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Research Article

Indian Traditional Medicinal System for Better Cancer Therapy

Prevalence, Cost and Factors Governing Use of Indian Traditional System of Medicines for Anticancer Treatment

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Abstract: The Indian traditional system of medicine is a broad set of non-mainstream practices, including use of natural products, for mind as well as body therapies and for the entire medical systems. The aim of this study is to determine the prevalence, costs and factors affecting the usage of ITM. Our methodology is that Demographic data of the participants, cost and factors affecting the ITM of usage were collected. Data were collected from the patients visiting five ITM clinics selected randomly in Kerala, India. The study was conducted between January and December 2020. In the Results of this study, males were predominant (59.72%), age group of 41 to 60 years (51.38%), living in rural parts (73.61%) with school level (61.34%) belongs to the income group of 5001 to 25000 INR per month. 45.19% of patients suffer due to stomach cancer. 16.5 % and 17% of participants were preferred for Ayurvedic and Homeopathic systems of medicines respectively. About 74.07% of the participants informed that they have visited consultants and health care providers. Among the various ITM of medicines, Ayurvedic treatment was higher (35.48%). 10 factors which have decided the use of ITM, out of which, lack of reason to use was major which governed the usage. In Conclusion, the use of ITM is prevalent among participants visiting traditional health clinics in the selected study area. The significant factors observed to improve the possibility of ITM use, was the literate and the place of living. But, factors like age, gender, income and social habits have proved to be key roles to determine the use of the ITM of medicines. Most participants have a strong belief in ITM, due to the concept that ITM can develop immunity systems and has fewer side effects. The present findings suggest that the use of ITM treatment is unlimited to the individual's chief medical complications. Indian Traditional medical practitioners treating all kinds of medical condition. The present study findings reveal a moderate degree of use of ITM in the selected region of population Kerala, India

Keywords: Prevalence, Indian Traditional Medicine, Cancer, Ayurveda, Siddha, Homeopathy

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1. INTRODUCTION

Cancer is one of the major public health problems worldwide and accounts for an estimated 2.5 million cases in India alone[1]. With about 12.7 million new cases and 7.6 million deaths in 2008, cancer is the most common cause of death worldwide[2]. The World Cancer Report documents, that cancer rates are set to increase at an alarming rate globally. Cancer rates could increase by 50% new cases for the year 2020[3]. In 2005, cancer killed approximately 8,26,000 people in India; 519,000 under the age of 70.9 This is predicted to rise disproportionately compared with cardiovascular and communicable diseases by 2030, to nearly 1.5 million deaths annually[4]. While more than half of all cancer patients report fatigue as a problem. The most common complaints in cancer patients concern pain, fatigue, depression and anxiety[2]. The use of traditional, complementary and alternative medicine has been identified by Indian oncologists as a potential factor for the delay in seeking health from medical practitioners, but there is no research has been conducted to verify such assumes[4]. The Indian traditional system of medicine is a broad set of non-mainstream practices, including use of natural products, mind as well as body therapies and the entire medical systems. In the last decades, the use of ITM has been raised[3]. Due to heterogenicity, gender, age, education and type of tumor appear to influence usage patterns and frequency is being observed across the country and among the regions also. A leading comprehensive cancer centres provide the concept of integrative oncology as a patient centred health care model to meet patients' preferences, to ensure their safety and optimize clinical outcomes[5]. Traditional medicine is used by about 40% of all cancer patients to manage symptoms related to their disease. Normally the patients do not expect a cure from the disease by these approaches, but mainly use ITM to strengthen their immune system, relieve pain or manage treatment related side effects. As patients' survival rates are increasing, the needs of cancer survivors go beyond the mere alleviation of symptoms, are becoming more important for oncologists. Complementary oncological therapies are classified by the Concentrated Action for complementary and alternative medicine assessment in the cancer field as (1) alternative medical systems (e.g., Homeopathy, Ayurveda, traditional Chinese medicine) (2) biologically based practices (e.g., herbs, vitamins and food) (3) energy medicine (e.g., reiki) (4) manipulative and body-based practices (e.g., massage) (5) mind and body medicine (e.g., meditation, yoga and progressive muscle relaxation). While alternative medicine systems are used rather than conventional medicine, complementary therapies are used in addition to conventional methods[2]. TM has often been the dominant means of treatment for health problems for centuries, and in some cases, it continues to dominate health care beliefs and practices. India's indigenous systems of medicine, like Ayurveda, Siddha, and Unani, are quite 5,000 years old, and in rural areas, the Indian population has relied heavily on these practices, particularly Ayurveda[6]. Indian Council of Medical Research (2007) conducted a study in 45,000 people and found that 33% used various traditional medicines for common illnesses, while only 18% preferred to use this system for serious ailments. Around 38% of households reported visiting TCAM practitioners; 40% in rural and about 30% in urban areas[7]. The reasons for preferring ITM were mainly because of lack of side effects identified and low costs when compared with the allopathic system. In terms of cancer, so far there has been little data available regarding patient usage of ITM, although estimates have suggested that usage could also be around 38%[8]. The aim of the present study is to find the prevalence, cost and major factors influencing the use of Indian Traditional Medicines for anticancer treatment.

2. METHODOLOGY

2.1. Study Site

The study was conducted between January 2019 and March 2020 in the private clinic practising, which is a referral cancer clinic for Indian traditional medicine system located in South Kerala. An average of 1500 cancer outpatients is treated annually. The selected study site is the only Indian traditional system following clinics to treat cancer and no other hospital is available for about 100 Kms. It is the prefect study site, where most of the population belongs to either middle or weaker economic class. The hospital has attached pharmacy to dispense the ITM anticancer medicines for the patients after consultation with the registered practitioner. At this exit point, the researcher interviewed patients and/ or collected the required data from the patients' record.

2.2. Study Design

A cross sectional descriptive observational study, was conducted among the cancer patients. Socio-demographic details and prevalence were calculated based on the data collected from the patients in a proforma. Reasons for the cost of the treatment and other required data were collected from the patients either interview or from their records. The researcher interviewed the pharmacists to collect data regarding the availability of medicines. Inclusion criteria for this study were patients with blood cancer, stomach cancer, mouth cancer, lung cancer and skin cancer and both the genders above 21 years of age. The exclusion criteria were patients travelled more than 100 Kms to any one of the study centres, not willing to participate and not providing the consent letter. Medicines prescribed to treat these five cancers were considered as indicators to access availability of anticancer medicines at the study site.

2.3. Sample Size Calculation

The size was calculated based on the finite population correction formula[6]:

$$N = \frac{10{,}000(2.58)^2 * 0.2(1.02)}{(0.05)^2(10{,}000-1) + (2.58)^2 * 0.2(1-0.2)} = 393 + 10\% = 432$$

2.4. Study Participants

432 patients received chemotherapy at the study site during the study period and they were enrolled in the study and interviewed. These patients were pre-diagnosed with cancer and receiving chemotherapy. For this, the patients were selected based on the following inclusion criteria (i) patients must be diagnosed malignant type of cancer, (ii) patients should be either in stage 1 or stage 2 cancer, (iii) patients should be > 20 years and < 60 years of age in both the genders and (iv) patients who provides consent and willingness to participant in the study. All the 432 eligible patients were randomly selected and interviewed. About 2 persons working in the pharmacy, 2 registered medical practitioners of ITMS and 3 nurses and 1 administrator were also interviewed during the study.

2.5. Data Collection Procedure

Data were collected using proforma and questionnaires that were distributed to patients and from others to collect data for the prevalence, price and affordability of anticancer medicines and treatment. Interviews were performed at exit point of the pharmacy at the study site. The study conducted was approved prior to start of the study by Safe Search Independent Ethics Committee (OHRP Reg. No.: IRB00005741), located at Ahmedabad, Gujarat (IEB No.: MKM/ 1(3)/ 2018). The informed consent was obtained from all patients prior to starting of the study. The data were initially recorded electronically in a spread sheet[9].

3. STATISTICAL ANALYSIS

Descriptive statistical analysis was used to measure the central tendency and frequency. Average and median prices for the frequently used chemotherapy at the study site were computed. Chi square test and student test were performed to calculate P value. If P value < 0.01, it was considered as statistically significant. The statistical analysis was performed using the Statistical Programme for Social Sciences (SPSS) for Windows.

4. RESULTS

A total of 432 patients were enrolled for the present study. The maximum participants (51.38%) belongs to the age group of 41-60, while 28% of patients were in the age group of more than 60 years and 20.60% of participants were in the age group of 21-40 years. Average age of the study participants was found to be 40.92±15.83 years and females were predominant (59.72%) when compared with males (40.27%). About 73.61% and 26.39% of patients were living in rural and urban areas respectively. 61.34% of the participant education qualification were up to school level of education and 30.56% of the participants were having an undergraduate level of education, whereas 8.10% of participants were having a postgraduate level of education. The monthly income for most of the participants were between Rs.5001-25000 (52.08%), while 25.46%, 19.44% and 3.04% of participants were having the income of Rs.25001-50000, < Rs. 5000 and > Rs, 50000 respectively. 77.31% of the study participants were married, while 5.32% of participants were unmarried whereas 17.36% were belongs to others, like divorcees, living together, etc. 54.72% of the participants had both habits of smoking and drinking, while 22.22%, 18.06% and 6.25% of participants had habits of smoking, drinking and no habits respectively. In the present study, 54.86% of the study participants had anyone of the chief complaints like diabetes, hypertension or asthma. Among the participants, 45.19% were having stomach cancer, while 21.53% of patients were having lung cancer and 5.79%, 16.67%, 10.88% of patients were having blood cancer, mouth cancer, skin cancer respectively. For the duration of cancer, 50.23% of participants was having more than 1-5 years of duration in cancer, whereas 40.5% and 9.26% of patients were having <1 year and more than 5 years respectively. The data are provided in the Table 1.

Table 1: Characteristics of the 432 cancer patients using ITM

Characteristics	N (%)
Gender	
Male	174 (40.27)
Female	258 (59.72)
Age (years)	
Average Age	40.92±15.83
21 to 40	89 (20.60)
> 41 to < 60	222 (51.38)
> 61	121 (28.00)
Place of living	
Rural	318 (73.61)
Urban	114 (26.39)
Education level	
School	265 (61.34)
Diploma & Undergraduate	132 (30.56)
Postgraduate & others	35 (8.10)
Monthly Income (Rs.)	
< 5,000	84 (19.44)
> 5,001 to < 25,000	225 (52.08)
> 25,001 to < 50,000	110 (25.46)
> 50,000	13 (3.01)
Marital Status	
Married	334 (77.31)
Unmarried	23 (5.32)

Others	75 (17.36)
Alcohol and Smoking habits	
Nil	27 (6.25)
Smokers	96 (22.22)
Alcohol drinkers	78 (18.06)
Both (Smoker & Alcohol drinkers)	258 (59.72)
Patients with No. of chief complaints	
1	237 (54.86)
2	176 (40.74)
3	15 (3.47)
4	2 (0.46)
Types of Cancer	
Blood cancer	25 (5.79)
Stomach cancer	195 (45.19)
Mouth cancer	72 (16.67)
Lung cancer	93 (21.53)
Skin cancer	47 (10.88)
Duration of cancer	
> 1 year	175 (40.51)
< 1 to > 5 years	217 (50.23)
< 5 years	40 (9.26)

The data are presented in percentage or mean

Among various types of ITM, most of the study participants have chosen Ayurvedic type of treatment (43.75%) than the homeopathy (36.11%) during the study period. The other types of treatment Siddha, Unnani, Natural Medicine, Sujok, Touch therapy and Accupunture were very less and statistically not significant (P > 0.5). Average number of visits per patient in a year was more in Natural medicine (17.3) and Homeopathy (17.0) clinics by the study participants. The data are provided in the Table 2.

Table 2: Prevalence of Use of ITM in 432 cancer patients

Type of ITM	Used in the past (1 year) N (%)	Avg. No. of visits/ patient in (1 year)	P Value
Ayurveda	189 (43.75)	16.5	< 0.001
Siddha	03 (0.69)	3.6	> 0.5
Homeopathy	156 (36.11)	17.0	< 0.05
Unnani	26 (6.02)	8.4	
Natural medicine	56 (12.96)	10.3	
Sujok	03 (0.69)	3.9	> 0.5
Touch therapy	18 (4.17)	5.8	
Accupunture	25 (5.79)	6.4	

**** Statistically significant at p < 0.05; N = number of patients; Avg. = Average; The data are presented in percentage or mean***

Among 432 study participants, 74.07% of participants visited consultant and health provider and the datas collected statistically significant (P < 0.001), while 20.83% of participants visited the consultant, but not provider and were statistically significant. The data were provided in the Table 3. The usage rate of ITM was more in stomach cancer patients (45.19), followed by lung cancer patients (21.53), whereas blood cancer, mouth cancer, skin cancer as 5.79%, 16.67% and 10.88% respectively. When comes to their visits in ITM clinics in the past 6 months, it was more for lung cancer patients (95.60%) while 73.38% for mouth cancer patients, whereas 40.04%, 37.03%, 70.83% for blood cancer, stomach cancer, skin cancer patients respectively. Data presented in Fig No. 1.

Table 3: Cancer patients reported with minimal one chief complaint consulted a registered medical practitioner of ITM

	N (%)	P value
Visited consultant and provider	320 (74.07)	< 0.001
Visited consultant but not provider	90 (20.83)	< 0.01
Visited provider but not consultant	12 (2.78)	> 0.5
Not visited both	10 (2.32)	

**** Statistically significant at p < 0.05; N = number of patients; Avg. = Average; The data are presented in percentage or mean***

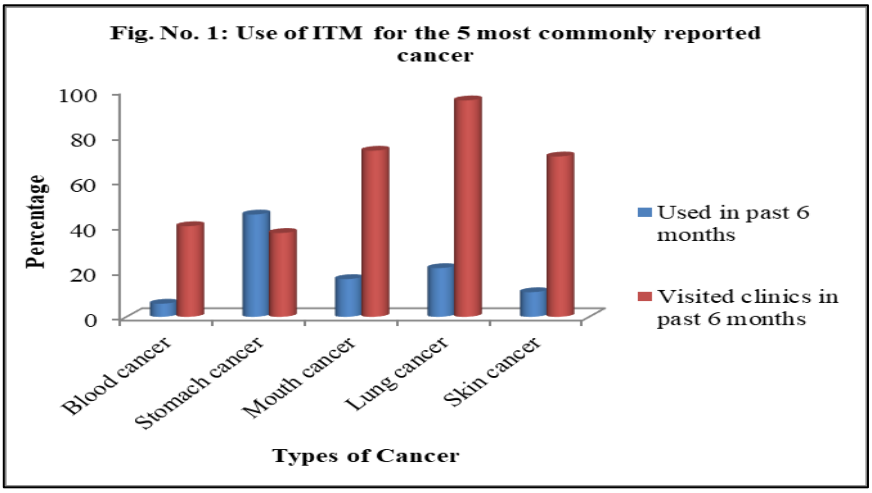

Fig.1. Use of ITM for the 5 most commonly

The cost of the treatment was computed for various types of ITM and cost was found to be Rs. 2750 (35.48%), Rs. 1500 (19.56%), Rs.1250 (16.12%), Rs. 500 (6.45%), Rs. 850 (10.96%), Rs. 500 (6.45%), Rs. 200 (2.58%) and Rs. 200 (2.58%) for Ayurveda, Siddha, Homeopathy, Unnani, Natural medicine, Acupuncture, Sujok and Touch therapy respectively. The data are provided in Table 4. The factors affecting the use and non-use of ITM presented in Fig. No. 2, it shows that it was accessible and available to most of the patients 89.12% and 90.27%, respectively, and the use is not discouraged by friends or relatives by 95.37% of patients and the other factors like dissatisfaction, ineffectiveness, lack of faith and trust was also less in the treatment population like 95.37%, 90.74% and 94.91% respectively.

Table 4: Cost of Treatment per visit includes medical, non-medical and indirect costs

Type of ITM	Rs./ Visit (%)
Ayurveda	2750 (35.48)
Siddha	1500 (19.56)
Homeopathy	1250 (16.12)
Unnani	500 (6.45)
Natural medicine	850 (10.96)
Acupuncture	500 (6.45)
Sujok	200 (2.58)
Touch therapy	200 (2.58)

The data are presented in a mean; The decimals were converted to the nearest one's value

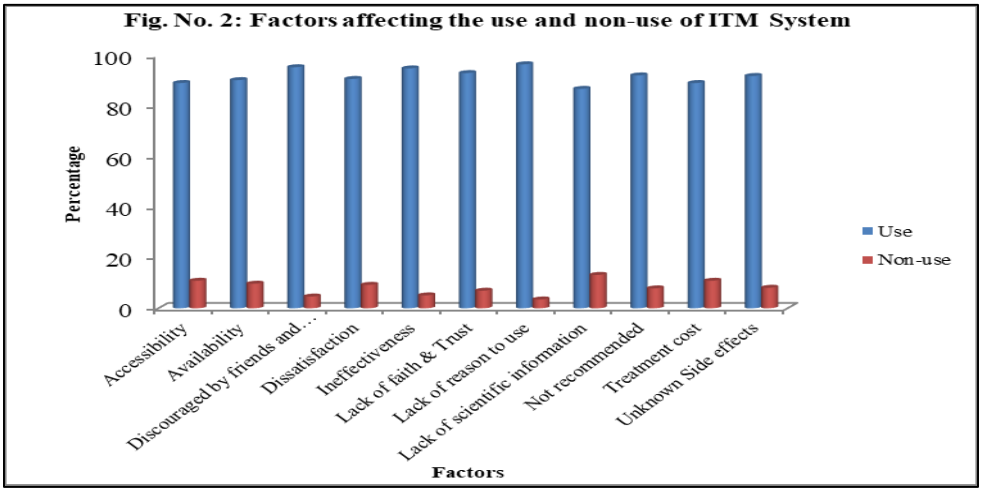

Fig 2. Factors affecting the use and non-use of ITM system

5. DISCUSSION

The present study aim is to determine the prevalence, cost and factors affecting the use of ITM among the selected region of the population in Kerala, India, and which demographic parameters, health conditions and status are related to ITM use. The present study prevalence findings for long term use of ITMs were similar to the reports of previous studies. Many literatures have shown that ITM system has spread over across the country and deeply rooted among the populations with strong belief and trust[10,12]. In the present study, it is observed that the equal

number of cancer patients is also showing a strong willingness for treating with ITM system. Approximately 3 in 6 cancer patients visit ITM clinics to treat cancer. Moreover, the prevalence is widely practiced across all socio-demographic populations. There are short-comings while selecting sample and due to this, it was confined with five hospitals in the study area. This study did not include the inpatients. Furthermore, the present study excluded non-Malayalam populations. The incidence and patterns of use of ITMs therapy out of these subgroups, and out of children, are unknown. From the findings of this study, it is evident that a greater number of patients have selected the Ayurvedic treatment among various Indian traditional medicine system (Table 2) due to their belief that this system of medicine will provide more benefits rather than risk. During the study, patients were unaware about the side effects/adverse reactions that occur during the course of treatment. The results of this study are in support with the reported study by Parasuraman S et al in 2014[13]. Around 74% of patients wanted to consult physician and provider before they take their doses (Table 3), it shows that, though it is a traditional medical system, the participants want to avoid the self-medication as well as their knowledge was also less. From Fig. No. 1, it is evident that the use of traditional medicine system has improved once the participants started to consult with the registered medical practitioners, and the participants informed that they got confidence after visiting the clinics. The participants had started to visit regularly without missing the review dates. Among all the Indian traditional medicine system, participants taking Ayurvedic system of medicine incurred more amount (Approx. Rs. 2750/-) for treatment per visit (Table 4). The cost includes only direct medical, non-direct medical and non-medical expenses (loss of productivity and transport expenses). This study observed nearly 10 factors which influenced the use of traditional medicine system. Average of 4 influencing factors were informed by the participant, but ranged between 3 and 6 (Fig. No. 2). ITMs are commonly used as adjunct therapy to allopathic treatment, still it is not completely replaced by allopathy system of medicine[14]. Users of ITMs treatment wishes to consult a qualified ITM physician rather than a provider of ITMs and the economically weaker population only directly visits, health care providers to get medicine even for their serious medical conditions without having consultation with physician(s). In contrast to earlier studies, involving cancer patients, all the respondents participated in this study strongly shown their willingness to visit and meet the ITM qualified physician(s) to get their medicines. Since all the patients were aware about the side effects of the medicines[15,16]. Though many of the previous reports showing with Indian Traditional practice, emphasis on possible life-threatening diseases, and the use of the Indian Traditional medicine system was not only limited to life-threatening diseases[17, 18]. The findings of the study showed that many of Indians use Indian Traditional treatment for all of the illhealth conditions. In the present study, the most of patients are of with life-threatening disease, like cancer. The present findings suggest that the use of ITM treatment is unlimited to the individual's chief medical complications. Indian Traditional medical practitioners treat most of the all kinds of medical conditions[10]. A similar observation was made during the present study. From this, we conclude that a significant amount of Indian Traditional treatment is used for various medical conditions like non-serious, promotion of health or prevention of diseases also. These are the secondary outcomes of the present study. The limitations of the study are non-medical costs (expect loss of productivity and transport expenses) not included while calculating the cost of the treatment, five types of cancer patients and the ITM clinics present in the centre of metropolitan city, where the cost of living is higher when compared with other ITM clinics located at outskirts of the city. From the present study findings, the common responses of the respondents why ITMs were not considered than with their allopathic medical practitioners was that there is a lack of communication in the present system between doctor and patient. In 1983 David M. Eisenberg et al reported two reasons (i) confounded hypothesis that patients may not use traditional medicines for serious medical conditions and (ii) may not consider the treatment of traditional treatment due to its inadequate scientific background[19, 20].

6. CONCLUSION

The present study findings reveal a moderate degree of use of ITM in the selected region of population Kerala, India. It was observed that a significant proportion of population do not consult with allopathy medicine practicing physician(s) prior to ITM treatment. The following four factors (i) age, (ii) gender (iii) health conditions and (iv) economic status of the populations were major deciding factors among ITM users. Out these four factors, health condition and economic status are the most deciding factors to use the ITM of the system. The expenditure met for this system of treatment were not usually covered by the third-party payment, so the most of the populations were spending out of their pocket. Use of ITM is prevalent among participants visiting traditional health clinics in the selected study area. ITM is frequently used by all age groups. The significant factors observed to improve the possibility of ITM use, the literate and the place of living. But, factors like age, gender, income and social habits have proved to be key roles to determine the use of ITS of medicines. Most participants have strong beliefs on ITM due to the concept that ITM can develop an immunity system and has less side effects.

7. AUTHORS CONTRIBUTION STATEMENT

This work was carried out in collaboration with co-authors. Manju K Mathew has collected the data for the present study and literature searches whereas Dr. K Saravanan has performed the statistical analysis while Dr. Sujith Abraham has prepared protocol of the study. Both authors read and approve the final version of the manuscript

8. CONFLICT OF INTEREST

Conflict of interest declared none.

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