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## Original Article

## Pattern of complementary and alternative medicine use in pediatric oncology patients in a South Indian hospital

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## ABSTRACT

**Background:** Even though the use of complementary and alternative medicines (CAMs) is thought to be more prevalent among pediatric cancer patients, no studies have been reported on a South Indian population.

**Objectives:** This study aimed to investigate the prevalence of the use of CAMs among pediatric cancer patients in a tertiary care South Indian hospital.

**Patients and methods:** Two hundred and seventy-seven pediatric cancer patients who received conventional therapy for the treatment of various types of cancer were enrolled from a pediatric oncology department in South India.

**Results:** Of the enrolled children, 7.58% used CAMs, of which the most commonly used was Ayurveda followed by Siddha. Most of the CAM users were upper middle class. There were no statistically significant differences between the usage of CAMs and baseline characteristics except for socioeconomic status. None of the parents of the enrolled children disclosed their CAM treatment to an oncologist.

**Conclusion:** Parents must be educated about CAM therapy and advised to discuss all treatment-related issues with an oncologist. Pharmacists can play a bridging role between oncologists and parents, and other healthcare professionals should also be familiar with the benefits and disadvantages of using CAM therapy to be able to guide the parents.

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## 1. Introduction

Complementary medicines are used along with conventional medicines, whereas alternative medicines are used instead of conventional medicines. Even though the safety and efficacy of complementary and alternative medicines (CAMs) are unproven, the utility of CAM therapy is very popular throughout the world. However, the National Center for Complementary and Alternative Medicine reported that CAMs are generally not considered to be conventional medicine and that they have yet to be validated.<sup>1,2</sup>

CAM therapy for the treatment of chronic ailments such as gastrointestinal diseases, arthritis, asthma, and certain neurological

disorders is common in children. However, in the management of cancer, CAM may be unfavorable since early treatment is critical for prognosis and survival.<sup>3,4</sup> The use of CAM therapy has been reported to range from 31% to 71% in pediatric patients with cancer.<sup>5–7</sup>

There are many reasons behind the use of CAM therapy. Many studies have supported the use of CAMs, and few have reported adverse effects. However, oncologists have raised concerns about possible CAM-drug interactions. In the present study, we aimed to (1) validate a CAM questionnaire in a hospital setting, (2) determine the prevalence of CAM usage among pediatric oncology patients, (3) determine the baseline characteristics of caregivers and pediatric patients, and (4) determine associations between baseline characteristics and CAM users.

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## 2. Patients and methods

This study was approved by the Human Institutional Ethical Committee of Sri Ramachandra Medical College, Chennai, Tamil Nadu, India (CSP/14/OCT/37/210), and conducted at the Department of Pediatric Oncology over 2.5 years from October 2014 to April 2017. Male and female patients less than 18 years of age clinically diagnosed with any type of cancer for more than 3 months were included in the study. Patients with any comorbidities were excluded. Written informed consent was obtained from all of the parents.

### 2.1. Development of the CAM questionnaire

The questionnaire was developed by the research team on this project. After a peer review of literature, the research team decided to include eight relevant questions to assess the parents' perspectives about the use of CAMs. The rationale of the CAM questionnaire was reviewed by a panel of external and internal experts including a pediatric oncologist, medical oncologist, psychologist and clinical pharmacologist. These experts were asked to comment on the lucidity and comprehensiveness of the items. The instrument with validated items was then converted into a question format (Annexure 1).

### 2.2. Sample size

The sample size was calculated using the following formula, where expected prevalence ( $p$ ) was 0.28, precision ( $d$ ) was 0.1 and  $Z$ -value was 1.96.

$$n = \frac{\left( Z_{\left(1-\frac{\alpha}{2}\right)}^2 * p(1-p) \right)}{d^2}$$

The calculated sample size was 128.

### 2.3. Statistical analysis

The collected data were analyzed using SPSS version 16.0. The baseline characteristics were expressed as descriptive statistics, and the frequency of CAM usage was expressed as mean and standard deviation. The influence of age, gender, socioeconomic status, educational status, occupation and disease condition on the usage of CAM was assessed using the chi square test. A  $p$ -value of less than 0.05 was considered to be statistically significant.

## 3. Results

The time required to complete the CAM questionnaire was measured in a subset of participants, and the mean measured run-time was about 9 min ( $9.0 \pm 2.0$ ). The median interval between taking the test and a re-test was 10 days. The test-retest reliability was 0.86, showing high reliability. With a Cronbach's alpha value of 0.84, all the items had acceptable to excellent consistency. The content validity ratio was 0.76.

A total of 277 pediatric oncology patients were interviewed. The baseline characteristics of the caregivers and pediatric patients are summarized in Table 1. Most of the caregivers were the mother (46.93%) and father (41.51%), and most of the parents (55.59%) had an upper middle class socioeconomic status. The most common cancer among the children was acute lymphocytic leukemia (88.80%). Half of the children were under active treatment, and the rest had completed their treatment when they filled out the questionnaire.

**Table 1**  
Baseline characteristics of caregivers and pediatric patients.

Caregiver's characteristics	Mean (SD)/N (%)
Relationship with child	
Mother	130 (46.93)
Father	115 (41.51)
Grandmother	24 (8.66)
Others	8 (2.88)
Socioeconomic status	
Upper	16 (5.77)
Upper middle	154 (55.59)
Lower middle	33 (11.91)
Upper lower	41 (14.80)
Lower	33 (11.91)
Residence	
Village	52 (18.77)
Semi urban	76 (27.43)
Urban	149 (53.79)
Patients' characteristics	
Age <sup>a</sup>	7.05 (4.2)
Gender	
Boy	137 (49.45)
Girl	140 (50.55)
Diagnosis	
Acute lymphocytic leukemia	246 (88.80)
Acute myeloid leukemia	11 (3.97)
Hodgkin lymphoma	20 (7.22)

<sup>a</sup> Expressed as Mean (SD) and all other values were N (%).

Table 2 depicts the usage of CAMs among the study patients. CAM therapy was used by 7.58% of the children, and the most commonly used CAM was Ayurveda (42.85%). All of the CAMs were taken orally, and no external or parenteral use was noted. The parents were made aware of CAM treatment by family members who previously used CAMs for their ailments (42.85%), and the reasons for preferring CAM therapy were that the children were not improving with their current treatment (38.09%), and because a complete cure was expected with CAM therapy (57.14%).

**Table 2**  
Treatment Characteristics of CAM users.

Characteristics	N (%)
Children using CAM	21 (7.58)
Children not using CAM	256 (92.41)
Types of CAM used	
Siddha	6 (28.57)
Unani	3 (14.28)
Ayurveda	9 (42.85)
Homeopathy	3 (14.28)
Source of information about CAM	
Previously used family members	9 (42.85)
Recommended by friends	7 (33.33)
Media/magazine	5 (23.80)
Reason for using CAM	
Not improved with existing one	8 (38.09)
Repeated hospitalization	6 (28.57)
Less cost compared to conventional therapy	7 (33.33)
Expectation of using CAM	
Complete cure	12 (57.14)
Increase immunity	6 (28.57)
Suppress the progression	3 (14.28)
Effectiveness of CAM	
Don't know	21 (100)
Harmful effects of CAM	
No	21 (100)
Reason for not informing the use of CAM to oncologists	
Oncologists didn't ask	7 (33.33)
Harmless and it is not a medicine	6 (28.57)
Afraid that they may discourage	6 (28.57)
Forgot to tell	2 (9.52)

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