

The Role of Complementary Medicine in a Pediatric Day Center in Germany

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Keywords

CAM · Pediatrics · Pediatric day center

Summary

Background: The role of complementary alternative medicine (CAM) in pediatrics has considerably increased in the last years. The knowledge about potential side effects and possible interactions with conventional drugs is still limited, and often pediatricians do not know whether their patients use CAM. This can be critical, as in order to diagnose and treat illnesses properly physicians need to know about the full extent of the self-administered therapy of their patients. Many studies have been conducted in other countries in order to assess the extent of CAM use and the types of substances that are consumed, but in Germany data in regard to pediatric interventions are lacking. We therefore developed a questionnaire to evaluate the frequency of CAM use among German pediatric patients. **Patients and Methods:** 115 parents visiting the pediatric day center in Epe between September and November 2011 responded to the questionnaire. The survey contains questions concerning the prevalence of CAM use and data about socioeconomic factors. **Results:** A total of 75.7% of all children enrolled in the study had already been treated with CAM by their parents, while only 43.6% of the parents knew that there can be interactions with CAM and prescribed drugs. In only half of the cases (50.6%) the pediatrician knew about the CAM usage of the child. **Conclusion:** The frequency of CAM usage among children is higher than anticipated. It is essential that pediatricians know about possible interactions with conventional medicine, and it lies in their responsibility to include the question about CAM usage in their standard protocols.

Schlüsselwörter

Komplementärmedizin · Pädiatrie · Kinderarztpraxis

Zusammenfassung

Hintergrund: Die Komplementärmedizin hat insbesondere in der Pädiatrie in den letzten Jahren stark an Bedeutung gewonnen. Das Wissen über mögliche Neben- und Wechselwirkungen mit herkömmlichen Medikamenten ist begrenzt, und oft wissen Kinderärzte nicht, ob ihre Patienten Komplementärmedizin anwenden. Um jedoch eine Erkrankung adäquat diagnostizieren und behandeln zu können, muss der Kinderarzt über die bereits erfolgten Medikationen informiert sein. Zwar haben zahlreiche Studien in anderen Ländern das Ausmaß der Anwendung von Komplementärmedizin und die Art der dabei verwendeten Arzneimittel untersucht; für deutsche Kinderarztpraxen fehlen jedoch bislang noch Daten. Daher haben wir einen Fragebogen entwickelt, unter anderem mit dem Ziel, die Frequenz der Anwendung komplementärmedizinischer Therapeutika bei Kindern zu evaluieren. **Patienten und Methoden:** 115 Eltern haben zwischen September und November 2011 den Fragebogen bei ihrem Besuch in der Kinderarztpraxis in Epe beantwortet. Die Umfrage enthielt unter anderem Fragen bezüglich der Prävalenz der Anwendung von Komplementärmedizin sowie Daten über sozioökonomische Faktoren. **Ergebnisse:** Insgesamt haben 75,7% aller Kinder komplementärmedizinische Arznei von ihren Eltern verabreicht bekommen, während nur 43,6% aller Eltern wussten, dass es Wechselwirkungen mit herkömmlichen verordneten Medikamenten geben kann. Nur in der Hälfte der Fälle (50,6%) wusste der Kinderarzt über die Nutzung komplementärer Medikation bei den Kindern Bescheid. **Schlussfolgerung:** Die Häufigkeit der Einnahme komplementärmedizinischer Mittel bei Kindern ist höher als erwartet. Essenziell ist, dass Kinderärzte über mögliche Wechselwirkungen mit herkömmlichen Medikamenten Bescheid wissen, und es liegt in ihrer Verantwortung, die Frage nach der Anwendung von Komplementärmedizin in das Standardprotokoll zu integrieren.

Background

The role of complementary and alternative medicine (CAM) in the therapy of pediatric illnesses has considerably increased in the past years and will continue growing [1, 2]. CAM can be defined as ‘diagnosis, treatment and/or prevention which complements mainstream medicine by contributing to a common whole, by satisfying a demand not met by orthodoxy, or by diversifying the conceptual frameworks of medicine’ [3]. Or generally speaking, this means the integration of non-allopathic methods into preventive or acute health care [4]. This definition embraces herbal remedies, non-prescribed vitamins, and homeopathy. A high prevalence of the use of CAM in children has been documented; however, only a very small number of studies have been conducted in Germany. It is important for various reasons to know the full extent of the use of CAM especially in children, as the remedies used may seriously interfere with conventional medicine [5] and their efficacy may be questionable when used incorrectly [2, 6]. Only recently studies on adverse herbal drug reactions have entered the literature, but the doctor’s question about the use of CAM is not yet part of the standard protocol [7]. Only few patients and their parents tell their physician about the application of CAM [8]. The main reasons for this lack of communication are the physicians’ indifference or opposition towards CAM use and their emphasis on scientific evidence as well as the patients’ anticipation of a negative response from their physician [9]. As a result, it is very important that pediatricians are aware of the continuing increase of CAM use and encourage the patients’ parents to tell them about the substances they administer to their children.

The main focus of our survey lies on drug-based therapies containing naturopathic, dietary and food supplements, non-prescribed vitamins and minerals as well as herbal remedies. In a wider range, even commonly used remedies such as honey, special teas, or even herbs such as onions or garlic can be defined as CAM when used to prevent illness or enhance recovery. The fact that these seemingly harmless remedies may cause serious side effects is often not realized, and therefore it is important to know the frequency of their use. The full extent of CAM used in pediatrics in Germany is unclear as data are lacking. That is why we have designed a questionnaire in order to assess frequency, types, and conditions of CAM use against the background of sociodemographic data.

Patients and Methods

Between September and November 2011, 185 parents of children who were treated at the pediatric day center in Epe (Germany) were asked to fill out the questionnaire and 115 responded. While the parents were waiting to see the doctor, they were asked for 10 min of their time to fill out the questionnaire anonymously. By asking the parents directly on site, a high participation was anticipated.

Item with simple yes/no answer:

Has your child ever taken complementary medicine / alternative means?

yes
 no

Item with multiple answer options:

How did you get your information about complementary medicine?

relatives
 personal experience
 friends/ acquaintances
 homeopathic practitioner
 doctor
 others, if applicable where? _____

Fig. 1. Examples of item structures.

The questionnaire consisted of 23 items including 14 items regarding CAM use and 9 items asking about socioeconomic factors. The questions were primarily closed and structured into multiple categories, including areas for comments. Seven items concerning CAM could be answered with yes/no, and in 7 items regarding CAM use multiple answer options were given, including the possibility to write a comment (fig. 1). In the introduction text at the top of the questionnaire it was elaborated why this survey was conducted, that it is anonymous as well as voluntary, and most importantly that also remedies like honey, special herbal teas, or medicines based on plants can be classified as CAM and should be indicated. The survey further contained questions concerning the yearly and monthly prevalence of CAM use, the used type of CAM, the disease for which alternative remedies were used, and whether the pediatrician knew about this. It was further inquired if the parents themselves used CAM, why they chose to use CAM for their child, and how they found out about alternative remedies. Furthermore, the parents were asked about whether or not the child took prescribed drugs, how often the child took them, and whether or not it has taken them together with CAM. The use of CAM and the intake of prescribed drugs were correlated to sociodemographic factors. The personal questions concerning the sociodemographic data were put at the end of the questionnaire in order to allow the parents to adjust and feel secure about the anonymity of the survey.

Analysis of the Questionnaire

All calculations were performed with the statistic program SPSS, version 16.0. The analysis of the questionnaire was carried out descriptively by evaluating the relative frequencies and percentages. Furthermore the questionnaire was analyzed regarding situative and sociodemographic differences.

Results

From a total of 185 parents who were asked for their cooperation 115 parents (62.2%) agreed to fill out the questionnaire. A detailed description of the sample of parents who participated in the survey is given in table 1.

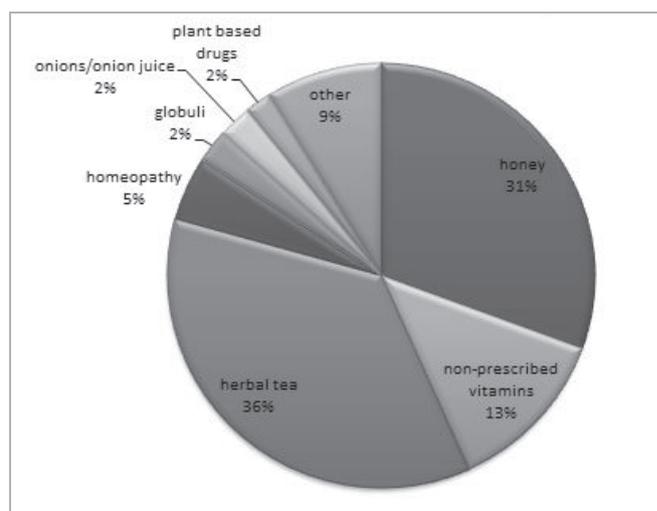
Analysis

A total of 75.7% of all parents have already applied CAM to their children, and the same percentage of parents has tried CAM themselves (79.1%). Two thirds of the children (68.9%) received CAM treatment in the last month and one third (31.1%) during the last year. The most commonly used CAM

Table 1. Description of sample

	n	%
Questionnaire filled out by		
Mother	101	92,7
Father	5	4,5
Other	3	2,8
Age of parents, years		
<20	2	1,8
21–30	45	41,4
31–40	43	39,4
>40	19	17,4
Employment status of the parent		
Working	56	51,4
Currently not working	53	48,6
Marital status		
Married	80	76,2
Divorced	11	10,5
Single	14	13,3
Graduation degree of parents		
Secondary school	7	6,7
Middle school	69	66,3
Grammar school	28	27,0
Child age, years		
< 10	87	87,9
> 10	12	12,1
Gender of child		
Male	46	43,8
Female	59	56,2
Number of children in a family		
1	44	41,5
2	38	34,9
≤3	25	23,6
Insurance status of child		
Statutory health insurance	96	91,4
Private health insurance	8	7,6
No insurance	1	1,0

remedies were honey (30.6%), various herbs including tea (36.0%), nonprescribed vitamins (12.7%), and 20.7% of the parents used various other remedies, such as onion and herbal drugs as well as homeopathy and inhalations (fig. 2). The different illnesses for which parents have used CAM were mainly diseases of the respiratory system such as asthma or the common cold (50.7%) and sicknesses of the gastrointestinal tract such as stomach aches or diarrhea (31.1%). CAM was further used for skin diseases (10.1%), and a small number of parents used CAM for otitis media, teething, sleep problems, and infection of the urinary system. The parents gained their knowledge about CAM mostly from family members (28.7%) and on the basis of personal experience (27.5%) but also from friends (15.2%), pediatricians (15.7%), and nonmedical practitioners (8.4%). A small number of parents indicated to get their knowledge from the pharmacy, their midwife, and the internet. The parents used CAM for their children mainly because of the assumption that the remedies have no contraindi-

**Fig. 2.** Substances of CAM consumed by children.

cations (42.8%), because they prefer ‘natural’ therapy (27.5%), and because the remedies are easy to administer (13.8%). Other reasons are the belief in a fast recovery (7.8%), and a small number of parents indicated that they use CAM because they simply want to test its efficacy. Furthermore, parents suppose the complementary remedies to be more effective than conventional drugs as they are based on plants. Thus they assume that a doctor’s advice on the application is not necessary. The majority of children (58.4%) received a combination of CAM and conventional medicine (15.6% use CAM alone, while 26% used prescribed drugs alone) while only 43.6% of the parents knew that there can be interactions with CAM and prescribed drugs. In only half of the cases (50.6%) the pediatrician knew about the child taking CAM, mainly because this was not a topic of conversation (73%) and because parents assumed CAM use being harmless (27%).

Discussion

Our study shows that three quarters of the parents who filled out the questionnaire additionally treat their children with CAM. In comparison with other current published studies [10–18] estimating the use of CAM in children between 8 and 23% the frequency of CAM use among children surveyed in our study seems very high. Gulla and Singer [19] reported a CAM usage of 56% in a pediatric emergency department, which is more conclusive with our numbers. Yet, we have detected a higher prevalence than other previously conducted studies. A possible explanation could be that we also considered orally consumed alternative substances being used very often in daily life and thus being reflected in a high frequency rate in our survey. Nevertheless, it is even more important to know that remedies appearing as ‘natural’ might have serious side effects. With 30.6%, honey was one of the most frequently

used substances, mostly in upper respiratory infections. However, only a few primary health care practitioners perceived it as a treatment or were aware of infant botulism [20], an age-limited neuromuscular disease causing a symmetrical, flaccid paralysis, resulting from neurotoxins produced by the anaerobe *Clostridium botulinum*. Moreover, honey can cause dental caries, hyperactivity, nervousness, and insomnia [21]. Another remedy often used in sick children is herbal tea (36%), which also has been reported to have side effects. For example, chamomille tea is a coumarin-containing herb, which has an anticoagulant effect [22]. Certainly, these side effects are either rare or occur mainly in cases of overdosing; nevertheless, it is important to know about them when treating children.

The mentioned studies have been carried out at sampled health care facilities such as hospitals, day centers, and emergency departments as well as in pediatric oncology. A conclusive trend towards a higher use of CAM in one of the different facilities could not be detected. Since we had not found any data in the literature about the use of CAM in children specifically in Germany, our data are of special importance for German pediatricians, as the frequency of CAM usage may vary between countries. The setting in which the questionnaire was distributed was a pediatric day center – for further evaluation of the frequency of CAM usage in children an additional survey in a hospital would be desirable.

In our study, only half of the parents believe that their doctor is aware of their child taking CAM. This could not be verified by asking the doctor directly due to anonymity reasons. With half of the parents returning the questionnaire, the response rate can be rated as good [23]. Furthermore, when using closed questions or questions with a few answering options there is a possibility that the outcome might be influenced in some way, resulting in higher frequencies for certain predetermined answers than they would have obtained under normal circumstances or even neglecting important aspects. That is why we have inserted a comment section in each item with multiple answers, and as these comments have been filled out very diligently, there is probably very little contortion.

Almost half of the parents (43.6%) were aware of possible interaction between CAM and conventional medicine but none of them could give an example. A case that highlights the necessity to know about possible interactions happened in the USA. A 16-year-old girl being HIV-positive for 1 year has been taking a recommended antiretroviral medication with therapeutic success, but then suddenly the CD4 T-cell counts had decreased and continued decreasing for the next month. Specialists found this inconclusive as the instructions have been followed and no other medication has been taken. While visiting her family practitioner he asked her whether she had been taking any form of CAM. It turned out that she had tak-

en St John's wort (*Hypericum perforatum*) against her depression, which interacts with the antiretroviral therapy as research suggests [24].

The knowledge of adverse reactions between CAM and conventional medicine is quite recent, and the question whether the child takes CAM is not yet part of the standard protocol. This case shows that it is very important for pediatricians to ask directly whether the child uses any other substances than conventional medicine, especially if the child suffers from a chronic disease. Patients suffering from chronic diseases are more likely to use CAM than other patients [25–27], and therefore they require special attention. In order to diagnose and treat the children effectively, it is imperative that pediatricians know about their patients self-treatment regimens [28, 29].

The pediatric day center is a monoprofessional institution with about 90% of the children having statutory health insurance. The remaining children had a private health insurance, and 1 child did not have any insurance. We did not detect any correlation between socioeconomic factors and the frequency of CAM use. In a study carried out by Many et al. [2012] analyzing the use of CAM among people with diabetes, it was stated that factors such as age, gender, income, and education were not associated with a higher rate of CAM usage [26]. In a previously conducted study [25] sociodemographic differences (i.e., family income, education) did not prove to be significant predictors for CAM usage.

However, it is not only the responsibility of the pediatricians to ask their patients' parents about the application of CAM to their children, but also the parents need to become more aware of the possible impact of substances their children consume. The case of the patient in USA is a common example for those who use herbal supplements or any other form of CAM assuming that they are safe because they are considered 'natural' [30]. If parents were better informed about the risks of CAM use and potential adverse reactions with conventional drugs, they probably would be more forthcoming in telling their physician about their self-treatment. Of course, most CAM therapies are safe and can be effective when used as recommended [31–34]. However, apart from the physician's position towards CAM, a good communication between pediatrician and parents is important [35, 36] and can even lead to higher levels of satisfaction in therapy on the parents' side [37].

Disclosure Statement

All authors contributed equally. The authors declare that there is no conflict of interest.

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