

Home Management of Acute Postoperative Pain
in Toddlers Aged 12 to 24 Months

By

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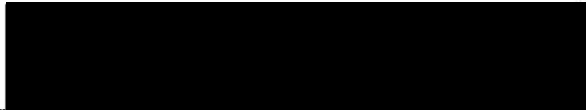
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A Master's Research Project

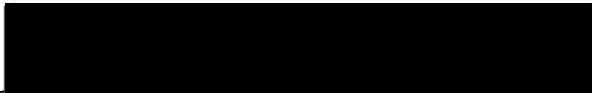
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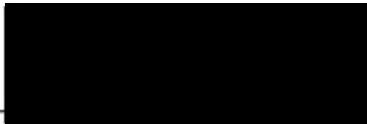
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cmb tag

To SMK, thanks for everything.

tag

ABSTRACT

TITLE: Home Management of Acute Postoperative Pain in Toddlers Aged 12 to 24 Months

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The American health care system has moved toward day surgeries and procedures. Children's postoperative pain is managed at home by their parents. The purpose of this descriptive study was to describe home management of acute postoperative pain in toddlers, examining for differences in the ways that parents perceive and manage their boys' and girls' pain.

This study looked at a convenience sample of 9 toddlers, 4 boys and 5 girls, aged 12 to 24 months, who underwent hospital-based day surgery. Parents filled out a questionnaire in the hospital and a researcher-developed three-day pain diary at home. T-tests were used to analyze the data. No statistically significant gender differences were found in the ways parents perceived and managed their boys' and girls' postoperative pain. A correlation between parental expectation of their child's pain level and the reported pain level after surgery was found. The reported pain levels were less than parents expected. Parents who rated themselves as more anxious/nervous prior to their child's surgery rated their child's postoperative pain as higher. It was also found that parents who believed you

can't spoil a child in pain and that children don't exaggerate pain used more non-pharmacological pain management methods. Written comments by parents showed that some of the children exhibited behavior changes postoperatively that were not identified by parents as being indicative of pain. Parents who returned the diary were able to rate their child's pain on a 1-to-10 scale, and to describe pain cues and pain management methods. They also provided written comments when asked to do so. Generalizability is limited by a small sample size. This study provides beginning information about home management of acute postoperative pain in toddlers. Further research in this area is warranted.

TABLE OF CONTENTS

Chapter 1 Introduction	1
Chapter 2 Review of the Literature	3
Pain Behaviors in Toddlers	3
Pain and Gender	4
Gender-specific Behavior and Toddlers	6
Parental Beliefs About Pain and Gender	8
Factors Involved in Decisions to Manage Pain in Children	9
Home Management of Acute Pain in Children	11
Summary	12
Conceptual Framework	13
Research Questions	15
Chapter 3 Methods	17
Design	17
Sample	17
Setting	20
Instrumentation	22
Parent Questionnaire	22
Pain Diary	24
Procedure	27
Human Subjects Protection	27
Chapter 4 Results	29
Data Analysis	29
Research Question One	29
Research Question Two	30
Research Question Three	32
Research Question Four	34
Research Question Five	35
Research Question Six	37
Research Question Seven	38
Research Question Eight	39
Other Findings	40

Chapter 5 Discussion	44
Discussion	44
Strengths and Limitations	48
Implications for Further Clinical Research	49
Implications for Future Nursing Practice	51
Summary	51
References	53
Appendices	
A. Home Care Guidelines	59
B. Parent Questionnaire	64
C. Pain Diary	67
D. Consent Forms	74
E. Approval Letters from the Institutional Review Boards	81

LIST OF TABLES

Table 1: Characteristics of the Study Sample	19
Table 2: Types of Surgery	21
Table 3: Frequency and Ranking of Pharmacological Pain Management Methods	32
Table 4: Frequency and Ranking of Non-pharmacological Pain Management Methods	33
Table 5: Frequency and Ranking of Total Reported Behavioral Pain Cues	35
Table 6: Frequency and Ranking of Total Reported Functional Pain Cues	37
Table 7: Pearson's Correlations for Parental Belief Scores and Pain Management Methods	39
Table 8: Parent Comments Day 1	42
Table 9: Parent Comments Day 2	43
Table 10: Parent Comments Day 3	43

CHAPTER 1

The American health care system has moved from lengthy hospital stays to day procedures and home care. The popularity of outpatient surgery has increased dramatically in the past ten years, and it is estimated that about 60% of all surgical procedures will be done as outpatient cases by the turn of the century (Miguel, 1994; Parnass, 1993).

Outpatient surgery is not limited to adults. Many children experiencing surgical procedures such as tonsillectomy and herniorrhaphy are seen as day-surgery patients. They spend little time in the hospital before they are discharged home (Astfalk, Warth, & Leriche, 1993). Their postoperative pain is managed by their parents.

Pain is defined as an unpleasant sensory and emotional experience associated with actual or potential tissue damage (Bonica, 1979). McCaffery (1979) defined pain as whatever the person experiencing it says it is. Since young children are limited in their verbal ability to describe pain (Burokas, 1985), nonverbal behaviors and verbal sounds are used as a way to assess pain in this age group. These associated pain behaviors may be interpreted in gender-specific ways by adults.

Research by Fagot (1974, 1978) found that parents react differently to their toddler's behaviors, based on whether the child is male or female. This showed that gender-stereotyping starts early in life, before the child has an idea of his or her own gender identity. Other researchers (Condry & Condry, 1976) found that behaviors were labeled differently if a child was thought to be male or female. This study explored whether parents view pain behaviors differently in male and female children.

Several studies have demonstrated that nurses view behaviors such as crying, not

moving, guarding, and grimacing as associated with postoperative pain in toddlers (Burokas, 1985; Davis, 1990; Gadish, Gonzalez, & Hayes, 1988). Gedaly-Duff and Ziebarth (1994) reported that parents use nonverbal behaviors such as crying, grimacing, and tiredness as pain cues in postoperative five-year-olds. However, little is known about how parents interpret the behaviors of male and female toddlers experiencing pain following surgery.

Eland and Anderson (1977) stated that nurses may react to pain in children based on the nurses' ideas of sex-role stereotyping. McGrath (1993) stated that boys may be expected to tolerate higher levels of pain than girls, due to familial, cultural, and societal norms related to pain behaviors. It is unknown if parents treat pain in children differently based on the child's gender.

The purpose of this study is to describe home management of acute postoperative pain in toddlers, examining for differences in the way that parents perceive and manage their boys' and girls' pain.

CHAPTER 2

Review of the Literature

This section will review research literature related to pain behaviors in toddlers, pain and gender, gender-specific behavior and toddlers, parental beliefs about pain and gender, factors involved in decisions to manage pain in children, and home management of acute pain in children.

Pain Behaviors in Toddlers

A few studies have examined toddler pain behaviors (Mills, 1989; Taylor, 1983). These studies did not discuss gender-specific behaviors, nor did they describe whether nurses or parents reacted differently if the toddler was male or female.

Mills (1989) conducted a study to assess pain behaviors in infants and toddlers following surgery, fractures, or burns. The study showed that as children develop, their pain behaviors change. Toddlers aged 12 to 18 months cried, were angry, jumped, and vocalized using short words. Older toddlers, aged 18 to 24 months, avoided eye contact and increased their vocalizations to short phrases. Differences between females and males were not discussed. Although parents were interviewed and asked to describe the behaviors that indicated pain in their child, the parents' answers were not specifically mentioned in the article. It is unclear whether there were differences in what parents identified as pain and what the trained observers identified as pain.

Taylor (1983) performed an observational study to determine whether toddlers and preschool children experience pain following herniorrhaphy. She was able to describe specific behaviors and vocalizations related to pain. These varied with the age of the child.

Although pain interactions between parents and toddlers were observed, it was not discussed whether the gender of the child led to differences in parental response, or in the child's behavior. Taylor (1983) did discuss some of the non-pharmacological measures parents used to comfort their children, such as holding them, providing new toys, and distraction. The children were not medicated. She did not investigate how the parents recognized that their children were in pain.

Tarbell, Cohen, and Marsh (1992), developed a tool, the Toddler-Preschooler Postoperative Pain Scale (TPPPS), to assess postoperative pain in children aged one to five. They observed 74 patients who had undergone inguinal hernia or hydrocele repair. They looked at pain behaviors in the first 30 minutes after awakening from anesthesia. These behaviors included vocal, facial, and bodily expressions of pain.

These studies looked at pain behaviors in toddlers. One study briefly discussed some non-pharmacological pain management methods used by parents. Gender was not mentioned as a variable in these studies. This study identified and compared parents' recorded observations of pain cues in their boy and girl children aged 12 to 24 months, as well as responses to the pain cues.

Pain and Gender

Pain research with toddlers is notably silent with regard to gender. Yet, several adult studies indicated that gender influences health professionals' pain management decisions and beliefs.

In a study by Calderone (1990), it was found that nurses gave pain medications more frequently to adult male patients than to adult female patients. Female patients were

given sedative medications more often than male patients. She pointed out that this difference occurred even though the orders for pain medication were already written, but a physician needed to be contacted before giving sedatives. The reasons for the difference were not fully explained, but the author stated they may be due to nurses' perception of gender-appropriate behavior. The patient behaviors were not discussed, however. A strength of this study was that it was done using a chart review; the nurses did not know the study was going to be done. This approach, however, was not feasible with this study. There was no similar study in the pediatric pain literature. This study reported the frequency of pharmacological treatment of pain of boy and girl toddlers by their parents.

Peternelj-Taylor (1989) found that there were differences in the way nurses view adult patients based on appearance and gender. In this study, male patients were viewed more negatively than female patients. This suggested that nurses were not gender-neutral in their treatment of patients. Again, there was no comparable study in the pediatric literature. The study used an all-volunteer, all-female sample of nurses. Descriptive vignettes were used; it is not known if the nurses actually treated patients differently based on gender. This study used investigator-developed pain diaries; parents were asked to fill out the diaries as they treated their boy or girl child.

McCaffery and Ferrell (1992) conducted a survey to find out whether nurses thought patients' pain responses were influenced by gender. Their sample consisted of 362 nurses who attended a pain education conference. They found that nurses thought gender differences existed in pain tolerance (women tolerate more pain), pain distress (men have greater distress), willingness to report pain (women are more willing), and nonverbal

expression of pain (women are more expressive). The study did not examine whether the nurses treated the patients differently based on their beliefs. This study looked for differences in the ways parents treated their boy or girl child in pain.

A study by Colamenco, Beder, and Simpson (1983) examined physician attitudes toward adult patients. A sample of 109 male and 19 female physicians responded to questionnaires that presented case vignettes. The vignettes differed only in the gender of the patient. This study found that female patients were perceived as more emotional than male patients. This supported the idea that physicians are not gender-neutral in their reactions to patients.

Adult studies have found that differences existed in how nurses and physicians perceive and medicate adult patients experiencing pain. While gender differences in the way health care professionals view children in pain has not been explored, some studies have looked at parental beliefs about gender and pain.

Gender-specific Behavior and Toddlers

Although gender differences have not been examined in toddler pain literature, they have been studied in other arenas, including child development. Researchers in this area have regarded gender as an important variable in their studies about toddler behavior and parental responses to the behavior.

Early research by Condry & Condry (1976) found that observers labeled identical behaviors differently based on whether they thought they were observing boys or girls. The same behavioral expressions were labeled differently in boys in girls. Boys were said to be angry, girls were said to be fearful. Since pain in young children is often expressed

through behavior, it may be that the behavior is interpreted differently based on the gender of the child.

Fagot (1974, 1978) studied parents' reactions to toddler behavior. She observed parent-child interactions in the home. She found that there were differences in the way parents interacted with boys and with girls. Boys were more likely to be left alone and their play was more likely to be stopped; girls were given more praise and more criticism. She also found that parents have sex stereotypes which can lead to differential treatment of boys and girls. Although this research did not address pain behaviors specifically, it did show that parents' reactions to and interpretations of their child's behavior were based at least in part on the child's gender.

Fagot, Hagan, Leinbach, and Kronsberg (1985) observed adult-toddler interaction in play groups. The first observations were made when the children were 13 and 14 months old. There were no gender differences in assertive acts or attempts to communicate with adults. However, adults attended to boys' assertive acts more than to girls' assertive acts. There were also differences in the way adults responded to attempts at communication. In order to gain the adults' attention, boys had to make more intense efforts at communication than girls did. When some of the same children were observed no more than 11 months later, gender differences in behavior were found. Girls talked more; boys were more assertive. The authors commented that adult reactions to early behaviors helped shape and define later behavior. Parental reactions to pain behaviors in 12 to 24-month-old boys and girls are described in this study.

In a more recent study, Mitchell, Obradovich, Herring, Tromborg, and Burns

(1992) found gender differences in adults' reactions to toddlers. Adult males' involvement style was more often physical and interactive (holding or carrying the child) than adult females. A larger percentage of male toddlers than female toddlers were allowed to walk alone. This study was different from those done by other investigators in that it looked at behavior in public places. The subjects did not know they were being observed. The authors commented that although the differences observed were subtle, they offered insight into the ways which gender roles are modeled by parents.

While none of these studies looked at pain behaviors, it was shown that parents react to toddler behavior in gender-specific ways, and that these reactions may change the way the children behave when they are older. By describing parental observations and management of their children's pain, and looking for gender differences in the toddler age group, this study explored the possibility that gender-related responses to toddler pain behavior may exist.

Parental Beliefs About Pain and Gender

Two studies have examined parental beliefs regarding pain and gender. These studies found gender differences.

Schechter, Bernstein, Beck, Hart, and Scherzer (1991) conducted a study to examine differences in children's responses to pain. They looked at a sample of 65 5-year-olds receiving immunizations and their parents. When questions about parental beliefs regarding pain were asked one month before the immunizations, they found that fathers agreed more strongly with the statement that boys handle pain better than girls do. Mothers did not agree with this statement as strongly. This suggested that mothers and

fathers may have differing beliefs about children and pain. It was not known if the mothers and fathers treated their children's pain differently.

Hill and Zimmerman (1995) studied mothers of children with sickle cell disease (SCD). They used a convenience sample of 36 African-American children. The children ranged in age from two months to 22 years, with a mean age of 10.4 years. Data were collected through in-depth interviews. They found that there were gender differences in the way boys and girls were viewed related to their disease. Girls were seen as hardier, and better able to tolerate the physical discomfort from the disease. Boys were seen as more fragile and vulnerable. Mothers tended to protect their sons more, in an effort to decrease the amount and severity of pain crises associated with SCD. They stated that these differences may be related to gender-based norms. This study showed that there were gender differences in the way mothers treated their children at home. Although there were younger children in Hall and Zimmerman's (1995) study, it did not look specifically at any single age group. This study looked only at toddlers aged 12 to 24 months.

These two studies showed that gender differences exist in the ways parents view children in pain, or children at risk for pain. They did not discuss differences in pain behaviors or whether parents managed pain differently for boys and girls. This study attempted to describe these differences.

Factors Involved in Decisions to Manage Pain in Children

There were no studies describing parents' decision-making in regards to pharmacological management of acute pain in toddlers or children. Several studies examined factors involved in nurses' decisions to give pain medication to children

(Burokas, 1985; Bush, Holmbeck, & Cockrell, 1989; Davis, 1990; Gadish et al., 1988; Ross, Bush, & Crummette, 1991). These studies used clinical vignettes, questionnaires, and/or chart reviews to obtain data. Davis's (1990) study was the only one to focus exclusively on toddlers. In the research by Ross et al. (1991) and Bush et al. (1989), the subjects were at least four years of age.

When clinical vignettes were used, the vignettes were gender-specific. The authors did not discuss the reasons for using gender-specific vignettes. The vignettes used by Ross et al. (1991) all concerned a male child. Burokas (1985), Davis (1990), and Gadish et al. (1988) described male and female children in the vignettes they used, but this was never the only difference in the vignettes. However, when nurses' responses to the vignettes were analyzed, gender was not addressed as a potential factor involved in the decision to give pain medication.

It was discovered that nurses' responses to vignettes and questionnaires did not always correlate with chart review findings. Burokas (1985) found that nurses gave fewer doses of pain medication in clinical practice than in the vignettes. Davis (1990) and Gadish et al. (1988) found that the factors which nurses listed as influencing their decisions were not always evident in the patient's charts. For example, nonverbal behaviors were identified as influencing medication decisions in the vignette descriptions (Davis, 1990), yet these behaviors were not charted. Vignettes and questionnaires may not be the most accurate way of assessing elements involved in nurses' decision-making regarding pain medication. This study used a pain diary to list specific toddler behaviors related to pain, comfort measures described in other studies, and frequency of medication.

Several different factors were found to influence pain medication administration. Bush et al. (1989) found that seriousness of procedure was the best predictor. Pain behaviors, including nonverbal behavior, and vital signs were factors described by several researchers (Burokas, 1985; Davis, 1990; Gadish et al., 1988). All the studies found that multiple factors were involved in a nurse's decision to give pain medication. Interestingly, gender was not addressed as a possible variable that may have influenced a caregiver's assessment or management of pain. Nursing literature has concentrated mainly on decisions to use pharmacological methods of managing pain; families may use other strategies. These strategies may include non-pharmacological methods. This study examined both pharmacological and non-pharmacological methods of pain management.

Home Management of Acute Pain in Children

Home management of pain includes recognizing pain in toddlers via behavior interpreted as pain, and treating pain either with pharmacological and/or non-pharmacological methods. This process has not been described for parents of toddler boys and girls. Limited literature related to home management of acute pain in children exists.

Gedaly-Duff and Ziebarth (1994) looked at mothers' experiences related to identifying and managing their child's pain following adenotonsillectomy. The study looked at preschool children. Gender was not addressed. Some themes identified were that mothers used some pain cues similar to those used by nurses and physicians, such as crying and grimacing, and that mothers worried about drug addiction. Functional cues such as "not drinking" were also used by mothers as indicators of pain. These types of cues were not discussed in the literature related to pain behaviors of hospitalized children.

This study examines both parents' perceptions and management of both behavioral and functional pain cues in their toddler children.

Bartley and Connew (1994) studied the difficulties parents had in caring for children aged two to ten after tonsillectomy. They found that some parents were unable to adequately manage their child's pain with oral pain medications. Some also had trouble in trying to get their children to drink fluids. Gender of the children was not mentioned. The study was done in Australia. The postoperative instructions given to the parents were not explained except to say all parents received the same pamphlet; it was not known if these instructions differed from those commonly used in the United States, which could limit the generalizability of the results. The authors stated the need for further studies to examine parental management of pain, because they found that this was an area of concern for parents. This study will describe how parents manage postoperative pain in their toddler children.

Summary

Research has shown that there are many factors involved in nurses' decisions to administer pain medication to children. In studies with children, gender was not addressed as a factor in pain decision-making. Nonverbal behavior has been shown to be a factor in nurses' decisions to medicate for pain in toddlers. It has also been shown that parents often react differently to toddlers' behavior based on the gender of the child. Although gender differences in parents' beliefs about pain have been found, whether a child's gender affects parental decisions relating to pain management and pain medication administration has not been studied. Since more and more children in acute pain are managed at home by

their parents, this was an area that warranted research.

Conceptual Framework

The conceptual framework that guided this study consisted of two major concepts, toddler development and parental interpretation of toddler behavior. This section explores the relationship between the two, and links them to the purpose of this study, which is to describe home management of acute postoperative pain in toddlers, examining for differences in the way parents perceive and manage their boys' and girls' pain.

According to the theories of Jean Piaget, as outlined by Waechter, Phillips, and Holaday (1985), the toddler is in the sensorimotor period of development. The toddler is not able to form concepts per se, but is beginning to use symbols and imitation to understand his or her environment. One of the concepts that is not yet concrete in the mind of the toddler is that of gender identity, which is defined by O'Brien (1992) as "the extent to which an individual consciously adopts attitudes and behaviors considered typical for his or her gender" (p. 326). Leinbach and Fagot (1986) found that gender identity is not established before the age of two or older. This is supported in developmental texts (Harris & Liebert, 1984; Schuster & Ashburn, 1992). The toddler is learning gender identity through interactions with his or her environment or social group. For toddlers, this social group is the parents and family.

The toddler is also learning to express ideas and emotions through verbalizations. There are wide variations in the ages at which words begin to flow readily (Vaughan & Litt, 1990). The toddler uses one to two word sentences; the words tend to be simple, salient, and overgeneralized. The same word may be used for more than one object,

feeling, or emotion (Dixon & Stein, 1992). Since language is so limited, the toddler expresses many emotions and feelings through behavior.

Through their interactions with their parents, toddlers are learning to assign meanings to words and behaviors. At the same time, parents are learning to interpret the behaviors and expressions of their toddler children. Since the verbal expressions of toddlers are often very limited, behavioral expressions become important. The ways in which parents interpret the behaviors of their toddler child may be influenced at least partially by their belief systems, attitudes, emotions, and expectations. Since pain in toddlers is often expressed through behaviors, these belief systems, attitudes, emotions, and expectations may also influence how parents respond to pain in their toddler child. Schechter et al. (1991) hypothesized that some of the variability in parental responses to their child's pain may be influenced by their attitudes about pain. There are differences in the degree and manner in which families respond to pain, and these differences influence pain behavior throughout life (French, 1989).

Part of the interpretation of behavior is related to parents' ideas of appropriate gender-specific behavior. If toddler behavior is not specifically male or female, then it is the bias of the observer that labels the behavior. The behavior may be the same, but may be interpreted differently based on the observer's ideas about gender-specific behavior. For example, crying in a girl may be interpreted as fear, while crying in a boy may be interpreted as frustration. In the management of pain in toddlers, the behavior must first be interpreted as indicative of pain. Only then can parents choose how to respond to the pain behavior.

Families are the social group in which toddlers learn to understand and express pain. Since the verbal abilities of toddlers are limited, pain is often expressed through behavior. If parents respond differently to a behavior based on whether the child is a boy or a girl, this may shape gender-specific pain behaviors and beliefs of the child later in life. Child development studies demonstrated that parents respond in gender-specific ways to non-pain behaviors in toddlers; toddler pain literature has not examined gender as a variable that influences parental response. This study asked the question whether there were differences in the way parents responded to and managed postoperative pain behaviors in boy and girl toddlers.

Research Questions

This study will attempt to answer the following questions.

1. Were there gender differences in 12 to 24-month-old boys' and girls' postoperative pain levels as rated by their parents?
2. Were there gender differences in the reported frequency of pain medication administration to 12 to 24-month-old boys and girls in the first three days following day surgery?
3. Were there gender differences in reported non-pharmacological pain management methods used by parents of 12 to 24-month-old boys and girls following day surgery?
4. Were there gender differences in the mean behavioral pain cue scores for 12 to 24-month-old boys and girls?

5. Were there gender differences in the mean functional pain cue scores for 12 to 24-month-old boys and girls?

6. Was there a correlation between parents' reported expectation of their child's pain level and the reported pain level after surgery?

7. How did parental pain beliefs influence their pain management strategies?

8. How did parental anxiety/nervousness prior to surgery correlate to parents' report of their child's postoperative pain level?

CHAPTER 3

Methods

Design

This study used a descriptive design to examine how parents managed postoperative pain in their toddler children. It looked for gender differences in pain behaviors and pain management strategies. It also examined how parental beliefs about pain influenced their pain management methods.

Sample

A convenience sample was used for this study. Parents and children who met the following criteria were asked to participate in this study:

1. The child was between twelve and twenty-four months of age at the time of the surgery.
2. The child underwent some type of day surgery procedure.
3. The child was not identified by the parent or guardian to be developmentally delayed.
4. The parent or guardian gave informed consent for participation in the study.
5. There was a telephone at the family's place of residence.
6. The parent or guardian of the child spoke fluent English.
7. The identified primary caregiver at home for the child was the same person who filled out the diary.

The sample consisted of boys and girls who underwent day surgery or procedures during the time period from August 1995 through January 1996. A total of 16 families,

nine with boys and seven with girls, were asked to take part in the study. None of the families refused. However, only nine diaries were returned (4 boys, 5 girls), for a return rate of 56%. One child was readmitted to the hospital on the evening of surgery; his parents notified the researchers that they could no longer participate in the study. One family stated that the diary had been mailed, but it was never received by the researchers. The remaining families who had not returned the diaries one week after the surgery were called three to five times, but the diaries were not received by the researchers.

Demographic data about the subjects were obtained by means of a parent questionnaire. The demographic data included age, gender, and ethnicity of the child, as well as age, socioeconomic status, religion, and marital status of the parents. Demographic data from those families who returned the pain diary as well as from those who did not were analyzed.

While there were no statistically significant differences in the measured characteristics of the families who returned the diaries and those who did not, the groups did vary somewhat. The children in the families who returned the diaries were on average 3 months older than the children in the families who did not. The average age of the parents who returned the diaries was also older, and the average Hollingshead socioeconomic scores were higher. There were also a greater percentage of single/never married parents in the group that did not return the diaries (43% vs. 11%) than in the group that did. For a summary of the statistics about the characteristics of the study sample, please see Table 1.

Table 1

Characteristics of the Study Sample

Variable	Families who returned the Pain Diary (N=9)	Families who did not return the Pain Diary (N=7)
Sex of child		
Male	4(44.4 %)	5(71.4%)
Female	5(55.6 %)	2(28.6%)
Age of child (months)*	18.0±4.4	14.9±2.3
Age of mother (yrs)*	28.8±7.4	23.4±4.6
Age of father (yrs)*	32.6±9.4	28.0±7.8
Hollingshead score*	40.4±16.5	29.4±11.9
Marital status of parents		
single/never married	1(11.1%)	3(42.9%)
married/partnered	8(88.9%)	4(57.1%)
Ethnic background of child		
Caucasian	8(88.9%)	6(85.7%)
Asian	1(11.1%)	0
Hispanic	0	1(14.3%)
Religion		
Protestant	4	1
Catholic	1	3
none	2	0
other	1	1
no answer	1	2

*Values are means ± SD for continuous variables and frequencies for categorical variables.

Subject recruitment was limited by several factors. There was a labor strike at one of the hospitals; this effectively closed the day surgery unit for approximately two weeks, and decreased the number of scheduled surgeries for several weeks following the strike. Winter storms also contributed to the cancellation of some scheduled surgeries. Not all the 12 -24 month old children having day surgery met the inclusion criteria. Potential subjects were identified in advance by examining the daily surgery schedule (with the exception of two subjects, where the surgeons were contacted). There may have been eligible children whose names were not listed on the surgery schedule and who were therefore not approached. The time frame for data collection was short, and the researchers were not always available to meet with potential subjects.

Setting

The sample was obtained at two pediatric Short Stay Units in Portland, OR. One short stay unit was located in University Hospital, a 365-bed tertiary hospital. There were 89 pediatric beds in the hospital. From July 1994 to June 1995, there were 1842 pediatric day surgeries and procedures (J. Iverson, personal communication, April, 1996). The second short stay unit was part of Legacy Emanuel Hospital, a 340-bed tertiary hospital. There were 90 pediatric beds in this hospital. For the calendar year 1995, there were 3818 pediatric day surgeries and procedures (T. Gertz, personal communication, April 21, 1996).

Both Short Stay Units take care of pediatric patients having surgeries and procedures such as inguinal hernia repair, orchiopexy, circumcision, tonsillectomy, myringotomy with ventilation tube placement (PE tubes), minor plastic surgery such as

laser surgery for port-wine stains (PWS), and minor orthopedic surgery such as trigger finger release. Table 2 describes the types of surgery experienced by the subjects in this study. Patients were generally admitted one to two hours prior to the procedure or surgery. After surgery, patients were taken to the recovery room, then back to the Short Stay Unit. Length of stay in the units after surgery varied from one to six hours. Parents were encouraged to stay with their child during this time. For children who had inguinal hernia repair, orchiopexy, or PE tubes, a standardized home care guideline form specific for the procedure the child had was given and explained to the parents prior to discharge (Appendix A). For children who had other types of surgeries, home care instructions were done by the surgeon and/or the nursing staff. Patients were then discharged home.

Table 2

Types of Surgery

Type of Surgery	Diary Returned	Diary Not Returned
Myringotomy with placement of ventilation tubes (PE tubes)	1 boy 2 girls	2 boys
Inguinal hernia repair	2 boys	2 boys
Orchiopexy and circumcision	1 boy	0
Orchiopexy	0	1 boy
Excision and fulguration of umbilical granuloma	1 girl	0
Port-wine stain (PWS) laser surgery	1 girl	0
Trigger finger* release	1 girl	0
Removal of extra thumb	0	1 girl
Vulvar hemangioma laser surgery	0	1 girl

Note: Trigger finger is defined as a thickening of a tendon just below the first pulley of the finger; treatment involves releasing the first pulley (Behrman, Kliegman, & Arvin, 1996).

Instrumentation

Parent questionnaire. Background information relating to parental anxiety/nervousness and parental attitudes regarding pain in children, as well as demographic data, was obtained by asking parents to fill out an investigator-developed questionnaire (Appendix B). The questionnaire asked for the birth date, weight, and sex of the child having surgery, for identification purposes. Parents or guardians were asked about their ages, the ethnic background of their child, and their religion for descriptive purposes. The occupations, level of education completed, and marital status of the parents were asked to determine socioeconomic status as measured by Hollingshead's (1975) Four Factor Index of Social Status.

This index is based on the assumption that an unequal status structure exists, and that the main factors that influence social status are occupation and years of schooling, as well as sex and marital status (Hollingshead, 1975). The amount of education completed is scored on a seven-point scale, and this score is multiplied by a weight of three. The occupational factor is graded on a nine-point scale based on occupational titles used by the United States Census. The occupational score is then multiplied by a weight of five. If the couple is married, and only one spouse is gainfully employed, only the education and occupation of the employed person are used to calculate the Hollingshead score. If both spouses are employed, the scores for each spouse are summed and the total is divided by two. If the parent was unmarried, the scores were based on education and occupation of the head of the household. Scores can range from a low of 8 to a high of 66. This score is constant whether the score is based on one or two members of a household. It is assumed

true, somewhat true, undecided, somewhat false, and very false. Parents were also asked whether they thought boys or girls generally coped better with pain. Schechter et al (1991) wrote that parental attitudes about pain may influence the ways parents respond to their child's pain.

Pain diary. A pain diary (Appendix C) developed by the investigators was used. The diary consisted of an introduction page, instruction page, and recording pages for each of three days. A sample recording page was also included. The recording pages listed a series of pain cues and pain management strategies, as well as a place for parental rating of their child's pain level. Parents were asked to complete the diary each day for a total of three days. Daily recording helps decrease recall bias and memory lapse (Verbrugge, 1980). Space was provided for up to eight entries per day. Brodsky, Radomski, and Gendler (1993) asked parents to complete daily data recording sheets in their study of the effect of postoperative instructions on recovery after tonsillectomy and adenoidectomy, and found that parents were able to fill out the data sheets, and 79% of the parents completed the study.

Parents were asked to measure their child's pain level using a 0 to 10 numerical rating scale, where 0 was equal to "no pain" and 10 was equal to "the worst pain imaginable." Numerical rating scales have been used previously to measure adults' perceptions of pain (Melzack, 1975). Schneider and LoBiondo-Wood (1992) found no significant differences in parent and child ratings of procedural pain, which suggested that parents can accurately measure their child's pain.

The pain cues in the diary were based on those elucidated by Tarbell, Cohen, and

Marsh (1992), and Gedaly-Duff and Ziebarth (1994). The cues were divided in two categories: behavioral and functional.

The behavioral pain cues listed in the diary were adapted from a tool developed by Tarbell et al. (1992) to measure postoperative pain in children aged one to five. Behavioral pain cues included verbal pain complaints; crying/sobbing; groaning, moaning, or grunting; screaming; squinting with eyelids closed or nearly closed; open mouth, lips pulled back at corners; eyebrow bulge/forehead wrinkling, restless behavior; and rub/touch painful area. The tool (TPPPS) was found to have internal reliability (Cronbach's alpha = 0.88). Concurrent validity was established using nurses' and parents' ratings on visual analog and numerical scales; scores ranged from 0.25 to 0.66.

The functional pain cues were derived from those described in children's pain literature (Gedaly-Duff & Ziebarth, 1994; Mills, 1989; Taylor, 1983) as indicators of pain in children. Functional pain cues were more general descriptors of the way a child is acting, and were concurrent with the pain situation. Functional pain cues were listed as: unable to eat or drink; clingy; nauseated; inability to sleep; sleeping; not talking/not social; unable to cough or move; resists movement; drawing up legs; and fussy/whining. These cues, as well as the behavioral cues, have not been reported to be gender-specific.

Parents were also asked to describe non-pharmacologic and pharmacologic pain management methods that they used. Non-pharmacologic pain management methods included holding/rocking, taking no action, distraction, and sucking on pacifier. These methods have been listed in the literature (Bauchner, 1995; U.S. Department of Health and Human Services, 1992; Taylor, 1983; Waechter, Phillips, & Holaday, 1985) as

methods that parents and professionals use to help control pain in young children. A space labeled “other” was provided for parents to describe any other non-pharmacologic methods they may have used. Pharmacologic methods included medicating with Tylenol, Tylenol with codeine, and other medicine. Pediatric texts (Behrman, Kriegman, & Arvin, 1996; Dershewitz, 1993) as well as the U.S. Department of Health and Human Services Clinical Practice Guideline (1992) state that acetaminophen (Tylenol) and acetaminophen with codeine are recommended for the treatment of mild to moderate pain in children. These drugs should be dosed based on the child’s weight. The standard dose for acetaminophen is 10-15 mg/kg every 4 hours. Dosages for acetaminophen with codeine are based on the codeine component, at 1 mg/kg every 4 hours (U.S. Department of Health and Human Services, 1992). The diary asks parents to specify the dosage given if it was different from the one prescribed.

Space was left for additional comments. A page labeled “Sample” was included in the diary. Two pediatric experts were asked to read the diary and evaluate the contents in terms of whether it appeared to be able to measure pain. This was done in order to establish face validity, which is defined by LoBiondo-Wood and Haber (1994) as a type of validity “that verifies basically that the instrument gives the appearance of measuring the concept” (p. 369). Following approval by the Oregon Health Sciences University Institutional Review Board, the diary was pilot-tested for utility and readability by two families whose children (one boy and one girl) underwent day surgery. Neither family reported problems with completing the diary, and no changes were made.

Procedure

The authors attempted to contact the child's parent or guardian at home the evening before surgery; if this was not possible, the parents were contacted while the child was in the Short-Stay Unit, either prior to the child's surgery or while the child was in surgery. The study and its purpose were explained, and informed consent was obtained. After signing the consent form (Appendix D), the parent or guardian who was to be the primary caregiver during the postoperative period was asked to fill out the patient background questionnaire. Then, the pain diary including the pain rating scale and pain tool was explained, and all questions were answered. The primary caregiver was given an opportunity to use the sample pain tool to describe how he or she managed a recent instance of their child's pain. The parents were contacted by phone on the evening of discharge or early the following day, to check understanding of the diary. Questions regarding the diary were answered. If the parents had questions about the surgery or their child's postoperative course, they were asked to call their surgeon. The parents were given a stamped, addressed envelope in which to return the diary. If the diary had not been returned ten days after surgery, the parents were contacted again. Three to five calls were made to those families who did not return the diary.

Human Subjects Protection

In order to ensure the protection of the study subjects, the research proposal was submitted to the Oregon Health Sciences University Institutional Review Board (IRB) for approval. The project was approved (IRB #3902) after minor revisions in the language of the consent form and the diary.

It soon became apparent that the number of potential subjects available at one hospital was limited. The study proposal was presented to the Legacy IRB in late August 1995. The project was approved only after the researchers attended an IRB meeting in late October, and approval was contingent on several revisions. These revisions included limiting the inclusion criteria to one type of surgery (inguinal hernia repair was chosen by the researchers), obtaining approval from the surgeon prior to contacting the parent of the child having surgery, and having confirmation from a physician who would take responsibility for the study subjects, limited to the confines of the surgery. The Legacy IRB approval number was M-1517-01. Appendix E contains the approval letters from both IRBs.

All subjects were assigned identification numbers and data were kept in a locked file, to ensure confidentiality. Data were reported in aggregate form to preserve anonymity.

CHAPTER 4

Results

This chapter will describe the results of the analysis of the information obtained from the pain diaries. A description of the statistics used to answer each of the research questions is also included. This is followed by a discussion of other pertinent findings.

Data Analysis

The data were analyzed using the CRUNCH statistical analysis software. Staff at the Oregon Health Sciences School of Nursing's Office of Research Development and Utilization assisted with data entry and analysis. The data entry was done by the researchers; it was then double-checked for accuracy by the researchers.

The data used to answer the research questions were taken only from those subjects who completed the parent questionnaire and returned the pain diary (N=9). There were 4 boys and 5 girls. The mean age of the children was 18 months (SD±4.4 months). The mean age of the mothers was 28.8 (SD±7.4); mean age for fathers was 32.6 (SD±9.4). Most of the parents (89%) were married, and most of the children (89%) were identified by their parents as Caucasian. For a further description of the characteristics of these families, see Table 1.

Research Question One

Were there gender differences in 12 to 24-month-old boys' and girls' postoperative pain levels as rated by their parents? Pain levels were measured on a 0 to 10 scale for three days. A daily mean for each child was calculated by adding the pain scores together and dividing by the number of reported instances of pain. A daily group mean for boys and for

girls was determined by adding the daily means for each gender and dividing by the number of children of that gender. These means were examined for differences using a t-test for independent samples.

On Day 1, the mean score for boys was 3.75(SD±2.6); the mean score for girls was 2.33(SD±2.7). On Day 2, the mean score for boys was 2.00(SD±1.8); the mean score for girls was 2.90(SD±3.7). On Day 3, the mean score for boys was 1.50 (SD±1.9); the mean score for girls was also 1.5 (SD±2.1). None of these differences were found to be statistically significant.

The pain level scores were highest on Day 1 and decreased over the next two days of the study. Other authors (Brodsky, Radomski, & Gendler, 1993; Gedaly-Duff & Ziebarth, 1994) also found that children's pain, as reported by their parents, decreased over time. Of note is that one-third (N=3) of the subjects who returned the diaries reported pain level scores of zero for all three days. Nardone and Schuchard (1991), in their study of parental perception of postoperative pain in children, found that one-third of the parents reported their children as having no pain. They suggested that these children either did not have pain, or that the children did not exhibit the traditional signs of pain that parents may look for, and as a result the pain was not reported.

Research Question Two

Were there gender differences in the reported frequency of pain medication administration to 12 to 24-month-old boys and girls in the first three days following day surgery? The frequency of pain medication administration was calculated by dividing the number of doses of medication by the number of recorded pain instances. This gave a daily

percentage for each child. Mean daily percentages for girls and for boys were calculated. A t-test of independent samples was used to test for differences in the means.

For Day 1, the mean daily percentage for boys was $0.58(SD\pm 0.5)$; for girls it was $0.4(SD\pm 0.5)$. On Day 2, the percent for boys was $0.87(SD\pm 1.1)$ and for girls it was $0.4(SD\pm 0.5)$. Day 3 showed a mean percent of $1.29(SD\pm 2.5)$ for boys and $0.30(SD\pm 0.4)$ for girls. The three-day average for boys was $0.92(SD\pm 1.3)$ for boys and $0.37(SD\pm 0.5)$ for girls. None of these findings were statistically significant. Overall, the frequency of medicine use decreased each day.

Some of the variability in the boys' data was explained by one of the subjects who was given pain medication more often than instances of pain were recorded in the diary. This meant that the daily percentages for this child were greater than 100 (i.e., values greater than 1.00) on days two and three. The data were analyzed again, this time without the values of this child. The means for the girls did not change. The means for the boys decreased, to $0.44(SD\pm 0.51)$, $0.33(SD\pm 0.33)$, and $0.05(SD\pm 0.09)$ on Days 1, 2, and 3, respectively. The three-day mean for boys was $0.28(SD\pm 0.28)$. When calculated this way, the differences between boys and girls were even smaller.

Table 3 shows the frequency in which each of the pharmacological pain management methods were used. These numbers do not reflect the instances in which a child was given Tylenol when there was no recorded pain.

Table 3

Frequency and Ranking of Pharmacological Pain Management Methods

Pharmacological pain management methods	Boys Day 1	Girls Day 1	Total Day 1	Boys Day 2	Girls Day 2	Total Day 2	Boys Day 3	Girls Day 3	Total Day 3	3 Day Total
Medicated with Tylenol	5	6	11	2	3	5	5	2	7	23
Medicated with Tylenol with codeine	0	2	2	2	0	2	1	0	1	5
Other medicine	0	0	0	0	0	0	0	0	0	0
Total per day	5	8	13	4	3	7	6	2	8	28

Research Question Three

Were there gender differences in reported non-pharmacological pain management methods used by parents of 12 to 24-month-old boys and girls following day surgery?

Non-pharmacologic pain management strategies were given a score of 0 if not used and 1 if used. Scores could range from 0 if none of the strategies were used, or if only “take no action” was marked, to 4 if all were used. A daily mean for each child was obtained; these means were grouped by gender, and examined for differences using a t-test for independent samples.

On Day 1, the mean score for boys was 0.87(SD±0.69), for girls it was 0.80(SD±0.84). Day 2 showed scores of 0.29(SD±0.48) for boys and 0.80(SD±0.84) for girls. Day 3 scores were 0.41(SD±0.50) for boys and 0.50(SD±0.87) for girls. The three-day mean scores were 0.53(SD±0.38) for boys and 0.70(SD±0.71) for girls. There was no statistical gender difference in the scores.

After analyzing the non-pharmacological pain management methods for boys and for girls, the data were collapsed and the frequency of each method was tallied. This was done to help understand which method parents used most for this age group.

Holding/rocking was the non-pharmacological pain management method that parents reported using the most (N=30) over the three days. Distraction (N=8) and take no action (N=7) were reported in almost equal numbers over the three days. Other methods, which included “rubbing head in circular motion” and “gave milk”, and facilitating sucking on a pacifier, were used the least (N=3 and N=1, respectively). Table 4 shows the frequencies and ranking of the non-pharmacological pain management methods that were reported by parents.

Table 4

Frequency and Ranking of Non-pharmacological Pain Management Methods

Non-pharmacological pain management methods	Boys Day 1	Girls Day 1	Total Day 1	Boys Day 2	Girls Day 2	Total Day 2	Boys Day 3	Girls Day 3	Total Day 3	3 Day Total
Holding/rocking	6	7	13	8	4	12	3	2	5	30
Distraction	3	2	5	0	1	1	1	1	2	8
Take no action	1	1	2	3	1	4	1	0	1	7
Other	3	0	3	0	0	0	0	0	0	3
Sucking on pacifier	0	1	1	0	0	0	0	0	0	1
Total per day	13	11	24	11	6	17	5	3	8	49

Research Question Four

Were there gender differences in the mean behavioral pain cue scores for 12 to 24-month-old boys and girls? Behavioral pain cues were scored as 0 if not present, or 1 if present. Total scores per pain instance could range from 0 to 9. Daily mean scores were calculated for each child, and daily group means for each gender were determined. The mean group behavioral scores were tested for differences using a t-test for independent samples.

The mean score for boys on Day 1 was 1.25(SD±0.88); for girls it was 1.28(SD±1.29). On Day 2 the scores were 0.87(SD±0.90) for boys and 2.20(SD±2.86) for girls. Boys had mean scores of 0.54(SD±0.63) on Day 3, and girls had scores of 0.90(SD±1.25). The average score over three days was 0.89(SD±0.67) for boys and 1.46(SD±1.72) for girls. Although the differences were not statistically different, parents of girls reported more behavioral pain cues per reported pain instance.

After examining the behavioral scores for boys and for girls, the data were collapsed and the frequency of each behavior was tallied. Crying/sobbing was the most frequently reported pain behavior, followed by restless behavior. Next were groaning, moaning, grunting and verbal pain complaints. Table 5 lists the frequency of each of the behavioral pain cues.

Table 5

Frequency and Ranking of Total Reported Behavioral Pain Cues

Behavioral Pain Cues	Boys Day 1	Girls Day 1	Total Day 1	Boys Day 2	Girls Day 2	Total Day 2	Boys Day 3	Girls Day 3	Total Day 3	3 Day Total
Crying/sobbing	4	11	15	3	4	7	1	1	2	24
Restless behavior	3	3	6	3	3	6	2	3	5	17
Groaning, moaning, grunting	1	0	1	2	3	5	1	2	3	9
Verbal pain complaint: “it hurts”, “ow”	2	2	4	2	0	2	2	1	3	9
Rub/touch painful area	3	0	3	1	1	2	0	2	2	7
Eye brow bulge/ forehead wrinkling	2	1	3	1	0	1	0	0	0	4
Screaming	0	2	2	0	0	0	1	0	1	3
Squinting, eyelids closed or nearly closed	1	0	1	1	0	1	0	0	0	2
Open mouth, lips pulled back at corners	0	0	0	1	0	1	0	0	0	1
Total cues per day	16	19	35	14	11	25	7	9	16	76

Research Question Five

Were there gender differences in the mean functional pain cue scores for 12 to 24-month-old boys and girls? Functional pain cues were scored as 0 if not present, or 1 if present. Total scores per pain instance could range from 0 to 10. Daily mean scores were calculated for each child, and daily group means were determined for boys and girls. The mean functional scores were tested for differences using a t-test for independent samples.

The daily group mean for boys was 0.58(SD±0.67) on Day 1; for girls it was 0.73(SD±0.75). On Day 2 the scores were 0.16(SD±0.33) for boys and 0.80(SD±1.30) for girls. Day 3 scores were 0.42(SD±0.50) for boys and 0.50(SD±0.71) for girls. The average score over 3 days was 0.34(SD±0.46) for boys and 0.68(SD±0.46) for girls. No statistical differences were found.

When the reported functional pain cues were collapsed and ranked by overall frequency, fussy/whining (N=15) was the cue most often reported. This was followed by clingy (N=8), inability to sleep (N=6), and not talking/social (N=6). Three functional pain cues, nauseated, unable to cough or move, and unable to eat or drink, were never reported by the parents. Day 1 showed the highest number (N=22) of functional pain cues, with Day 2 (N=10) and Day 3 (N=11) showing decreased numbers. Table 6 summarizes the reported functional pain cues.

Table 6

Frequency and Ranking of Total Reported Functional Pain Cues

Functional Pain Cues	Boys Day 1	Girls Day 1	Total Day 1	Boys Day 2	Girls Day 2	Total Day 2	Boys Day 3	Girls Day 3	Total Day 3	3 Day Total
Fussy/whining	1	5	6	3	3	6	2	1	3	15
Clingy	1	3	4	1	1	2	1	1	2	8
Inability to sleep	1	2	3	0	1	1	1	1	2	6
Not talking/social	4	0	4	0	0	0	0	2	2	6
Resists movement	2	0	2	0	1	1	0	0	0	3
Sleeping	0	1	1	0	0	0	1	1	2	3
Drawing up legs	2	0	2	0	0	0	0	0	0	2
Nauseated	0	0	0	0	0	0	0	0	0	0
Unable to cough or move	0	0	0	0	0	0	0	0	0	0
Unable to drink or eat	0	0	0	0	0	0	0	0	0	0
Total cues per day	11	11	22	4	6	10	5	6	11	43

Research Question Six

Was there a correlation between parents' reported expectation of their child's pain level and the reported pain level after surgery? Parental expectation of their child's pain level was obtained from question 15 on the parent questionnaire, which asked "On a scale of 0 to 10, where 0 is 'no pain' and 10 is the 'worst pain imaginable', how much pain do you expect your child to have after surgery?". This score could range from 0 to 10. The child's mean pain level for the 3 days of the study was calculated; this could also range

from 0 to 10. The correlation between the two values was obtained. A paired t-test was used to detect differences between the pain level expected by the parents and the average reported pain level for each child.

The average pain level that parents expected their child to have was 4.22(SD±2.59). The average pain level parents reported that the children exhibited was 2.32(SD±2.28). There was a positive correlation between the parental expectation of the child's pain and the reported pain level after surgery. The reported pain was less than the parents expected it to be.

Research Question Seven

How did parental pain beliefs influence their pain management strategies? The answers to questions 16 and 17 (“You can spoil a child by giving too much comfort when he or she is in pain”, and “Children exaggerate their pain”) were given scores ranging from 1 for “very true” to 5 for “very false.” These scores were considered to be intervals on a pain belief continuum. A score for each caretaking parent was obtained. The scores for the two questions were correlated. The Pearson's correlation was found to be 0.68, and the scores for the questions were averaged to obtain a parental pain belief score. This was then correlated to the average daily non-pharmacologic and pharmacologic pain management scores for each child.

The parental pain belief scores showed positive correlations with the average non-pharmacologic pain management scores. That is to say that parents who believed more strongly that you can't spoil a child by giving too much comfort, and that children don't exaggerate their pain tended to use more non-pharmacological pain management methods.

These parents also used more pharmacologic pain management methods on Day 1 ($R=0.27$). Interestingly, Days 2 and 3, as well as the three-day average, showed negative correlations (R values ranged from -0.03 to -0.18). Parents who believed children don't exaggerate their pain, and that you can't spoil a child by giving too much comfort, tended to use fewer pharmacologic methods to manage their child's pain. However, the R values are too small to draw conclusions. Table 7 lists the Pearson's R values for the parental belief scores and the pain management methods.

Table 7

Pearson's Correlations for Parental Belief Scores and Pain Management Methods

	Day 1	Day 2	Day 3	3 Day Average
Pharmacological pain management methods	0.27	-0.03	-0.18	-0.07
Non-pharmacological pain management methods	0.38	0.46	0.19	0.44

Of the 9 families who returned the pain diary, only 6 responded to question 18 on the parent questionnaire, "Who generally copes better with pain, boys or girls?". It was decided that, due to the small sample size and the large percentage (33%) of parents who did not respond to the question, there were insufficient data to analyze.

Research Question Eight

How did parental anxiety/nervousness prior to surgery correlate to parents' report of their child's postoperative pain level? The answers to the question "How anxious or nervous are you about your child having surgery?" on the parent questionnaire and the

average of each child's pain level over the 3 days of the study were used to answer this question. Parents were asked to rate their anxiety/nervousness; answers could range from "not anxious or nervous" to "extremely anxious or nervous." The answers were scored on a continuous scale of equal intervals; scores could range from 0 to 4. This number was correlated to the average pain score for each parent/child group. There was a positive correlation (Pearson's R values ranged from 0.07 on Day 1 to 0.49 on Day 3, with an average $R=0.32$). That is, parents who were more anxious or nervous prior to their child's surgery tended to rate their child's pain as higher.

Other Findings

At the bottom of each of the diary pages, space was left so that parents could write in any additional information that they wanted to share. Eight of the nine families who returned the diary wrote comments; only one family did not make any written comments.

The first space was labeled comments. Parents whose children had PE tubes placed ($N=3$) reported that their children exhibited no pain, except the mother of a 22-month-old girl who wrote that when ear drops were instilled "she seemed to be in pain for a few minutes." A 13-month-old boy who had a circumcision and orchiopexy was reported to be "very calm not wanting to get of [sic] couch or bed" on Day 1, but "up and around, almost normal" by Day 3. This theme of decreasing pain over the three days was also reported by the mothers of two boys who had inguinal hernia repairs. The mother of a 20-month-old female who had a trigger finger release reported that her child "couldn't sleep all night" on Day 3, but she did not label this behavior as pain.

Parents were also asked if their child acted differently than usual, and were asked

to explain the difference if the answer was yes. Three parents did make written comments. The mother of a 20-month-old male who had bilateral inguinal hernia repair reported her child as “very sleepy and sore” on Day 1, although “about 7 PM we saw signs of normal behavior - smiling, eye britteness [sic].” The same mother reported her child to be “generally . . . nml [sic], but he wore out earlier and took 2 naps instead of one” on Day 2. She made no comments on Day 3.

The mother of a 21-month-old male who also had bilateral inguinal hernia repair stated on Day 1 that her child “didn’t move - just sat and watched videos, looked at storybooks. No walking until 6 pm, he tried once at 4:45 after his nap but cried out in pain and decided against it.” She also reported that the child was “more easily frustrated”, “more subdued than normal toddler”[sic] and “willing to cuddle on my lap!”. On Day 2, the child had “breakdowns, tantrums, episodes of crying over toys that were out of the norm.” The mother “attributed it to him not feeling up to par - still feeling discomfort.” On Day 3, the mother stated that her child was “slightly more fussy than usual.” She also stated “he has had an amazingly quick recovery. I think the regular doses of Tylenol help.” This was the only parent who reported giving Tylenol on a regular schedule.

In summary, mothers reported changes in motor behaviors, sleep patterns, and emotional lability in their children in the three days after surgery. These behaviors were described in the context of a painful event and were considered indicators that the children were in pain.

When all the written statements that parents made in the diaries were examined as a whole, three themes became apparent. Parents wrote about behavior changes that were

not labeled as pain, perceptions of pain in their child, and perceptions of no pain in their child. Tables 8, 9, and 10 list all the written comments made by parents in the course of the three days of the study.

Table 8

Parent Comments Day 1

Theme	Parent Comments
Parents perceived no pain in their child	Once home things were normal as if nothing was different (16 month girl, PWS laser surgery) Active, repeated words to me, talked up a storm & played with his sister. He showed no signs of pain (24 month boy, PE tubes) Exhibits no pain (12 month girl, PE tubes) Really didn't show many signs of pain (20 month girl, trigger finger release)
Behavior changes reported but not labeled as pain	Agitated in the car on the way home (16 month girl, PWS laser surgery) Very calm not wanting to get of [sic] couch or bed (13 month boy, orchiopexy and circumcision) Didn't move - just sat and watched videos, looked @ storybooks. More easily frustrated. <u>He was willing to cuddle on my lap!</u> He only does this when he isn't feeling well. Much more subdued than normal toddler (21 month boy, bilateral inguinal hernia repair) Very sleepy & sore. About 7PM we saw signs of normal behavior - smiling, eye britteness [sic] (20 month boy, bilateral inguinal hernia repair) Longer nap than usual (22 month girl, PE tubes)
Parents perceived that their child had pain	Gave Tylenol @ 5PM every four hours. Tried to give tylenol on regular basis to manage pain (stay ahead of it) rather than wait until he was in severe pain (21 month boy, bilateral inguinal hernia repair) I gave . . . her ear drops - she seemed to be in pain for a few minutes after that @ 9PM eardrops - same reaction (22 month girl, PE tubes) Pain was upon movement - i.e. changing diapers, dressing, changing positions (20 month boy, bilateral inguinal hernia repair)

Note: Parent comments are direct quotes of written statements

Table 9

Parent Comments Day 2

Theme	Parent Comments
Parents perceived no pain in their child	Normal as if nothing had happened. No complaints, no out of the ordinary crying/complaining (16 month girl, port wine stain laser surgery) Exhibits no pain (12 month boy, PE tubes) No signs of pain (24 month boy, PE tubes)
Behavior changes reported but not labeled as pain	Finally decided to get off couch (12 month boy, orchiopexy and circumcision) Much better today, but still not himself, he had breakdowns, tantrums, crying episodes over toys, etc. that were out of the norm. I attributed it to him not feeling up to par - still feeling discomfort (21 month boy, bilateral inguinal hernia repair) Generally was nml [sic], but he wore out earlier and took two naps instead of one (20 month boy, bilateral inguinal hernia repair)
Parents perceived that their child had pain	Hurt when bandages were pulled off because it was stuck to stitches (20 month girl, trigger finger release) Eardrops at 9:50AM seems [sic] painful for a few minutes after drops are put in (22 month girl, PE tubes) Pain from 2PM was from stiffness after naps (20 month boy, bilateral inguinal hernia repair)

Note: Parent comments are direct quotes of written statements

Table 10

Parent Comments Day 3

Theme	Parent Comments
Parents perceived no pain in their child	No signs of discomfort/pain after the surgery (16 month girl, PWS laser surgery) Exhibits no pain (12 month boy, PE tubes) No pain today (22 month girl, PE tubes) No indication of pain and no management thereof (20 month boy, bilateral inguinal hernia repair)
Behavior changes reported but not labeled as pain	Couldn't sleep all night, very restless (20 month girl, trigger finger release) Slightly more fussy than usual (21 month boy, bilateral inguinal hernia repair) Up and around, almost normal (13 month boy, orchiopexy and circumcision) He had a great time with his sister and new toys (24 month boy, PE tubes)
Parents perceived that their child had pain	No written parent comments on Day 3

Note: Parent comments are direct quotes of written statements

CHAPTER 5

Discussion

This chapter contains a discussion of the research findings, as well as identified limitations of the study. Implications for practice and future research are followed by a brief summary of the research.

Discussion

This study used a conceptual framework that stated that the family is the arena in which toddlers learn to express themselves. The gender identity of the toddler is not yet fully incorporated, but is being learned through interactions with others. Toddlers are limited in their verbal ability, and thus express many of their emotions and feelings, including pain, through behavior. If parents respond differently to a pain behavior based on the sex of the child, this may shape gender-specific ways of expressing pain. The goal of the study was to examine the pain cues and parental response to those cues of boys and girls aged 12 to 24 months, to see if a gender difference existed.

No statistically significant gender-based differences were found in this study. One conclusion is that parents report no gender-specific pain cues or pain management methods of their boy and girl toddlers aged 12 to 24 months. Another explanation is that the statistical analyses of the study were limited by a small sample size (N=9), which restricted the probability of detecting differences. In addition, the parents of three of the subjects reported that their child had no pain. These subjects also had no reported pain cues, and no reported pain management. The scores for these subjects may have affected the results, since they represented one-third of the sample.

The study did find a positive correlation between parents' expectation of their child's pain level and the average reported pain level. This implies that parents have some idea of how much pain their child will exhibit after surgery. It was also found that parents who believed you can't spoil a child by giving too much comfort when he or she is in pain, and that children don't exaggerate their pain used more non-pharmacological pain management methods. This implies that these parents believed that comforting a child in pain does not spoil the child, and that children accurately express pain.

No statistically significant differences between boys' and girls' postoperative pain levels as rated by their parents were found. The pain levels did decrease over time; this is consistent with the findings of other authors (Brodsky, Radomski, & Gendler, 1993; Gedaly-Duff & Ziebarth, 1994). This suggests that pain decreases as tissue healing takes place.

The analysis of the frequency of pain administration was limited by the fact that three of the children, who were reported by their parents to have no pain, received no pain medication. Only one child in the sample received Tylenol with codeine for pain management. The other children who exhibited pain received Tylenol, although only one child was medicated on a regular schedule. This practice of more often medicating children on an as needed basis, rather than regularly scheduling pain medications, was reported in other literature related to hospital-based postoperative pain management (Beyer, et al., 1983; Mather & Mackie, 1983; Ross, Bush, & Crummette, 1991). The home care instructions that the parents received stated that pain medications could be given as needed for pain. The U.S. Department of Health and Human Services (1992)

guidelines for pain management state that pain may be better controlled by administering analgesics on a regular time schedule.

An assumed common way to manage pain is administering pain medications. Yet, this study found that parents did not use them frequently. This may be because, as Mather and Mackie (1983) found, when pain medications were ordered on an as needed basis, this was often interpreted to mean give as little as possible. There were instances in which the child was reported to be in pain, but was not given pain medication, even though it had been more than four hours since the last dose. Since they are not used to treating postoperative pain, parents may not be aware of the need to give pain medication regularly in order to maintain adequate blood levels.

Due to the limitations of collecting data through the use of diaries, it is unknown why parents did not use pain medications as frequently as they could have. Gedaly-Duff and Ziebarth (1994) found that mothers were concerned about the possibility of drug addiction in their children. This may have been a concern of the parents in this study, although the fear of addiction has been reported more often when using narcotic analgesics than when using plain acetaminophen, as was done most often in this study.

The pain diary used in this study was developed by the authors, based on pain cues that have been discussed in the literature (Gedaly-Duff & Ziebarth, 1994; Tarbell, Cohen, & Marsh, 1992). In the course of the first three days, all of the behavioral cues were listed at least once. No gender differences were found. However, it may be that parents assigned different meanings to the behaviors that the children exhibited, based on the gender of the child. If the parents did not interpret a specific behavior as pain, but gave it a different

meaning, they would not have recorded it in the diary.

Of the ten functional pain cues described in the diary, three (“unable to eat or drink”, “nauseated”, and “unable to cough or move”) were never reported by the parents. These cues were listed in the literature as indicative of pain associated with adenotonsillectomy (Gedaly-Duff & Ziebarth, 1994) and inguinal hernia repair (Taylor, 1983), but were not specifically related to pain in toddlers. Nardone and Schuchard (1991) suggested that pain may not be reported if the signs traditionally associated with pain, such as crying, verbalizations, and resisting movement, were not present; it may be that, for the parents of the toddler children, some of the behavioral and functional cues that were listed were not the ones that they associated with pain in their children.

All of the non-pharmacological management choices were reported by the parents, although no gender differences were found. A traditional comfort measure, holding/rocking, was the most frequently used method, followed by distraction. These are similar to the methods listed by Taylor (1983). Take no action was also reported by parents as a method of managing pain. This may be because parents were not experienced in dealing with postoperative pain, and did not know what other methods to use, or they may have been fearful of causing more pain for their child.

Parents who believed that children did not exaggerate their pain, and that you can't spoil a child by giving too much comfort when the child is in pain tended to use more non-pharmacological pain management methods when their child was in pain. This finding agrees with McGrath (1993) and Schechter et al. (1991), who hypothesized that parents' attitudes and beliefs about pain may have influenced how they responded to pain.

Manne, Jacobsen, and Redd (1992) found that parents who were more anxious rated their child's pain during procedures as higher. This study also found that parents who rated themselves as more anxious or nervous prior to the child's surgery rated the child's postoperative pain level as higher. This may be because those parents who were more anxious were more vigilant in looking for behaviors or actions that they believed were indicative of pain for their child. They may also have interpreted behaviors as indicative of higher levels of pain than parents who were less anxious or nervous.

Strengths and Limitations

This study was limited by the small sample size and the fact that one-third of the subjects were reported to have no pain. Subjects were difficult to recruit due to the small number of day-surgery procedures done on eligible children during the data collection period. Because of the small sample size, findings were not generalizable to other populations. The subjects underwent a variety of surgical procedures, which may have lead to the wide variations in reported pain. Also, boys in the study had more invasive procedures done (i.e., inguinal hernia repair) than girls (i.e., PE tubes).

Overall, parents did not seem to have difficulty in answering the questions on the parent questionnaire. The last question asked "Who generally copes better with pain?". Parents were asked to check either "boys" or "girls." One-third of the parents wrote in answers such as "I only have girls" instead of choosing an answer. This may have been because the parent did not understand the question, or did not have strong feelings either way.

Parents also did not seem to have difficulty filling out the pain diary. When

contacted at home after the surgery, parents did not verbalize any confusion about how to use the diary. The words used to describe the behavioral and functional pain cues were words that parents are generally familiar with. While the use of diaries may decrease recall bias and memory lapse (Verbrugge, 1980), there are limitations associated with their use. It is not known whether all the instances of a child's perceived pain were actually recorded, or if the recording that was done was truly descriptive of what actually happened. The nuances of why parents responded in the ways that they did were lost. The written comments made by some of the parents gave further insight as to what parents perceived as important.

The diary that was used was developed by the researchers. While face validity was established, content validity was not. Use of this diary in a larger-scale, more controlled study would be useful in attempting to establish the reliability and validity of the diary.

Implications for Further Clinical Research

Since the incidence of day surgery is increasing, it is helpful to know how children manifest postoperative pain at home, as well as how parents respond to their child's pain. This study did not find gender differences in the pain cues exhibited, or in the management of pain. Some studies with adults have found these differences (Calderone, 1990; Peternej-Taylor, 1989; McCaffery & Ferrell, 1992). Nurses have responded to, assessed, and interpreted pain differently in men and women patients. However, these studies looked at hospitalized patients; the pain management was done by nurses. While there have been studies that examined factors involved in nurses' pain management decisions (Burokas, 1985; Bush, Holmbeck, & Cockrell, 1989; Davis, 1990; Gadish et al., 1988;

Ross, Bush, & Crummette, 1991), it is not known whether the decision-making strategies that nurses use are the same as those that are used by the parents of toddlers. Factors such as past personal or family experience with pain could influence pain perception and management decisions. A descriptive study that looks at how parents make pain management decisions would be very helpful in understanding the home management of pain in children.

The limitations of this study warrant replication of the study, as it is possible that a larger scale study of toddlers would find gender differences in pain cues and pain management. By selecting a smaller age range, or limiting the participants to children who had one specific surgery or procedure, the wide variability of responses found in this study could be better controlled.

Since most of the pain toddlers experience is not postoperative, (i.e., they experience pain as a result of falling down, bumping into things, etc.), future research should include examining how parents respond to pain behaviors in these situations. In an observational study in which the subjects did not know they were being observed, Mitchell et al. (1992) did find gender differences in adults' reactions to toddlers. If parents did not realize they were being observed as they responded to their child's pain, gender differences in pain management might be found. The ethics involved in such a study would have to be carefully considered.

Implications for Future Nursing Practice

The study found that parental attitudes and beliefs about pain influenced the ways in which they managed their children's pain. This leads to the suggestion that health care professionals should explore the attitudes and beliefs that parents have about pain, in order to better individualize pre-and-post-operative pain management instructions.

Since the home care guidelines (Appendix A) that parents received before going home do not state a specific dosage or time interval for giving pain medication, and the instructions on over-the-counter acetaminophen packages state that parents should consult with their physician when giving the medication to children under the age of two, surgeons should be encouraged to order pain medications at regularly scheduled intervals, at the recommended dosage. Parents should be encouraged to give their child the full dose of medication that was ordered. Since anecdotal reports indicate that parents rarely call surgeons about postoperative pain management issues, directions about how and when to give pain medication need to be explicit. Written instructions that parents can refer to when they are at home will be helpful as parents manage their child's pain.

Health care professionals should talk to, and provide written information for, parents about toddler development and how this may influence the expression of pain, as well as some of the common pain cues that toddlers exhibit after surgery. Educating parents about anticipating the need for pain relief prior to activities such as diapering, walking, moving, and playing may lead to better pain management.

Summary

While this study found no statistically significant gender-based differences in the

ways in which parents perceived and managed postoperative pain in boy and girl toddlers, this study has expanded the knowledge base related to pain in toddlers. Through the use of a pain diary, parents described behavioral and functional pain cues that toddlers exhibit at home. The pain cues were consistent with those described in the existing literature related to pain in hospitalized toddlers (Davis, 1990; Mills, 1989; Tarbell, Cohen, & Marsh, 1992). This further validates that the behaviors checked in the pain diary were indicative of pain, and useful in helping parents assess pain in their toddlers.

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Information
for You and
Your Family



Home Care after PE Tube Placement

Below are some guidelines that will help you in caring for your child after going home from the hospital. Call your child's doctor if you notice any unusual symptoms.

Wound Care

- Some drainage from ears is normal for a few days.
- Put nothing in your child's ear unless prescribed by your doctor.
- **Do not** get any water in your child's ear **AS LONG** as the tubes are in place!

Activities

- Plug ears when showering, shampooing, or bathing. Use silicone putty ear plugs or a clean cotton ball coated with Vaseline.
- No Swimming. Talk with your doctor about special ear plugs.
- Most people hear better after the surgery. Loud noises may be annoying.

Call Your Doctor If

If your child has any of the following, call your doctor right away.

- Increased pain not relieved by medicine
- Fever greater than 100.4° F for 24 hour
- Chills
- Persistent or foul-smelling drainage from ears

Diet and Medicines

- Your child may eat his/her normal diet and take usual medicines unless told otherwise by your doctor.
- Cortisporin Otic drops - place 3 drops in ear 3 times a day for 3 days unless otherwise instructed by your doctor.

How to Reach Your Child's Doctor

Mon-Fri from 8:00-4:30, call
The Otolaryngology Clinic at 494- 8510
After hours, weekends, and holidays, call
Hospital Operator at 494-8311.
Ask to have your child's doctor, or the
Otolaryngology resident on-call paged.

Your child's doctor is:

Return Appointment

You will go to the ENT Clinic for your child's follow-up appointment.

Date: _____ Time: _____

Please call the clinic if you need to cancel or reschedule the appointment.

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Appendix A
Home Care Guidelines

Information
for You and
Your Family



Home Care Following a Hernia or Hydrocele Repair

The following guidelines will help keep your child more comfortable after he goes home from his operation.

What to Expect

Your child will be able to go home the same day of his operation. He will experience some soreness, swelling and bruising of his groin area for a few days, up to a week. This is not a cause for worry. The swelling and bruising will go away. The soreness can be partly relieved with medication.

Bandage

- Clear plastic coating. There will be no bandages or stitches you can see. There will be only a thin plastic coating over the surgery wound. It will come off by itself in a few days. It doesn't really matter how long it stays on. It will have done its job of protecting the wound.
- Gauze. Keep the bandage clean and dry for 2 days, then you may remove it. There may be a small amount of drainage from the stitches.
- The incision is closed with tape "steri-strips". These can be removed as they peel up off the skin (in 3-5 days).

Bathing

Your child may have sponge baths for first 2 days, then tub baths or showers are fine (stitches may get wet).

Activity

Hernias in children are repaired differently from those in adults. A child can be more active than an adult with the same surgery. Moderate activity will not harm your child. In fact, you should help him resume normal activities. He may be up and around, but **NO ROUGH-HOUSING or TUMBLING**, etc. for **ONE WEEK**. No bike riding or straddle toys for 3 weeks.

Diet

Your child may eat a normal diet, but you should encourage extra fluids.

Medicine

- Tylenol - give every 4 hours as needed for pain.
- Tylenol with codeine elixir - give every 4 hours as needed for pain (may cause constipation or nausea).
- Glycerine suppository for constipation, if needed. (may purchase at any drug store).

Call the Doctor If

- Fever of 101° degrees or higher.
- Thick yellow drainage from wound.
- Persistent constipation after trying glycerine suppository.
- Other problems or questions.

How to Reach Us

Weekdays, from 9:00 am - 5:00 pm, call

- Pediatric Urology Clinic at **494-7765**.
- Pediatric Surgery Clinic at **494-8500**.

Evenings, weekends, and holidays, call the hospital operator at **494-8311**. Ask for the

- Pediatric urology resident on call.
- Pediatric surgery resident

Follow-up Appointment

Your child's follow-up appointment with Dr. _____ is in the Pediatric Clinic on _____ at _____.





Home Care after Surgery for Undescended Testes

The guidelines below will help you in caring for your child after having surgery for undescended testes. If you have any questions or concerns, or notice any unusual symptoms, call the doctor.

What to Expect

Your child will experience some soreness that can be partly relieved with medication. It is normal to have some swelling and bruising of the scrotum and penis for a few days.

General Wound Care

Bandage

Depending on your doctor, a bandage may or may not be left on when your child leaves the hospital. If it is left on, keep it clean and dry for 2 days. You may remove it after 2 days.

Thin plastic coating

This covers the wound to prevent infection. If your child has this dressing, it will drop off naturally within a few days. It is part of the natural healing process - nothing to worry about.

Stitches

There will be stitches showing on the scrotum or sac. The heavy stitch will need to be removed in 7-10 days.

Bathing

Tub baths or shower are fine after 2 days (stitches may get wet)

Activity

No "rough housing" or tumbling until stitches are removed. No bike riding for 3 weeks.

Diet

- Your child may continue with a regular diet.

Medicines

- Tylenol with codeine elixir - give every 4 hours as needed for pain.
- Glycerine suppository for constipation (may purchase at any drug store)

Call the Doctor If

- Fever of 101° degrees or higher
- Thick yellow drainage from wound
- Any other problems or questions

How to Reach Us

Monday - Friday, 9:00 am - 4:30 pm

Pediatric Surgery Clinic - 494-8500

Pediatric Urology Clinic - 494-7765

Evenings and weekends, call the hospital operator at 494-8311 - ask for the

Pediatric surgeon on call

Urology resident on call

Your child's doctor is: _____

Return Appointment

Date _____ Time _____
in the Pediatric Clinic.



PEDIATRIC SURGICAL ASSOCIATES
Timothy J Campbell, M D - Thomas J Curran, M D
501 N Graham, Suite 300
Portland, OR 97227
Phone: (503) 460-0065

POSTOPERATIVE CARE OF YOUR CHILD

DIET

Give your child a liquid diet the day of surgery. This may include jello, soups and milk products. A regular diet can be resumed the next day if tolerated.

PAIN

Your child may have a fever of 100 - 101°. This is normal. For a fever or discomfort you may give the child Tylenol in an appropriate dose for age, with a swallow of milk.

CARE OF SURGICAL SITE

Remove bandages in three days. Sponge baths should be given until all bandages are removed.

For orchioepexies, the scrotal cotton roll will be removed by Dr. Campbell in 7 days. (Call to schedule appointment).

ACTIVITY

Activity is permitted as tolerated and desired.

Call Dr. Campbell's office to make an appointment for check-up in one month.

Appendix B
Parent Questionnaire

ID # _____

PARENT QUESTIONNAIRE

To enable us to compare the results of our study with people from different groups and situations, we would like the following information. Please complete the items below.

1. Birth date of child having surgery (day/month/year) _____ / _____ / _____
2. Weight of the child having surgery _____
3. Sex of child having surgery: male _____ female _____
4. Sex of person filling out this questionnaire: male _____ female _____
5. Age of mother _____
6. Age of father _____
7. Occupation of mother _____
8. Occupation of father _____
9. Highest grade of regular school completed by mother (circle the number)

<u>Grade School</u>	<u>High School</u>	<u>College</u>	<u>Graduate School</u>
1 2 3 4 5 6 7 8	9 10 11 12	13 14 15 16	17 18 19 20 21 22
10. Highest grade of regular school completed by father (circle the number)

<u>Grade School</u>	<u>High School</u>	<u>College</u>	<u>Graduate School</u>
1 2 3 4 5 6 7 8	9 10 11 12	13 14 15 16	17 18 19 20 21 22
11. Marital status of parents
____ single never married
____ married/ partnered
____ divorced or separated
____ widowed
12. Ethnic background _____ Black _____ Caucasian _____ Asian _____ Hispanic
 _____ Native American _____ Other (please specify)
13. Religion _____ Protestant _____ Catholic _____ Jewish _____ Muslim

ID # _____

_____ Orthodox _____ None _____ Other (please specify)

14. How anxious or nervous are you about your child having surgery?

- _____ not anxious or nervous
- _____ a little anxious or nervous
- _____ moderately anxious or nervous
- _____ very anxious or nervous
- _____ extremely anxious or nervous

15. On a scale of 0 to 10, where 0 is "no pain" and 10 is "the worst pain imaginable", how much pain do you expect your child to have after surgery? (circle the number)

0 1 2 3 4 5 6 7 8 9 10

The next questions deal with beliefs about children and pain. There are no right or wrong answers.

16. You can spoil a child by giving too much comfort when he or she is in pain.

- _____ very true
- _____ somewhat true
- _____ undecided
- _____ somewhat false
- _____ very false

17. Children exaggerate their pain.

- _____ very true
- _____ somewhat true
- _____ undecided
- _____ somewhat false
- _____ very false

18. Who generally copes better with pain? _____ boys _____ girls

Appendix C

Pain Diary

I.D. # _____

PAIN DIARY

Dear Parents:

Thank you for agreeing to participate in our study "Home Management of Acute Postoperative Pain in Children Aged 12 to 24 Months". By participating in our study, you are helping us learn more about how parents manage pain at home. This knowledge may be used to help other families who have a child experiencing pain.

The pain diary has three pages to fill out. You will fill out 1 page every day for 3 days. Day 1 starts when you bring your child home, and ends the next morning at 6 AM. Day 2 is the first full day your child is at home, and Day 3 is the second full day your child is at home.

Please fill out the diary each time you do something to help your child's pain.

The sample diary on the following page may help you in filling out your child's pain diary.

If you have any questions, please do not hesitate to call Christine Bloom at 624-7906. If she is not available, leave your name and number, and she will return your call as soon as possible.

At the end of the three days, please place the diary in the stamped, pre-addressed envelope provided, and place in the mail.

Thank you for your time.

DIRECTIONS

Please fill out the diary each time you do something to help your child's pain. Enter the time in the box at the top of the page. Then rate your child's pain on a 0 to 10 scale, where 0 is "no pain" and 10 is "the worst pain imaginable". Write the number in the box for "pain level".

Check the boxes that describe your child's behavior at that time. You may check as many boxes as you like. For example, if your child was screaming, put a check mark in the box for "screaming".

Under the "Management" section, check the box or boxes that describe what you did to treat your child's pain. If you gave a different dose of medicine from the one prescribed, write how much you gave in the box for the medicine.

If you want to make more comments, please write them in the "Comments" section.

DATE: _____

SAMPLE

I.D.# _____

TIME									
Pain Level (0-10)									
Verbal pain complaint: "It hurts", "ow"									
Crying/Sobbing									
Groaning, moaning, or grunting									
Screaming									
Open mouth, lips pulled back at corners									
Squinting, eyelids closed or nearly closed									
Eye brow bulge/forehead wrinkling									
Restless behavior									
Rub/touch painful area									
Unable to drink or eat.									
Clingy									
Nauseated									
Inability to sleep									
Sleeping									
Not talking/not social									
Unable to cough or move									
Resists movement									
Drawing up legs									
Fussy/whining									
MANAGEMENT									
Holding/Rocking									
Ignore									
Distraction									
Sucking on pacifier									
Other									
Medicated with Tylenol	Dose:								
Medicated with Tylenol With Codeine	Dose:								
Other Medicine-What?	Dose:								

Comments: _____

Did your child act different than usual today? If yes, please describe. _____

DIRECTIONS

Please fill out the diary each time you do something to help your child's pain. Enter the time in the box at the top of the page. Then rate your child's pain on a 0 to 10 scale, where 0 is "no pain" and 10 is "the worst pain imaginable". Write the number in the box for "pain level".

Check the boxes that describe your child's behavior at that time. You may check as many boxes as you like. For example, if your child was screaming, put a check mark in the box for "screaming".

Under the "Management" section, check the box or boxes that describe what you did to treat your child's pain. If you gave a different dose of medicine from the one prescribed, write how much you gave in the box for the medicine.

If you want to make more comments, please write them in the "Comments" section.

DATE: _____

Diary Day 1

Home until next morning I.D.# _____

TIME									
Pain Level (0-10)									
Verbal pain complaint: "It hurts", "ow"									
Crying/Sobbing									
Groaning, moaning, or grunting									
Screaming									
Open mouth, lips pulled back at corners									
Squinting, eyelids closed or nearly closed									
Eye brow bulge/forehead wrinkling									
Restless behavior									
Rub/touch painful area									
Unable to drink or eat.									
Clingy									
Nauseated									
Inability to sleep									
Sleeping									
Not talking/not social									
Unable to cough or move									
Resists movement									
Drawing up legs									
Fussy/whining									
MANAGEMENT									
Holding/Rocking									
Ignore									
Distraction									
Sucking on pacifier									
Other									
Medicated with Tylenol	Dose:								
Medicated with Tylenol With Codeine	Dose:								
Other Medicine-What?	Dose:								

Comments: _____

Did your child act different than usual today? If yes, please describe. _____

DIRECTIONS

Please fill out the diary each time you do something to help your child's pain. Enter the time in the box at the top of the page. Then rate your child's pain on a 0 to 10 scale, where 0 is "no pain" and 10 is "the worst pain imaginable". Write the number in the box for "pain level".

Check the boxes that describe your child's behavior at that time. You may check as many boxes as you like. For example, if your child was screaming, put a check mark in the box for "screaming".

Under the "Management" section, check the box or boxes that describe what you did to treat your child's pain. If you gave a different dose of medicine from the one prescribed, write how much you gave in the box for the medicine.

If you want to make more comments, please write them in the "Comments" section.

DATE: _____

Diary Day 2

Morning until next morning I.D.# _____

TIME									
Pain Level (0-10)									
Verbal pain complaint: "It hurts", "ow"									
Crying/Sobbing									
Groaning, moaning, or grunting									
Screaming									
Open mouth, lips pulled back at corners									
Squinting, eyelids closed or nearly closed									
Eye brow bulge/forehead wrinkling									
Restless behavior									
Rub/touch painful area									
Unable to drink or eat.									
Clingy									
Nauseated									
Inability to sleep									
Sleeping									
Not talking/not social									
Unable to cough or move									
Resists movement									
Drawing up legs									
Fussy/whining									
MANAGEMENT									
Holding/Rocking									
Ignore									
Distraction									
Sucking on pacifier									
Other									
Medicated with Tylenol	Dose:								
Medicated with Tylenol With Codeine	Dose:								
Other Medicine-What?	Dose:								

Comments: _____

Did your child act different than usual today? If yes, please describe. _____

DIRECTIONS

Please fill out the diary each time you do something to help your child's pain. Enter the time in the box at the top of the page. Then rate your child's pain on a 0 to 10 scale, where 0 is "no pain" and 10 is "the worst pain imaginable". Write the number in the box for "pain level".

Check the boxes that describe your child's behavior at that time. You may check as many boxes as you like. For example, if your child was screaming, put a check mark in the box for "screaming".

Under the "Management" section, check the box or boxes that describe what you did to treat your child's pain. If you gave a different dose of medicine from the one prescribed, write how much you gave in the box for the medicine.

If you want to make more comments, please write them in the "Comments" section.

DATE: _____

Diary Day 3

Morning until next morning I.D.# _____

TIME									
Pain Level (0-10)									
Verbal pain complaint: "It hurts", "ow"									
Crying/Sobbing									
Groaning, moaning, or grunting									
Screaming									
Open mouth, lips pulled back at corners									
Squinting, eyelids closed or nearly closed									
Eye brow bulge/forehead wrinkling									
Restless behavior									
Rub/touch painful area									
Unable to drink or eat.									
Clingy									
Nauseated									
Inability to sleep									
Sleeping									
Not talking/not social									
Unable to cough or move									
Resists movement									
Drawing up legs									
Fussy/whining									
MANAGEMENT									
Holding/Rocking									
Ignore									
Distraction									
Sucking on pacifier									
Other									
Medicated with Tylenol	Dose:								
Medicated with Tylenol With Codeine	Dose:								
Other Medicine-What?	Dose:								

Comments: _____

Did your child act different than usual today? If yes, please describe. _____

THANK YOU FOR TAKING THE TIME TO FILL OUT THIS
DIARY. THE INFORMATION YOU HAVE SHARED WILL HELP US
TO BETTER UNDERSTAND HOW PARENTS MANAGE THEIR
CHILDREN'S PAIN.

PLEASE MAIL THE COMPLETED DIARY TO:

CHRISTINE BLOOM, RN
8790 SW REILING STREET
TIGARD, OR 97224

Appendix D
Consent Forms

ID# _____

IRB# _____

Approved _____

Oregon Health Sciences University

CONSENT FORM

TITLE: Home Management of Acute Post-Operative Pain in Children Aged 12 to 24 Months.

INVESTIGATORS: Christine M. Bloom, RN, BSN. Telephone: 624-7906
Theresa A. Gassner, RN, BSN. Telephone: 203-1840

ADVISORS: Vivian Gedaly-Duff, DNSc, RN. Telephone: 494-3866
Cathie Burns, PhD, RN, C.P.N.P. Telephone: 494-3845

PURPOSE: You have been invited to participate in this study because your child is undergoing a day-surgery procedure. The purpose of this study is to examine the ways parents manage acute post-operative pain in their boys and girls aged 12 to 24 months.

PROCEDURES: Parents or guardians of children age 12 to 24 months undergoing day-surgery procedures will be asked to complete a short demographic and pain history questionnaire while in the short stay unit. They will also be asked to complete a pain diary at home, during the first three days after surgery. It will take about 10 minutes per day to fill out the diary. You will fill out one (1) page every day for three (3) days. Day one (1) starts when you bring your child home, and ends the next morning at 6 am. Day two (2) is the first full day your child is at home, and Day three (3) is the second full day your child is at home. The diary will be then be

mailed to the investigators in a stamped, pre-addressed envelope after completion.

RISKS: The investigators are not aware of any risks for you or your child from participation in this study.

BENEFITS: You or your child may not experience specific personal benefits; however, information gathered may help nurses and parents to better manage children's pain.

CONFIDENTIALITY: All data will be kept confidential. Collected data will be kept in a locked file. Neither the name nor identity of the participants will be used for publication or publicity purposes.

COSTS: There will be no costs to you or your child from participation in this study.

LIABILITY: The Oregon Health Sciences University, as an agency of the State, is covered by the State Liability Fund. If you suffer any injury from the research project, compensation would be available to you only if you establish that the injury occurred through the fault of the University, its officers, or employees. If you have further questions, please contact the Medical Services Director at 503-494-8014.

Theresa Gassner (203-1840) or Christine Bloom (494-8173) has offered to answer any other questions you may have about this study.

If you have any questions regarding your rights as a research subject, you may contact the Oregon Health Sciences University Institutional Review Board at 503-494-7887.

You or your child may refuse to participate, or may withdraw from this study at any time without affecting your relationship with the Oregon Health Sciences University.

Your signature of this consent form indicates that you have read the above information and agree to participate in this study. You will receive a copy of this form.

Thank you for your willingness to participate.

Parent or Guardian

Date

Witness

Date

Investigator

Date

ID# _____

IRB# _____

Approved _____

Legacy Emanuel Hospital and Health Center

CONSENT FORM

TITLE: Home Management of Acute Post-Operative Pain in Children Aged 12 to 24 Months.

INVESTIGATORS: Christine M. Bloom, RN, BSN. Telephone: 624-7906
Theresa A. Gassner, RN, BSN. Telephone: 203-1840

ADVISORS: Vivian Gedaly-Duff, DNSc, RN. Telephone: 494-3866
Cathie Burns, PhD, RN, C.P.N.P. Telephone: 494-3845

PURPOSE: You have been invited to participate in this study because your child is undergoing a day-surgery procedure. The purpose of this study is to examine the ways parents manage acute post-operative pain in their children aged 12 to 24 months.

PROCEDURES: Parents or guardians of children age 12 to 24 months undergoing day-surgery procedures will be asked to complete a short demographic and pain history questionnaire while in the short stay unit. They will also be asked to complete a pain diary at home, during the first three days after surgery. It will take about 10 minutes per day to fill out the diary. You will fill out one (1) page every day for three (3) days. Day one (1) starts when you bring your child home, and ends the next morning at 6 am. Day two (2) is the first full day your child is at home, and Day three (3) is the second full day your child is at home. The diary will be then be

mailed to the investigators in a stamped, pre-addressed envelope after completion.

RISKS: The investigators are not aware of any risks for you or your child from participation in this study.

BENEFITS: You or your child may not experience specific personal benefits; however, information gathered may help nurses and parents to better manage children's pain.

CONFIDENTIALITY: All data will be kept confidential. Collected data will be kept in a locked file. Neither the name nor identity of the participants will be used for publication or publicity purposes.

COSTS: There will be no costs to you or your child from participation in this study.

LIABILITY: Legacy Health System is composed of non-profit hospitals that are dedicated to provide medical treatment for injury or illness . Should my child suffer any injury as a result of this research project, emergency medical treatment will be available,. However, compensation for emergency medical treatment will be available from the hospital only if I established that the injury occurred through the fault of the hospital, its physicians, officers or employees. Further information regarding this policy, or questions concerning my rights as a research participant may be obtained from the Office of Research Administration at 413-2474.

Theresa Gassner (203-1840) or Christine Bloom (494-8173) has offered to answer any other questions you may have about this study.

I understand I am free to refuse to participate or to withdraw from participation in this study at any time and it will in no way affect my relationship with, or treatment at Legacy Health Systems.

Your signature of this consent form indicates that you have read the above information and agree to participate in this study. I have read and understand the foregoing. You will receive a copy of this form.

Thank you for your willingness to participate.

Parent or Guardian

Date

Witness

Date

Investigator

Date

Appendix E

Approval Letters from the Institutional Review Boards



OREGON
HEALTH SCIENCES UNIVERSITY

3181 S.W. Sam Jackson Park Road, Portland, OR 97201-3098
Mail Code L106, (503) 494-7887 Fax (503) 494-7787

Institutional Review Board/Committee on Human Research

DATE: July 21, 1995

TO: Christine Bloom, BSN, RN UHS 8P
Theresa Gassner, BSN, RN

FROM: Dawn Goodman
The Committee on Human Research

SUBJECT: IRB#: 3902
TITLE: Home Management of Acute Post-Operative Pain in
Children Aged 12 to 24 Months

This confirms receipt of the revised consent form(s), and/or answers to questions, assurances, etc., for the above-referenced study.

It satisfies the requirements of the Committee on Human Research. The protocol and proposal to use human subjects are herewith approved. The IRB# and the date of this memo must be placed in the top right corner of the first page of the consent form. This is the approval date of this revised consent form.

Investigators must provide subjects with a copy of the consent form, keep a copy of the signed consent form with the research records, and place a signed copy in the patient's hospital/clinic medical record (if applicable).

Approval by the Committee on Human Research does not, in and of itself, constitute approval for implementation of this project. Other levels of review and approval may be required, and the project should not be started until all required approvals have been obtained. Also, studies funded by external sources must be covered by an agreement signed by the sponsor and an authorized official of the University. The Principal Investigator is not authorized to sign.

If this project involves the use of an Investigational New Drug, a copy of the protocol must be forwarded to the Pharmacy and Therapeutics Committee (Pharmacy Services - Investigational Drugs, OP-16A).

Thank you for your cooperation.



Legacy Portland Hospitals
Legacy Emanuel Hospital & Health Center
Legacy Good Samaritan Hospital & Medical Center
2801 N. Gantenbein Avenue
Portland, Oregon 97227
(503) 413-2200

Legacy IRB: M-1517-01

November 14, 1995

Christine Bloom, R.N., B.S.N.
8790 SW Reiling St.
Tigard, OR 97224

Dear Ms. Bloom:

At its meeting of October 24, 1995, the Legacy IRB reviewed and approved your protocol "**Home Management of Acute Post-Operative Pain in Children Aged 12-24 Months**". The consent form is also approved.

Please be advised that you should inform the IRB of any changes in your protocol or if any problems emerge or serious or unexpected adverse subject experiences have been observed.

Sincerely,

A handwritten signature in cursive script that reads "Casey Bush".

Casey Bush
Executive Secretary
Legacy IRB