Utilization Pattern of Indian Traditional Medicine in the Treatment of Cancer

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Authors' contributions

This work was carried out in collaboration among all authors. Authors MKM, KS and SA designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors KS and SA managed the analyses of the study. Author MKM managed the literature searches. All authors read and approved the final manuscript.

Original Research Article	

ABSTRACT

Aim: The aim of this study was to find the utilization pattern of Indian traditional medicine systems among the cancer patients.
Study Design: The present study is an observation cross-section design and conducted among the patients visiting in a hospital practicing Indian Traditional Medicine system from January2019 – December 2019.
Methodology: 379 cancer patients were participated in this study and required information were collected using a descriptive semi-structured questionnaire.
Results: The result implies that ITMS is widespread in cancer patients with 86.28% treating with selected form of ITS. A mixed group of 341 remedy was recognized and practiced. Ayurveda, Siddha, Homeopathy, Unani as well as Yoga and nutrition was the very frequently prescribed ITMS remedies. Herbal medicine use tripled from use prior to detection of cancer. Multivariate analysis showed that the usage patterns of the ITMS patients were belong to the adult populations and

female. The source of information was mainly from friends/ family and the media, while directions from allopathic doctors and nurses were very negligible in giving ITMS related suggestions. 82.06% of patients used ITMS in order to improve the immunity to fight against cancer and/ or increase physical well-being. 88.92% of patients have gained from ITMS. 10.03% of patients reported minor side effects.

Conclusion: From the findings of the present, that the healthcare professionals can investigate the use of ITMS with cancer patients. The patients have shown strong attraction towards the ITM system due to less side effects and comparatively treatment cost is less though the efficacy and safety are yet to be explored many therapy regimens. The patients can be counselled regarding its potential benefits of ITMS remedies with the restricted existing effectiveness and for the improvement of patients.

ABBREVIATIONS

ITMS : Indian Traditional Medicine System
CAM : Complementary and Alternative Medicine

1. INTRODUCTION

Cancer is still remaining as a leading cause of morbidity and mortality. It is expected that the number of new cases will rise by about 70% over the next two decades and by the year 2030, about 80% of the cancer deaths are probably to occur in the developing world. The challenges to cancer care in the developing world are health‑care financing, patient awareness, and treatment delivery. With significant discrepancies in access and availability of health care, many patients receive affordable rather than standard treatment. The financial curb also leads to desertion of treatment which is disappointing in spite of the availability of expertise [1].

When diagnosed with cancer, patients as well as their families are in immense distress; their life is filled with fear and worries, start searching for effective treatments. Generally, the fear of treatment-related side effects leads to the search for traditional medicine options. Although data on the effect of standardized oncology is clear, patients often move to TM and in some cases even turn away completely from Western medicine [2]. Most of the cancer patients might be reluctant to disclose its use to their oncology treatment team. There is limited knowledge about the potential interactions of TM agents with chemotherapy, radiation therapy, or biologic therapies, and their correlations with outcomes [3]. In addition to their conventional treatments most of the cancer patients turn to TM therapies to deal with ongoing health issues and increased symptom burden such as recurring pain and psychological distress [4]. CAM practices were classified into five categories by the National Center for Complementary and Alternative Medicine (NCCAM). These categories were (i) whole medical systems (e.g., homeopathy and naturopathy), (ii) mind body medicine (e.g., yoga and meditation), (iii) biologically based practices (e.g., dietary supplements and herbal remedies), (iv) manipulative and body-based practices (e.g., chiropractic medicine, osteopathic medicine, and massage), and (v) energy medicine (e.g., qigong and reiki) [5].

The main goal of Ayurvedic therapy is to find the ultimate cause of an illness while the therapeutic approach of Ayurveda is divided into four categories as Prakritisthapani chikitsa (health maintenance), Rasayana chikitsa, (restoration of normal function), Roganashani chikitsa (disease cure) and Naishthiki chikitsa (spiritual approach)[6]. The principle of Ayurvedic treatment is the removal of the cause and avoidance of causative factors. Ayurvedic treatment does not mean suppressing the main symptoms and creating some new ones as side effects of the main treatment. It is to remove the root cause and give permanent relief. The medicines for the Ayurvedic treatment mainly comprise powders, tablets, decoctions, medicated oils, etc. prepared from natural herbs, plants, and minerals [7]. Homoeopathy is a well-known system of medicine that follows the "principle of similar" which treats "like with like" with potentiated substances at a dilution level far beyond the Avogadro number. Most of the homoeopathic remedies are made from natural substances (e.g., plants, minerals or animals) [8]. The aim of this study is to explore the use of Indian traditional medicine system (ITMS) among cancer patients as well as utilization pattern.

2. MATERIALS AND METHODS

2.1 Patients and Settings

Present study was a cross - sectional descriptive observational design used to collect data using semi structured questionnaire on ITM system. This observational study was carried out in a hospital practicing Indian Traditional Medicine system. A traditional medicine practitioner was selected based on knowledge and clinical experience in the ITM system. The data were collected from the patient's case record or during personal interview with patients by co-investigator. The study was conducted in an ambulatory setup. Data were collected from the outpatients visiting the same hospital for the past 12 months, both kind of metastatic and non-metastatic cancer patients showed willingness as well as obtained informed consent were the inclusion criteria to select the patients for the study. Apart from the above inclusion if patients met the following inclusion criteria were also included in the study: (i) patients must be >21 years of age (ii) both gender diagnosed as cancer (iii) aware of his/ her diagnosis (iv) patients should able to read, write and speak Malayalam very fluently and (v) patients must be volunteer. Prior to starting of the study all the outpatients were explained about the purpose of the study.

2.2 Data Collection Method

The study instrument, questionnaire, was prepared based on the literatures, subject experts help and ITM registered practitioner. The questionnaire was pre-tested in small number of patients for the content understanding, readability and approximate time taken to complete the questionnaire. The pre-tested questionnaire and informed consent form was issued during the patients waiting for their turn to consult the registered practitioner. Few patients able to submit the questionnaire before consultation and majority of the patients submitted the questionnaire after consultation. The sociodemographic data and interview was also collected during the same period.

2.3 The Questionnaire

A modified questionnaire of Molassiotis A et al [9] and Swisher et al [10] was used in the present study in order to suite the Indian population setup. Totally 25 questions were framed under 3 domains. First domain consists of items related to sociodemographic details like age, gender, occupation, education, household income, marital status, data, etc. The second domain consists of item related to cancer treatment like site of cancer, past as well as present standard treatments received. Third domain consists of belief and usage of ITM. Few patients were not having and/ or not knowing about the past and present usage of ITM. During the interview with the patients, in order to obtain the answers options were given to choose reasons for not to using/ opting the ITM. At the end of data collection every patient was thanked individually and ended the interview session. Remaining patients were allowed to continue to complete the questionnaire.

2.4 Data Analysis

By using the MS-Excel data were analysed. All variables expressed in terms of, mean±SD, descriptive statistics. Variation among demographic parameters between ITM user and non-user was computed by chi-square test (x^2) and correlation coefficient was computed between user and non-user variables. Analysis of multivariate was performed to measure which variables predicted ITM usage.

3. RESULTS AND DISCUSSION

Totally 379 patients were enrolled for the present study. The demographic characteristics of the participants are presented in Table 1. 25.59%, 22.96%, and 20.58% of patients belonged to the age group from 40 to 49, 50 to 59 and 60 to 69 years respectively. 13.46%, 8.70%, 7.92%, and 0.79% of patients belonged to the age group from 30 to 39, 18 to 29, and 80 to 89 years respectively. The present study shows that maximum number of patients were between the age group of 40 – 49 years when compared with other age groups. Mean age of the study participants was found to be 45.91±3.70 years and females are predominant (59.37%) when compared with males (40.63%). 83.38% of the study participants were married. More than half of the study participant's education qualification was up to secondary level of education (52.78%) and 15.83% of the study participants were having undergraduate level of education. Family history of cancer was found to be in 26.86% and 73.14% of study participants have no family history of cancer. The economic status for most of the study participants was in the middle class (72.56%) and around 70% of the study

participant was working as middle level managers. 51% of the study participants have no habit of smoking and drinking. In the present study 47.79% of the study participants had no comorbidities like diabetes, hypertension or asthma and rest of the study participants (52.10%) were having more than one comorbidity. The data are provided in the Table 1.

Table 1. Socio-demographic variables of cancer patients (n=379)

Characteristics	N (%)	P – value
Age in years		
21–29	33 (8.70)	
30–39	51 (13.46)	
40–49	97 (25.59)	
50–59	87 (22.96)	
60–69	78 (20.58)	
70–79	30 (7.92)	
80–89	03 (0.79)	< 0.01
Mean age (years)	45.91±3.70	
Gender		
Male	154 (40.63)	
Female	225 (59.37)	< 0.02
Marital status		
Married	316 (83.38)	
Unmarried	18 (0.047)	
Others	45 (11.87)	< 0.01
Education level		
Illiterate	03 (0.79)	
Upto School level	200 (52.78)	
Undergraduate level	60 (15.83)	
Postgraduate level and other	36 (9.49)	< 0.001
Economic status		
Low	50 (13.19)	
Middle	275 (72.56)	
High	54 (14.25)	< 0.001
Occupation		
Students	26 (6.86)	
Labours/ Low-level managers	52 (13.72)	
Middle-level managers	265 (69.92)	
Top-level managers	36 (9.50)	< 0.001
Family history of cancer		
Yes	101 (26.86)	
No	278 (73.14)	< 0.01
Comorbidity		
Nil	180 (47.79)	
1	127 (35.50)	
2	60 (15.83)	
3 and more	12 (3.17)	< 0.001
Alcohol and Smoking habits		
Nil	193 (50.92)	
Smokers	42 (11.08)	
Alcohol drinkers	79 (20.84)	
Both (Smoker & Alcohol drinkers)	65 (17.16)	< 0.001

Data are presented as n (%) or mean ± SD; values based on independent sample t-test for continuous variables and chi-square test for categorical variables to test differences among the two groups where P value is < 0.01 considered as significant.

70.45% of the patients have low level of stress when compared with the middle (21.11%) and high (8.44%) level of stress. 46.17% and 44.33% of patients were having duration of cancer between more than 1 year to less than 5 years and less than 1 year respectively. 40.37% of the cancer patients were under the treatment from more than 1 year to less than 5 years whereas 35.20% and 26.12% of patients were under the treatment between more than 5 years and less than 1 year respectively. 68.80% of patients have perception that one of the major causes of cancer is genetic whereas 24.54% and 6.86% of patients were informed that "no" and "may be" respectively. 77.04% of patients have perception that one of the major causes of cancer is stress whereas 17.14% and 5.54% of patients were informed that "no" and "may be" respectively. 70.71% of patients have perception that one of the major causes of cancer is malnutrition whereas 18.73% and 10.55% of patients were informed that "no" and "may be" respectively. The progression of cancer was found to be high among patients in less than or equal to one year and more than 5 years 31.93% and 32.72% respectively. The patient data represented in the Table 2.

Data are presented as n (%); values based on independent sample t-test to test differences among the groups where P value is < 0.05 considered as significant.

Table 2. Distribution of patients' characteristics related to cancer (n=379)

Parameters	N (%)	P – value
The Stress level in daily life		
Low	267 (70.45)	
Middle	80 (21.11)	
High	32 (8.44)	
Duration of cancer		
> 1 year	168 (44.33)	
< 1 to > 5 years	175 (46.17)	
< 5 years	36 (9.50)	
Duration of medication therapy for cancer		
> 1 year	99 (26.12)	
< 1 to > 5 years	153 (40.37)	
< 5 years	127 (35.50)	< 0.001
Perceptions of patients related to cause of cancer		
Genetics		
Yes	260 (68.60)	
No	93 (24.54)	
May be	26 (6.86)	
Stress		
Yes	292 (77.04)	
No	66 (17.41)	
May be	21 (5.54)	
Nutrition		
Yes	268 (70.71)	
No	71(18.73)	
May be	40 (10.55)	
Progression of cancer		
≤ 1 year	121 (31.93)	
> 1 year to ≤ 3 years	45 (11.87)	
> 3 years to ≤ 5 years	89 (23.48)	
> 5 years	124 (32.72)	< 0.05

In the present study the usage rate of ITM was found to be 86.28% whereas 72.56% of patients were using special diet and attention on nutrition, while 76.51% of patients were practicing ITM related to nutrition. When we see the cognitive approaches 41.42% of patients were practicing cognitive approaches. Whereas 78.63% of patients were taking cognitive ITM practices herbal medications. And 78.63% of patients were also practices ITM related to herbal medications. And 25.07% and 19.79% of patients were taking any of the anticancer medication prepared out of ITM and taking a non- prescription pain-killer respectively. The data represented in the Table 3.

Data are presented as n (%); values based on independent sample t-test to test differences among the groups where P value is < 0.003 considered as significant.

Most of the patients practice ITM 78.63% whereas 21.37% and 60.42% of patients were practicing self-medication/ traditional healers and prayer respectively. 47.23% of patients have provided information about ITM practice among their family members and followed by friends 33.38%. 7.92% and 11.08% of patients have got the information from professionals and media respectively. 10.03% of patients shows mild side effects whereas 88.92% of patients gained by ITM usage, the data represented in the Table 4.

Data are presented as n (%); values based on independent sample t-test to test differences among the groups where P value is < 0.002 considered as significant.

The reason for the usage of ITMS are 85.75%, 83.05% and 77.84% of patients used ITM because of minimal or no side effect and to improve the immune system and the low costs respectively. While 68.34% of patients informed that the ITM is effective whereas 31.66% and 25.07% said the reason for usage is holistic care and cultural reasons respectively. The data represented in the Fig. 1.

4. DISCUSSION

During past 20 years, India has become evident as a fast growing economy with changes in lifestyle, which is partially accountable for increasing in the cancer burden. Among many diseases cancer is third largest causing deaths among adults in rural and urban India [11]. In India, 948,000 new cancer cases was diagnosed during 2008 and about 550,000 cancer deaths were estimated in the same period. Over a period of 10 years the cancer prevalence was increased to 35000 in 2009 from 15000 in 1990 in the Kerala 30 million population [12].

Table 3. Usage of Indian Traditional Medicine System (ITMS) cancer patients (n=379)

Parameters	N (%)	P – Value
Use of ITM	327 (86.28)	
Use of special diet and attention on nutrition	275 (72.56)	
ITM practices related to immunity	290 (76.51)	
Performing cognitive approaches	157 (41.42)	
Cognitive ITM practices herbal medications	298 (78.63)	
ITM practices related to herbal medications	298 (78.63)	
Taking anticancer medication prepared out of ITM	95 (25.07)	
Taking a non-prescription pain killer	75 (19.79)	< 0.003

Table 4. Patterns of Indian traditional medicine of system

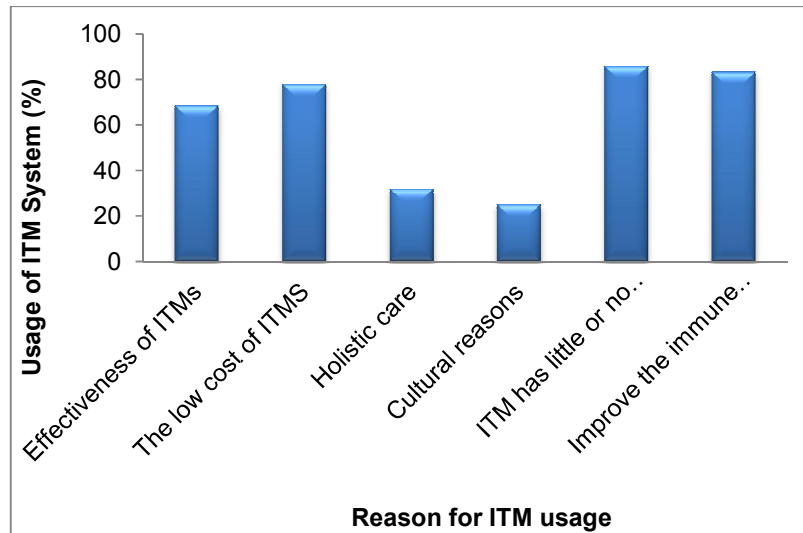| Parameters	N (%)	P – Value
Self-medication/ traditional healers	81 (21.37)	
Prayer	229 (60.42)	
ITM	298 (78.63)	
Side effects	38 (10.03)	
Patients gained by ITM	337 (88.92)	< 0 .001
Sources of information		
Friends	128 (33.38)	
Family members	179 (47.23)	
Professionals	30 (7.92)	
Media	42 (11.08)	< 0.002

Fig. 1. Reason for ITM system usage

The present study evaluates the attitude towards the use of ITM in northern regions of Kerala. The present analyzed data from 379 patients and the finding of the present study shows that about 86.28% of patient were using ITM. Patients with endocrine and oncological disorders have a strong affinity towards the ITM system of treatment [2]. Moreover, independently of the underlying cancer, the finding of the present study shows that the patients have shown willingness to spend for their treatment by ITM, though which is not being covered by health insurance [3].

The use of Indian traditional medicine system is rising around the world expect few parts of Western countries, far eastern countries [13]. But ITMS is wide-spreading to treat cancer patients. Previous reports exhibited that in some countries like US, around 91% of cancer patient was taking consultation from registered medical practitioners of CAM and being treated with either of the CAM therapies [2]. In Asia, where many techniques such as herbal therapies, acupuncture, physiotherapy, yoga etc. have been popular for centuries, about 45% of all cancer patient was treated with some kind of ITM [14]. Molassiotis A et al conducted a study in Europe, which is a multicentre study conducted in 14 different countries, their exhibited that around 36% of various types of cancer patients apply CAM, based it was ranged between 15% and 73% according the country [9] The causes for increasing interest in CAM are different [15]. More number of female is considerably in high numbers when compared with males choosing to

CAM system irrespective of the sociodemographic parameters. Many literature reviews has exhibited that either adult (less than 40 years of age) or geriatric patients considerably more common users of CAM [2].

In our study, we found that 72.56% of patients were using special diet and attention on nutrition, while 76.51% of patients were practicing ITM related to nutrition. When we see the cognitive approaches 41.42% of patients were practicing cognitive approaches. Whereas 78.63% of patients were taking cognitive ITM practices herbal medications. And 78.63% of patients were also practices ITM related to herbal medications. Eventually, there are several patient-specific reasons why patients choose ITM. One aspect is the common belief that different methods of complementary and alternative medicines have the potential to improve the immune system and to strengthen the body to fight cancer. This was revealed in different studies and consistent with our results. Yildirim et al. observed that modulation of the immune system was the main argument for the use of complementary and alternative medicines in a Turkish group of patients with gynecological cancer [16]. A European survey on the use of complementary and alternative medicines reported that over 50% of all patients were using complementary and alternative medicines to increase body's ability to fight the disease [9]. The reasons say ITM has little or no side effect by 85.75%, 83.05% and 77.84% of patients used ITM to improve the immune system and the low costs respectively. While 68.34% of patients informed that the ITM is

effective whereas 31.66% and 25.07% said the reason for usage were holistic care and cultural reasons respectively. And the sources of information about ITM is mostly from family members (47.23%) and friends (33.38%). Significantly there is some evidence that the interaction between certain methods of complementary and alternative medicines and chemotherapy or radiation might counteract their efficacy. The production of free radicals by cancer treatment, which is thought to be an essential part of the treatment efficacy, could potentially antagonize by the antioxidant effect of some supplements [2].

5. CONCLUSION

From the finding of the present study, patients and their care takers were aware that the cancer is one the deadliest disease, which will decrease the quality of life and push the population from high to middle and to low economic levels. The patients have shown strong attraction towards the ITM system due to less side effects and comparatively treatment cost is less though the efficacy and safety are yet to be explored many therapy regimens. The patients can be counselled regarding its potential benefits of ITMS remedies with the restricted existing effectiveness and for the improvement of patients. Apart from this, many patients have approached unregistered practitioners due to lack awareness and knowledge about them. Though, many stringent rules and regulations are prevailing to curb the unregistered practitioners by the regulatory authorities but still publics' visits such clinics due to treated at low-cost. The regulatory authorities have to enforce and enact the rules and regulations more strict. It is always not only with the regulatory authorities, publics' also should have awareness to attend only authenticate clinics and treated by registered practitioners only.

CONSENT

All authors declare that 'written informed consent were obtained from the patient's for publication of this research work.

ETHICAL APPROVAL

All authors hereby declare that all experiments have been examined and approved by the appropriate ethics committee and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Peer-review history:
The peer review history for this paper can be accessed here:
http://www.sdiarticle4.com/review-history/68952