



Complementary and Alternative Medicine: A Cross-Sectional Observational Study in Pediatric Inpatients

Mukesh Dhankar, MBBS, MD¹

Abstract

The aim was to study the prevalence of complementary and alternative medicine use in acutely sick hospitalized children and factors associated with it. This is a cross-sectional, hospital-based study in a tertiary care center of Delhi, India. Children admitted to a pediatric unit during the study period were assessed using a specially designed questionnaire. Out of the total 887 admitted children, 161 (18.1%) were using complementary and alternate medicine in one form or another. Of these, 113 (70.2%) were using complementary and alternate medicine for the current illness directly leading to admission and the remaining 48 (29.8%) had used complementary and alternate medicine in past. The common complementary and alternate medicine use observed in our study was combined ayurveda and spiritual approach (25.5%), ayurveda (24.8%), spiritual (21.7%), homeopathic (13%), and 47.2% of children were using spiritual approach in form of *Jhada* (tying piece of cloth on arm or leg or keeping a knife by the side of child). The significant factors associated with complementary and alternate medicine use were younger age, female gender, and father being employed. Complementary and alternate medicine is commonly used even in acutely sick children.

Keywords

parental perception, psychosocial adjustment, quality of life, social support

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Complementary and alternative medicine is increasingly being used worldwide especially among patients with chronic diseases.¹⁻³ The World Health Organization estimates that 80% of the world's populations depend on "indigenous therapies."^{4,5}

The National Center for Complementary and Alternative Medicine, now called the National Center for Complementary and Integrative Health,⁶ in the United States defines "Complementary and alternate medicine (CAM) as a group of diverse medical and healthcare systems, practices, and products that are not presently considered to be part of conventional medicine and are yet to be validated by scientific methods" and it includes different approaches, such as herbal medicine, acupuncture, manipulative therapies, homeopathy, and spirituality.

The choice of any type of medicine is usually influenced by economic and sociocultural factors. People from lower socioeconomic background have more chances of using complementary and alternative medicine because of poor access to allopathic medicine and there is evidence that they may rely on traditional healers even for serious disease.⁷ In Western countries, the allopathic services are well organized and easily accessible. Still a substantial amount of complementary and

alternative medicine is used for the purpose of illness prevention and health promotion.⁸ There is also evidence that shows that complementary and alternative medicine is used as an add-on therapy to allopathic medicine even for serious conditions like cancer^{9,10} and to self-manage long-term health complaints like low back pain,¹¹ hemodialysis,¹² and diabetes mellitus.¹³

Complementary and alternative medicine use appears to be motivated more by concurring with values and beliefs than by dissatisfaction with allopathic medicine.¹⁴ India has traditionally been known for ayurveda, the old medicine system, which still continues to hold strong in the community.¹⁵

The use of complementary and alternative medicine is not only common but increasing among children.^{16,17} Literature shows that complementary and alternative medicine has been

¹ Lady Hardinge Medical College, New Delhi, India

Corresponding Author:

Mukesh Dhankar, MBBS, MD, Department of Pediatrics, Lady Hardinge Medical College, Shaheed Bhagat Singh Marg, New Delhi, 110001, India.
 Email: drmukeshdhankar@gmail.com



used primarily in chronic conditions and only a few studies show complementary and alternative medicine use in acute condition leading to hospitalization, that too mostly involving Western countries.^{18,19} There is a paucity of studies regarding complementary and alternative medicine use in acute condition leading to hospitalization in India. Hence the aim of the study was to assess the prevalence of complementary and alternative medicine in hospitalized children in a tertiary care center and factors associated with it.

Material and Methods

Study Design

This is a cross-sectional observational study done in the general pediatric ward of Deen Dayal Upadhaya Hospital, New Delhi, India, a tertiary care center in north India, from August to November 2011. All consecutive children admitted in study unit of the hospital during the enrolment period were screened for eligibility. Children who were using complementary and alternative medicine for the current illness (leading to admission) or who had used complementary and alternative medicine in recent past for the other concerns were included in the study.

Sample Size

There is not sufficient data for admitted acutely sick children using complementary and alternative medicine, so a convenient sample was taken.

Ethical Issues

Ethical clearance from the institution's head of department was taken. A verbal consent was taken from parents/caretaker of the children and they were assured that their information would be secure.

Data Gathering Form

We developed a structured questionnaire based on the local content, current literature, and our study goals of complementary and alternative medicine in admitted patients. This questionnaire was piloted to establish its face validity and assess any additional questions needed. Thereafter, the questionnaire was reframed and then used in the main study. This predesigned, pretested questionnaire pertaining to various aspects of complementary and alternative medicine was administered to the parents or caregiver via face-to-face interview by the study team taking about 10 to 15 minutes. The questionnaire included total of 17 questions, 11 relating to sociodemographic parameters of the family and 6 related to type of complementary and alternative medicine used, use of complementary and alternative medicine in past with duration, use of complementary and alternative medicine for current problem, effectiveness of complementary and alternative medicine, self-reported complications, voluntary disclosure of complementary and alternative medicine use to treating physician, and the source of recommendation for complementary and alternative medicine use, using closed-ended and open-ended questions. Ayurvedic medicines are the traditional medicine of our country which included natural products and diet. Homeopathic medicine was traditional drugs prescribed in minute dose by any practitioner. The spiritual approach included a value of element such as faith, hope, compassion, for example, tying

a piece of cloth on the limb, keeping a knife on the bed near the baby, and things that went beyond religious belief. Urban residence was defined as one residing in the municipal limit of Delhi. Socioeconomic status (SES) was assessed by Kuppuswami scale (IJP2007).²⁰ The Kuppuswami scale is a composite score of education and occupation of the head of the family along with monthly income of the family, which yields a score of 3 to 29. This scale classifies the study populations into high, middle, and low SES. This scale is updated regularly for socioeconomic classification.

Inclusion and Exclusion Criteria

All children admitted in the hospital during the enrolment period were included in the study with parents or caregiver of the children not willing to give consent or whose parents/caregiver was not available were excluded from the study.

Statistical Analysis

All data collected were entered into Microsoft Excel software and statistically analyzed by SPSS version 20 (IBM Corp, Armonk, NY, USA). Descriptive analysis was done by calculating mean and standard deviation (SD) for continuous variable and proportions for the categorical variable. Confidence intervals (95% CIs) were calculated for each variable, *P* values less than .05 were considered statistically significant. Multivariate analysis (logistic regression) was also used for assessment.

Results

From August to November 2011, after meeting the inclusion criteria, a total of 887 children were included in the study and subjected to questionnaire with the study team.

Among the included children, 161 (18.1%, 95% CI 12-24) were using complementary and alternative medicine. Of these, 113 (70.2%) were using complementary and alternative medicine for the current illness directly leading to admission whereas the rest were using at some point in past for other concerns.

All children who needed urgent medical care were admitted. The common causes of admission included acute febrile illness, pneumonia, bronchiolitis, meningitis, meningoencephalitis, acute watery diarrhea, and jaundice.

The age distribution of the children ranged from 1 month to 12 years (mean \pm SD = 48 \pm 46.4). Most of the children were Hindu (90.1%) by religion and belonged to urban area (81.4%).

There was no self-reported or observed complication of complementary and alternative medicine use in our study. A total of 71.5% of patients did not report to the treating physician about the complementary and alternative medicine use and 74.5% also felt that complementary and alternative medicine is not effective and hence declined (68.9%) to use it in future. The main source of recommendation for complementary and alternative medicine use was friends/family in majority of cases (93.2%).

The common complementary and alternative medicine use observed in our study was combined ayurveda and spiritual approach (25.5%), ayurveda (24.8%), spiritual (21.7%),

Table 1. Sociodemographic Characteristics of Children Using Complementary and Alternative Medicine.

Characteristic	n (%)
Age of child (months) ^a	48 ± 46.42
Age of mother (years) ^a	27 ± 5.9
Age of father (years) ^a	31 ± 7
Gender (male)	94 (58.4)
Resident (Delhi)	131 (81.4)
Religion (Hindu)	145 (90.1)
Socioeconomic status (≤II)	34 (21.1)
Mother's education (up to matriculation)	151 (93.8)
Father's education (up to matriculation)	148 (91.1)
Father's occupation (unemployed + unskilled)	142 (88)
Mother's (housewife + unskilled)	137 (85)

^aData presented as mean ± standard deviation.

Table 2. Details of Complementary and Alternative Medicine (CAM) Use.

Parameter	n (%)
CAM use for current problem	113 (70.2)
Perception of CAM not effective	118 (74.6)
Would not use in future	111 (68.9)
Didn't inform treating physician	115 (71.5)
Source of recommendation (family/friends)	150 (93.2)

Table 3. Multivariate Analysis (Logistic Regression).

Predictors	$\beta \pm$ Standard Error	P	Odds Ratio (95% Confidence Interval)
Constant	2.759 ± 0.430	0	15.79
Age (months)	-0.020 ± 0.004	0	0.981 (0.972-0.989)
Job father (unemployed)	-2.141 ± 0.613	0	0.118 (0.035-0.391)
Gender (male)	-1.091 ± 0.415	.009	0.336 (0.149-0.758)

homeopathic (13%), and 47.2% of children were using spiritual approach in the form of *Jhada* (tying a piece of cloth on arm or leg or keeping a knife by the side of the child).

The sociodemographic profile and details of complementary and alternative medicine use are shown in Tables 1 and 2, respectively.

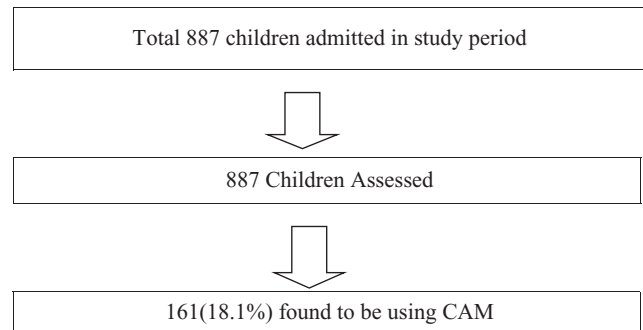
A Multivariate analysis (logistic regression) was performed on factors for the predicting the likelihood of using complementary and alternative medicine for current illness directly leading to admission. The logistic regression model was statistically significant, $\chi^2 = 48.650$, $P < .0005$, indicating that these factors can reliably be used to predict the possibility of complementary and alternative medicine use in acute illness.

Table 3 presents a summary of the raw score binary logistic regression coefficients, standard error, P value, odds ratios (ORs) along with a 95% CI.

The analysis of age (months) ($B = -0.020$, $P < .005$, $OR = 0.981$), unemployed father ($B = -2.141$, $P < .005$, $OR =$

0.118), and male gender ($B = -1.091$, $P < .005$, $OR = 0.336$) suggested that the younger age, father being employed, and female gender were the factors significantly associated with complementary and alternative medicine use in acute illness. The Hosmer and Lemeshow goodness-of-fit test shows nonsignificant χ^2 ($P > .05$) in this test, also indicating that the model fits the data well.

The flowchart of study is as follows:



Discussion

The present study shows the prevalence of complementary and alternative medicine use in sick hospitalized children. Complementary and alternative medicine has traditionally been analyzed for chronic disorders such as autoimmune disorders, skin disorders, and in oncology patients with the prevalence of use ranging between 42% and 72%.²¹⁻²³ Our study brings forth the prevalence of complementary and alternative medicine use in hospitalized children in a tertiary care center. We found that 18.1% (95% CI = 12-24) children admitted during the study period were using complementary and alternative medicine, which is less than other studies.^{18,24,25} The higher use of complementary and alternative medicine in chronic disease states was due to a long duration of illness in which the immediate symptom relief is not expected.

Furthermore, we found that out of the 161 (18.1%) of children using complementary and alternative medicine, 70.2% (95% CI 63-77) were using complementary and alternative medicine for the current problem leading to admission which is higher than reported earlier by Armishaw and Grant¹⁹ (18%). Furthermore, 29.8% (95% CI 22-36) of included children used complementary and alternative medicine at some point in their life for other concerns.

The mean age of included children in our study was 48 months (SD ± 46.42), which is lower compared to earlier literature (8.3-16 years).²⁶⁻²⁸ Age disparity and shorter duration of complementary and alternative medicine use in our study were primarily because a majority of patients in our study were suffering from an acute condition in comparison with other studies, which assessed mostly chronic condition. Higher age of mother or father was not associated with complementary and alternative medicine use, though few studies showed increased use with increased age of parents.²⁹⁻³¹ Most of the children belonged to the urban area (81.4%), the majority were Hindu children (90.1%) and (80.7%) directly presented to casualty.

Several studies have reported that parents with higher education status^{21,32,33} use complementary and alternative medicine more frequently than the less educated ones. Similarly, families with higher income and higher SES status also tend to use more complementary and alternative medicine for their children; however, population in current study involved children belonging to relatively lower SES compared with studies worldwide. Furthermore, the education and employment status of parents were also poorer compared with previous studies.

On multivariate analysis, the odds of using complementary and alternative medicine were higher with younger age, female gender, and father being employed (Table 3).

Few studies in the literature show that complementary and alternative medicine is used because of dissatisfaction with allopathic medicine, but this was not the case in our study. Our findings support the explanation that patients are attracted to alternative medicine because it is relatively easily accessible, and they find these therapies more consistent with their values, beliefs, and philosophical orientations toward health and life.³

Out of all the children using complementary and alternative medicine in our study, 74.6% considered complementary and alternative medicine as ineffective and hence declined future usage. The recommendation for initiation of complementary and alternative medicine use was mostly given by family/friends in most cases (93.1%) as reported earlier.^{34,35} Those cases (6.8%) in which the recommendation came from allopathic physician involved mainly chronic condition. The kind of complementary and alternative medicine use we observed was combined ayurveda and spiritual (25.5%), ayurveda (24.8%), spiritual (21.7%), homeopathic (13%) with an overall 47.2% of children using spiritual approach in the form of *Jhada* (tying a piece of cloth on arm or leg or keeping a knife by the side of the child).

It is worth noting that a high proportion (71.5%) of complementary and alternative medicine users did not report or disclose their complementary and alternative medicine use to their treating physician. This is in agreement with another Western study^{36,37} and reflects an unsatisfactory aspect of communication between doctor and patient as there could be adverse drug-drug interaction, which can have a determinantal effect on the health of the patient. Presently, many medical schools in the world do not include complementary and alternative medicine in the medical undergraduate curriculum. Bridging the gap between “complementary and alternative medicine” and “allopathic” and between “modern” and “traditional” early at medical school might render complementary and alternative medicine practitioners less prejudiced and more involved in patient care.

Strengths of the Study

To the best of our knowledge, this is probably the first Indian study reporting complementary and alternative medicine use in hospitalized children along with structured predesigned proforma and assessment by the single investigator are the strengths of the study.

Limitations

Our sample size was small and there was absence of control group. Larger multicentric observational studies can further highlight the factors associated with complementary and alternative medicine use.

Implication of Policy and Practice

In Indian society, the complementary and alternative medicine is often perceived as natural and therefore safe, however, complementary and alternative medicine can have interactions with conventional medicines, resulting in troublesome side effects³⁸⁻⁴⁰ and can also cause unnecessary treatment delay in few patients. A policy to look into possible harms of complementary and alternative medicine should be in place, as all complementary and alternative medicines are not safe. A list of safe complementary and alternative medicine is available on website <http://www.nccih.nih.gov> and <http://www.indianmedicine.nic.in>. Government under National Rural Health Mission is also trying to initiate measures to enable the safe and effective use of the traditional form of medicine. Simultaneously, planned efforts should be made to integrate traditional medicine into the overall health care delivery systems, as complementary and alternative medicine use can decrease overall load of many illnesses on the health care system. Complementary and alternative medicine use needs to be promoted, wherever good scientific evidence is available. Regulations need to be in place for complementary and alternative medicine with harmful effects.

Conclusion

Complementary and alternative medicine is commonly used even in acutely sick children. Younger age, female gender, and father being employed are the factors associated with higher complementary and alternative medicine use in acute illness.

There is a need for more good evidence-based studies for complementary and alternative medicine, as concern are seen regarding the effectiveness and safety of complementary and alternative medicine and at the same time we also need to increase awareness in health care sector regarding the successful modalities of complementary and alternative medicine.

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Declaration of Conflicting Interests

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Ethical Approval

The ethical approval was taken from the Institution's Head of the Department.

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