THE EFFECTS OF PARENTAL ATTITUDES ABOUT PAIN MANAGEMENT USING ANALGESICS ON THE CHILD'S SELF PAIN REPORT

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There has been a shift in the management of pediatric pain from the hospital to home setting. Therefore, parents are largely responsible for adequately managing their child's pain. Unfortunately, parents under treat children's pain and parental attitudes about using pain medication for children have been highlighted as a barrier. This study examined the impact of parental attitudes on child pain report in pediatric cancer patients, a population vulnerable to the experience of chronic and recurrent pain. Two hundred and eight families of children between the ages of 8-18 who were diagnosed with cancer participated in this study. Parents filled out the Medication Attitudes Questionnaire (MAQ), a survey that assessed three factors of belief about analgesic use for children, including: appropriate use, fear of side effects, and avoidance. The results showed no difference in parental attitudes between children in pain and children without pain. Parental analgesic attitudes were not significantly related with child pain severity except in the case of avoidance or the belief that pain medication would work best only if it is given when the pain is severe. Contrary to what was anticipated, as avoidance increased child pain severity decreased. Further research will inform the complex relationship between parent's attitudes on pain and children's reported pain. This will help to improve the child's quality of life while reducing the physical and psychological aspects on pain.

Despite medical advances, pain is a prevalent problem that persistently affects patients who have undergone invasive medical procedures or who suffer from chronic medical conditions. In particular, pediatric cancer patients experience a great amount of chronic pain. Their pain symptoms come from the various treatments that they must undergo including chemotherapy, radiotherapy, or other interventional procedures. Due to the extensive treatment for cancer the disease has been classified as a chronic disease (Chapman 2011). Chronic pain can have both short term and long term effects that can impact the quality of life for children.

Children who experience chronic pain also exhibit greater levels of anxiety (Simons et al 2012) and chronic pain can continue to impact children well into adulthood, particularly in the areas of health, employment, and daily living (Smith et al 2001). Because chronic pain encompasses itself around one's entire life it is therefore important to understand its contributing factors.

An important shift in the management of chronic pain has been that nowadays more chronic pain related illnesses are being treated at home rather than at hospitals (Hendershot et al 2005). This brings more attention to the household because it is serving as a new center of wellness for the patient. Specifically, for pediatric patients this means that parents are responsible for providing sufficient care needed to manage pain. The child's parents are then the primary caregivers for administrating medications and judging how much pain the child is experiencing. Researchers have even shown that often times parents fail at accurately reporting their child's pain (Chambers et al 1998). Studies have shown that it is fairly common for parents with less education to be more fearful of analgesics in comparison to parents with higher education (Zisk et al 2007). Thus, parent factors are important in the management of children's pain at home.

One relationship that has not yet been closely examined is parent's attitudes about pain medications and children's pain report. This is an important area to examine because it is believed that children can modify their behaviors and learn from observing models, a phenomenon referred to as Social Learning Theory (Muuss 1976). It would be interesting to examine this theory in terms of how children learn to express their pain levels. For example, parents would serve as models, possibly by verbally instructing their child about their attitudes toward pain medications, and their child could be responding in ways that justify the parental message conveyed. The hypothesis of this study is that parents who encourage pain medication

use and provide optimum doses of pain medication teach their children that pain medication use is helpful. Therefore their children might report less pain because they believe the medication they had been given is working and that it is managing their pain. Conversely, parents who discourage pain medication use and as a consequence might not have been providing adequate doses could have taught their child that pain medication should be avoided. Thus their child could report more pain because they may believe pain medication is not helpful or simply may not be given adequate analgesia. The primary goal of this study is then to examine if parents who have negative perceptions about pain medications have children who report greater pain and if parents who have positive perceptions about pain medications will be have children who report less pain. The significance of this study is that if researchers can specifically establish some correlation between parental attitudes and children's pain severity then health care providers can aim to help parents change their views about pain medication in order to help their child better manage pain.

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

The participants examined for this study were part of a larger prospective, observational cohort study that followed children with chronic illness to determine factors related to pain management practices at home. Participants that were recruited included English- and Spanish-speaking children who were between the ages of 8-18 and their parent(s). The child must have been diagnosed with cancer. The subjects were seen at the Outpatient Infusion Center (OPI)

and/or the Cancer Institute at Children's Hospital of Orange County (CHOC). Exclusion criteria included developmental delays or special needs.

Procedures

Research associates contacted participants by mailing a letter of introduction to eligible participants at the Outpatient Infusion Center (OPI), Cancer Institute and/or Oncology inpatient floor. Two weeks later the research associate contacted the subjects via telephone in order to determine if the subject agreed to participate. Potential participants were also recruited during scheduled visits to OPI or Oncology floor. Parents and children completed questionnaire packets wither at home or at the OPI, Cancer Institute, or Oncology floor. The questionnaires included the Medication Attitude Questionnaire (MAQ), the Children's Pain Questionnaire (CPQ), and the PedsQL Cancer Module.

Measures

Demographics. Research associates collected demographic information from families including gender, education, race, ethnicity, occupation, age, and income.

Medication Attitude Questionnaire (MAQ). The MAQ (Zisk et al 2007) is a parent self report questionnaire designed to assess parental attitudes about using pain medication for children. The MAQ consists of 27 questions on a seven-point Likert-type scale that ranges from strongly disagree to strongly agree. A factor analysis on the MAQ suggested a 3-factor solution and these factors were Appropriate-Use (e.g., "Giving children pain medication for pain teaches proper use of drugs"), Side-Effects (e.g., "Side effects are something to worry about when giving children pain medication"), and Avoidance (e.g., "Pain medication works best if saved for when the pain is quite bad").

Children's Pain Questionnaire (CPQ). The CPQ was designed for the current study to assess the presence of pain, pain severity, and interference in daily activities as a function of pain. Children reported on pain severity at the time of the study participation and average pain in the week prior to study participation using a 100-mm visual analogue scale (VAS) with developmental anchors (e.g., 0=not hurting, 100=hurting a whole lot for children 8-11 and 0=no pain, 100=severe pain for children 12-18) (Varni and Hanson 1987; Gragg et al 1996). Children also reported on the presence/absence of pain in the past week.

Pediatric Quality of Life-Cancer Module (PedsQL Cancer Module). The PedsQL Cancer Module (Varni et al 2002; Varni et al 2001) is a 27-item multidimensional scale assessing quality of life related to cancer with eight categories: pain & hurt, nausea, procedural anxiety, treatment anxiety, cognitive problems, perceived physical appearance and communication. It is assessed on a five-point Likert-type scale from 0 being never to 4 being almost always. Both parents and children completed the PedsQL.

Statistical Analysis

Statistical analysis was completed using SPSS version 21.0. Specifically, Pearson product-moment correlations were conducted to determine if parental attitudes regarding pain medication (MAQ) were associated with children's pain report. Children's pain report was examined using the VAS and the pain subscale of the PedsQL Cancer Module. Children were then grouped according to the presence/absence of pain in the past week on the CPQ and a one-way analysis of variance (ANOVA) was used to compare parent MAQ scores between children who were in pain and children who were not in pain.

RESULTS

Participant Demographics

The patient demographics are shown in Table 1. Children were on average 13 ± 3 years of age and primarily Hispanic/Latino. The majority of participants were diagnosed with Leukemia, a type of cancer that that pertains to the blood or bone marrow.

Table 1 *Demographics and Baseline Characteristics*

Demographic Data	(n=208)
Age in years (mean ± SD)	13±3.0
Gender [n(% male)]	208(115)
Family Income (median)	$51,000-80,000
Race/Ethnicity of child	n(%)
African American/Black	1(.5)
Asian	11(5.3)
Native Hawaiian/Pacific Islander	2(1)
White	67(32.2)
More than one race	4(1.9)
Other	3(1.4)
Hispanic/Latino	120(57.7)
Illness Characteristics	n(%)
Types of Cancer	
CNS	32(15.4)
Leukemia	87(41.8)
Lymphoma	33(15.9)
Sarcoma	28(13.5)
Other (e.g., Wilm's Tumor, Hepatoblastoma)	27(13.0)
Treatment Status (%)	
On Chemotherapy	127(61.1)
Off Chemotherapy	73(35.1)

Note. Household income was a categorical variable, and thus the median category is presented.

Relationship between Parental Attitudes and Child Pain Report

The correlation between the parental analgesic attitudes (MAQ) and child pain severity using VAS showed an unexpected significant finding. MAQ Avoidance and VAS of pain and hurt in the past week were significantly, negatively related, $r(76)=-.240$, $p=.040$. The MAQ subscales of Fear of Side Effects and Appropriate Use showed no association with VAS of pain and hurt in the past week. In addition, VAS of pain and hurt for today was not associated with any of the MAQ subscales. See table 2 for results of the correlation analysis. The correlations between Parental MAQ and child pain severity from the PedsQL Cancer Module were also not significant (see Table 3).

Table 2 *Correlations with MAQ subscales and Child Pain Severity Report with the VAS*

Variable	Place a mark on line to show how bad your pain or hurt has usually been in the past week, VAS	Place a mark on the line to show how much pain or hurt you have had today, VAS
MAQ Fear of Side Effects	-.08	.04
MAQ Avoidance	-.29*	-.04
MAQ Appropriate Use	.05	-.01

** = Correlation is significant at the 0.01 level; * = Correlation is significant at the 0.05 level

Table 3 *Correlations with MAQ subscales and Child Pain Severity Report with the PedsQL Cancer Module*

Variable	Mean of Child Cancer Module Combined Ages: Pain and Hurt	Mean of Parent Cancer Module Combined Ages: Pain and Hurt
MAQ Fear of Side Effects	-.02	-.01
MAQ Avoidance	-.02	-.01
MAQ Appropriate Use	-.02	-.03

** = Correlation is significant at the 0.01 level; * = Correlation is significant at the 0.05 level

Mean Differences in Parental Attitudes in Children with Pain and Children without Pain

Results of the ANOVAs comparing mean scores on the 3 subscales of the MAQ (Avoidance, Fear of Side Effects, and Appropriate use) between children reporting pain and those who did not report pain were not significant. See table 4 for ANOVA results.

Table 4 *Mean Differences in Parental Attitudes in Children with Pain and without Pain*

	Children with Pain	**Children without Pain**
MAQ Avoidance (Mean±SD)	25.8 ± 6.9	26.0 ± 9.7
MAQ Fear of Side Effects (Mean±SD)	22.1 ± 3.4	22.2 ± 3.9
MAQ Appropriate Use (Mean±SD)	18.5 ± 3.6	18.5 ± 3.9

DISCUSSION

The purpose of this study was to determine if a relationship existed between parental attitudes about using pain medication for children and self-reported pain in a population of pediatric oncology patients. Parental attitudes about using pain medication for children were examined using the three MAQ subscales and children's self-pain report was examined both by using the VAS and PedQL Cancer Module. Contrary to hypotheses, results showed that there was no significant associations between parental attitudes about using pain medications and child self–pain report except in the case of avoidance. In addition, no differences were found in parental attitudes between children with pain and children without pain.

The correlations between the three MAQ subscales and the children's pain severity showed no significant associations between the variables except in the case of avoiding pain medication and reported child pain severity in the past week. This important association found was between the avoidance subscale of the MAQ and children's average pain severity in the previous week was significant, but it was a negative (and small) relationship. This implies that as parental attitudes about avoidance for pain medications increased the child pain report scores decreased. That is, parents who endorsed higher levels of the belief that pain medication should be avoided had children who reported less pain. It was expected that parents who endorsed higher levels of avoidance of analgesic would have children who reported more, not less, pain. Findings may reflect methods by which parents promote pain coping at home. For instance, parents who believe analgesia should be avoided may encourage children to be stoic about their pain, believing people should "tough it out" and therefore, children may report lower pain severity. Therefore it would be vital to explore reasons why parents might avoid pain medications. In fact, a recent study that examined both American and Finnish parents who had

children undergoing surgery reported that one-third of the American and more than one-fourth of the Finnish parents believe that smaller doses of pain medication should be give at home (Kankkunen et al 2008). Parental misconceptions about analgesics can cause parents to avoid analgesics because they assume that at home less pain medication is required than at a hospital setting. Parents might assume that because the child has been allowed to go home after surgery they are in the process of recovering and their pain levels have been somewhat stabilized by healthcare providers.

The correlations between the three MAQ subscales and child pain severity report with the PedsQL Cancer Module were performed to further explore if any association existed between parental attitudes about pain medication and the child pain report score. After analyses, no association was found between the MAQ subscales and both the child and parent report of quality of life during cancer treatment. This finding was also unexpected because it was expected that higher parental misconceptions about analgesia would relate to lower quality of life.

When analyzing mean differences in parental attitudes between children with pain and children without pain no significance was found. Parental misconceptions might not be the reasoning as to why child pain severity scores vary among children. Other factors may play a more important role including: the intensity of the child expression of pain, or the trust in the healthcare provider directions about administration of pain medication. Further research should be conducted to test these speculations.

In conclusion, pain that is not properly managed in children can have detrimental effects on the child's overall quality of life. It is therefore important to conduct further research on the numerous factors that lead to parental misconceptions about analgesics. Research from studies examining the role that parents play into managing pain will provide a good starting ground

because parents assume the equivalent responsibility of a healthcare provider at home. As more advancements are made in this field better methods will be implemented to help children alleviate pain. Further studies on the multitude of factors examining why different levels of pain intensity are reported should be performed to help pediatric patients live a life minimizing the negative effects of pain.

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