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# Used of Complementary and Alternative Medicine on Symptoms Management and Quality of Life

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## Abstract

**Introduction:** Children with cancer experience serious difficulties due to the diagnosis, the hospitalization, the symptoms that accompany the long and exhausting treatment process. Unrelieved symptoms related to either cancer or chemotherapy also lead to poorer quality of life, including increased distress and negatively impact healing process. The families of children with cancer often try the complementary and alternative medicine (CAM) to reduce their children's experience of physical discomfort.

**Methods:** The following sources of published reviews have been consulting: PubMed, The Cochrane Library, and Web of Science. Databases were queried from inception to August 2016. Our inclusion criteria were (i) studies both published in English and between June 1, 2010 and June 31, 2016; (ii) assessment of symptom management and quality of life; and (iii) application of CAM to children with cancer.

**Results:** In this review, the most commonly used intervention methods were massage, exercise, music and android programs, and yoga, rehabilitation program, art therapy, and reiki therapy. The most commonly evaluated these outcomes: pain, anxiety, fatigue, nausea, sleep, and quality of life in the articles.

**Conclusion:** National and international collaborations among researchers, policy maker, pharmacist, and clinicians will facilitate the regulated use of effective CAM therapies in pediatric oncology.

**Keywords:** pediatric oncology, symptoms management, quality of life, evidence-based practices, complementary, alternative medicine

## 1. Introduction

Cancer and its treatment are stressful, and they reduce the quality of life of cancer patients and their families [1]. Children with cancer experience serious difficulties due to the diagnosis, the hospitalization, the symptoms that accompany the long and exhausting treatment process. As a matter of fact, children with cancer receiving chemotherapy often experience painful conditions such as mucositis and peripheral neuropathy. Unrelieved symptoms related to either cancer or chemotherapy also lead to poorer quality of life, including increased distress and negatively impact healing process [2]. Prevention of symptoms of cancer and side effects of treatment is expected to contribute positively to treatment by increasing the quality of life of children [3].

Children with cancer experience physical symptoms, including pain, and mental symptoms, anxiety [1]. One of these symptoms is also sleeping problems. Sleep disturbances persist in cancer survivors and can cause depression, pain, fatigue, and decrements in quality of life beyond the time of cancer treatment [4, 5]. Sleep problems were often present in a combination of different symptoms [5]. Pain is a common symptom during cancer diagnosis and treatment and may come from painful procedures, disease progression, or impingement of nerves, tissues, or organs from tumors at any stage of the cancer progression [6]. Pain is an unpleasant and subjective experience that involves sensory, affective, cognitive, social, and behavioral components; it is a major cause of human suffering and loss of quality of life [7]. In children and adolescents with cancer, the feeling of fatigue characterized by physical, mental, and emotional components is increasingly observed during and after cancer treatment [8–10]. In addition, many cancer survivors report continued fatigue that adversely impacts their quality of life [8]. Oral mucositis is considered one of the major debilitating side effects of cancer therapy (chemotherapy and radiotherapy). Oral mucositis also impacts on children and adolescents' quality of life and their mood status [11]. Cancer affects to quality of life of children and adolescents with cancer. It has changed their daily physical activities, relationships with their family and friends, emotional well-being, and coping with the symptoms. Throughout this period, pediatric patients suffer from multiple physical and psychological symptoms like pain, fatigue, nausea, to feelings of sadness, worrying, and irritability [12].

The families of children with cancer often try CAM to reduce their children's experience of physical discomfort [1]. Complementary and alternative medicine (CAM), which is not considered as a part of traditional medicine, can be defined as a various medical health care systems, practices, and products. Nowadays, among the most known and applied CAM methods are acupuncture, aromatherapy, osteopathy, yoga, massage, and various herbal supplements [1, 13, 14]. According to the National Center for Complementary and Alternative Medicine (NCCAM), there are three broad categories of CAM: natural products, spiritual care (mind-body), and treatments based on body manipulation [14]. CAMs use in children with cancer has increased worldwide in the last years. The reported frequency of its use varies from 30 to 84% in different surveys [15]. It is important to identify and control symptoms in order to increase quality of life and reduce morbidity. Furthermore, there is some evidence that reduction in symptoms may improve future psychosocial functioning [16].

It has been suggested that the use of CAM, as a component of a healthy lifestyle, may support survivors of childhood cancer in coping with many of these long-term complications and chronic health problems [17]. CAM treatments are mostly used to decrease the side effects of cancer treatment [18, 19].

Complementary and alternative medicine is a method used for supporting the conventional treatment. The main objective in preferring these methods is to increase quality of life and reduce symptoms. CAM therapies have been proven effective for symptoms such as pain, nausea, vomiting, and mucositis [3]. The qualitative and quantitative studies are assessed CAM therapies in these symptom management. But, there is paucity of convincing scientific evidence to support practice of CAM therapies in pediatric cancer patients.

## 2. Methods

The following sources of published reviews have been consulting: PubMed, The Cochrane Library, and Web of Science. We prepare search filters and consult databases to be accessed. The search strategy used the following subject headings and text words: “complementary and alternative therapy,” “pediatric,” “cancer,” “quality of life,” and “symptom.” The search was limited to studies including children age zero to 18 years. Databases were queried from inception to August 2016.

Our inclusion criteria were (i) studies both published in English and between June 1, 2010 and June 31, 2016; (ii) assessment of symptom management and quality of life; and (iii) application of CAM to children with cancer.

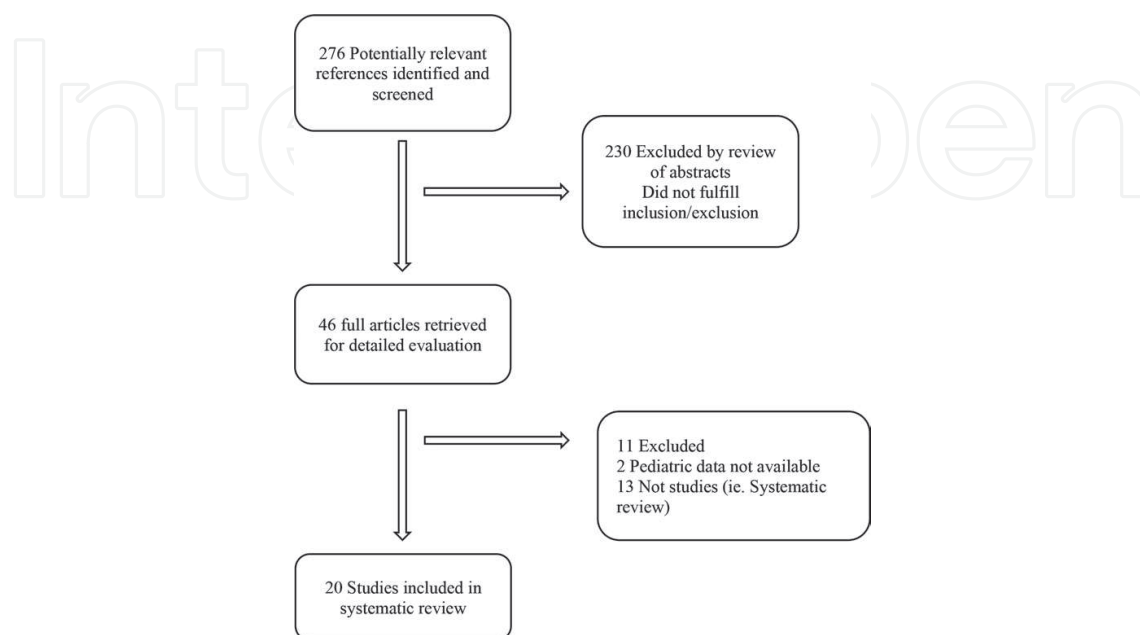
Articles were excluded at different levels (title, abstract, or full article) based on the following exclusion criteria: all clinical trials published in a language other than English, not published as a full article, animal trials, clinical trials that only involved adults, population not cancer, descriptive studies that were only conducted on the use of complementary therapy and symptoms, case studied and case series, pilot studies, reviews, book chapters, and letters to the editors and commentaries.

The literature investigations were evaluated according to inclusion/exclusion criteria. Then, after a preliminary test, in which their abstract had been searched detailed, the articles were included in the study.

## 3. Results

**Figure 1** illustrates the flow of article selection. A total of 274 articles were identified by the search strategy. Abstracts and titles were initially screened for eligibility. These articles were assessed by the inclusion/exclusion criteria at the different levels of exclusion and yielded a total of 47 articles. Among the 277 articles, 230 (83%) did not meet eligibility criteria. Full text review resulted in 13 articles that were not research studies, 2 articles that included populations other

than children and leaving a total of 11 studies included in the review. A total of 20 articles met inclusion criteria and were included in the review (**Table 1**). The articles were published between 2010 and 2016. **Table 1** provides an overview of the studies reviewed, including identified articles, type of intervention, aged group, assessment used measures, and outcomes.



**Figure 1.** Flow diagram of study identification and selection.

Articles	Aged group	Type of intervention	Outcomes
Barry et al. [22]	11 children and adolescents aged 6–13 years	Music	Distress ↓
Madden et al. [23]	50 children and adolescents aged 2–18 years	Creative art therapy	Pain ↓ Anxiety ↓
Nguyen et al. [24]	40 children and adolescents aged 7–12 years	Music	Pain ↓ Anxiety ↓ Heart rate ↓ Respiratory rate ↓
Yeh et al. [25]	22 children and adolescents aged 0–18 years	Physical exercise	Fatigue ↓
Chamorro-Viña et al. [26]	24 children and adolescents aged 5–18 years	Exercise	Quality of life ↑
Mehling et al. [21]	23 children and adolescents aged 5–18 years	Massage acupressure	Pain ↓ Nausea ↓ Fatigue ↓ Depression ↓ Burden symptom ↓ Anxiety (no change)
da Cunha Batalha and Mota [7]	52 children and adolescents aged 10–18 years	Massage	Pain ↓

Articles	Aged group	Type of intervention	Outcomes
Hooke et al. [20]	29 children and adolescents aged 6–17 years	6-minute walk test	Physical performance (no change)
Tanir and Kuguoglu [27]	40 children and adolescents aged 8–12 years	Exercise program	Pain ↓ Hurt ↓ Nausea ↓ Procedure-related anxiety ↓
Casanova-Garcia et al. [28]	40 children and adolescents aged 5–18 years	GraphPad prism	Neuropathic pain ↓
Çelebioğlu et al. [1]	25 children and adolescents aged 4–15 years	Massage	Anxiety ↓ Pain ↓
Miladinia et al. [29]	43 children and adolescents aged 7–18 years	Massage	Nausea ↓ Frequency of vomit ↓
Beulertz et al. [30]	53 children and adolescents aged 4–17 years	Therapeutic exercise program	Motor performance ↑ Level of activity ↑ Quality of life ↑
Fortier et al. [2]	20 children and adolescents aged 8–18 year	Pain buddy	Pain management ↑
Hooke et al. [31]	13 children and adolescents aged 10–17 years	Yoga	Fatigue ↓ Anxiety ↓ Balance scores ↓ Wellness scores ↓
Hooke et al. [32]	44 children and adolescents aged 6–15 years	Fitness tracker physical activity	Fatigue ↓
Jacobs et al. [4]	45 adolescents aged 12–21 years	Massage	Sleep episodes ↑ Fatigue (no change) Mood (no change) Anxiety (no change) Night time ↑ Overall sleep ↑
Miladinia et al. [33]	35 children and adolescents aged 8–18 years	Slow stroke back massage	Anxiety ↓
Müller et al. [34]	150 children and adolescents aged 4–18 years	Rehabilitation program	Quality of life ↑
Thrane et al. [35]	16 children and adolescents aged 7–16 years	Reiki therapy	Pain ↓ Anxiety ↓ Heart rates ↓ Respiratory rates ↓

**Table 1.** The effects of complementary and alternative therapy in studies of children and adolescents with cancer.

Characteristics of the 20 articles included in this review are summarized in **Table 1**. The most commonly used intervention methods were massages (six articles), exercise (six articles), music and android programs (every two articles), and yoga, rehabilitation program, art therapy, and reiki therapy (every one article). The most commonly evaluated these outcomes: pain, anxiety, fatigue, nausea, sleep, and quality of life in the articles. However, in some studies [4, 20, 21], CAM utilization was not effective.



## 4. Discussion

A systematic review of 20 studies of complementary alternative intervention in pediatric oncology patients reported that such interventions are feasible and safe, effects on the symptoms and quality of life. Positive effects were also identified on the pain, sleep, anxiety, nausea, fatigue, quality of life, overall activity levels, and specific aspects of physical function.

It has been reported that the majority of pediatric cancer patients suffer from pain and other symptoms by the World Health Organization. In addition, children with cancer are at high risk for the incidence of symptoms that occur in the treatment process and reduce the quality of their life [2]. Also, whole medical systems are accepted as forms of CAM established on comprehensive systems of theory and practice [36]. Increasingly, parents of children with cancer are requesting the use of CAM therapies on the control of symptoms. CAM therapies increase the patient's and family's feelings of control on their symptoms and develop an understanding of active participation and partnership with the health care provider throughout the healing process [37]. Despite the dozens of pediatric CAM utilization studies, important knowledge gaps continue to persist in this field. CAM is not a static concept and can vary greatly from culture to culture [38]. The decision to use CAM in a child or adolescent with cancer requires consideration of the risks and benefits of the proposed therapy balanced with the developmental needs of the patient and the preferences of the family [39].

CAM consists of four domains, that is (a) mind-body medicine (e.g., meditation, imagery, prayer, art, and music); (b) biologically based practices (e.g., herbs, foods, and vitamins); (c) manipulative and body-based practices (e.g., massage, chiropractic, or osteopathic manipulation); and (d) energy medicine (e.g., Reiki, therapeutic touch, and magnetic fields) [36]. Although this integrative review endeavored to identify all CAM interventions used to manage procedure-related pain, anxiety, distress, and quality of life in children and adolescents undergoing cancer treatment, the only two categories of CAM therapies, manipulative and body-based practices and energy medicine, have been studied in regard to procedure-related symptoms and quality of life in the pediatric oncology population. Of note, other types of CAM therapies, including biologically based therapies (such as herbs, foods, and vitamins), energy therapies (such as acupuncture), and mind-body medicine, have been used for management of nonprocedural cancer-related symptoms (e.g., pain, nausea) and quality of life in children and adolescents with cancer [39]; however, none of these CAM therapies were identified as having been studied in the context of relief of procedure-related symptoms and quality of life in children or adolescents with cancer. Unfortunately, the past 5 years have seen little improvement in the reporting of pediatric CAM utilization data on the children with cancer. Although sample size varied substantially, the largest proportion of studies had  $\leq 50$  participants.

Our review had several limitations. In particular, our review includes a focus on pediatric cancer patients, and we only evaluated articles published in the last 5 years, accessed full text articles.

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