



# Mothers' Attitudes toward the Use of Complementary and Alternative Medicine in Children with Cancer

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## Abstract

**Background:** Children who have cancer suffer from a wide range of symptoms and side-effects of disease and treatment, and such conditions have harmful effects on the quality of life of a child and family. So, the families of such children turn to complementary and alternative medicine treatments for children with cancer.

**Objectives:** Therefore, this study aimed at determining the mothers' attitudes toward the use of complementary and alternative medicine in children with cancer.

**Methods:** This cross-sectional research was conducted from January 2018 to January 2019 in the oncology section of Yazd Shahid Sadooghi Hospital in a nonrandom and convenience sampling method on 150 mothers of children with cancer. The instruments of data collection include demographic information questionnaires and a 6-part questionnaire to evaluate mothers' performance. To investigate the face and content validity of the questionnaire, the opinions of 10 experts were considered, and to investigate the reliability of the questionnaire, the test-retest method was used, and the intraclass correlation coefficient (ICC) was reportedly 0.80. After completing the questionnaires, the collected data were analyzed, using SPSS 23 by utilizing descriptive statistics, including mean, standard deviation (SD), frequency, and percent.

**Results:** Overall, 83.34% of mothers mentioned praying as a way of complementary and alternative medicine, 67.34% used complementary and alternative medicine to increase child recovery chance, 74% reported general child recovery, 20% reported the occurrence of side-effects following the use of complementary and alternative medicine, 67.33% introduced their friends as their information source, 33.6% avoided informing the physician regarding the use of complementary and alternative medicine, and 76% maintained that due to the objection of physicians, they avoided informing him/her.

**Conclusions:** The use of complementary and alternative medicine is common among mothers but due to the occurrence of side-effects, using invalid information sources and hiding it from a physician, the oncologists must provide a suitable opportunity for asking and answering to guide mothers for correct performance in the use of complementary and alternative medicine.

**Keywords:** Complementary Therapies, Child, Neoplasms, Mother

## 1. Background

Concurrent with healthcare progression, the number of children who live with chronic and threatening diseases is increased (1). Cancer is one of the common chronic and children's life-threatening diseases in developing nations (2) and the prevalence of this disease is increasing among children and teenagers annually (0.7% per year), but its mortality has been decreased from 1975 to 2017 (from 6.3 per 100 000 children to 2 and from 7.1 per 100 000 teenagers to 2.7) (3).

Cancer prevalence has ascending trend in childhood from 1990 to 2016 in Iran so that from 10.1 per 100 000 children under 15 increased to 11.9; the most common

cancers include leukemia, malignant nervous system, and lymphoma (4). This disease, with its different types, has extraordinary effects during childhood rather than other chronic diseases (5). It has a challenging nature and its unpredictable results follow uncertainty, mental-affective, and emotional disorders from diagnosis until treatment and follow-up (6).

Children suffering from cancer suffer from a wide range of symptoms and side-effects of disease and treatment (7), and such conditions will have harmful effects on the quality of life of children and family (8). So, the families of such children turn to complementary and alternative medicine treatments. These types of treatments con-

sist of theoretical beliefs and a practical set of methods, which are employed for disease prevention and treatment or for enhancing health and improving general health, as well as conventional medicine treatments (as complementary medicine) or instead of conventional treatments (alternative medicine) (9).

Reflexology, spiritual/religion, food supplements, aromatherapy, music therapy, traditional Chinese medicine, massage, pet therapy, special diet, Reiki, vitamins, counseling, massage therapy, Shiatsu massage, healing touch, minerals, acupuncture, herbs and supplements, relaxation therapy, yoga, hypnosis, and biofeedback are among the types of complementary and alternative medicine (10). Nowadays, different types of complementary and alternative medicine have been widely used among children suffering from cancer, and studies have reported different results (11).

This difference has various reasons, including the absence of a common definition for complementary and alternative medicine, the difference in the quality of studies and research methodology, the cultural and ethnic differences (12).

However, complementary and alternative medicine treatments have not been investigated scientifically, and so far they have not been scientifically confirmed regarding immunity and effectiveness (13). The effects of using complementary and alternative medicine treatments have not been diagnosed on the quality of cancer care and treatment during childhood (11).

Some of these methods including herbal supplements and antioxidants may intervene in routine medical treatments or may decline chemotherapy medicines effectiveness (14) or also cause digestion side-effects including diarrhea, decreased appetite, nausea and vomiting and constipation (15), stomach pain, and upset stomach (16) and some these products may intervene in chemotherapy medicines and stimulate the growth of malignant tissues and bring toxic effects (17). Sometimes, these methods may cause parents' self-management, which breaks child medical treatment by parents earlier than standard treatment (18). Consequently, the child suffering from cancer may lose the opportunity to take advantage of scientific treatments or may delay taking advantage of standard medical treatments on time (19).

Despite the overestimation of these effects, the findings of studies show that mothers tend to use complementary and alternative medicine for children with cancer; in Turkey, 73.3% of parents (20), in Indonesia 80% of parents (21), and in Switzerland, 53% of parents (22) use complementary and alternative medicine for their children suffering from cancer.

In Iran, because it is an old country and has its own tra-

ditional medicine, complementary medicine plays an important role in Iranian culture and many Iranians use a variety of complementary medicine methods during the disease (23).

## 2. Objectives

Thus, focusing on the limitations of studies conducted in Iran concerning parents' performance in the field of complementary and alternative medicine for their children suffering from cancer and the importance of investigation in this field, the present study aims at determining mothers' attitudes toward the use of complementary and alternative medicine in children with cancer.

## 3. Methods

After the approval of the Research Ethics Committee of Yazd Shahid Sadooghi Medical Sciences University, this cross-sectional research was conducted on mothers with children suffering from cancer in the oncology section of Yazd Shahid Sadooghi Medical Educational Hospital. Non-random and convenience sampling started from January 5th, 2018 to January 5th, 2019, and the number of samples was estimated at 150 individuals according to the study of Bordbar et al. (24).

The inclusion criteria consist of mother's satisfaction for participating in the study, being the main caregiver of the child, being able to communicate and talk in Persian, having a child suffering from cancer with registered diagnosis, being literate, and passing at least 3 months from child disease diagnosis and treatment commenced.

The exclusion criteria consist of the mother with a child in the last stages of life, the mother with a child with various diseases (having diseases except for cancer including childhood diabetes, asthma, cerebral palsy, etc.), the mother with registered mental disorders and under treatment, and those who did not complete the questionnaires.

The researcher went to the pediatric oncology department and the mothers, who had a child with cancer in the ward, entered the study if they met the inclusion criteria. At the beginning of the study, the researcher expressed the objectives of the study and satisfied the samples orally and in the documented form, and presented enough explanations about the questionnaire. The researcher, then, asked the mother to accurately answer the questions.

The instruments of data collection in this study include demographic questionnaire (child's age and gender, mother's age, education, occupation, economic status, and being local), clinical condition questionnaire (the type of disease, suffering duration, type of received diseases, number of hospitalizations, and disease relapse),

and researcher-made 6-part questionnaire to investigate mother's performance regarding the complementary and alternative medicine. It is noteworthy that items were extracted with a literature review.

The first part includes using or not using complementary and alternative medicine and reasons for using. The second part includes different types of complementary and alternative medicine. The third part includes the advantages of using complementary and alternative medicine. The fourth part includes the side-effects of complementary and alternative medicine. The fifth part includes sources, to which individuals refer to obtain information about complementary and alternative medicine, and the sixth part includes informing the child by the oncologist about using complementary and alternative medicine and reasons for informing the child by the oncologist.

There are some options for answering in each part that the responder may choose one or more than one option, or she may register her answer if there is an answer except the existing options through the "mention if there is another item" option.

To investigate the face and content validity of the questionnaire, the opinions of 10 experts (PhD professors of nursing [n = 6], oncologists [n = 2], and nurse of oncology department [n = 2]) were considered to find the level of difficulty, incompatibility, the ambiguity of expressions or insufficiency in word meanings and their comments were applied as minor changes to the questionnaire.

To investigate the reliability of the questionnaires, the test-retest method was used. Ten mothers with inclusion criteria completed the questionnaires; after a week, the mothers completed the questionnaires and the intraclass correlation coefficient (ICC) was calculated 0.80 between these two periods, and the reliability of the questionnaire was approved.

The data were analyzed by SPSS (V23), utilizing descriptive statistics, including mean, standard deviation (SD), frequency, and percent.

#### 4. Results

During the study, 150 samples were included in the study. Table 1 presents the findings related to the demographic variables of mothers and children.

In the first part of the questionnaire (using or not using complementary and alternative medicine and related reasons), 100% of samples have used complementary and alternative medicine, in which 16.66% (25) mentioned only praying and 83.34% (125) mentioned other ways. As 3 reasons with the most frequency, 67.34% (101) used complementary and alternative medicine to increase child recovery

**Table 1.** Demographic Variables; Frequency of Children Suffering From Cancer and Mothers<sup>a</sup>

Variables	Values
<b>Locality</b>	
Yes	78 (52)
No	72 (48)
<b>Gender</b>	
Girl	70 (46.66)
Boy	80 (53.34)
<b>Disease type</b>	
All	94 (62.66)
Aml	20 (13.34)
Neuroblastoma	13 (8.66)
Nephroblastoma	5 (3.34)
Sarcoma	5 (3.34)
Lymphoma	13 (8.66)
<b>Disease relapse</b>	
Yes	30 (20)
No	120 (80)
<b>Suffering duration, y</b>	
< 1	64 (42.66)
1-3	72 (48)
4-6	12 (8)
> 6	2 (1.33)
<b>Hospitalization times</b>	
1-3 times	8 (5.33)
4-6 times	38 (25.34)
7-10 times	18 (12)
> 10 years	86 (57.33)
<b>Types of received medical treatments</b>	
Chemotherapy	75 (50)
Chemotherapy + radiotherapy	38 (25.34)
Chemotherapy + surgery	27 (18)
Chemotherapy + surgery + radiotherapy	10 (6.66)
<b>Mother education</b>	
Below diploma	54 (36)
Diploma	56 (37.34)
BA	37 (24.66)
MA	3 (2)
<b>Mother occupation</b>	
Housewife	123 (82)
Employee	24 (16)
self-employment	3 (2)
<b>Economic status</b>	
Poor	38 (25.34)
Medium	99 (66)
Good	13 (8.66)

Abbreviation: ALL, acute lymphocytic leukemia; AML, acute myeloid leukemia.

<sup>a</sup>Values are expressed as No. (%).

chance, 62% (93) to reduce treatment side-effects, and 51.33% (77) to improve the immunity system.

In the second part of the questionnaire (types of complementary and alternative medicine methods), as 3 ways with the most frequency, 100% (150) appealed to praying, 86.66% (130) used herbal products, and 65.33% (99) consumed vitamins and minerals.

In the third part of the questionnaire (advantages of using complementary and alternative medicine), as 3 advantages, 74% (111) used complementary and alternative medicine for the child's general health improvement, 57.33% (86) for physical condition improvement, and 53.33% (80) for removing treatment side-effects.

In the fourth part of the questionnaire (side-effects of using complementary and alternative medicine), 20% (25) of mothers reported the occurrence of side-effects following the use of complementary and alternative medicine, among which 3 common side-effects included 12.8% (16) diarrhea, 4.8% (6) vomiting, and 3.2% (4) skin rash.

In the fifth part of the questionnaire (investigating sources that mothers have used them to obtain information about complementary and alternative medicine), the findings showed that 67.33% (101) selected friends, 62% (93) selected family, 52% (78) were informed based on their previous experiences, and 39.33% (59) selected Internet as the main source to obtain the information.

In the sixth part of the questionnaire (informing pediatric oncologist to use complementary and alternative medicine for the child), 66.4% (83) informed the physician and 33.6% (42) avoided informing the physician; 76% (32) have mentioned fear from physician objection and 40.47% (17) mentioned that the physician does not have time to talk about complementary and alternative medicine.

Table 2 presents the findings related to the mothers' performance concerning complementary and alternative medicine.

## 5. Discussion

Concern about complementary and alternative medicine applications is gradually increasing in the world. This interest is particularly pronounced in patients with cancer. This study aimed at determining the mothers' attitudes regarding the use of complementary and alternative medicine for children with cancer.

The findings revealed that 100% of mothers had used complementary and alternative medicine for children with cancer, among whom 83.9% mentioned praying and 86.66% used herbal products. This result is in line with the study of Al-Qudimat et al. (25), who maintained that 100% of families with children suffering from cancer pray for their children. In some countries like Turkey, 73.3% of parents (20) and in Indonesia 80% of parents (21) maintained the use of complementary and alternative medicine for

their children suffering from cancer, but some other countries reported less percent rather than the present study; for example, in Switzerland, 53% of parents (22) and in Germany, 31% of parents (12) reported the use of complementary and alternative medicine for the children, who suffer from cancer.

Reviewing the results show that the use of complementary and alternative medicine is spreading among children suffering from cancer between 6% and 91% (11), and the difference in reports may be due to different cultural backgrounds (12). In Iran, the high use of plant materials can be due to people's satisfaction with the effects of these substances, the availability of herbal medicine companies, the ease of using herbal products, the breadth of information on herbal products, and, ultimately, the country's policy. Iran encourages people to start using herbal products for economic reasons and reduced dependence (26).

Three popular reasons for increasing child recovery chance, reducing treatment side-effects, and improving the immune system have been mentioned among the reasons for complementary and alternative medicine use. In line with this result, Magi et al. (22) have introduced improving a child's general health. Gottschling et al. (12) mentioned reducing treatment side-effects, improving the immune system, physical condition stability, and increasing recovery chance. O'Connor et al. (27) introduced physical condition improvement. Bishop et al. (11) introduced freeing from treatment side-effects and Naja et al. introduced the immune system and increasing recovery chance (15) as parents' main reasons for turning to complementary and alternative medicine.

Among the different ways of complementary and alternative medicine, prayer therapy has been mentioned as the most popular method. This study is in line with the study of Post-White et al. (28) in Minnesota, in which parents have introduced prayer therapy as the first way for their children suffering from cancer. Also, in Greece, praying has been mentioned as the most common way for parents interference for children in the oncology section so that parents appealed to praying and doing religions sacred rituals and expected good results by collecting holy images, cross and holy stick and putting them under child's pillow (29). In Lebanon, parents prayed for their children suffering from leukemia and mentioned this as a common tradition (15). The tendency toward religion and spirituality is more obvious during illness more than any other time and when a human feels that his life is at risk, s/he appeals to praying, which is a link between him/her and God (30). In Iranian society, the present findings are an expected result because of the rich religious beliefs and daily payers as external demonstrations of these beliefs.

Using herbal products is the second way used by moth-

ers, which is in line with the study conducted in Turkey that the majority of parents have mentioned the use of herbal products like grape syrup and herb pollens (20). In Lebanon, also, the use of different herbal products including nigella seeds, green tea, and rosemary is the most popular way reported by parents (15). In some other studies, the use of herbal products has not been mentioned as the parents' priority (12, 22), and this is due to geographical region diversity (31) and cultural-social differences existing in different populations of study (12).

Using vitamins and minerals is the third used method by mothers, which is in line with different studies (Connor-Seven-Bordbar-Janis), and the reason for the popularity of vitamins and minerals may be accessibility, easy providing, and low cost of these supplements (32).

It is worth mentioning that other ways, including massage therapy, energy therapy, and art therapy have been mentioned less than other ways, and few mothers have used some others like aromatherapy, acupuncture, yoga, healing touch, and relaxation. The use of homeopathy has never been mentioned, and this is because different methods of complementary and alternative medicine are unknown in the cultural-social background of the present Iranian society. Some others are inaccessible so that in Germany, homeopathy has been considered a well-known and popular method among people as the first choice of parents among different ways of complementary and alternative medicine (33).

Thus, differences in the selected patterns may be influenced by local, national, and academic level diversities (34). Also, other factors such as harmfulness, expensiveness, unpopularity, and ineffectiveness of complementary and alternative medicine methods may influence the selection of these methods (35).

The advantages that mothers have mentioned following the use of different ways of complementary and alternative medicine in sick children are child's general recovery, physical condition improvement, and removing treatment side-effects. The findings of the study conducted by Al-Qudimat et al. (25) showed that 45.5% of families observed advantages following the use of complementary and alternative medicine in sick children. Gottschling et al. (12) maintained that 65% of children and 55% of teenagers, who used complementary and alternative medicine, had experienced its advantages. Isaac-Otero et al. (18) mentioned physical condition improvement, prevention from toxicity, tumor growth stoppage, immune system reinforcement, and pain relief as the advantages of complementary and alternative medicine use (18), and these findings are consistent with the present results.

Investigating the side-effects of complementary and alternative medicine use showed that diarrhea, vomiting,

and skin rash are among the experienced side-effects. In line with these results, Isaac-Otero et al. (18) revealed that 20% of families observed diarrhea, vomiting, skin reactions, and fever in children following the use of complementary and alternative medicine. In contrast, Clerici et al. (36) said that parents reported no side-effects and this difference might be due to the used methods that herbal products have been the most common way after praying in the current study; whereas, in the study conducted by Clerici et al. (36), homeopathy has been the most popular method used by parents.

The sources that mothers have used to get informed about complementary and alternative medicine include friends, family, previous experiences, and the Internet. The literature review showed neighbors and relatives in Turkey (37), and family and neighbors in southern Iran are among the sources that inform about complementary and alternative medicine, which are in line with the present study. As information of family and neighbors are confusing instead of being useful, individuals have to obtain information and guides about complementary and alternative medicine from the physicians (38).

Regarding informing the child's oncologist about the use of complementary and alternative medicine for the child suffering from cancer, the majority of mothers informed the physician, and some of them who have avoided informing the physician maintained fearing from physician and physician's lack of time to talk with them about complementary and alternative medicine as their reasons.

In line with these results, Post-White et al. (28) also argued that most of the parents inform healthcare providers about the use of complementary and alternative medicine. Those parents who have hidden this matter maintained that healthcare providers not asking parents about complementary and alternative medicine, providers' ignorance of complementary and alternative medicine, and not being supported by healthcare providers are the reasons for such avoidance. The most important problem, which follows this avoidance, is the probable interference between medical treatment and complementary and alternative medicine interventions, especially following the use of herbal products and supplements, of which the physicians have to be informed (28). However, parents avoid counseling about the problem that the physicians may be pessimistic about complementary and alternative medicine and they are worried that what the physician's answer will be. Hence, physicians must always provide an atmosphere for talking to motivate parents to ask and answer about complementary and alternative medicine and to receive physicians' opinions (35).

The study had limitations such as the available sampling method, the location of the sampling (an oncology

center), the use of a self-reported questionnaire, and the possibility of bias reminders about the use of complementary and alternative medicine methods.

### 5.1. Conclusions

All mothers used prayer therapy and the majority of mothers used herbal products, citing the increase in the child's chances of recovery as the main reason for using complementary and alternative medicine methods. In most cases, they saw an improvement in the child's general condition. The side-effects were gastrointestinal. Mothers introduced their friends as a source of information, often informing the oncologist about the use of complementary and alternative medicine, and fear of the oncologist's opposition was a major obstacle to awareness.

Therefore, by focusing on the prevalence of the use of complementary and alternative medicine, the mentioned side-effects, the resources used, and not informing the oncologists in some cases, oncologists must provide a discussion opportunity for parents in the field of using complementary and alternative medicine and present correct information and refer them to experts in such domains. Through creating a suitable team communication with active experts in the field of complementary and alternative medicine, the oncologists must design and operate planned measures compatible with the medical treatments process to help merge this type of treatment with the medical treatment process without any side-effect for children suffering from cancer and also achieve the pre-supposed goals.

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### Footnotes

**Authors' Contribution:** study concept and design: NS. Analysis and interpretation data: AD. Drafting the manuscript: IB and NS. Critical revision the manuscript for important intellectual concept: AD and NS. Statistical analysis: MM and IB.

**Conflict of Interests:** We have no conflict of interest.

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**Table 2.** Frequency of Mothers' Performance Questionnaire Concerning the Use of Complementary and Alternative Medicine for Children Suffering From Cancer<sup>3</sup>

Variables	Values
<b>Using CAM</b>	
Yes	150 (100)
No	0 (0)
<b>CAM using reasons</b>	
Increasing recovery chance	101 (67.33)
Reducing treatment side-effects	93 (62)
Reinforcing immune system	77 (51.33)
Prevention from disease relapse	66 (44)
Pain relief	53 (35.33)
Removing toxins from the body	50 (33.33)
Improving mental status	45 (30)
Participation in treatment	37 (24.66)
Uncertainty to medical treatments	8 (5.3)
<b>Different types of CAM</b>	
Appealing to praying	100 (100)
Using herbal products	130 (86.66)
Consuming vitamins and minerals	73 (48.66)
Massage	39 (26)
Energy therapy	38 (25.33)
Art therapy	32 (21.33)
Relaxation	6 (4)
Aromatherapy	3 (6.38)
Yoga	3 (6.38)
Acupuncture	3 (6.38)
Biofeedback	3 (6.38)
Healing touch	3 (6.38)
Homeopathy	0 (0)
<b>CAM advantages</b>	
Child's general health improvement	111 (74)
Physical condition improvement	86 (57.33)
Removing disease side-effects	80 (53.33)
Improving spiritual condition	73 (48.66)
Fast response to treatment	73 (48.66)
Pain reduction	70 (46.66)
Short hospitalization period	54 (36)
Reducing the number of hospitalization	45 (30)
<b>CAM side-effects</b>	
Diarrhea	16 (12.8)
Vomiting	6 (4.8)



Skin rash	4 (3.2)
Dyspnea	3 (2.4)
Frequent urination	3 (2.4)
<b>Information sources</b>	
Friends	101 (67.33)
Family	93 (60)
One's previous experiences	78 (52)
Internet	59 (39.33)
<b>Not informing oncologist</b>	
Fear from physician's objection	32 (76)
Physician not having time for talking	17 (33.6)
CAM not being important for the physician	13 (30.95)
Physician ignorance of CAM	3 (7.14)

Abbreviation: CAM, complementary and alternative medicine.

<sup>a</sup>Values are expressed as No. (%).