

# **COMPARISON OF COMPLEMENTARY AND ALTERNATIVE MEDICINE USE IN PEDIATRIC PATIENTS WITH CHRONIC DISEASES VERSUS HEALTHY PRE-SURGICAL PEDIATRIC PATIENTS**

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Complementary and Alternative Medicine (CAM) is not considered evidence-based medicine and therefore is not widely used in the world of conventional medicine even though some methods are well-established and effective. Studies have shown that cancer patients commonly use CAM to relieve their symptoms and side effects of conventional medical treatments. In this study, the beliefs about CAM and CAM usage are compared between parents of pediatric patients with chronic illnesses and healthy pre-surgery pediatric patients. Three-hundred families of children with chronic diseases and 213 families of children about to undergo surgery participated in the study. The parents responded to questions about their beliefs in CAM and holistic health and their use of various forms of CAM. The results showed no significant differences in CAM beliefs between parents of chronic pain group and the healthy surgical group. However, more parents in the chronic pain group reported they were “currently using” several different CAM modalities than parents in the surgical group. Therefore, although parents in the two groups did not differ in their beliefs in CAM, they did differ in their usage of various CAM treatments. Overall, people are starting to have more or less the same feelings about CAM, but parents of children with chronic diseases may have more reasons to seek CAM treatments such as massage and herbal remedies. Further research on individual CAM modalities is needed to provide patients with postoperative, acute pain as well with equally effective CAM treatments that may be able to replace conventional prescription drugs.

Complementary and Alternative Medicine (CAM) encompasses medical “practices and products that are not presently considered to be a part of [Western] conventional medicine”

though often used to complement Western medicine (National Institutes of Health, 2010).

Methods of CAM, such as acupuncture or manipulation of the body to improve blood flow and

nerve function, have existed for over 2000 years (National Institutes of Health, 2010). Modern

Western medicine or allopathic medicine, on the other hand, is today commonly associated with

doctors of medicine (MD) and osteopathy (DO) and conventional prescription medication. Many methods of CAM, although having long been established, are not considered evidence-based medicine, or medicine that has been validated with randomized controlled trials. Because of this, physicians often do not ask their patients about CAM usage; there is a subtle taboo associated with using CAM (Lim et al., 2005).

One of the most popular reasons why patients today choose to use CAM is dissatisfaction with the conventional Western treatments of chronic diseases (Furnham et al., 1993). For example, patients with nonmalignant chronic pain or pain stemming from their chronic illness such as cancer oftentimes do not want to overuse prescription drugs, or sometimes prescription drugs are not enough to alleviate the pain; thus, they seek out alternatives to help manage their pain (Post-White et al., 2008). Indeed, one of the main reasons for using CAM among pediatric cancer patients is to help manage the symptoms and side effects of the disease and the associated chemotherapy treatment (Post-White et al., 2008). These patients will often utilize herbal remedies to help manage those issues (Bishop et al, 2010). In a recent study, CAM usage was shown to be higher in children with chronic conditions (e.g., epilepsy, cancer, asthma, and sickle cell disease) in comparison to the general pediatric population (Post-White et al., 2008).

In addition to studies that show the inclination for chronically-ill patients to use CAM to manage symptoms from chronic diseases, there have been some recent studies that point towards CAM as a potentially valuable treatment for postoperative acute pain as well. According to a review on acupuncture and postoperative pain, three studies have found significantly lower pain readings within eight hours after surgery in the treatment group that was administered acupuncture compared to the control group (Sun et al., 2008). Another study performed on children in the intensive care, post-surgery unit indicated decreased pain scores within four hours

after receiving acupuncture (Wu et al., 2009). As with acupuncture, it is possible that other methods of CAM could also prove to be effective in treating postoperative pain with further research.

Although CAM is beginning to be examined in the context of more acute symptoms, there is very little research of CAM use with relatively healthy patients suffering from short-term symptoms such as acute postoperative pain. The purpose of this study, therefore, is to compare the beliefs in CAM and prevalence of CAM usage in parents of children suffering from chronic diseases to CAM beliefs and usage in parents of otherwise healthy children undergoing surgery. Healthy children recovering from surgery normally do not suffer from chronic pain; therefore, they are often given conventional prescription drugs because most side effects would be temporary. Based on past studies it can be expected that CAM usage will be more prevalent in pediatric patients with chronic illnesses than in pediatric patients with postoperative acute pain. Therefore, it is hypothesized that parents of children with chronic conditions (i.e., cancer) will endorse more favorable beliefs in CAM and greater CAM usage than parents of healthy children undergoing surgery.

## **MATERIALS AND METHODS**

*All experiments were carried out in accordance with the Review Board at the University of California, Irvine, and were consistent with Federal guidelines.*

### **Participants**

*Chronic illness group.* A total of 300 families with children with chronic illness participated in the study. Children were primarily oncology patients (70.3%) while the remaining were being treated for gastrointestinal (5.3%), rheumatologic (2.7%), metabolic (0.7%), hematologic (9.3%) and endocrinology (1.3%) illnesses. With regard to ethnicity, these families

were 29.7% Hispanic or Latino and 55.7% not Hispanic or Latino with no response from 14.6% of the subjects. Additionally, these families were 59.0% White, 8.0% Asian, 3.7% More than one race, 2.3% Other, 1.3% African American/Black, and 0.4% Native Hawaiian or Pacific Islander. The majority of the respondents were mothers (79.0%), followed by fathers (14.0%), and grandmothers (1.0%).

*Healthy/surgery group.* A total of 213 families with children with about to undergo surgery participated in the study. The majority of the children (66.7%) were undergoing ear-nose-throat (ENT) surgery, and the remaining children had the following surgeries: 11.7% orthopedic, 8.0% general, 7.0% ophthalmology, 5.6% urology, and 0.9% plastic. A majority of the families were of Hispanic or Latino background (62.4%) and 27.2% reported as not being of Hispanic or Latino origins. With regard to racial background, 73.7% were White, 7.0% Asian, 3.3% Other, 1.4% American Indian/Alaskan Native, 0.9% More than one race, and 0.5% African American/Black. Mothers were 73.7% of the participants and fathers the remaining 20.2%

## **Procedures**

Families of children with chronic illness were recruited in person during a scheduled medical visit in the CHOC Cancer Institute and Outpatient Infusion Center. Parents were given the option of finishing the packet while in the waiting rooms during their child's appointment or mailing the packet from home. Children and their parents in the healthy pre-surgery group were recruited in the holding-area of the St. Joseph's Outpatient Pavilion Surgery Center. Only parents of children with a health classification of I and II as determined by the American Society of Anesthesiologists, which means the child was "a normal healthy patient" or "a patient with mild systemic disease" (ASA Physical Status Classification) were recruited. Parents were instructed to finish the packet before or during their child's surgery. In both groups, parents had the option of

filling out the survey in English or Spanish and they provided written informed consent.

## **Measures**

*Demographics.* Parents were asked demographic questions regarding family income, and age, ethnicity and race of the parent filling out the questionnaire.

*Complementary and alternative medicine beliefs and usage.* The CAM questionnaire consists of two parts: a beliefs questionnaire that is measured by a previously developed and validated scale called the Holistic Complementary and Alternative Medicines Questionnaire (HCAMQ) (Hyland et al., 2003), and a survey listing 27 CAM modalities (e.g., herbal, massage, yoga) to which the parent was asked to respond with “never used,” “currently using,” or “used in the past” regarding each treatment.

The beliefs questionnaire consists of five statements pertaining to holistic health (HH) and six questions pertaining to CAM. Parents responded regarding their level of agreement to the statements regarding CAM (e.g., “Using alternative medicine leads to a permanent cure because it helps build your body’s defenses”) or HH (e.g., “Thinking positively can make a mild sickness better”) on a 1 (strongly disagree) to 6 (strongly agree) Likert-type scale. Among the statements, four expressed negative opinions of CAM or HH for which the scale would then be reversed to 1 (strongly agree) to 6 (strongly disagree). A higher total score indicates more favorable beliefs in CAM. This HCAMQ scale has been previously used and has adequate reliability and validity (Kersten et al., 2011).

## **Statistical Analysis**

SPSS version 18 was used to analyze descriptive statistics for the whole sample and conduct tests of group differences between parents of chronically ill children and parents of healthy, pre-surgical children. A t-test was used to test for the potential difference in CAM belief

scores between the chronic and surgical groups. Throughout the whole sample, Pearson product-moment correlations were used to measure the association between continuous variables (e.g., age, income) and CAM beliefs (e.g., total HCAMQ score). To analyze for differences between categorical variables (e.g., ethnicity, race) in regards to their relationship with CAM beliefs, analysis of variance (ANOVA) tests were performed on the total HCAMQ score as the dependent variable. These descriptive analyses were performed in order to adjust for any skewing of the total CAM beliefs scores that may be caused by differences in the different demographic variables. The responses to the 27 modalities of CAM were analyzed with chi-square to compare usage between the chronic group and surgical group.

## **RESULTS**

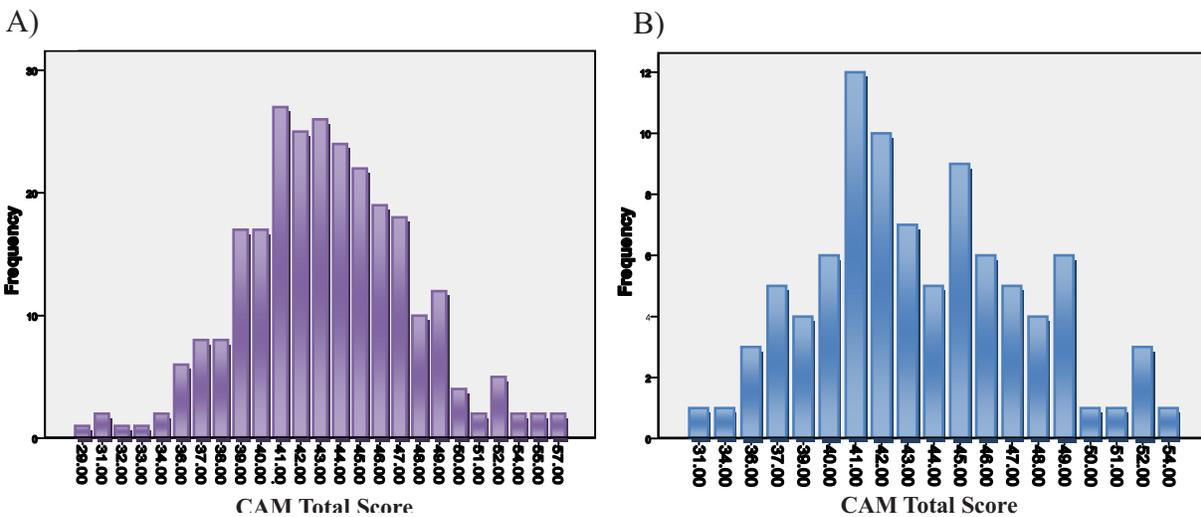
### **Descriptive Results**

In the total sample, correlations indicated that the relationship between the total CAM beliefs scores and income was not significant ( $p = 0.143$ ), nor the relationship between parent age and CAM beliefs ( $p = 0.124$ ). ANOVA revealed that the relationship between race and CAM beliefs was not significant ( $p = 0.556$ ). However, an ANOVA test showed a significant difference between CAM beliefs and ethnicity ( $p = 0.019$ ). Further analysis with a Bonferroni test indicated that non-Hispanic or Latino parents in both groups scored higher in total CAM beliefs scores than those that reported being Hispanic or Latino. A supplemental ANOVA test showed that parental ethnicity did not significantly interact with their group status (i.e., chronic or surgery) with respect to their CAM score ( $p = 0.405$ ).

### **Comparing Chronic and Surgical Groups**

In both the chronic and surgical groups, the participants' CAM belief scores generally

followed the normal curve and the mean scores (chronic: 44.33, surgical: 44.27) between the groups were comparable (Figure 1). A t-test indicated that CAM beliefs did not differ significantly between the parents of the healthy pre-op children and chronically-ill children ( $p = 0.915$ ).



**Figure 1.** Distribution of CAM belief scores for chronic group (A) and surgical group (B).

The chi-square analyses of the 27 modalities of CAM allowed an examination of the percentages of respondents per group that were using each modality of CAM. Although it was often mentioned in previous research, acupuncture was not reported as “currently using” by anyone in the sample. Results of the chi-square analyses that revealed significant differences in usage of CAM modalities between the surgical and chronic groups ( $p \leq 0.05$ ) are displayed in Table 2. Other modalities of CAM in the survey that did not yield significant test results were Ayurveda (East Indian medicine), chelation (the use of chemical chelating agents to detoxify metal from the body), folk medicine, diet-based therapies, megavitamin therapy, chiropractic care, aromatherapy, biofeedback, relaxation, deep breathing exercises, hypnotherapy, yoga, Qi

gong (Chinese mind-body practices), Tai Chi (a form of Qi Gong), prayer, energy healing therapy/Reiki, and exercise.

**Table 1.** Complementary and alternative medicine (CAM) usage between chronic versus surgical groups

<b>CAM type</b>	<b>Usage</b>	<b>Chronic</b>	<b>Pre-Surgical</b>	$\chi^2$	<i>p</i> -value
<b>Massage</b>	Never used	33.6%	43.2%	5.9	.052
	Currently using	25.5%	14.7%		
	Used in the past	40.9%	42.1%		
<b>Herbal</b>	Never used	60.7%	67.7%	7.1	.026
	Currently using	15.9%	6.25%		
	Used in the past	23.4%	26.0%		
<b>Acupressure</b>	Never used	75.9%	86.7%	6.3	.042
	Currently using	4.5%	1.5%		
	Used in the past	19.6%	11.8%		
<b>Homeopathy</b>	Never used	78.0%	86.0%	7.7	.022
	Currently using	6.4%	1.0%		
	Used in the past	15.6%	13.0%		
<b>Naturopathy</b>	Never used	81.2%	93.3%	10.5	.005
	Currently using	4.5%	2.1%		
	Used in the past	14.3%	4.6%		
<b>Reflexology</b>	Never used	66.4%	81.2%	11.8	.003
	Currently using	11.8%	3.1%		
	Used in the past	21.8%	15.7%		
<b>Meditation</b>	Never used	73.9%	82.3%	6.2	.045
	Currently using	3.6%	5.7%		
	Used in the past	22.5%	12.0%		
<b>Guided Imagery</b>	Never used	85.3%	92.6%	9.5	.009
	Currently using	1.8%	3.7%		
	Used in the past	12.8%	3.7%		
<b>Support Group</b>	Never used	66.1%	83.9%	12.6	.002
	Currently using	11.0%	5.2%		
	Used in the past	22.9%	10.9%		

## **DISCUSSION**

The purpose of this study was to compare the beliefs in CAM and CAM usage between the parents of pediatric patients suffering from chronic diseases and the parents of healthy patients about to undergo surgery. Overall, there appeared to be no differences between CAM beliefs for the two groups. However, there were differences between CAM usage between the chronic and surgical group.

The averages of the CAM belief scores were more or less equal, which indicated that there is no difference between the chronic and surgical group in terms of beliefs in CAM. This was not as originally hypothesized; however, this could show that even parents of children that may not be dealing with symptoms of illness, such as chronic pain, believe in the effectiveness of CAM. Also, there is a possibility that these parents of healthy children could be using CAM for only themselves, which the questionnaire was limited in distinguishing. Demographic analyses showed that overall, CAM belief scores were higher for parents that are not Hispanic or Latino than for parents that are Hispanic or Latino. The percentage of non-Hispanics/Latinos was higher in the chronic group (55.7%) than in the ethnicity group (27.2%), which might have skewed the data and pushed the chronic CAM scores up. However, the post-hoc ANOVA indicated that there was no significant interaction between parental ethnicity and surgical and chronic status on CAM scores. The difference between the total CAM beliefs scores of Hispanic or Latino parents and non-Hispanic/Latino parents may be due to differences in beliefs in traditional or folk medicine in various cultures in the non-Hispanic/Latino demographic. However, overall the parents of chronically-ill children and parents of healthy children in this study shared similar opinions regarding CAM as CAM has been proven effective in many recent studies.

Analyses showed the higher usage of most of the CAM modalities in the chronic group

over the healthy group. This was as hypothesized; and although both groups endorsed similar beliefs in the effectiveness of CAM, the parents of the chronically-ill children may have more reasons to seek CAM treatments. These reasons may include managing their long-term symptoms and side effects from conventional Western treatment (Post-White et al., 2008). All of the analyses that showed a noteworthy difference of CAM usage between chronic and healthy pre-surgical groups also showed a greater percentage of participants in the chronic group that are “currently using” CAM with the exception of meditation and guided imagery. However, both meditation and guided imagery are mind-body types of CAM that could benefit any person regardless of whether or not he or she has a disease (National Institutes of Health, 2010). Although the parents of both groups share equal beliefs about CAM, the parents of chronically ill children tend to use CAM more frequently.

In conclusion, the study has demonstrated that parents of chronically ill children and parents of postoperative children have similar beliefs in CAM as a viable option for medical treatment, but parents of children with chronic pain may have a tendency to use CAM more than parents of healthy children undergoing surgery, perhaps because healthy children do not have as great a need for it. However, CAM can also benefit children suffering from postoperative, acute pain as shown by the post-surgery acupuncture study. With more studies and randomized controlled trials performed on CAM modalities other than acupuncture, CAM use may increase for treatment of acute pain in the future.

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