10% patients delaying in diagnosis and start of the treatment. Main reasons of treatment delay were reported to be financial problems (40.7%), family problems (22.1%) and use of CAM/ herbal treatment (13.3%). Females were more likely to delay the treatment as compared to males. More than 90% patients approached for allopathic treatment as a first pathway to treatment showing reliance in the allopathic treatment. Average duration of CAM use was found to be about four months only and average amount spent was about Rs. 1564/- per month. **Conclusions:** Findings of the present study demonstrates a very low prevalence treatment delays among cancer patients approaching for allopathic treatment. High satisfaction rate is also reported with conventional therapies. There is an urgent need of conducting further in-depth epidemiological studies to evaluate different type of delays and its association with CAM therapies in use for cancer. Future research should also be focused towards investigating consequences of treatment delays.

**KEYWORDS:** Complementary and alternative (CAM); Diagnostic delay; Holistic approach; Referral delay; Treatment delay.

**INTRODUCTION**

Cancer is a subject of great concern because there is a lack of effective treatment even in the 21st century. The Indian subcontinent is home to 16.5% of the world's population and at any one time it is estimated that there are over 2 million people with cancer.<sup>[1]</sup> The majority of Indian cancer patients have late stage incurable diseases (75% to 80%) when first diagnosed.<sup>[2,3,4,5]</sup> Prolong duration in diagnosis and start of treatment may increase the proportion of advanced stages in cancer patients.<sup>[6,7,8]</sup> Delay in diagnosis and treatment of cancer patients may

impact on poor prognosis and quality of life.<sup>[9,10,11]</sup> The worst affected are cancer patients from rural areas where they have to depend on rural private practitioners (RPP) and doctors practicing some form of alternative medicine. There is a marked reluctance to use free governmental health facilities even among the poorest section of the Indian society in India the challenge is to provide treatment to majority underprivileged cancer patients who cannot afford evidence based conventional care.<sup>[12]</sup> In India a large number of cancer patients are

dependent on Complementary and alternative medicines for treatment and palliation.<sup>[13,14]</sup>

Approaching to various alternative therapies by cancer patients before adopting standard therapies may delay in diagnosis and treatment initiation resulting in poor clinical outcomes for cancer patients. A number of studies have been conducted to measure delay in diagnosis and treatment initiation.<sup>[15,16,17,18,19,20,21]</sup> Different types of delay can occur in total duration from onsets of symptoms to start of cancer treatment. Primary delay is defined as duration between onset of symptoms to first presentation to clinician. Next, clinician delay covers from first presentation to clinician until start of treatment.<sup>[22]</sup> Some studies measured clinician delay from first presentation to reaching secondary care center; some up to diagnosis; and some even up to starting treatment. There is a need of conducting studies to provide clear picture of delays.<sup>[23]</sup> Present study attempts to investigate treatment pathways adopted by cancer patients and resulting delays in seeking treatment by them and other delays in a tertiary allopathic health care facility.

## MATERIALS AND METHODS

Present hospital based cross-sectional study was conducted among cancer patients attending Radiation Oncology Outpatient Department (OPD) at Government Medical College and Hospital (GMCH), a tertiary health care facility in Chandigarh (UT), North India. The study is a part of a project funded by Indian Council of Medical Research (ICMR), New Delhi.

### Sampling Design

A systematic sampling design was adopted to select patients of different types of cancer at different stages approaching for allopathic treatment at the health facility. There were about 40–50 patients attending the OPD every day. Among them only new patients were included in a systematic manner selecting every third patient with a random start every day. Patients revisiting the OPD were excluded while selecting the sample.

### Study variables

Patients suffering from cancer and/or their closed family members and healthcare providers served as respondents. They were interviewed to collect information regarding personal and family characteristics, beliefs and practices related with CAM, reasons of adopting CAM therapies, delay in seeking treatment, prior treatment availed, perceived reasons of delays in approaching for current treatment along with related information.

### Optimum sample size

A total of 1,117 cancer patients participated in the study. Power analysis was done to calculate optimum sample size for the detailed project on CAM use by cancer patients. Sample size was calculated by using the following formula with approximation for large population.

$$n_{\text{opt.}} = \frac{Z^2_{1-\alpha/2} (1-P)}{\epsilon^2 P},$$

where

P = anticipated population proportion

1 -  $\alpha$  = confidence coefficient

$\epsilon$  = relative precision, and

Z(.) is the value of standard normal variate

On the basis of 60% CAM use as primary outcome parameter anticipated on the basis of a pilot survey findings and assuming 95% confidence coefficient and 5% relative precision, sample size of 1,024 cancer patients was obtained. This study covered a sample of 1,117 cancer patients.

### Ethical issues

Ethical Guidelines of ICMR on human participants were followed. A written informed consent was taken from the patients. Approval from Institutional Ethics Committee was taken for conducting the study.

### Statistical methods

Statistical methods like normal test of proportions were used. Data analysis was carried out using Statistical Package for Social Sciences (SPSS)-16 software package.

## RESULTS

Among 1117 cancer patients of different stages surveyed, 501(44.9%) were males and 616(55.1%) were females. Among all surveyed patients, 382(34.2%) were elderly aged 60 years and above. Overall mean age of patients was  $51.54 \pm 14.04$  years with significantly higher age of male patients ( $P < 0.01$ ). Percentages of male and female elderly were found to be 39.3% and 30.0% respectively. There were 662(59.3%) patients from joint families and 454(40.6%) from nuclear families. There 952(88.1%) patients aware of Ayurvedic treatment, Yoga/Meditation 966(86.5%) and Homeopathic treatment 825(73.9%) reported. There were 163(14.6%) patients having family history of cancer. Among all, 967(86.6%) patients were aware about their disease and 395(35.4%) were not in the position to respond. In such cases questions were asked from their attendants including 295(26.4%) male and 100(9.0%) female attendants. There were 204(18.3%) patients who were suffering from breast cancer and 114(10.2%) from head and neck, 102(9.1%) from cervical cancer, 53(4.7%) oral cancer and 15(1.3%) prostate and 16(1.4%) GIT cancer.

There were 350(31.3%) patients referred from private hospitals and 258(23.1%) referred from Government hospitals and only 27 (2.4%) were referred from private clinics. There were 163(14.6%) patients having family history of cancer. There were only 113(10.1%) patients who reported some delay/time gap between the date of diagnosis and start of the treatment. Treatment delay for

female patients was significantly higher ( $P < 0.05$ ) as compared to males. Results are presented in Table-2.

**Table 1: Background Characteristics of Patients by Gender.**

Background Information	Male (N=501)		Female (N=616)		Total (N=1117)	
	No.	%	No.	%	No.	%
<b>Nature of the patient</b>						
New Patient	102	20.4	112	18.2	214	19.2
Revisit	399	79.6	504	81.8	903	80.8
<b>Patient type</b>						
Indoor	50	10.0	72	11.7	122	10.9
Outdoor	451	90.0	544	88.3	995	89.1
<b>Age</b>						
≤21 yr	24	4.8	20	3.2	44	3.9
21-35	37	7.4	56	9.1	93	8.3
36-49	105	21.0	169	27.4	274	24.5
50-59	138	27.5	186	30.2	324	29.0
60 & above	197	39.3	185	30.0	382	34.2
<b>Mean ±SD</b>	<b>52.6 ± 14.74</b>		<b>50.61 ± 13.38</b>		<b>51.54 ± 14.04</b>	
					<b>P&lt;0.01</b>	
<b>Residence place</b>						
Urban	150	29.9	242	39.3	392	35.1
Rural	351	70.1	370	60.1	721	64.5
Slum	0	0.0	04	0.6	04	0.4
<b>Marital status</b>						
Married	450	89.8	496	80.5	946	84.7
Unmarried	36	7.2	26	4.2	62	5.6
Widow/Widower	15	3.0	93	15.1	108	9.7
Divorcee	0	0.0	1	0.2	01	0.1
<b>Socio-economic status</b>						
Low	212	42.3	233	37.8	445	39.8
Middle	138	27.5	163	26.5	301	26.9
High	151	30.1	220	35.7	371	33.2
<b>Dietary habit</b>						
Vegetarian	244	48.7	428	69.5	672	60.2
Non Vegetarian	257	51.3	188	30.5	445	39.8
<b>Type of family</b>						
Joint	315	62.9	347	56.3	662	59.3
Nuclear	186	37.1	268	43.5	454	40.6
Extended	0	0.0	01	0.2	01	0.1
<b>Family history cancer</b>						
Yes	58	11.6	105	17.0	163	14.6
No	443	88.4	511	83.0	954	85.4
<b>Site of cancer</b>						
Brain Cancer	06	1.2	06	1.0	12	1.1
Breast Cancer	07	1.4	197	32.0	204	18.3
Oral Cancer	45	9.0	08	1.3	53	4.7
Cervical Cancer	04	0.8	98	15.9	102	9.1
Head & Neck Cancer	95	19.0	19	3.1	114	10.2
Prostate Cancer	15	3.0	0	0.0	15	1.3
GIT Cancer	02	0.4	14	2.3	16	1.4
Any Other	327	65.3	274	44.5	600	53.7

**Table 2: Treatment Delays by Patients according to Gender.**

Background Information	Male (N=501)		Female (N=616)		Total (N=1117)	
	No.	%	No.	%	No.	%
<b>Referred from</b>						
Govt. Hospital	110	22.0	148	24.0	258	23.1
Pvt. Hospital/ Pvt. Practitioner	164	32.7	213	34.6	377	33.7
Direct approached to GMCH-32	227	45.3	255	41.4	482	43.2
<b>Referral delay (in months)</b>	<b>N=274</b>		<b>N=361</b>		<b>N = 635</b>	
No Delay	196	71.5	251	69.5	447	70.4
1	44	16.1	64	17.7	108	17.0
2	05	1.8	10	2.8	15	2.4
3	02	0.7	03	0.8	05	0.8
4	02	0.7	01	0.3	03	0.5
5	01	0.4	00	0	01	0.2
6 – 10	03	1.1	02	0.6	05	0.8
11 – 20	01	0.4	01	0.3	02	0.3
<b>Onset of disease (In Years)</b>						
Not Specified	20	4.0	26	4.2	46	4.1
1	404	80.6	473	76.8	877	78.5
2	38	7.6	48	7.8	86	7.7
3	18	3.6	19	3.1	37	3.3
4	10	2.0	24	3.9	34	3.0
5	05	1.0	10	1.6	15	1.3
6 to 10	04	0.8	15	3.1	19	1.8
11 and above	02	0.4	02	0.3	03	0.3
<b>Gap between diagnose and start treatment</b>						
Yes	58	11.6	55	8.9	113	10.1
No	443	88.4	560	91.1	1004	89.9
<b>Treatment gap (Delay in Days)</b>						
Exact Delay unspecified	11	2.2	12	1.9	23	2.1
1-15	16	3.2	08	1.3	24	2.1
16-30	08	1.6	15	2.4	23	2.1
31-60	08	1.6	06	1.0	14	1.3
61-90	03	0.6	03	0.5	06	.5
91-180	07	1.4	04	0.6	11	1.0
181 and above	05	1.0	07	1.1	12	1.1
No Delay Reported	443	88.4	561	91.1	1004	89.9

Main reasons of treatment delay were reported to be financial problems (40.7%), family problems (22.1%) and use of CAM/ herbal treatment (13.3%) as shown in

Table-3. Females were more likely to delay the treatment as compared to males.

**Table 3: Respondents by Reasons of Delay in Initiation of Treatment.**

Reasons of the delay (after diagnosis of cancer) (N=113)	No.	%
Already one family member is suffering from cancer	06	5.3
Heart problem is also prolonged along with cancer.	03	2.7
Financial Problems	46	40.7
Distant of Health facility from home	04	3.5
Hospital Formalities	05	4.4
Family Problems	25	22.1
Doctors were not available at the time of treatment.	07	6.2
Were continued with Herbal Treatment	15	13.3
Lack of Technical facility in the hospital	05	4.4
Patient was not willing for the treatment	03	2.7
First preference to private hospital	07	6.2
Not aware about the disease/diagnosis	08	7.1

Nobody able to come with patients	02	1.8
Because of death in family	02	1.8
Because of infection/accident and got injuries	03	2.7
Because of my child exam	01	0.9
Because of attending marriage	03	2.7
Because of worried of treatment	07	6.2
Because of operation	03	2.7
Patient was not found a good doctor	01	0.9
Stop treatment without any consultation	04	3.5
Waiting for reports	05	4.4
Because Dr. not gave any follow up date	01	0.9

Treatment seeking behaviour of patients is presented in Table-4. There were 1022(91.5%) patients who consulted first to allopathic doctor, 21(1.9%) consulted to khandanivaid/hakeem, 20(1.8%) to homeopathic doctor and 6(0.5%) to local quack for their diseases. Treatments /therapies received by patients were

chemotherapy: 711(63.7%), radiation: 571(51.1%) and surgery: 450(40.3%). There were 1001(89.6%) patients who were reportedly satisfied with allopathic treatment. Majority of patients (91.1%) wanted to continue their allopathic treatment at the selected health facility.

**Table 4: Pathways of Treatment Adopted by Respondents and Reasons of Approaching CAM Therapies.**

Whom did the respondent consult first	No.	%
Allopathic doctor	1022	91.5
Homeopathic doctor	20	1.8
Local quack	06	0.5
Khandanivaid/hakeem	21	1.9
Ojha	03	0.3
Any other	45	4.0
<b>CAM use (N=1117)</b>		
Yes	432	38.7
No	685	61.3
<b>Relief felt after using any CAM therapy (N=432)</b>		
No relief	109	25.2
Gives relaxation to mind	04	0.9
Improve physical health	02	0.5
Felt relief	15	3.5
<b>If consulted first to allopathic doctor and not continued, give reasons (N = 1022)</b>		
Didn't get relief	21	2.1
Referred by doctor only	43	4.2
Not satisfied with doctor's treatment, felt as doctors were careless.	04	0.4
Wants to consider second option	03	0.3
Referred for chemotherapy only	03	0.3
Lack of equipment, machinery for treatment	09	0.9
Guided by relatives	02	0.2
Self Desire	08	0.8
<b>Treatment/therapies received by the patient</b>		
Radiation therapy	571	51.1
Chemotherapy	711	63.7
Surgery	450	40.3
Any others	46	4.1
<b>Satisfaction with allopathic</b>		
Yes	1001	89.6
No	27	2.4
No response	89	8.0
<b>If not satisfied with allopathic treatment, what are the reasons? (N= 27)</b>		
Not getting any relief through allopathic treatment	10	37.0
Financial Problems	01	3.7
Doctors gave 'No Hope' for survival so we thought of taking treatment through alternate medicine.	01	3.7

Long waiting hours for treatment	01	3.7
Not specified	14	51.9
<b>Continuation with allopathic treatment from this hospital</b>		
Yes	1018	91.1
No	08	0.7
No response	91	8.1

Table-5 provides duration of use of different CAM therapies. Higher proportions of patients were using CAM since last one year. Duration of use more than one year was reported by a low proportion of patients. Table-

6 shows distribution of CAM use by cost of CAM used. Average duration of CAM use was found to be about four months only and average amount spent was about Rs. 1564/- per month as shown in Table-7.

**Table-5: Duration of CAM Use by Respondents.**

Therapy/Method	No Response	Below 6	1yr and above	Overall
No Response	223(100.0)	0(0.0)	0(0.0)	223
Ayurveda	5(3.3)	128(84.7)	18(12.0)	151
Physiotherapy	0(0.0)	3(100.0)	0(0.0)	3
Yoga	1(11.1)	5(55.5)	3(33.3)	9
Any Other	3(33.3)	5(55.5)	1(11.1)	9
Unani	0(0.0)	1(100.0)	0(0.0)	1
Homeopathic	4(11.1)	27(75.0)	5(13.9)	36
Naturopathy	0(0.0)	15(93.7)	1(6.2)	16
Spiritual	4(66.6)	2(33.3)	0(0.0)	6
Total	240	186	28	454

**Table 6: Therapy Wise Cost of CAM Use by Respondents.**

Therapy/ Method	Cost(Rupees Per Month)							N
	No Response	Below 1000	1001-2000	2001-3000	3001-5000	5001-10000	Above 10000	
No Response	223(100.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	223
Ayurveda	19(12.5)	56()	31(37.0)	14(9.3)	3(2.0)	8(5.3)	6(4.0)	151
Physiotherapy	2(100.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	2
Yoga	5(83.3)	0(0.0)	0(0.0)	1(16.6)	0(0.0)	0(0.0)	0(0.0)	6
Any other	3(42.9)	2(28.6)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	7
Unani	0(0.0)	0(0.0)	1(100.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	1
Homeopathic	7(17.5)	21(52.5)	6(15.0)	0(0.0)	0(0.0)	2(5.0)	1(2.5)	40
Naturopathy	1(6.6)	5(33.3)	4(26.7)	1(6.6)	0(0.0)	1(6.6)	1(6.6)	15
Spiritual	4(80.0)	1(20.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	5
Total	264	85	42	16	3	11	8	450

**Table 7: Overall Mean  $\pm$  SD of duration of CAM use and cost of CAM.**

Parameter	Number of Respondents	Mean	Standard Deviation	Range	Median
Duration of using CAM method	191	3.99 Months	6.94	1-36 Months	1.00 Months
Cost per month	167	Rs 1564.63	2693.70	Rs 0-16000	Rs 600

## DISCUSSION

The present study was conducted to investigate treatment pathways adopted by cancer patients and resulting delays in seeking treatment by them and other delays in a tertiary allopathic health care facility. Study reported only 10% patients delaying in diagnosis and start of the treatment. Main reasons of treatment delay were reported to be financial problems (40.7%), family problems (22.1%) and use of CAM/ herbal treatment (13.3%). Females were more likely to delay the treatment as compared to males. It may be due to carelessness or dependence for seeking treatment. More than 90%

patients approached for allopathic treatment as a first pathway to treatment showing reliance in the allopathic treatment. A majority of the patients who used CAM did not volunteer that information to their doctors, primarily because the doctors did not ask about it. Patients generally do not prefer to discuss alternative medicine with their oncologists. Conventional clinicians are generally not aware of various form of complementary and alternative medicine (CAM) used by patients. Also satisfaction rate with allopathic treatment was quite high and majority of patients wanted to continue their allopathic treatment at the selected health facility.



Average duration of CAM use was found to be about four months only and average amount spent was about Rs. 1564/- per month.

The main weakness of our study is that it is a hospital based survey; thereby excluding patients who have abandoned conventional treatment completely or never used it at all and does not represent CAM use in the community. Moreover, treatment delays were based on information given by respondents only and exact delays could not be assessed.

## CONCLUSIONS AND SUGGESTIONS

This present study demonstrates a very low prevalence of treatment delays among cancer patients approaching for allopathic treatment. High satisfaction rate is also reported with conventional therapies. There is an urgent need of conducting further in-depth epidemiological studies to evaluate different type of delays and its association with CAM therapies in use for cancer. Future research should also be focused towards investigating consequences of treatment delays.

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