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Use of Traditional and Complementary Medicine Methods in Children: Is It Effective and Safe?

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Abstract

In recent years, the use of traditional and complementary medicine methods has gained significant importance worldwide. It is seen that the use of these methods in children is also very widespread. The most commonly used methods in children and adolescents are biological based treatments, mind–body interventions, and manipulative and body-based approaches. The evidence-based nature of these methods used by the parents is of critical importance. Since nurses are the healthcare professionals who work closest to the children, adolescents, and society, they have important tasks and responsibilities for efficient, reliable, and proper use of applications. In this study, it was aimed to discuss their usage rates, the roles of nurses, and the appropriate and effective use of them by examining the concept of traditional and complementary medicine.

Keywords: Child, children's health, nursing, parent, traditional and complementary medicine

Introduction

Health problems that have increased during the recent years lead individuals to seek various solutions. These solutions range from modern medicine to traditional and complementary practices.[1] The use of traditional and complementary medicine (TCM) methods has gradually increased in our country as well as all over the world.[1-5] Recent studies have shown that the use of TCM is also very common among the children. In the literature, the rate of TCM usage among the children has been reported to range between 10.9% and 93.3% worldwide,[3,5-13] and this ratio is found to be higher among the children who suffer from chronic, recurrent, and incurable diseases.[3,11,14-16]

Traditional and complementary medicine methods include several therapies based on various philosophies, beliefs, assumptions, and practices.[2] As new approaches proven to be safe and effective have arisen and integrated into traditional healthcare services, TCM methods are changing continuously. According to the National Center for Complementary and Alternative Medicine (NCCAM), TCM methods are classified under 5 main domains.[17,18] Each domain includes several types of therapy.[2,17] These domains are classified as "alternative medical systems" (traditional Eastern medicine, acupuncture, Ayurveda, naturopathy, homeopathy, and Tibet medicine), "mind–body therapies" (meditation, yoga, hypnosis, dance, art and music therapy, dreaming, and prayer/spirituality), "biologically based therapies" (botanicals, vitamin and minerals, special diets, and orthomolecular medicine), "manipulative and body-based methods" (chiropractic, massage, acupressure, cryotherapy, hydrotherapy, reflexology, Feldenkrais, craniosacral therapy, and other osteopathy treatment methods), and "energy therapies" (Reiki, therapeutic touch, and other methods affecting bioelectric field of the body).[17]

In the Regulation on Traditional and Complementary Medicine Practices that is in force in Turkey (2014), the list of TCM methods, which may be practiced in the unit and application centers, was defined. These practices were ranked as acupuncture, apitherapy, phytotherapy, hypnosis, leeching, cupping, hirudotherapy, mesotherapy, prolotherapy, osteopathy, ozone therapy, reflexology, and music therapy.[19] According to the Regulation, TCM methods have to be applied by trained and licensed individuals.[4,19] Traditional and complementary medicine methods applied by the nurses were found to be divided into 3 groups in the literature. In the first group, there are therapies which are directly carried

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out by the nurses (massage, therapeutic touch, aromatherapy, shiatsu, and reflexology); the second group includes the therapies which are partly integrated into the nursing practices (homeopathy, botanicals, dietary therapies, and hypnotherapy), and the third group includes the therapies which cannot be integrated into the nursing practices easily but can be recommended by the nurses (acupuncture, chiropractic, and osteopathy).[20-22]

Previous studies have reported that the most commonly used TCM methods for the children are biologically based therapies (phytotherapy), mind–body therapies, and manipulative and body-based approa ches.[3,5-9,13,16,23-36] Since children cannot make their own decisions, the use of TCM methods is at the discretion of their parents.[3] The parents, who do not want to use medications for the treatment of their children and who are afraid of the side effects of medical treatments, choose to relieve their children's discomfort by using TCM practices. They think that TCM methods are natural and, thus, harmless.[37,38] The fact that many forms of TCM are easily sold everywhere and that parents can have easy access to such products reinforces their opinion.[3,37-39]

Prior to using TCM methods, parents should be made aware of the positive/negative effects of these practices, their interactions with medications, and whether they are evidence based or not. Pediatric nurses, who aim to protect and promote the health of children and adolescents, to improve health conditions, and to establish a healthy lifestyle, have significant responsibilities in creating this awareness.[40,41] In this direction, this current study aimed to examine the concept of TCM and to discuss the most commonly used TCM methods for children and adolescents, their usage rates, and the role of nurses in their proper and effective use.

Definitions

The concept of TCM has been widely discussed in the scientific literature for a long time and tried to be defined by many researchers and institutions.[3,42,43] However, TCM does not have a universally accepted definition even today; and there is still no consensus on the concepts used in this field.[3,9] "Complementary medicine," "alternative medicine," and "traditional and complementary medicine" concepts are found to be commonly used in the literature.[3,4,16] Moreover, several terms such as natural medicine, folk medicine, integrative medicine, holistic medicine, folkloric medicine, and supportive medicine are also used in various countries and cultures.[23,44]

Holistic medicine is described as patient-centered care involving consideration of biological, psychological, spiritual, and social and environmental aspects of health. Integrative medicine refers to the examination of a wide variety of treatment options in holistic medicine and the selection of practices with proven efficacy and safety.[2,45] Integrative medicine adopts patient-centered care approach that takes the patients' values and preferences into account.[2] Holistic and integrative medicines are 2 concepts that are closely associated with each other. They are generally used together as integrative/holistic medicine.[2,45]

Alternative medicine is defined as the use of methods other than scientific medical practices. Complementary medicine can be explained as the use of alternative medical products and methods in addition to medical treatment protocols.[31,37,46] While complementary medicine describes treatment methods that are used as an adjunct to modern medicine, alternative medicine involves treatment methods that replace modern medicine. These 2 terms are used together under the title of complementary and alternative medicine.[37,46]

Folkloric medicine (folk medicine and traditional medicine) describes the use of knowledge, skills, and practices based on theories, beliefs, and experiences specific to different cultures in the protection and promotion of health and the treatment of diseases.[47] Folkloric medicine practices are transferred from generations to generations, and these practices are generally realized by family or community members.[2,47] According to WHO, traditional medicine is defined as a set of practices that are used to maintain health as well as protection from physical and mental diseases, making diagnosis, improvement, or treatment, that are based on theories, beliefs, and experiences specific to different cultures, that can be transferred from generations to generations and that can be used alone or in combination.[4,48,49] During recent years, the concept of TCM has come to the forefront in our country as a result of relevant discussions by national and international institutions notably WHO, emphasizing that "medicine cannot have an alternative; only treatment can have."[4,44,50] Relevantly, Ministry of Health published "the Regulation on Traditional and Complementary Medicine Practices" in October 2014. In this regulation, the aim, context, practice and working principles, characteristics of performing healthcare institutions, and the list of TCM practices were explained clearly.[19]

The Usage Rates of Traditional and Complementary Medicine Methods Among the Children

Rapid improvements observed in the diagnosis and treatment of diseases have also been made with an increase in the use of TCM.[37] Recent studies have shown that the use of TCM is significantly increased among pediatric populations.[3,5-13] It is known that the use of TCM is generally highest among the most vulnerable pediatric populations, including the children especially who have an untreatable and recurrent chronic disease, developmental disability, and special care needs.[3,11,14-16] Chronic disease groups that most commonly use TCM are listed as asthma,[14] attention-deficit/hyperactivity disorder,[14,15] autism,[14,15] cancer,[11,14,16] cerebral palsy,[15,16] cystic fibrosis,[3,16] inflammatory bowel disease,[11,16] and juvenile rheumatoid arthritis.[3,11] It has been reported that the TCM usage rate in these children ranges between 28.0% and 95% and is above 50% on average.[3,11,14-16]

When TCM usage rates among the outpatient children without any chronic disease were examined, a very wide range was observed. When the results of the relevant research on this subject in different countries of the world were examined, TCM usage rates among the children and adolescents were found to be 11.6% in the United States,[6] 18.1% in India,[12] 26.0% in Germany,[9] 35.6% in Iran,[7] 48.3% in Italy,[3] 54.3% in Israel,[11] 65.3% in Korea,[13] 73.8% in Australia,[8] and 93.3% in Bahreyn.[5] In the systematic review by Italia et al, study results in 19 European countries were examined and TCM usage rate was found to range between 10.9% and 87.6%.[10]

The studies performed in different centers and years in our country have shown that TCM usage by the parents ranges between 57% and 100%. The rates were reported to be 57.0% in Izmir,[32] 58.6% in Gaziantep,[28] 83.0% in Diyarbakir,[29] 97.7% in Giresun,[33] and 100% in Antalya and Bandirma.[25,34]

Previous studies have reported conflicting results on the comparison of TCM usage rates and sociodemographic characteristics of the parents.[2,3,5,6,9,11,14,33] No significant differences were found between

TCM usage based on the age of the parent and the gender of the children.[2,11,14] In addition, TCM usage was found to be correlated with the education level of the parent, the income level, and the age of the children. It was also determined that the TCM usage rate was inversely proportional to the age of the children, and usage rate was found to be decreased as the children's age increased.[3,5,9,11,14] It has been observed that TCM usage is common among the children smaller than 2 years old, and this ratio is more increased among the infants younger than 1-year-old. Traditional and complementary medicine has been found to be used more commonly, especially in relieving upper respiratory tract infections such as infantile colic, teething pain, nasal discharge, nasal congestion, and cough.[11] This situation is considered to be derived from the fact that parents may be afraid of the side effects of medications and find TCM methods safer. Moreover, it was reported in the previous studies that parents with a higher education and income level preferred TCM methods more, considered them as effective, and had a high level of satisfaction.[6,9,33] This suggests that they have a high level of knowledge about TCM methods and they can easily gain access to the resources.

Traditional and Complementary Medicine Methods Most Commonly Used Among the Children

The NCCAM reported the most commonly used TCM methods among the infants, children, and adolescents as biologically based therapies, mind–body therapies, and manipulative and body-based methods.[17] Similar results have been observed in national and international studies. The most commonly used methods have been identified as vitamins/minerals, fish oil, and herbal therapies with a special diet and prayer, mind–body therapies such as hypnotherapy, and manipulative and body-based approaches using massage, exercise, and cryotherapy.[3,5-9,13,16,23-36] The results of some studies on TCM methods used among the children are shown in Table 1.[3,5,7-13,25-36,51-55]

Biologically Based Therapies

According to the NCCAM, biologically based practices include the use of botanical and animal products, vitamins/minerals, fatty acids, amino acids, proteins, prebiotics, and probiotics, all special diets and functional foods.[17,18] Among these, vitamins/minerals constitute the most common TCM method used by the children, and the usage rate has been reported to range between 41% and 85%.[6,24,27,30,31,33,34] The most frequently used TCM method among the adolescents was determined to be herbal products and other food supplements.[2,6]

Biologically based therapies have a long history of traditional use. Together with this, there are concerns about the side effects of herbal products and food supplements.[2,11,21] The ingredients of some herbal products and supplements may cause negative interactions when used together with medications and medical therapies.[16,21] The efficacy and reliability of most herbal products have not been proven yet. The lack of evidence does not mean that the activity of herbal medications is poor or insecure, but rigorous clinical studies have not been performed for some biological products yet.[11] Besides, there are numerous products in the market which were licensed by the Ministry of Food, Agriculture and Livestock under the name of "supportive food" or "food supplement" without the approval of Ministry of Health in our country. These products may cause serious side effects and health problems since they include chemicals in different derivatives.[56]

The use of dietary supplements among the children with several health problems, including asthma, upper respiratory tract infections, diarrhea, stress, anxiety, depression, and attention-deficit/hyperactivity disorder, has been investigated.[2,14,57] Evidence-based studies are going on, and the literature is expanding rapidly. According to the results, the products with proven safety can be incorporated into medical treatments.[2,14] For instance, the use of probiotics was approved as a complementary practice in the mid-1990s, whereas it has become a medical practice in the 21st century since many gastroenterologists recommend their daily use in the children with inflammatory bowel disease.[2]

Vitamins and minerals, which are the mostly used biologically based therapies among the children (41%-85%), have significant effects in the maintenance of biochemical and vital functions, in the regulation of energy metabolism, in boosting immune system, and in the development of bone and teeth structure.[6,24,27,30,31,35] Vitamins are classified as fat-soluble vitamins (A, D, E, and K) and water-soluble vitamins (B1, B2, B3, B5, B6, B7, B9, B12, and C). Minerals are grouped as macrominerals (calcium, magnesium, phospor, sodium, potassium, and chlorine) and microminerals (iron, zinc, iodine, selenium, copper, manganese, fluorine, chromium, and molybdenum).[58] All biochemical and physiological processes in the body may be lacking, the functions of other interacting micro and macronutrients may be impaired, and some associated clinical pathologies may be observed in the absence of vitamins and minerals.[35,58] Together with this, unnecessary and high-dose use of vitamins and minerals may lead to toxic effects in the body due to the overstimulation of the immune system.[35]

Omega-3 fatty acids, which are obtained from fish oil such as eicosapanthenoic acid (EPA) and docosahexanoic acid (DHA), are commonly used all over the world as an important dietary supplement for children.[59] In the previous studies, fish oil usage rates among the children were found to range between 7.2% and 11.6%.[6,30,57] Eicosapanthenoic acid and DHA have significant physiological functions in the maintenance of human metabolism and health.[57] It is known that EPA has effects such as reducing blood clotting, decreasing blood pressure, and preventing sudden heart attack. Docosahexanoic acid is an essential food for the growth and development of children. In the literature, DHA has been reported to support the development of central nervous system and brain, to boost immune system, and to have an important role in the formation and function of retina.[57,59,60]

Echinacea, which is another botanical commonly used in children worldwide, was first used by American Indians and then was spread across Europe.[14] Echinacea plant is known to increase leukocyte count, to boost immune system, and has antiviral, antibacterial, and anti-inflammatory effects. Previous studies have also shown that echinacea has positive effects in case of lower and upper respiratory tract infections (cold, flu, tonsillitis, otitis media, asthma, pneumonia, and tuberculosis), oral and gingival diseases, vaginal infections, sleep problems, and stress and anxiety disorders.[14,26,51] However, it was also reported that gastrointestinal and skin reactions might be seen among the children with autoimmune and allergic diseases in echinacea use.[14]

Mind–Body Therapies

Mind–body therapies benefit from the methods allowing mind to affect body functions.[14] Mind–body therapies, which are recommended by the NCCAM, include various practices such as meditation, guided imagery, dreaming, tai chi, qigong, yoga, prayer, hypnosis,

Table 1. Studies on TCM Methods Used in Children

Researchers (Year)	Purpose	Study Design Sampling Instruments	Results
Stampini V, Bortoluzzi S, Allara E, Amadori R, Surico D, Prodam F, et al[3]	It was aimed to examine the prevalence and modalities of TCM use in children living in Italia and to estimate the prescription rate from pediatricians	Cross-sectional study n=147 Questionnaire form prepared by the researchers	The TCM usage rate of the parents was determined to be 48.3%. The most commonly used TCM methods have been identified as herbal medicine and homeopathy. The TCM usage rate was found to be decreased as the children's age increased. Among pediatricians, 81.5% prescribed TCM at least once, but only 13.6% received specific TCM training
Shosha S, Al-Maknei F, Hasan F, Abdulla Z, Ahmed R, Al-Alawi E.[5] (2017)	It was purposed to assess the prevalence of TCM use by parents for their children aged less than 5 years, common types used, and factors influencing their use	Cross-sectional study n=435 Questionnaire form prepared by the researchers	The TCM usage rate of the parents was determined to be 93.3%. The most commonly used TCM methods have been identified as biologically based therapies (phytotherapy), mind–body therapies, and manipulative and body-based approaches
Fesharakinia A, Abedini M.[7] (2014)	It was conducted to determine the prevalence, related factors, types, and the sources of information and knowledge of mothers for the possible side effects	Descriptive and analytical study n=300 Questionnaire form prepared by the researchers	It was determined that 35.6% of mothers had used TCM as medication at least once for their children during the last year. The most commonly used TCM methods have been identified as medicinal herbs (93.3%), oil rub (26.6 %), and prayer therapy (25.7%). It was found that only 1.3% of mothers knew that TCM may also exert some side effects
Frawley JE, Anheyer D, Davidson S, Jackson D.[8] (2017)	It was conducted to evaluate the use of TCM among Australian children within the previous 12 months	Descriptive and analytical study n=149 Questionnaire form prepared by the researchers	It was determined that 73.8% of mothers had taken their child to visit a TCM practitioner or given their child a TCM product in the previous 12 months. The 2 most frequently visited TCM practitioners were naturopath/ herbalist (30.4%) and chiropractor (18.4%). The most commonly used products were vitamins/minerals (61.7%) and herbal medicine (38.8%). A total of 52% of parents did not disclose their child's use of TCM to their medical provider
Italia S, Brand H, Heinrich J, Berdel D, Von Berg A, Wolfenstetter SB.[9] (2015)	It was purposed to present updated results for prevalence, predictors, and costs of TCM use among German children and a comparison with findings from a previous follow-up of the same birth cohort	Cohort study n=3013 Questionnaire form prepared by the researchers	The TCM usage rate of the parents was determined to be 26.0%. The most commonly used TCM methods have been identified as herbal drug and homeopathy. A homeopathy user utilized on average homeopathic remedies worth EUR 15.28. The corresponding figure for herbal drug users was EUR 16.02 and that for overall medicinal TCM users was EUR 18.72.
Italia S, Wolfenstetter SB, Teuner CM.[10] (2014)	It was aimed to summarize the international findings for prevalence and predictors of TCM use among children/ adolescents	Systematic review Four electronic databases (PubMed, Embase, PsycINFO, and Allied and Complementary Medicine Database [AMED]) n=58 eligible studies	The TCM usage rate was found to range from 10.9% to 87.6% for lifetime use and from 8% to 48.5% for current use. The most commonly used TCM methods have been identified as herbal drug (highest in Germany, Turkey, and Brazil) and homeopathy (highest in Germany, UK, and Canada).
Oren-Amit A, Berkovitch M, Bahat H, Goldman M, Kozer E, Ziv-Baran T, et al[11]	It was aimed to estimate the prevalence and describe the characteristics of TCM use among hospitalized children and to discover the awareness of medical staff regarding TCM use	Cross-sectional study n=146 Questionnaire form prepared by the researchers	The TCM usage rate of the parents was determined to be 54.3%. The major indications for TCM use were colic, teething pain, nasal congestion, cough strengthening, and providing energy. The TCM usage rate was found to be decreased as the children's age increased

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Table 1. Studies on TCM Methods Used in Children (*Continued*)

Researchers (Year)	Purpose	Study Design Sampling Instruments	Results
Dhankar M.[12] (2018)	It was purposed to study the prevalence of TCM use in acutely sick hospitalized children and factors associated with it	Cross-sectional study n=887 Questionnaire form prepared by the researchers	The TCM usage rate of the parents was determined to be 18.1%. Of these, 70.2% were using TCM for the current illness directly leading to admission and the remaining 29.8% had used TCM in the past. The most commonly used TCM methods have been identified as combined Ayurveda and spiritual approach (25.5%), Ayurveda (24.8%), spiritual (21.7%), and homeopathy (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)
Kim JA, Nam CM, Kim MY, Lee DC.[13] (2012)	It was aimed to estimate the prevalence, parent satisfaction with TCM therapy, and factors affecting satisfaction with TCM use	Descriptive study n=2077 Questionnaire form prepared by the researchers	The TCM usage rate of the parents was determined to be 65.3%. The most commonly used TCM methods have been identified as natural products (89.3%). More than half of TCM user's parents reported satisfaction with their therapies (52.7%)
Akçay D, Yıldırımlar A.[25] (2017)	It was purposed to evaluate the use of TCM in children without chronic disease and the relevant knowledge of their parents	Descriptive study n=696 Questionnaire form prepared by the researchers	All of the parents stated that they had used at least one of the TCM types for their children and 72.8% of them had used these methods frequently. It has been determined that the methods most known and used by the parents were herbal treatment and the religious methods, respectively. It was found that 51.2% of the families reported using TCM for their child for support and 38.4% for relaxation
Cohen EM, Dossett ML, Mehta DH, Davis RB, Lee YC.[26] (2018)	It was aimed to identify the prevalence of sleep difficulties in children and the prevalence and patterns of TCM use among children with trouble sleeping	Cross-sectional study n=8738 2012 National Health Interview Survey	It was determined that 6.4% of children in the 2012 NHIS dataset reported regular difficulty sleeping in the last year. Among children with sleep difficulties, 29% used at least 1 TCM therapy. The most commonly used TCM methods have been identified as non-vitamin and non-mineral supplements (14.6%), followed by manipulation therapies (9.2%) and mind–body techniques (8.8%)
Lombardi N, Crescioli G, Bettiol A, Menniti-Ippolito F, Maggini V, Gallo E, et al[27]	It was purposed to analyze the suspected TCM-related AR in the pediatric population	Retrospective study n=206 pediatric TCM-related AR reports, of which 69 were serious Italian Phytovigilance system database	Most reported ARs were related to dietary supplements (57.18%), and skin and subcutaneous tissue disorders (40.29%) were the most involved system organ class. TCM-related ARs reported as serious were higher in subjects exposed to homeopathic medicines, to TCM in the presence of concomitant medications, to TCM containing 2-4 components, and to more than 3 concomitant TCM
Araz N, Bulbul S.[28] (2011)	It was aimed to determine the prevalence, patterns of use, types, perceived effectiveness, and associated factors of TCM in children	Cross-sectional study n=268 Questionnaire form prepared by the researchers	It was determined that 58.6% of mothers had used TCM as medication at least once for their children during the last year. The most commonly used TCM modality was herbal preparations (82.7%), which were used to treat cough (42.0%), diarrhea (30.0%), and gas (colic) pains (34.4%). It was found that only 31.6% of these parents informed their doctor about their use of TCM to treat their children
Tuncel T, Sen V, Kelekci S, Karabel M, Sahin C, Uluca U, et al[29]	It was purposed to evaluate TMC, determine the frequencies of usage of these methods, and investigate the factors which have an impact on their usage	Cross-sectional study n=206 Questionnaire form prepared by the researchers	The TCM usage rate of the parents was determined to be 83%. The most commonly used TCM methods have been identified as belief-based application (73%) and herbal methods (57%). Wearing an evil eye bead (45%) and prayer (35%) to protect from the evil eye were the most commonly used methods. The most common medical conditions for which TCM was used included anemia, diarrhea, constipation, and cough

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Table 1. Studies on TCM Methods Used in Children (*Continued*)

Researchers (Year)	Purpose	Study Design Sampling Instruments	Results
Godwin M, Crellin J, Mathews M, Chowdhury NL, Newhook LA, Pike A, et al[30]	It was aimed to determine how common it is for parents to give NHPs to their children, which NHPs are being used, why they are being used, and parents' assessments of the benefits and side effects of NHPs	Cross-sectional study n=202 Questionnaire form prepared by the researchers	It was reported that 45.5% of the parents used vitamins NHPs and 28.7% of the parents used non-vitamin NHPs for their children. About 61.1% of the NHPs being used were vitamins. The remainder fell under teas (primarily chamomile and green teas), echinacea, fish or omega-3 oils, and a large category of "other" products. These NHPs were most commonly used to improve general health, improve immunity, and prevent colds and infections
Posadzki P, Watson L, Alotaibi A, Ernst E.[31] (2013)	It was aimed to estimate the prevalence of TCM use by pediatric populations in the UK	Systematic review Five electronic databases (AMED, CINAHL, Cochrane, Embase, and Medline) n=11 eligible studies (17.631 paediatric patients)	The average 1-year TCM usage prevalence rate was 34% and the average lifetime TCM usage prevalence was 42%. Herbal medicine was the most popular TCM modality, followed by homeopathy and aromatherapy
Özturk C, Karayagiz G.[32] (2008)	It was aimed to explore the use of TCM among Turkish children and the factors affecting their use	Cross-sectional study n=600 Questionnaire form prepared by the researchers	It was reported that majority of parents (57%) used TCM therapies for their child, with herbal therapy used most frequently (77%). The use rate of TCM was 49% for children with respiratory system problems and 25% for children with digestive system problems. Fifty-nine percent of parents stated that they used TCM to comfort their children and 25% to support prescribed medical therapy
Ustuner-Top F, Konuk-Sener D, Cangür S.[33] (2017)	It was conducted to determine the pediatric usage of TCM by parents in Turkey, the incidence of using these methods, and the factors affecting their use	Cross-sectional study n=497 Questionnaire form prepared by the researchers	It was determined that 97.7% of the parents had used at least 1 TCM method. The parents had used TCM methods mostly for respiratory complaints, fever, diarrhea, and cough. It was reported that the most commonly used alternative methods in the past were vitamin/mineral remedies, cold treatments, and Hodja (Islamic teacher) consultations, while the most common alternative methods currently used are massage, music, and cold treatment
Aydin D, Ciftci EK, Kahraman S, Sahin N.[34] (2015)	It was carried out in order to determine the alternative treatment practices used by mothers of children who had respiratory tract infection during their childhood period	Cross-sectional study n=220 Questionnaire form prepared by the researchers	It was found that 38.2% of the mothers sometimes used alternative treatment practices and 29.1% of them usually preferred to use these methods. It was determined that the most commonly used practice was warm shower to bring the fever down (47.7%), feeding with honey (e.g., ginger) to minimize coughing (51.8%), and cleaning nasal passages with saltwater (32.3%). About 77.7% of the participant mothers stated that these alternative methods were not harmful and 95.5% of them claimed that these methods did not have any adverse effects
Bülbül S, Sürücü M, Aşık, G.[35] (2014)	It was aimed to investigate the incidence and causes of vitamin usage	Cross-sectional study n=725 Questionnaire form prepared by the researchers	Over the last year, 67.8% of the parents had used vitamins for themselves and 72.9% had used them for their children. The most commonly used vitamins were B12 (6.4%), multivitamins (3.8%), and vitamin C (3.4%). The most common reasons for vitamin usage were to strengthen the immune system (30.7%) and to prevent cancer (17.7%).

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Table 1. Studies on TCM Methods Used in Children (*Continued*)

Researchers (Year)	Purpose	Study Design Sampling Instruments	Results
Nimbalkar AS, Mungala BM, Khanna AK, Patil KH, Nimbalkar SM.[36] (2019).	It was purposed to investigate parents/relatives of children admitted to inpatient services for their praying practices and beliefs thereof	Cross-sectional study n=150 Prayer Questionnaire Score Chart	Almost all parents (99.33%) believed that both medical care and prayer were required for recovery of patient. The average time of prayer in Pediatric Intensive Care Unit (PICU) (159 minutes) was more than that in NICU (109 minutes) and in pediatric ward (114 minutes). According to parents, average 52% recovery of patient was due to medicine
Schapowal A, Klein P, Johnston SL.[51] (2015)	It was aimed to search for clinical trials that studied recurrent respiratory infections and complications on treatment with echinacea extracts in a generally healthy population	Meta-analysis study Ten electronic databases (Medline, Embase, CAplus, BIOSIS, CABA, AGRICOLA, TOXCENTER, SciSearch, NAHL, and NAPRALERT) n=6 eligible studies	The use of echinacea extracts was associated with reduced risk of recurrent respiratory infections. It was found that complications including pneumonia, otitis media/externa, and tonsillitis/pharyngitis were also less frequent with echinacea treatment. Immune modulatory, antiviral, and anti-inflammatory effects might contribute to the observed clinical benefits, which appear strongest in susceptible individuals
Álvarez MJ, Fernández D, Gómez-Salgado J, Rodríguez-González D, Rosón M, Lapeña S.[52] (2017)	It was aimed to perform a systematic review to identify, evaluate, and summarize studies on the administration of therapeutic massage to preterm neonates during their stay in the NICU and to assess their methodological quality	Systematic review Four electronic databases (Medline, PEDro, Web of Science, and Scopus) n=23 eligible studies	It was demonstrated that benefits of massage therapy when administered to hospitalized preterm infants included better neurodevelopment, a positive effect on brain development, a reduced risk of neonatal sepsis, a reduction in length of hospital stay, and reduced neonatal stress. The reviewed studies presented a methodological quality ranging from 1 to 5 points (with a mean of 3 points)
Alcantara J, Whetten A, Ohm J, Alcantara J.[53] 2020	It was purposed to determine the effectiveness of chiropractic treatment for children	Cross-sectional study n=724 Questionnaire form prepared by the researchers and Outcomes Measurement Information System (PROMIS) parent-proxy short forms	It was determined that parents reason to use chiropractic treatment for their children, the overwhelming response was a combination of wellness care and to relieve symptoms (68.1%) followed by wellness care alone (21.4%) and solely to relieve symptoms (10.5%). The satisfaction levels of the parents were examined, and 59.4% of them stated that the karyoptactive treatment was "effective," 24.2% indicated a "neutral" assessment, and 16.3% found their child's chiropractic care as "ineffective."
Peng T, Chen B, Gabriel KP.[54] (2018)	It was purposed to describe the prevalence of chiropractic utilization and examine sociodemographic characteristics associated with utilization in a representative sample of US children and adolescents aged 4 to 17 years	Cross-sectional study n=9734 2012 National Health Interview Survey	It was determined that 12-month prevalence of chiropractic utilization in US children was 3.0%. Chiropractic utilization was higher among 11- to 17-year-olds, families with incomes ≥$100 000, and those who visited other Complementary and Integrative Health practitioners. Sex, parental education, and having an orthodox medical personal physician were not associated with utilization
Gleberzon B, Arts J, Mei A, McManus EL.[55] (2012).	It was aimed to conduct a search of the literature between 2007 and 2011 investigating the use of SMT for pediatric health conditions and to perform a systematic review of eligible retrieved clinical trials	Systematic review Two electronic databases (Index to Chiropractic Literature and PubMed) n=16 eligible studies	It was found that chiropractic treatment has positive outcomes in alleviating the symptoms of colic, asthma, enuresis, and constipation

AMED, Allied and Complementary Medicine Database; AR, adverse reaction; NHP, natural health product; NICU, neonatal intensive care units; PICU, Pediatric Intensive Care Unit; PROMIS, Outcomes Measurement Information System SMP, spinal manipulative therapy; TCM, Traditional and Complementary Medicine.

biofeedback, diaphragmatic breath work, progressive muscle relaxation technique, prayer/spirituality, cognitive–behaviorist therapies, dance, art, and music therapy.[17,18] Most of these practices, especially prayer, are commonly used among the parents. In the previous studies, most frequently used methods for children have been reported to be prayer, hypnosis, progressive relaxation exercises, meditation, and biofeedback. These methods generally do not have any side effects.[2,7,12,29,33,36]

Prayer, that is among spiritual needs, is the most commonly used mind–body therapy all over the world.[5,29,33,36] Embracing the power of belief and praying are the coping methods used by the parents in case that their children get sick. Previous studies have determined that spiritual/religious beliefs and practices decrease stress and anxiety, enhance physiological, psychological, and mental well-being, and strengthen the immune system.[2,5,36] Recent studies have shown that 35%-99% of the parents pray for the treatment of their children.[5,29,36] In addition to this, parents do not see spiritual practices as an alternative to medical treatment; they see them as a personal practice complementary to medical care.[2,36]

Hypnotherapy is a method encouraging the use of imagination to protect, improve, and promote the health of the children. Children and adolescents have a high tendency for hypnosis since they can be hypnotized quickly and deepened easily.[61] Previous studies have reported that hypnotherapy is most effective between 6 and 10 years old.[2,61] Hypnosis, biofeedback, and guided imagery have been shown to be effective methods that can be used as an adjunct to the medical treatment in common health problems such as acute and chronic pain, stress and anxiety disorders, enuresis, encopresis, sleep disorders, thumb-sucking, autoimmune nervous system disorder, attention-deficit and hyperactivity disorder, learning difficulty, asthma, cancer, and diabetes.[2,14,61]

Manipulative and Body-Based Methods

These methods involve the manipulation of one or more parts of the body (manual therapy).[14] According to the definition by the NCCAM, manipulative and body-based practices involve massage therapy, chiropractic, osteopathic manipulation, reflexology, acupressure, cryotherapy, hydrotherapy, Feldenkrais, craniosacral therapy, Rolfing, Bowen technique, and Trager approach.[2,17,18]

Massage is the most common manipulative practice used in children, and it can be performed by the parents at home and by licensed massage therapists and nurses at clinical environment. Previous studies reported its usage rate among the children between 39.1% and 66.9%.[16,24,33] It is known that massage boosts the immune system, increases blood and lymphatic circulation, provides the elimination of toxic materials from the body, improves the volume and capacity of the lungs, reduces the muscle tension, and provides relaxation and relief.[2,14] Today, massage is a routine practice used in many neonatal intensive care units in order to support the growth and development of premature infants, to regulate their vital findings, and to reduce nosocomial infections.[2,16,52,62] There are studies showing that massage that is regularly applied to the children by the parents before sleep decreases stress and anxiety and improves respiratory functions.[39,63,64] Moreover, previous studies have determined that massage is effective in alleviating the symptoms of asthma,[2] insomnia,[26] colic,[2,16] cystic fibrosis,[2] and juvenile rheumatoid arthritis.[2]

Chiropractic manual treatment is one of the most common TCM methods that is professionally used for children.[53-54] This method focuses on the relationship between the body structure (notably spine structure) and body function and how this relationship affects health. Literature data have shown that its usage rate among the children ranges between 3.0% and 20.3%.[24,53,54] Chiropractic is a method used to relieve especially muscle and joint pain in children.[54-55] Recent studies have shown that chiropractic treatment has positive outcomes in alleviating the symptoms of asthma, enuresis, constipation, infantile colic, fatigue, stress, and anxiety.[53-55] Together with this, it should be applied by a healthcare professional in order not to see any side effects following the treatment.[2]

The Role of Nurses in the Use of Traditional and Complementary Medicine Methods

Pediatric nurses have significant roles and responsibilities in the protection and promotion of health, prevention of diseases, and maintenance of a healthy lifestyle.[41] Nurses take on important duties in effective, reliable, and proper use of TCM practices since they are healthcare professionals who work most closely with children, adolescents, and society.[37,41] The prerequisite of bringing children and parents a necessary, adequate, and effective service for the nurses is to know sociocultural characteristics of the group to be served and health-disease practices, and this is important to improve the quality of the service to be given. Nurses have the opportunity to detect healthcare needs and practices easily since they have a continuous communication and interaction with children/parents.[37]

There are important points to consider while communicating with parents. Firstly, child and the family should be listened actively by considering the principles of family-centered care. Respect should be given to the perspective, values, and cultural beliefs of the family. It is required to accept the family as a member of the team and act together while using TCM methods.[65] Care should be taken to establish a non-judgmental communication between the parents and healthcare professionals. Lack of informing the parents and lack of taking their thoughts into account may affect the communication in a negative way while investigating treatment options. This situation may lead parents to take risks for unsafe treatment options and to discontinue necessary medical treatments.[37]

Most of the parents use TCM methods in line with the recommendations of their relatives and friends beyond the advice of healthcare professionals; and they avoid to inform them since many families believe that TCM practices are not related to the interest or expertise of healthcare professionals.[2] Pediatric nurses should collect data continuously about different treatment methods used by the parents. These data are necessary to evaluate positive or negative effects in the treatment of child and to make a proper consultation.[2,14,65] Data should be collected by sampling. For instance, it may be asked as “if the child uses any vitamins, herbs, supplements, tea, home medications, massage, chiropractic, acupuncture or other methods” instead of asking whether “he/she uses any alternative treatment or not.” It is also helpful to ask how the child or adolescent manages stress. These examples may include “exercise, prayer, music or speaking with friends/trustworthy adults.”[65]

Nurses have to be knowledgeable about and equipped with the benefits/side effects, application methods, and contraindications of TCM methods in order to provide a suitable training and consultation service.[2,65] The current literature on TCM practices should be examined and evidence-based studies should be followed.[14,65] The safety and effectiveness of the methods used by the parents should also be known.[2,14,65] The responses given by the children to TCM methods should be monitored, and measurable results should be determined for evaluation. Specific goals such as “relieving the symptoms” may be set to determine measurable results.[14,65] Unreliable TCM methods may lead to physical damage and may bring extra emotional and economic burden to the families.[2,14,65] Therefore, the principle of “do no

harm," which is the priority aim, should be in the center of all clinical practices.[65] However, it should be kept in mind that even the most innocent TCM practices may have adverse effects, and all family members, especially mothers, should be educated about these methods and their possible effects.[29]

Conclusion

It has been known that the use of TCM in children has gradually increased all over the world and gained importance in medical, economic, and social aspects in recent years. The most commonly used TCM methods in children and adolescents appear to be biologically based therapies, mind–body therapies, and manipulative and body-based methods. Vitamins/minerals, fish oil, massage therapy, chiropractic, prayer, and hypnotherapy appear to be prominent among these methods.

Since some TCM practices may have adverse effects and may interact with medications, these methods should be based on evidence. It is recommended to plan services for giving an emphasis on scientific studies that would provide evidence in this field, plan studies examining the effects and side effects of TCM methods, determine and support successful methods, ban the use of harmful methods, and include TCM practices in the nursing curriculum.

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