EFFECT OF PARENTAL PRESENCE ON THE BEHAVIOUR OF THE POSTOPERATIVE PRESCHOOL AGE CHILD IN THE PEDIATRIC RECOVERY ROOM

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ABSTRACT

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This study examined the effect of parental presence on the behaviour of the postoperative preschool age child in the pediatric recovery room. The immediate postoperative period has been identified as one of the three most stressful periods in a child's hospitalization. Although it has been suggested that parental presence during painful and stressful procedures can reduce anxiety and influence pain perception, review of the literature demonstrated a scarcity of research that describes the effects of parental presence on children's behaviour in areas such as the recovery room. This study therefore contributes to a currently inadequate research base, and thereby enhances the ability of health care professionals to make objective decisions regarding parental presence in the pediatric recovery room.

A quasi-experimental design was used to study two groups of ten children between the ages of three and six years immediately following strabismus repair. The behaviour of ten children accompanied by parents and ten children unaccompanied by parents in the Recovery Room was recorded on videotape which was then analyzed for duration and frequency of 26 items on a behavioural checklist. Differences in duration and frequency of behaviours between the two groups were determined using Kruskal-Wallis one-way analysis of variance and other descriptive analyses.

Findings demonstrated that although children in the two groups displayed the same behaviours, the duration and frequency

of certain behaviors varied significantly between groups. Children in the parent-present group made more attempts to cope with the pain experience by crying and complaining with the apparent expectation that their parents would comfort them, whereas children in the parent-absent group made more attempts to cope with the pain experience by trying to reduce the pain themselves through rubbing their eyes and protective behaviour.

Thus, it was concluded that the parent's presence in the pediatric recovery room provides the child with an important additional way of coping effectively with the experience, including pain. Implications for nursing practice and nursing research are described in view of the research findings and recommendations are made regarding the process of implementing parental visiting in pediatric recovery rooms.

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Chapter One

INTRODUCTION

This is the report of a study which examined the effects of parental presence on the behaviour of the postoperative preschool age child in the pediatric recovery room. The immediate postoperative period has been identified as one of the three most stressful periods in a child's hospitalization (Vernon, Foley, Sipowicz, & Schulman, 1965). Although it has been shown that the presence of parents during painful and stressful procedures can reduce anxiety and influence pain perception (Broome, 1985; Hawley, 1984; Savedra, 1981), decisions regarding parental presence during health care procedures seem to be based on anecdotal experience and the comfort level of the professionals involved (Hunsberger, Love, & Byrne, 1984). As a result, some children are denied the benefit of their parents' presence during painful and stressful procedures.

In many situations, it is the nurse who advocates on behalf of the child and/or parent to allow the parent to be present during a procedure. It is also true that in clinical areas where parents are not commonly permitted to be with their child, many nurses are unsure of what the effects of parental presence might be on the child. Currently, there is a scarcity of research that describes the effects of parental presence on children's behaviour pre-, during, and post-procedure (Hunsberger et al., 1984) or that can be used to guide health care professionals in decision-making about parental presence when a child faces a stressful and painful procedure. The

pediatric recovery room is one area in which research on the effects of parental presence on children's behaviour is limited. Therefore, this study was designed to examine the behaviour of two groups of children - postoperative preschool age children with parents in the Recovery Room and postoperative preschool age children without parents in the Recovery Room.

This chapter introduces the research by describing the background of the problem, explaining the framework guiding the research, and identifying the specific research questions addressed.

Background

In the agency in which the study was conducted, unit policy does not routinely permit parents to be with their child in the Recovery Room. On several occasions however, parents had been allowed to visit in Recovery Room to comfort their child or assist the nurse in assessing the child's pain more accurately. On these occasions, it was noted that some children who were thought to be experiencing pain changed their behaviour once their parents were with them. Children who were restless, crying, and refusing to drink stopped crying, rested quietly on their parent's lap, and appeared to be more comfortable. As a result of the change in behaviour demonstrated when the child's parent came to the Recovery Room, some children did not receive analgesics which the nurse had previously decided to administer. From these observations, the question arose as to whether the child's initial behaviour had been misinterpreted and if so, what the initial behaviours represented.

Behavioural cues are frequently used by nurses in assessing a pediatric patient's pain (Bradshaw & Zeanah, 1986). However, assessment of pain in pediatric patients is recognized as being a difficult problem (Abu-Saad, 1984; Jeans, 1983a). In the recovery room setting, assessment of behaviour is complicated by a number of factors. Here the children awaken from a painful surgical procedure and discover they are in an unfamiliar place and separated from their parents. The behaviour demonstrated by children in the post anesthetic recovery area may be due to emergence from anesthetic, fear and anxiety related to separation and an unknown environment, pain, or any combination of these factors. Sternbach (1968) stated that for the young child, the experience of the pain sensation is typically associated with anxiety and the pain a child feels as a result of separation is as real as physical pain and will elicit the same type of responses as physical pain.

Health care professionals are constantly seeking ways in which to improve care for pediatric patients and reduce the stress which accompanies a child's hospitalization. It is well documented in the literature that parental presence does decrease the hospitalized child's anxiety (Bowlby, 1960; Broome, 1985; Hawley, 1984; Vernon, Foley, Sipowicz, & Schulman, 1965). Many pediatric nurses believe that for the child exposed to an unfamiliar environment, the presence of a parent seems to minimize, though not eliminate, the anxiety and fear associated with an invasive procedure (Hunsberger et al., 1984). This study was designed to examine whether children who have their parents with them in the Recovery Room demonstrate different

behaviours than children whose parents are not with them.

Problem Statement

Pain and separation from parents are parts of almost every child's experience in hospital. These two factors may combine with other factors to make hospitalization a stressful and frightening experience for the child (Audette, 1974; Crocker, 1980; Godfrey, 1955; Gohsman & Yunck, 1979; Hunsberger et al., 1984; Vernon et al., 1965; Visintainer & Wolfer, 1975; Yarrow, 1964; Zurlinden, 1985). Extensive search of the literature by this author produced only two studies which addressed the issue of parental presence in the pediatric recovery room, and each of these studies examined only the parents', not the child's, view of the experience.

Based on the author's observations in the clinical setting, it appears that having parents in the pediatric recovery room may accomplish three important goals: First, as separation anxiety probably increases the child's perception of pain, eliminating separation anxiety in this situation may alter the child's perception of pain. Second, if the child does not experience the fear and anxiety associated with parental separation, the behaviours the child demonstrates are more likely to be due to pain than fear and anxiety. Third, the nurse's interpretation of the child's behaviour and the decision as to whether or not the child is experiencing pain may be more accurate when the impact of separation anxiety on behaviour is reduced.

Accurate assessment of behaviour has important implications

for appropriate management of the child in the pediatric recovery room. This study explores the effect of parental presence on the behaviour of the postoperative preschool age child in the recovery room by addressing the following specific questions:

1. Do children who have their parents with them in the recovery room display different behaviours than those whose parents are not with them?

2. What are the different behaviours displayed by children whose parents are with them and children whose parents are not with them?

3. Do children who have their parents with them in the recovery room display pain behaviour that is different than that demonstrated by children whose parents are not with them?

The results of the research provides objective rather than anecdotal data which will assist health care professionals in making dispassionate decisions about whether parents should be permitted in the pediatric recovery room. In addition, the research will add to the growing body of literature which focuses on the assessment of pain in pediatric patients. Accurate assessment of behaviour has important implications for appropriate management of pain. Inappropriate administration of analgesics is one outcome of inaccurate assessment of behaviour. In the recovery room, although some children receive oral non-narcotic analgesics, many receive injections of narcotic analgesics. In the author's experience, narcotic analgesics significantly affect the length of the child's recovery time, feeling of well-being, and the length of stay in hospital for a

child admitted for day care surgery. An injection is a frightening experience for all children but particularly for preschoolers who may perceive it as punishment for something they have done wrong (Gildea & Quirk, 1977). Inappropriate use of narcotic analgesics and injections is inconsistent with the goals of minimizing the stress associated with hospitalization and making hospitalization as positive an experience as possible.

In the following section, selected terms are defined in order to assist the reader to more fully understand the research study.

Definition of Terms

For the purpose of this study, the following definitions apply:

Recovery room: a specialized hospital unit equipped for the purpose of managing immediate post-anesthetic patients.

Preschool age child: a child between the ages of three and six years.

Parent: the child's natural, adoptive, and/or foster mother and/or father who have primary responsibility for the child's care.

Analgesic: medication administered for the purpose of pain relief.

Narcotic analgesic: analgesic of which the use is controlled by federal Controlled Drug Regulations. Administration may be by the intra-muscular, intravenous, or oral route.

Non-narcotic analgesic: analgesic of which the use is not controlled by federal Controlled Drug Regulations. Administration may be by the oral or rectal route.

Pain: "a complex psychophysiological phenomenon involving sensory, neurochemical, cognitive, affective, and motivational components which interact to produce a behavioural response to tissue damage or irritation, and which may also be produced and maintained by other antecedent or consequent stimulus conditions" (Katz, Varni, & Jay, 1984, p. 165).

Daycare surgery: surgery performed on the same day as admission to and discharge from hospital.

Strabismus repair: surgical correction of squint.

The following section explains the conceptual framework which directed this study.

Conceptual Framework

Although the earliest pain theorists viewed pain as a simple stimulus response phenomenon, pain is now recognized as a complex phenomenon. In this study, pain is defined as "a complex psychophysiological phenomenon involving sensory, neurochemical, cognitive, affective, and motivational components which interact to produce a behavioural response to tissue damage or irritation, and which may also be produced and maintained by other antecedent or consequent stimulus conditions" (Katz et al., 1984, p. 165). This definition was chosen as it conveys a multidimensional approach to pain, including the behavioural component, and is therefore more useful in the pediatric setting than many of the most frequently

quoted definitions of pain. This definition recognizes pain as a complex phenomenon and as such, pain can be examined from many perspectives.

In examining the effects of parental presence on the behaviour of the postoperative preschool age child in the recovery room, the author recognized that one of the most significant factors affecting this behaviour could be the child's pain. It was also recognized that one of the most important factors affecting the child's pain experience could be the child's fear and anxiety. Thus, it became evident that this study could be approached from two perspectives - that of the pain theorist and that of the behaviorist. In the author's preliminary review of the literature, it became clear that although many pain theorists incorporated or considered behavioural theory in their work, the same was not true of the behavioural theorists. For this reason, pain theory was chosen as the theoretical framework for the study. More specifically, the gate control theory of pain was selected as it addresses the multidimensional nature of pain, that is, the sensory, neurochemical, cognitive, affective, and motivational components which interact to produce a behavioural response. In order to assist the reader, a review of the gate control theory of pain is provided in Chapter 2.

In using this framework to examine the experience of the child in the recovery room, the pain experience can therefore be described as a combination of the physical sensations associated with the pain stimulus and of the emotional distress associated with separation from parents and fear of the unknown resulting

in a behavioural response.

Assumptions

In this research study, there are several underlying assumptions. Those that are important for the researcher to acknowledge and for the reader to be cognizant of are:

There is a physiological, psychological, and experiential component to each child's pain experience.

The pain experience is different for every child even when the surgical experience is the same. The child's pain is evident through the behavioural response to the stimulus.

"Pain is interwoven with emotions such as fear, anger, loneliness, and anxiety, and thus some emotion beyond the pain itself may account for the behaviours observed" (Smith, 1976, p. 205).

The behaviour of children in the recovery room is affected by the presence or absence of their parents.

Limitations of the study will be addressed in the discussion of the findings of the study.

Summary

The immediate postoperative period is one of the three most stressful periods in a child's hospitalization (Vernon et al., 1965). Thus, this study addresses an area of importance in the nursing management of the hospitalized pediatric patient that is, the effect of parental presence on the behaviour of the postoperative preschool age child in the pediatric recovery room. The results of this descriptive study will assist health

professionals in objective decision-making about whether parental visiting should by permitted in the pediatric recovery room and will encourage them to examine their agency's visiting policies for other situations from which parents are excluded. As well, the results of this study add to the expanding body of literature on pediatric pain assessment. Pediatric nurses will be able to use the results of this study to assist them in making better decisions when deciding whether or not to give a child an analgesic in the immediate post-operative period.

This chapter has introduced the research study by describing the background of the problem, identifying the framework guiding the research, and stating the specific research questions addressed. The next chapter provides a review of the literature relevant to the study. In the subsequent chapters, the methodology and findings of the study will be addressed in order to assist the reader to understand the final chapters in which the implications of the findings and the author's recommendations will be discussed.

Chapter Two

REVIEW OF SELECTED LITERATURE

Currently, there is a scarcity of literature which specifically addresses the effects of parental presence on the behaviour of children before, during, and after procedures. It is recognized, however, that pain and separation from parents are experienced by almost every child in hospital and these two factors can influence the hospitalized child's behaviour. An initial review of the literature revealed that there are currently no published studies which explored the effects of parental presence on the behaviour of the postoperative pediatric patient in the recovery room. Therefore, in order to place this study within the existing knowledge in the area, review of the literature focused on material which specifically addressed pediatric pain and the experience of hospitalization for pediatric patients. However, in order to explore potential relationships between the pain experience and the experience of hospitalization, the literature reviewed for this report was expanded to include a review of pain theory.

This chapter is organized into four main sections: 1) pain theory, 2) effects of hospitalization and parental separation on pediatric patients, 3) effects of parental presence at procedures on pediatric patients, and 4) assessment of pain in pediatric patients.

Definitions of Pain and Pain Theory

Definitions of pain and pain theories have undergone considerable change since the phenomenon of pain was first

examined by Aristotle (Kim, 1980). In this portion of the chapter, definitions of pain and pain theories will be discussed in order to provide the reader with a foundation for understanding the possible influence of the experience of hospitalization on the child's perception of pain.

Definitions of Pain

The word pain is derived from the French peine and the Greek poine meaning penalty or fine (Funk & Wagnall's Standard College Dictionary, 1978). These derivations of the word pain suggest that historically pain was viewed as punishment for wrongdoing. Modern definitions of pain reflect how differently pain is viewed with most definitions of pain now incorporating physiological, psychological, experiential, and cultural components.

The difficulty in defining pain is evidenced by the varied definitions of pain which currently exist. Kim (1980) defined pain as "an abstract construct which refers to a personal, private experience of hurt whose quality and intensity are known to be significantly influenced by psychological and sociocultural variables" (p. 44). This definition, derived from the work of Melzack and Sternbach (Kim, 1980), includes a subjective sensation component but does not address the neurophysiological component of the pain experience. Sternbach's own definition, which is one of the most frequently quoted in the pain literature, defines pain as "an abstract concept which refers to (1) a personal, private sensation of hurt; (2) a harmful stimulus which signals current or impending tissue damage; (3) a pattern of responses which operate to

protect the organism from harm" (1968, p. 12). This definition addresses the neurophysiological component of the pain experience but does not explicitly acknowledge the importance of individual differences in the perception of pain. McCaffrey (1972) defines pain as "whatever the experiencing person says it is, existing whenever he says it does" (p. 12). This definition is similar to Kim's in that it addresses only the subjective aspect of the pain experience. In an attempt to develop a universally acceptable definition of pain, the International Association for the Study of Pain (1979) proposed the following: "an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such" (p. 250). This definition recognizes both the neurophysiological and subjective aspects of the pain experience. However, as identified by Stevens, Hunsberger, and Browne (1987), "in the case of young children who often can neither describe nor say what and where 'it' is, these definitions may not be appropriate or useful" (p. 154).

Katz et al. (1984) define pain as "a complex psychophysiological phenomenon involving sensory, neurochemical, cognitive, affective, and motivational components which interact to produce a behavioural response to tissue damage or irritation, and which may also be produced and maintained by other antecedent or consequent stimulus conditions" (p. 165). This definition conveys a multidimensional approach to pain, including the behavioural component, and is therefore more useful in the pediatric setting. This is the definition of pain which was used in this research study.

Just as definitions of pain have continued to evolve over time, so have theories of pain. The following review of pain theory examines the evolution of pain theories and at the same time, illustrates the multidimensional aspects of pain.

Pain Theories

Pain theories are commonly categorized as belonging to one of four major orientations: affect, specificity, pattern, and gate control.

Affect theory

Affect theory dates back to the time of Aristotle who believed pain to be "a feeling that originated in the skin (from excessive stimuli), travelled to the heart via the blood, and was interpreted by the heart" (Bray, 1986, p. 672) and "the antithesis of pleasure" (Wolf, 1980, p. 12). Affect theory characterized pain as an emotion, not a sensation, which coloured all sensory events (Kim, 1980). As we now know, one of the most significant aspects of a pain experience is the sensory experience.

Specificity theory

Specificity theory is identified by several authors as the traditional theory of pain (Melzack, 1973; Munhart & McCaffrey, 1983; Wolf, 1980). This theory, which originated in 1644 with Descartes' straight-through channel concept, described pain in terms of a sensory response to a noxious stimulus. Descartes proposed that the noxious stimulus caused the stimulated area to vibrate and pull directly upon delicate threads which ended in the brain. Pulling on these threads is likened to pulling on a bell cord, that is, the cord is pulled and the bell rings. The

basis of Descartes' theory was the direct skin to brain link which results in the person feeling and responding to pain when the skin is stimulated (Melzack, 1973). Descartes' view of specificity theory existed relatively unchanged until the nineteenth century when it was elaborated upon by Max Von Frey. Between 1894 and 1895, Von Frey published a series of articles in which he proposed a theory of the cutaneous senses. He hypothesized that there are four modalities of cutaneous sensation, touch, warmth, cold, and pain, each having its own type of specific nerve ending (Melzack, 1973). Von Frey's work was extended by other specificity theorists to include peripheral nerve fibres and spinal cord pain pathways. Thus, specificity theory is based on the assumption that "there are specific pain receptors (free nerve endings), pain fibres (A-delta and C), and tracts (lateral spinothalamic) which project to the specific pain centers (thalamic nuclei). Activity along this pathway from periphery to centre results in the sensation of and responses to pain" (Sternbach, 1968, p. 39).

Melzack (1973) identified three underlying assumptions of specificity theory: physiological, anatomical, and psychological. These assumptions are:

1) The physiological assumption that each of the four receptor types has one form of energy to which it is especially sensitive.

2) The anatomical assumption that each of the four modalities of cutaneous sensation has its own receptor type and there is a single morphologically specific receptor beneath each sensory spot on the skin.

3) The psychological assumption that there is a direct connection between the receptor to a brain centre where pain is felt which implies a direct, invariant relationship between stimulus and sensation (Melzack & Wall, 1965; Melzack, 1973).

Melzack and Wall (1965) identified the psychological assumption as the weakness of specificity theory. Specificity theory does not explain why individuals experiencing the same pain stimulus respond in different ways. In addition, it does not explain phenomena such as phantom pain, hyperalgesia, and peripheral neuralgias. Despite these limitations, Sternbach stated as late as 1968 that "currently the most orthodox view of pain is the specificity theory" (p. 39).

Pattern theory

A number of theories evolved as a reaction against the psychological assumption in specificity theory. These theories are grouped together under the general heading of pattern theory. Historically pattern theory and specificity theory have been considered to be mutually exclusive as pattern theory opposes the idea that pain has its own specialized receptors (Melzack & Wall, 1965).

Goldscheider, a pattern theorist, was the first to suggest that stimulus intensity and central summation are the critical determinants of pain (Melzack & Wall, 1965). Goldscheider's theory proposes that "particular patterns of nerve impulses that evoke pain are produced by the summation of the skin sensory input at the dorsal horn cells" (Melzack, 1973, p. 140). According to this theory, pain can result when impulses from the cells reach a critical level as a result of excessive

stimulation of receptors by non-noxious stimuli.

Several theories, all of which recognize the concept of patterning of the input, have emerged from Goldscheider's work. In 1943, Livingston proposed the central pattern summation theory in which he suggested that pathological stimulation of sensory nerves initiates activity in internuncial neuron pools in the spinal cord and sets up reverberating circuits in the spinal cord. Once established, triggering of these circuits by normally non-noxious inputs can generate volleys of nerve impulses that are centrally interpreted as pain. Even in the absence of touch, the abnormal activity may continue in the circuit and pain may therefore continue in the absence of peripheral stimuli (Melzack, 1973; Munhart & McCaffrey, 1983; Wolf, 1980). Livingston's theory is useful in explaining phenomena such as phantom pain, causalgia, and neuralgia but does not explain why severing pathways in the spinal cord or thalamus may not relieve pain. In 1955, Sinclair and Wendall described the peripheral pattern theory (Melzack, 1973). This theory proposes that all fibre endings, except those that innervate hair cells, are alike. Pain results from intense peripheral stimulation which produces a pattern of nerve impulses which are centrally interpreted as pain (Melzack, 1973; Wolf, 1980).

Noordenbos's 1959 theory of a specialized input controlling system is also derived from Goldscheider's (1894) original concept. This theory suggests that there are two fibre systems for pain, a slow, small fibre conducting system which carries the pain signals and a more rapid, large fibre conducting system

which inhibits synaptic transmission in the slower system. Under pathological conditions, the slow system becomes dominant over the rapid system resulting in loss of inhibition, increased summation, and abnormal pain phenomena (Melzack, 1973; Melzack & Wall, 1965; Munhart & McCaffrey, 1983; Wolf, 1980).

Although specificity theory and pattern theory each make a significant contribution to the understanding of pain, they both fail to constitute a satisfactory general theory of pain (Kim, 1980; Melzack & Wall, 1965; Munhart & McCaffrey, 1983) as neither of these theories address the cognitive, affective, or motivational components of the pain experience as described by Katz et al. (1984).

Gate control theory

The gate control theory of pain was first proposed in 1965 by Melzack and Wall. Melzack (1973) stated that any new theory of pain must be able to account for the following:

> 1. The high degree of physiological specialization of receptor-fibre units and of pathways in the central nervous system.
> 2. The role of temporal and spatial patterning in the transmission of information in the nervous system.
> 3. The influence of psychological processes on pain perception and response.
> 4. The clinical phenomena of spatial and temporal summation, spread of pain, and persistence of pain suffering. (p. 153)

The gate control theory of pain attempted to integrate these requirements into a comprehensive pain theory. In essence, the theory proposes three systems: (a) the gate control system,

(b) the central control system, and (c) the action system.

In the gate control system, a gating mechanism in the

dorsal horn of the spinal cord acts to inhibit the flow of nerve impulses from the skin to the spinal cord transmission (T) cells. The flow of nerve impulses from large and small diameter peripheral fibres to the central nervous system plus descending influences from the central control system regulates the degree to which the gate opens and closes. The gate regulates the amount of sensory input to the T cells which in turn activates the action system when T cell output exceeds a critical level.

The central control system activates selective cognitive processes through the central trigger mechanism. This central trigger influences the modulating properties of the gating mechanism through somatic, auditory, and visual inputs and through cognitive processes related to attention, past experience, and emotions. In this way, the person's own thoughts, feelings, and past experiences influence whether or not the pain impulses reach the level of awareness. The central control system acts rapidly to identify, evaluate, and selectively modify sensory input as well as interacting with the action system.

The action system is triggered only when the firing level of the T cells reaches or exceeds a critical level. Output from the T cells results in sensory-discriminative information regarding the location, magnitude, and spatio-temporal properties of the noxious stimulus as well as the motivational drive to escape or attack. Perceptual information and motivational tendency interact with cognitive information to influence the motor mechanisms responsible for the overt behavioral patterns which characterize pain (Kim, 1980; Melzack,

1973; Sternbach, 1968; Wolf, 1980).

Although the gate control theory is now the most commonly accepted theory of pain (Stevens et al., 1987; Wolf, 1980), it has been criticized on the basis that: (a) the actual location and mechanisms of the gate are erroneous (Munhart & McCaffrey, 1983), (b) that specific psychological variables and their effects are not described (Kim, 1980), and (c) that the theory is based on the pain experiences of adults and does not incorporate the developmental stages of children (Stevens et al., 1987). Even so, the gate control theory of pain is used by many authors in discussions of pediatric pain (Jeans, 1983a; McCaffrey, 1977; Schechter, 1985).

The strength of the gate control theory is that it addresses all of the components of the pain experience as defined by Katz et al. (1984), that is, the sensory, neurochemical, cognitive, affective, and motivational components which interact to produce a behavioural response. Thus, while it does not incorporate the varying levels of cognitive development of the young child which affect how factors such as anxiety, fear, and separation influence the child's pain experience, the gate control theory does recognize that factors such as these have a significant impact on the child's perception of and behavioural response to the pain experience. Understanding of the gate control theory of pain contributes to our understanding of why factors such as parental presence in the recovery room may affect the behaviour of the postoperative pediatric patient.

Given the significance of the variables of anxiety, fear,

and separation in children's pain experience, the following section of the chapter will review the literature which discusses the effects of hospitalization and parental separation on pediatric patients.

Effects of Hospitalization and Parental Separation

Studies of Effects of Maternal Separation

Vernon et al. (1965), in their review of over 200 articles and books dealing with children's psychological responses to hospitalization and illness, identified four variables which are most commonly associated with psychological upset in hospitalized children - separation from parents, age, pre-hospital personality, and unfamiliarity with the setting.

The effects of maternal separation on children have been studied since the 1950's. Initial research focused on long term institutionalization, including hospitalization. Bowlby (1960) and Robertson (1958) studied hospitalized children aged six months to five years and identified three phases that characterize young children's behaviour during long term separation - protest, despair, and detachment. Although some authors utilize the term separation anxiety to describe all three phases (Bransletter, 1969; Weary, 1974), Bowlby (1960) hypothesized that these three phases are manifestations of a single process with the phase of protest raising the problem of separation anxiety, the phase of despair the problem of mourning, and the phase of detachment the problem of defense. Robertson (1970) noted that when young children returned home from hospital, they "are almost invariably anxious and difficult

in their behaviour...they sleep badly, go back in their toilet training, panic if mother goes even momentarily out of sight, and have outbursts of aggression" (p. 6). Although these behaviours, when noted after short separations, usually disappeared in a few days or weeks when handled tactfully, they did persist in some children for much longer (Robertson, 1970).

Years ago, Yarrow (1964) and Goslin (1974) identified that research on the effects of short term hospitalization is limited. Review of the current literature by this author demonstrated that this is still true in 1989. In a study of 200 hospitalized children aged 2 to 12 years who were hospitalized for an average of seven days, Prugh, Staub, Sands, Kirschbaum, and Lenihan (1953) found that immediate reactions to hospitalization were more frequent in children aged 2 to 5 years. Behaviour displayed included crying, withdrawal from the environment, loss of bowel and bladder control, and disturbances in activity. Follow-up studies done three months after discharge demonstrated that about half the children showed some behaviour disturbances not present prior to hospitalization. Prugh et al. (1953) suggested that these reactions could be related to specific developmental anxieties and conflicts characteristic of the children's developmental stages.

Vernon, Schulman, and Foley (1966) utilized a post-hospitalization questionnaire to compare the behaviour of children before and after hospitalization. The questionnaire consisted of 28 items related to the children's behaviour and was sent to the parents of 800 children between the ages of 1 month and 16 years. The average length of hospitalization was

8.8 days and the reasons for hospitalization varied. Three hundred and eighty-seven responses were received and analyzed in order to determine the relationship of the 28 behaviours to the variables of age, gender, incidence of prior hospitalization, length of hospitalization, occupational status of parents, and birth order. The 28 items on the questionnaire were subjected to factor analysis and the following six factors were extracted: general anxiety and regression, separation anxiety, anxiety about sleep, eating disturbance, aggression toward authority, and apathy/withdrawal. Analysis revealed significant differences for the variables of age and duration of hospitalization with children between the ages of 6 months to 5 years, 11 months and children hospitalized for two to three weeks demonstrating the most psychological upset. The study also demonstrated that 25% of the children had total scores indicative of overall psychological benefit (Vernon et al., 1966).

The behaviour demonstrated by children in the pediatric recovery room may be influenced by a variety of factors, including separation from parents and postoperative pain. As indicated in the discussion of the gate control theory of pain, separation from parents may also have a significant impact on the child's perception of and behavioural response to the pain experience. Review of the literature related to the effects of maternal separation has clearly demonstrated that children who experience short term and long term separation from their mothers do demonstrate significant behavioural changes.

Recognition of the effects of maternal separation led to

liberalization of hospital visiting hours for parents. In Britain, in 1951, 42% of British pediatric wards allowed no visiting or visiting less than once a week (Robertson, 1970). The Citizen's Committee on Children of New York City (1955) found in 1954 that in 60% of member hospitals, parents were not allowed to visit more than three times a week, usually for a period of one hour. As visiting hours were liberalized, it became evident that "more liberal visiting schedules are better for children" (Citizen's Committee on Children of New York City, 1955). Support for this viewpoint increased substantially during the late 1950's and early 1960's (Fagin, 1962; Hunsberger et al., 1984; Johnson, 1962; O'Connell & Brandt, 1960) and as a result of the success of liberalization of visiting hours, the rules were relaxed even further to allow rooming-in.

As one progressive measure in the care of children is seen to be successful, other more controversial measures, such as rooming-in and parental presence at procedures, were introduced as research or pilot projects. Another example of a measure considered controversial by some health care professionals is parental visiting in the pediatric recovery room. Transitions in what is considered acceptable or common practice generally occur in a systematic manner. Thus, the transition from liberalization of visiting hours to rooming-in can be compared to the transition from no visiting by parents to liberalization of visiting hours. In the following section, research studies of the effects of rooming-in are reviewed.

Studies of the Effects of Rooming-in on Children

The practice of rooming-in became more accepted when it was

demonstrated that children whose parents cared for them in hospital showed a significantly better response to treatment than those whose parents did not look after them (Brain & Maclay, 1968; Mahaffy, 1965; Prugh et al., 1955).

Brain and Maclay (1968) studied 197 children under the age of six who underwent tonsillectomy, adenoidectomy, or both. Children assigned to the experimental group (admitted with mothers) and the control group (admitted without mothers) were admitted to hospital on opposite weeks. Adjustment to hospital was rated by two ward sisters and an anesthetist as satisfactory, limited, or unsatisfactory. Seventy-six point two percent of the experimental group had a satisfactory adjustment to hospital as compared to 42.7% of the control group. The child's adjustment was considered to be: (a) satisfactory if the child indicated awareness of the situation and was not "unduly disturbed" (Brain & Maclay, 1968, p. 278); (b) unsatisfactory if the child reacted to hospitalization with panic or complete denial and withdrawal; and (c) limited when the child "showed overt signs of emotional disturbance but was able to express its feelings to some extent and make a partial adjustment to the situation" (p. 278). Following discharge, children were classified as disturbed if any new behaviour disorder or neurotic trait had been observed since admission to hospital and undisturbed if behaviour was unchanged. Significantly fewer children in the experimental group, 21.8%, were classified as disturbed than in the control group, 55.2%. In addition, the disturbed behaviour lasted significantly longer in the control group. Brain and Maclay also found that only 11% of children in

the experimental group demonstrated any postoperative complications compared to 23% in the control group. Although Brain and Maclay describe the assignment to the experimental and control groups as being done by random process, selection of the study group was not done randomly. In fact, only those children whose mothers were willing to accompany them into hospital were selected for the study. In addition, parental visiting in the control group was limited. Neither of these factors was considered in their discussion of the findings but it may be that mothers who had thought they would be able to remain with their child in hospital were upset and/or anxious when they were able to visit for only short periods. It is possible that this difference in the mothers' behaviour was one of the contributing factors to the differences in the children's behaviour. As stated by Brain and Maclay "children of mothers who had a very strong desire to accompany their children into hospital but were unable to do so had a very high rate of emotional disturbance (85.7%) whereas the incidence of disturbance was relatively low (46.7%) when the attitude of the mother was more passive" (p. 279).

Lee and Greene (1969) studied the emotional state of 144 children immediately after their arrival in the operating room suite for elective surgery. The children, aged one to eight years, were classified as being asleep or awake with the awake children being further classified as calm or crying. Analysis was done comparing the child's emotional state with the amount of preoperative parental contact. Three types of parental contact were considered: (a) no contact - parents who left the

hospital the evening prior to surgery and did not return until surgery was completed, (b) parents who left before the child's bedtime but returned before the child went to surgery the next morning, and (c) rooming-in parents. This third group included parents who did not stay overnight but stayed until the child's bedtime and returned the next morning prior to surgery. Crying was found to be significantly greater among children under the age of five years. Although not statistically significant, crying was noted twice as often among children whose parents roomed-in (23.6%) than among children who had no parental contact (9.5%) or children who saw their non-rooming-in parents prior to surgery (10.0%). It should be noted that significantly more parents of younger children than older children choose to room-in. Lee and Greene described these results as a negative correlation between parental presence and emotional state but it may be that the increase in crying in the children whose parents roomed-in was either a reflection of the age of the child rather than of the presence or absence of parents or evidence of the child being more able to express his/her emotions with parents than with strangers. Lee and Greene concluded that there was "no evidence that parental presence favorably affects the emotional state of a child prior to anesthesia and surgery" (1969, p. 129). Although not specifically stated in the study, it appears that children were not randomly assigned to the identified groups. It may therefore be possible that it was the parents of children likely to be upset that chose to room-in. If this was the case, it is not surprising that Lee and Greene concluded that there was a negative correlation between parental

presence and emotional state.

Couture (cited in Thompson, 1985) studied the effects of rooming-in on 21 children aged three to six years admitted for tonsillectomy and/or adenoidectomy surgery. Analysis of data did not show any significant differences in in-hospital behaviour of children whose parents roomed-in, parents who visited for more than eight hours a day, or parents who visited less than eight hours a day. However, analysis of parental reports of behaviour one week and one month following discharge showed that children, especially preschoolers, whose parents did not room-in demonstrated more behavioural regression than the other children.

McGillicuddy (cited in Thompson, 1985) also concluded that rooming-in is associated with positive changes in post-hospital behaviour and non-rooming-in is associated with an increase in regressive behaviour following discharge.

Lehman (cited in Thompson, 1985) in a study of 48 children aged three to five years demonstrated that although children of rooming-in mothers displayed more aggressive behaviour while in hospital, these same children demonstrated less severe post-hospital upset than children whose parents did not room-in. Lehman hypothesized that the more aggressive in-hospital behaviour demonstrated by children whose mothers roomed-in was a result of these children having a greater feeling of security. Lehman also examined the incidence of postoperative complications and found that children in the rooming-in group had fewer complications. As the original articles by Couture, Lehman, and McGillicuddy (cited in Thompson, 1985) were not

available to the researcher, it is not possible to critique either the design or the conclusions of these studies.

Three general conclusions can be drawn from these research studies of the effects of hospitalization and rooming-in. First, it appears that children in the rooming-in groups experience fewer postoperative complications than those in the non-rooming groups (Brain & Maclay, 1968; Lehman [cited in Thompson, 1985]). Second, it appears that children in the rooming-in group demonstrate fewer behavioural problems following discharge from hospital (Brain & Maclay, 1968; Couture [cited in Thompson, 1985]; Lehman [cited in Thompson, 1985]; Vernon et al., 1966). Third, the impact of hospitalization is greatest on children younger than six years of age (Lee & Greene, 1969; Prugh et al., 1955; Vernon et al., 1966). These findings lend support to the hypothesis that allowing parents to visit in the pediatric recovery room may reduce the child's fear and anxiety and this reduction in the child's fear and anxiety may be evidenced by changes in the child's behaviour.

Just as the positive results associated with increased parental visiting led to liberalization of visiting policies, the positive effects of rooming-in on the child's recovery have caused some health professionals to question whether parental presence at procedures might have similar positive effects. In the following section, research studies of the effects of parental presence at procedures are reviewed.

Studies of the Effects of Parental Presence at Procedures

Although there are no published studies of the effects of parental presence on the behaviour of the postoperative

preschool age child in the pediatric recovery room, the effects of parental presence on children's response to dental procedures (Frankl, Shiere, & Fogels, 1962; Venham, 1979; Venham, Bengston, & Cipes, 1978; Winer, 1982), immunization (Shaw & Routh, 1982), hospital admission (Vernon, Foley, & Schulman, 1967), and anesthetic induction (Schulman, Foley, Vernon, & Allan, 1967; Vernon et al., 1967) have been studied with inconsistent results. These studies were reviewed as analysis of their findings may be useful in predicting how the presence of parents might affect the behaviour of the postoperative preschool age child in the recovery room.

Parental Presence in the Dental Operatory

Although it may be argued that the experience a child has in the dental operatory is significantly different than the immediate postoperative experience, it can also be argued that it is similar in that the child is in an unfamiliar setting, the child is being cared for by unfamiliar adults, parents are seldom permitted to be with the child, and the child may experience pain.

Frankl, Shiere, and Fogels (1962) studied the effect of separation of the mother and child in the dental office. One hundred and twelve children, aged 3 1/2 to 5 1/2 years, with no previous dental experience, were paired and matched according to age, gender, and socio-economic background, and then assigned to either the mother-present or the mother-absent group. Each patient visited twice, once for examination and prophylaxis, and once for restorative procedures. Behaviour was rated at each visit during five procedures on a scale of one to four. On this

scale, behaviour was described as definitely negative, negative, positive, and definitely positive. Definitely positive behaviour was described as "good rapport with the dentist, interested in the dental procedures, laughing and enjoying the situation" (Frankl et al., 1962, p. 155). Definitely negative behaviour was described as "refusal of treatment, crying forcefully, fearful or any other overt evidence of extreme negativism" (p. 155).

Frankl et al. concluded that pre-school children, especially those in the age group from 42 to 49 months, benefited from the mother's presence during treatment as this age group demonstrated the most negative responses when the mother was absent. The age group from 50 to 66 months did not exhibit significant differences in behaviour with the mother present or absent. Although these findings support the presence of the child's mother in the dental operatory, the method of classifying the child's behaviour as positive or negative was questionable. Behaviour described by Frankl et al. as negative could be considered to be effective coping behaviour as it prevents the dentist from carrying out dental work which the child may wish to avoid. As identified previously, each child was rated a total of ten times. Any child who reacted positively for five or more of the ten procedures was rated positive in the final ratings. In using this rating method, it was therefore possible for a child who was rated as definitely negative on five occasions and positive on five occasions to be rated positive in the final ratings. For this reason, the author questions whether the conclusions Frankl et al. have

drawn are valid.

Venham et al. (1978) studied 64 children between the ages of two to five years during a total of 207 dental visits to examine the consequences of leaving the decision of parent-child separation up to the parent and child. The child's response to each visit was assessed using five different measures: heart rate, basal skin response, rating of clinical anxiety and cooperative behaviour, and a projective self-report measure of anxiety, that is, picture test. Although parents were neither encouraged nor discouraged from remaining with the child, they were offered the choice.

During the 207 visits, parents were absent for 46 visits, the mother was present for 110 visits, and the father was present for 51 visits. Venham et al. concluded that "no significant differences related to parents present or absent were found on any of the response measures, when each dental visit was analyzed separately" (p. 215). Unfortunately, unlike Frankl et al.(1962), Venham et al. did not do an analysis of findings by age group. If this had been done, it is possible that the findings of this study, as in the study reported by Frankl et al., would have provided support for parental presence in the dental operatory. In addition, it is unclear in the report of this study whether the picture test and tools for rating anxiety and behaviour had been tested for validity and reliability.

In a second study done by Venham (1979), 89 children requiring two or more dental visits were randomly placed in either the mother-present or mother-absent group for the first

treatment visit and placed in the opposite group for the second visit. In addition, the children were divided into a young group, aged three to five years old, and an old group, aged five-and-a-half to eight years. The same measures as in the previous study, with the exception of the basal skin response, were used to assess the effect of the mother's presence on the child's response to dental stress. Each child was videotaped by a hidden camera and the videotapes were analyzed by three judges without knowledge of the presence or absence of the mother. Venham found that although there were no significant effects related to gender or mother's presence, younger children were significantly more anxious than older children. Analysis of the interaction of treatment (mother present versus absent) with age was not done.

In a subsequent study of 24 children who had a second treatment visit, Venham (1979) reported that younger children received significantly higher clinical anxiety scores and reported significantly more anxiety on the picture test. Venham also reported that although younger children reported less anxiety on the picture test when their mother was present, they were also slightly less cooperative than the older children. It should be noted however that the self report data were obtained prior to the injection of a local anesthetic while the clinical anxiety and cooperative behaviour scores represented an average score of three observation periods which included the period following the injection.

Although the findings of three of these four studies appear to support parental presence in the dental operatory, the

validity of these findings is questionable due to methodological problems. These problems include validity and reliability of rating tools, summation procedure for determining positive behaviour, and sequence of data collection.

Examinations and painful procedures, admission to hospital, and the period following surgery have been identified by Vernon et al. (1965) as three periods of high stress for the hospitalized child. In the following section of this chapter, studies of the effect of parental presence on children's behaviour in two of these high stress periods are reviewed.

Mother Presence During Routine Hospital Admission and Anesthetic Induction

Vernon, Foley, and Schulman (1967) studied 32 hospitalized children between the ages of two years and five years, eleven months in order to test the hypothesis that "potentially stressful experiences are more distressing to children separated from their mothers than to children accompanied by their mothers" (p. 162). The children were paired and matched according to age, gender, and birth-order and randomly assigned to either the mother-present or the mother-absent group. All children were elective admissions, mostly for surgery. Children undergoing tonsillectomy were excluded.

In the first part of the study, each child's mood was rated on a seven point scale during the four phases of the hospital admission: prethreat phase, threat phase, impact phase, and postimpact phase. The four phases were described as follows: (a) prethreat phase was the first 15 minutes after the child's arrival on the ward and was spent in a small playroom; (b)

threat phase began after the child returned to his/her room at the time the mother left the child or would have left the child; (c) impact phase was the period during which the child underwent the admission procedures; and (d) postimpact phase began approximately five minutes after the admission procedure was completed and was a second 15 minute period of time spent in the playroom. In addition, measures of dependency were made during the prethreat period and measures of quality of play were made during both the prethreat and postimpact phase. All mothers were with their children during the prethreat and postimpact phase. Children in the mother-absent group did not have their mothers with them during the threat and impact phase. No differences in mood, quality of play, measures of dependency, or aggression were noted in children in the mother-present group and the mother-absent group during any assessment period. It should be noted however that, as in Venham's study, no analysis was done by age.

In a continuation of the same study, Vernon et al. studied 32 different children between the ages of two years and five years, eleven months who were admitted for tonsillectomy. In addition to observing each child for mood, quality of play, dependency, and aggression, the researchers utilized a questionnaire completed by the child's mother describing the child's post-hospital behaviour. Observations were made during the prethreat fifteen minute play session prior to anesthetic induction, during the threat phase which was the time when the mother left the child or would have left the child, and during the impact phase. The impact phase was divided into two parts:

impact phase A began with the start of the induction when the mask was placed on the child's face and continued for one minute and impact phase B began at the end of impact phase A and continued until a surgical level of anesthesia was achieved.

Results of the study demonstrated that the experience was more distressing for children separated from their mothers than for children accompanied by their mothers. The difference in mood between children in the mother-present and the mother-absent groups was statistically significant for the impact phase B ($p. < .01$). Vernon et al. speculated that the reason the effect of separation was greatest in impact phase B, the phase just prior to sleep, was "due to the fact that this was the most stressful period of induction because of the likelihood of frightening physical sensations or because self-control was relatively low with a corresponding increase in emotional expression" (1967, p. 172). Although no significant difference in mood was noted for impact phase A, Vernon et al. noted that at this time the two and three year old children appeared to be considerably more upset than the four and five year old children. They also reported that the differences in mood during the other phases were greater for younger children than older children but were not statistically significant. The lack of statistical significance may be related to the small sample size.

In this study, anesthetic induction was done by seven different anesthetists. Although Vernon et al. acknowledged that the differences among the anesthetists appeared to affect the mean mood scores in impact phase A, it is unclear whether

this impact was the same or different for the different age groups and the different treatment groups, that is, mother-present and mother-absent. If the differences among the anesthetists affected the younger children and mother-absent group more than the other groups, this would lend even more support to the conclusion that the experience was less stressful for the accompanied child.

Parental Presence at Immunization

Shaw and Routh (1982) studied the effects of parental presence on the behaviour of 18 month old and 5 year old children receiving routine immunizations. Twenty children in each age group were randomly assigned to equal sized mother-present and mother-absent groups. Mothers in both groups were present for the most of the child's examination, with those in the mother-absent group leaving only during the period when the child received the injection. The child's behaviour was rated in two ways. Behaviour was rated at specified times in the child's visit using a modified Frankl Scale (Frankl et al., 1962). The four point scale was changed to a five point scale by adding a fifth behaviour category which was described as neutral, that is, "absence of overt negative or positive behaviour" (Shaw & Routh, 1982, p. 37). In addition to rating the child's behaviour at specified times, two observers recorded at twenty second intervals the presence or absence of the following behaviours - fussing, crying and screaming, laughing and smiling, talking or verbalization, playing with toys, and pushing or covering up. Shaw and Routh concluded for both age groups that "when they receive injections, children are rated as

showing more negative behaviour and cry and fuss longer when their mother is present than when she has been asked to stay in the waiting room" (p. 40).

Although these findings are opposite to those in the studies done by Frankl et al.(1962), Vernon et al.(1967), and Venham (1979), Shaw and Routh interpreted these findings as supportive of maternal presence at the time of immunization. Shaw and Routh provide two reasons for interpreting their results in this way. First, "given a painful experience, children are more likely to be reinforced by effective comforting when their mother is present than when she is absent. Thus they are more likely to cry under these circumstances" (1982, p. 41). Second, "children under stress are actually more emotionally upset in the sense of physiological arousal when their mothers are absent than when they are present" (1982, p. 41). Shaw and Routh suggested that just as the anesthetic in the study done by Vernon et al. (1967) served as a disinhibitor in impact phase B allowing free expression of the children's feelings, the presence of the child's mother in this study also acted as a disinhibitor as the children felt more secure in their mothers presence and were therefore more likely to express their feelings.

Shaw and Routh suggested that:

> future research aimed at unraveling further the effects of the parent's presence or absence on the child's response to stress should carefully distinguish between separation protest and response to stressful events [and] differentiate emotional arousal as such from factors (such as anesthesia or parent presence) which inhibit or disinhibit its expression. (p. 41)

The studies reviewed in the previous section represent the

only studies the author was able to find in the literature which examine the effect of parental presence on the child's behaviour in any of the three situations that Vernon et al. (1965) described as the most stressful for the hospitalized child, that is, admission to hospital, examinations and painful procedures, and the immediate postoperative period. In order to focus on literature more closely related to the current study, two studies which examined the issue of parental visiting in the pediatric recovery room are reviewed in the following section of the chapter.

Parental Presence in the Pediatric Recovery Room

The two studies which are reviewed in this section of the chapter addressed the issue of parental visiting in the pediatric recovery room from the perspective of the parent and not the child. Nonetheless, it is important to include these studies as the author considers the child's parents as important members of the health care team and frequently draws on parents' perception of their child's behaviour in making nursing care decisions in the practice setting.

Dew, Bushong, and Crumrine (1977) reported a study which was designed to determine if parents believed that visiting in the recovery room served a useful purpose for them and their children. The study sample consisted of 57 parents (49 mothers and 8 fathers) of 38 boys and 12 girls between the ages of 2 weeks and 14 years, having an average age of 3.8 years. Children in the study underwent one of the following types of surgical procedures: urology, general surgery, otolaryngology, plastic surgery, or a diagnostic procedure. After visiting

their child in the recovery room, each parent was asked to complete a questionnaire that consisted of 11 questions which "attempted to distinguish what parents liked and did not like about visiting and to determine whether they felt visiting was beneficial to them and their children" (p. 268).

Results showed that visiting was seen as useful as indicated by a 100% positive response from parents who were asked if they would want to visit recovery room again if their child had more surgery, and an 88% response that parental presence had in some way been helpful to their child. Parents in the study felt their children were reassured by the parents' presence and ability to comfort them. Dew et al. concluded that "visiting in a pediatric recovery room can be a positive experience for parents and that it can serve a useful purpose" (p. 269). Unfortunately, what this useful purpose is was not specifically addressed by the authors.

In another study, Diniaco and Ingoldsby (1983) used a questionnaire to evaluate parents' perceptions of their children's behaviour after surgery. Children from two different recovery rooms were studied. Children in a south unit had their parents with them in the recovery room while children in the north unit did not. One week following the child's hospitalization for surgery, a questionnaire was mailed to parents of all children from both units until 25 families had responded from each unit. The questionnaire asked parents to select behaviours which described their child after surgery and to identify any new behaviours noted since surgery.

Parents of children in the mother-present group rated their

children as less fearful, angry, clinging, and crying after surgery than parents of children in the mother-absent group. The questionnaire did not specify at what point after surgery the parent was to refer to in describing their child's behaviour. For example, it is possible that the mothers in the mother-present group might have described their child's behaviour in the recovery room while the mothers in the mother-absent group might have described their child's behaviour the night after surgery. In addition, the following variables were not controlled for in the study: age, type of surgical procedure, type of anesthetic, type of admission, that is, inpatient or outpatient, parental presence for overnight admissions. Although Diniaco and Ingoldsby concluded that having parents present in the recovery room alleviates the negative effects of hospitalization on the child, generalizations regarding the effects of parental presence in recovery room cannot be made from these results because of the methodological problems identified.

Visiting in the Recovery Room

In a study which provides an interesting comparison to those done by Dew et al. (1977) and Diniaco and Ingoldsby (1983), Vogelsang (1987) examined the relationship between visitation or no visitation by a familiar person in the recovery room and state anxiety scores in adult surgical patients. Sixty patients undergoing a variety of surgical procedures were selected and assigned to one of three groups depending on the availability of family visitors and the nurse investigator: (a) Group 1 - no visitation; (b) Group 2 - visitation by family

members or significant others; and (c) Group 3 - visitation by familiar nurse investigator. In reviewing the report of this study, it appears that selection of study patients and assignment to study groups was not randomized. However, Vogelsang states that "demographic data for the three groups did not indicate individual differences among groups...[and there was no statistically] significant relationship between the variables and state anxiety difference scores" (p. 26-27). State anxiety was measured by the nurse investigator the evening prior to surgery and twenty to thirty hours post-recovery using the State-Trait Anxiety Inventory. The difference between the preoperative and postoperative score as measured by the State-Trait Anxiety Inventory was the state anxiety score for the patient. Intra-group and inter-group differences were analyzed using paired-difference t-tests. Vogelsang found that patients in Groups 2 and 3 demonstrated a statistically significant intra-group reduction in state anxiety scores. Although patients in Group 1 who had no visitation demonstrated a reduction in state anxiety score, the difference was not significant. Other variables which may have influenced the study results were not identified by the author. Differences between groups were not statistically significant. This study "found patients relieved at the sight of a familiar person" (Vogelsang, 1987, p. 28) and all patients in the two treatment groups stated they would request visitation in the recovery room if they had surgery again.

Although these findings are specific to the adult surgical patient, they do provide support for parental visiting in the

pediatric recovery room. If adult patients, who are aware of what to expect and are accustomed to being separated from their family, feel relieved with visitation from a familiar person, it is likely that the pediatric patient separated from parents in the unfamiliar setting of the recovery room will also feel relieved and possibly less anxious and fearful.

In the recovery room, anxiety and pain are experienced by many patients. While adult patients in the recovery room are often able to verbalize their feelings and concerns and pain complaints, pediatric patients often cannot due to their lack of verbal skills, level of cognitive skills, and unfamiliarity with the pain experience. Therefore, the nurse must assess from the child's behaviour how and what the child is feeling. One of the questions that directed this study was: Do children who have their parents with them display pain behaviour that is different than that demonstrated by children whose parents are not with them? Therefore, the literature related to assessment of pediatric pain behaviour was reviewed and is presented in the following section of the chapter.

Assessment of Pediatric Pain

Assessment Problems

Assessment of pain in pediatric patients is recognized as being a difficult problem (Abu-Saad, 1984; Jeans, 1983a). Although adults are generally able to quantify their pain experience, children often are not because they are hampered by a variety of developmental factors including cognitive ability, verbal competency, and lack of previous experience (Hester,

1979). In addition, interpretation of the behaviour of preschool age children is difficult because of variations in intellectual and developmental level, age, and communicative immaturity (Eland & Anderson, 1977; Hester, 1979; Jeans, 1983b; Kline, 1984).

The need for research which focuses on methods to assess pediatric pain behaviour is frequently identified in nursing and medical literature (Eland & Anderson, 1977; Hester, 1979; Lynn, 1986; McCaffrey, 1969; Schechter, 1985). Research to date has been directed primarily toward development of tools which children can use to indicate their degree of pain (Eland & Anderson, 1977; Hester, 1979).

Assessment Tools

Although many pain assessment tools have been developed for use by adults, most of these rely on the use of skills not yet developed by young children. Thus, pain tools which have been developed for use with children often rely on projective techniques or behavioural observation.

Pain assessment tools which rely on projective techniques are essentially non-verbal in character. These tools include colour scales (Eland, 1985), visual analogue scales (Abu-Saad, 1984; Abu-Saad & Holzemer, 1981), a poker chip tool (Hester, 1979), pain "thermometers" (Molsberry, cited in Hawley, 1984), and a number of picture scales (Eland, cited in Lynn, 1974; Hester, 1979; Beyer & Byers, 1985). However, little research has been done to measure the validity and reliability of these projective tools (Aradine, Beyer, & Tompkins, 1988; Beyer & Knapp, 1988; Stevens et al, 1987; Wong & Baker, 1988). In

addition to concerns related to the validity and reliability of projective tools, two other concerns can be identified when attempting to use tools such as these in the recovery room setting with the preschool age child. First, although these tools are essentially non-verbal in nature, they still rely on the child's ability to understand and follow verbal instructions. Second, these tools require substantial patient cooperation which may not be available in the frightened preschool age child (Schechter, 1985) and/or the recovery room setting.

A second method of assessing a child's pain is through observation of the child's behaviour. Examples of tools which can be used to categorize pain behaviour include the Children's Hospital of Eastern Ontario Pain Scale (CHEOPS) (McGrath, Johnson, Goodman, Schillinger, Dunn, & Chapman, 1985), the Pediatric Pain Inventory (Lollar, Smits, & Patterson, 1982), the Inventory for the Diagnosis of Pain (Smith, 1976), the Infant Pain Behaviour Rating Scale (Craig, McMahon, Morison, & Zaskow, 1984), the Procedural Behavioural Rating Scale (Katz, Kellerman, & Siegel, 1980) and the Observational Scale of Behavioural Distress (Jay, Ozolins, & Elliot, 1983). Although several authors suggest that behavioural scales are a reliable measure of a child's pain (Abu-Saad & Holzemer, 1981; Craig et al., 1984; Katz et al., 1984; McGrath et al., 1985; Taylor, 1983), others suggest that this is not the case (Beyer & Byers, 1985; Beyer & Levin, 1987; Jeans, 1983b; McCaffrey, 1969). For example, McCaffrey (1969) identified that behaviours associated with pain are often similar to those seen in other situations

which upset the child. One such situation for the preschool age child is separation from parents. Beyer and Levin criticized the use of behavioural measures stating that "when this is done, it remains unclear whether the distress responses are due to pain, fear, anxiety, separation, or some other phenomena" (1987, p. 670). Beyer and Knapp (1986) suggest that "the major challenge to researchers is the necessity for discriminating measures of pain intensity from measures of fear and anxiety" (p. 239). Taking direction from this suggestion, studies that examine the relationship between pain and anxiety are explored in the following section of the chapter.

Pain and Anxiety

The relationship between pain and anxiety is complex. Chapman (1984) identified anxiety as the basic affective condition that may modulate the pain experience. This relationship between pain and anxiety was recognized by Melzack (1973) who stated that "the gate control theory proposes that cognitive activities such as anxiety...can influence pain by acting at the earliest levels of sensory transmission" (p. 199-200). An increase in anxiety level is frequently cited as one reason for an increase in perceived pain intensity (Abu-Saad, 1981; Bowers, 1968; Chapman, 1984; Melzack, 1973; Merskey, 1980; Schalling, 1985; Taylor, 1983). Conversely, reducing anxiety is frequently cited as one means of reducing perceived pain intensity (Beales, 1982; Beyer & Levin, 1987; Chapman, 1984; Hawley, 1984; Katz et al., 1984; Melzack, 1973; McGuire & Dizard, 1982; Sternbach, 1968). Allowing parents to remain with their children when they experience painful or stressful

procedures is frequently suggested as one method of reducing their child's anxiety level (Hawley, 1984; Hunsberger et al., 1984; Lutz, 1986; McCaffrey, 1977; O'Connell & Brandt, 1960).

As seen throughout this review of the literature, parental presence at procedures and at the child's bedside, significantly impacts on the child's ability to cope with the stresses of hospitalization, including the pain experience. The immediate postoperative period has been identified as one of the most stressful periods in a child's hospitalization. Allowing parents to be with their child at this time may contribute to a reduction in the child's anxiety level thereby altering both the child's perception of the pain experience and the child's behaviour. As Melzack (1973) stated, "it is clear that the search for new approaches to pain therapy might well profit by directing thinking towards the contributions of motivational and cognitive processes" (p. 200).

Summary

Initial review of the literature revealed that there are currently no published studies which examine the effect of parental presence on the behaviour of the postoperative preschool age child in the pediatric recovery room. For this reason, the author reviewed literature that would contribute to understanding factors which influence the behaviour of hospitalized children. Specifically, the literature related to pain theory, the experience of hospitalization for pediatric patients, pediatric pain assessment, and the effect of parental presence at procedures was reviewed order to place this

investigation within the current knowledge base. This review of the literature has identified that: the immediate postoperative period is one of the three most stressful in the child's hospitalization; pain and separation from parents are two common experiences for hospitalized children; perception of pain can be influenced by a variety of factors including fear and separation anxiety; and, parental presence at procedures is commonly advocated as a means of reducing anxiety and pain perception in pediatric patients. The change in visiting practices in hospitals from allowing parents short visits once or twice a week to allowing rooming-in has taken over 30 years. It is only within the last ten years that the practice of allowing parents to be present during medical procedures has begun to gain acceptance. In many hospitals, parents are not yet permitted to be with their child in the recovery room. In fact, the existing research base provides little objective data to support the concept of parental presence at medical procedures or in areas such as the recovery room that have previously been considered to be off limits to parents.

Despite the fact that the immediate postoperative period has been identified as one of the most stressful periods in a child's hospitalization (Vernon et al., 1965), there are no studies reported in the literature on one of the most readily available interventions that could significantly reduce the hospitalized child's stress. This intervention is, of course, the presence of the child's parents in the recovery room. Thus, it can be seen that this investigation of the effect of parental presence on the behaviour of the postoperative preschool age

child in the pediatric recovery room makes a significant contribution to a currently inadequate research base, and thereby enhances the ability of health care professionals to make objective decisions regarding parental presence in the pediatric recovery room.

The next chapter describes the methodology of the author's research study which was undertaken in order to add to this limited and inadequate body of knowledge.

Chapter Three

METHODOLOGY

Review of the literature in the previous chapter has shown that the immediate postoperative period is one of the most stressful periods in a child's hospitalization. Although it can be suggested from this review that parents could play a significant role in reducing the child's feelings of fear, anxiety, and perception of pain during this period, no research studies were found that specifically address the effect of parental presence in the pediatric recovery room. Thus, this study was designed to examine the effects of parental presence on the behaviour of the postoperative preschool age child in the pediatric recovery room.

This level one descriptive study was done using a quasi-experimental design. This design was selected as an experimental treatment was used to examine the differences in behaviour between the two groups of children and a true random sample was not practical (Campbell & Stanley, 1963). The behaviour of two groups of children, one group having parents present, and one group not having parents present in the Recovery Room, was recorded on videotape during the immediate postoperative period. The videotapes were then analyzed and compared for differences in behaviour between the two groups of children. Physiological parameters were not assessed as these would have been affected by the anesthetic agents and medications the children received.

In this chapter, the study methodology will be reviewed with specific reference to the experimental treatment, selection

of the study group, data collection and analysis, and ethical considerations.

Study Design

A quasi-experimental design was used in order to address the following specific questions:

1. Do children who have their parents with them in the recovery room display different behaviours than those whose parents are not with them?

2. What are the different behaviours displayed by children whose parents are with them and children whose parents are not with them?

3. Do children who have their parents with them in the recovery room display pain behaviour that is different than that demonstrated by children whose parents are not with them?

Thus, the independent variable was the presence or absence of the child's parent in the Recovery Room and the dependent variable was the behaviour of the child in the Recovery Room.

Two groups of children admitted to the Surgical Day Care Unit of a metropolitan children's hospital for surgical repair of strabismus were observed with half of the children being assigned to the parent-present group and half of the children being assigned to the parent-absent group. The parent-present group consisted of children having surgery on odd numbered days. The parent-absent group consisted of children having surgery on even numbered days.

Selection of Study Group

Age

The sample was chosen from the preschool age population as it is generally accepted that separation from parents is most traumatic for this age group (Audette, 1974; Crocker, 1980; Vernon et al., 1980; Visintainer & Wolfer, 1975).

Children between the ages of three to six years are in a crucial developmental stage. Piaget and Inhelder (1969) describe children between the ages of two and seven years as being in the preoperational period. Preoperational children are unable to understand cause and effect relationships (Phillips, 1981) and are often described as having magical thinking (Abu-Saad, 1981; Lutz, 1986; Petrillo & Sanger, 1972). Because of this, preschoolers often do not understand the reason for their hospitalization or their pain and these may be viewed as punishment for something they have done wrong (Abu-Saad, 1981; Hurley & Whelan, 1988; Lynn, 1986; McBride, 1977; McCaffrey, 1969; Smith, 1976). As well, hospitalization and pain may make the child feel his/her parents do not love him/her because if they did, they would not have allowed these things to happen to him/her (Korsch, 1975; Vernon et al., 1965).

Three characteristics of the preoperational period are concreteness, egocentrism, and transductive reasoning, all of which influence how children perceive pain (Smith, 1976). The preschool age child "who is in the preconceptual, preoperational stage of cognitive development, may perceive and respond to painful situations with much more fear than is seen in younger infants or older children" (Jeans, 1983a, p. 27). Smith (1976)

identified that the preoperational child's interpretation of pain increases the child's anxiety, thereby increasing his/her perception of the pain (Smith, 1976). Several authors have identified that anxiety level appears to be inversely related to age; that is, younger children display more anxiety behaviours over a longer period of time during painful medical procedures than older children (Frankl et al., 1962; Jay et al., 1983; Katz et al., 1980; LeBaron and Zelter, 1984; Venham, 1979).

Given all of these facts, it is likely that if parental presence in the recovery room does affect how the child behaves, the behavioral changes would be most evident in children between the ages of 3 years to 6 years.

Surgical Procedure

The researcher choose to study children who were all undergoing the same surgical procedure in order to control one of many variables in the study. It was assumed that although the pain experience is different for every child when the surgical procedure is the same, children undergoing the same surgical procedure would be more likely to display similar behaviours than a group of children undergoing a variety of surgical procedures. Strabismus repair was chosen as the surgical procedure as this procedure is commonly done between the ages of three to six years and the researcher could therefore anticipate having an adequate sample size.

Strabismus repair is carried out in order to surgically rotate the eye to a different position than it was pre-operatively. The procedure involves rotating the eye in the eye socket in order to access the extra-ocular muscles, cutting one

or more of the extra-ocular muscles, and reattaching the muscle on the sclera either in back of or ahead of its original point of attachment (Luckmann & Sorensen, 1980). Adult patients frequently describe the feeling following strabismus repair as one of having sand in the eye.

Criteria for Selection

The specific criteria established to select children for the study group were:

1. The child was between the age of three to six years.
2. The strabismus repair was not done using an adjustable suture.
3. The child had had no previous surgery.
4. The child had not been hospitalized within the previous twelve months.
5. The child and accompanying parent spoke and understood English.
6. The child had no chronic health problem, mental handicap, and/or physical handicap.
7. The child met normal developmental milestones expected for his/her chronological age as identified by medical and nursing assessment.
8. The child had not received a narcotic pre-operatively or intra-operatively.

Children undergoing strabismus repair requiring an adjustable suture were excluded as this procedure requires patching of the eye. Children with patched eyes may behave differently when emerging from anesthetic than children without patched eyes. Excluding this group of children eliminated an

additional variable which could significantly impact on the findings. Children who had previously undergone surgery or who had been hospitalized within the last twelve months were initially excluded from the study as it was possible that the nature of these experiences and the child's memory of them could influence how the child behaved during this experience. Two months after data collection had begun the author recognized that this exclusion criteria applied to a significant number of potential participants. It was decided to change the selection criteria to include children who had previously had surgery in order to allow the author to obtain an adequate sample size within a reasonable time period.

The language requirement was included to ensure that both the parents and the children were able to understand explanations provided by the researcher as well as by the medical and nursing personnel caring for the child. In addition, if personnel caring for the child could not understand what the child was trying to communicate to them, this could influence the child's anxiety level and possibly affect the child's behaviour. The requirements related to health, lack of mental and/or physical handicaps, developmental level, and narcotics were included as all of these factors can influence the child's behaviour. Eliminating these items allowed the author to reduce the number of uncontrolled variables which would require consideration in the analysis of the data.

Selection Procedure

The four opthamologists who do strabismus repair at the study hospital consented to recruitment of subjects from their

patient list (see Appendix A, p. 123). A letter explaining the study (see Appendix B, p. 124) was given, by the physician's office staff, to parents of all children who met the study criteria at least one day prior to the child's scheduled surgical date. Children who met the criteria were identified through a three step process. First, the researcher reviewed the Operating Room Booking Card for all children undergoing strabismus repair during the period of the study and listed all children who met the criteria for age and type of strabismus repair. Second, the researcher identified children on this list to the physician's office staff. Charts for these children were reviewed jointly by the researcher and the office staff. Children meeting all the criteria were identified and their parents were given a copy of the letter explaining the study. The final decision regarding the child's suitability for inclusion in the study was made by the researcher on the day of surgery after the researcher reviewed the admission assessment done by the Surgical Day Care Unit nurse.

On the day of the child's surgery, the researcher was notified of the child's arrival by the receptionist in the Surgical Day Care Unit. The researcher then approached the child and the parent(s) and asked if they had received a letter from the physician's office regarding the researcher's study. Parents of all of the children identified by the researcher as meeting the study criteria had received letters. The researcher asked the parents if there were any questions regarding the letter or the study and answered any the parents posed. In addition, the researcher verbally described the study to the

parents and asked them if they understood this explanation. Parents were made aware at this time that they would be told only after signing the consent which group their child would be assigned to, that is, the parent-present or the parent-absent group. In addition, parents were reminded that their refusal to allow their child to participate in the study and/or withdraw their child from the study at any time would not affect their child's health care in any way. Parents were then asked if they were willing to have their child included in the study. If the parents agreed to inclusion of their child in the study, they then signed a written consent form (see Appendix C, p. 125). Only one set of parents refused to have their child included in the study. One parent was willing to have her child included only if her child was assigned to the parent-present group. The researcher considered this to be a conditional consent and choose not to include this child in the study.

Once the consent form had been signed, the parents were told whether their child would be in the parent-present group or the parent-absent group. It was explained to the parents that the decision as to which group the child was assigned to was done by assigning children having surgery on odd numbered days to the parent-present group and children having surgery on even numbered days to the parent-absent group. All children in the study having surgery on the same day were assigned to the same group in order that the assignment of the children to the groups would appear to be fair to the children's parents. Parents of children in the parent-absent group were reassured by the researcher that if their child was extremely upset and asking

for them, the parent would be invited to come to the Recovery Room and sit with their child. This was not required for any of the children in the parent-absent group. This reassurance was given as parents are sometimes asked to visit in the Recovery Room if a child is assessed as being extremely upset by the Recovery Room nursing staff.

Instructions given to parents of children in the parent-present group are reviewed in the following section of the chapter.

Instructions to Parents

All parents of children who were assigned to the parent-present group were provided with the following instructions and information by the researcher:

1. Parents were to return to the Surgical Day Care Unit no later than 45 minutes following the child's departure for surgery. This was done to ensure that parents would be immediately available when they were called for by the Recovery Room nurse.

2. Parents were told that they would be called to the Recovery Room as soon as the nurse had checked their child and determined that their child was "fine".

3. Parents were told that their child would probably be sleeping and still slightly under the effects of the anesthetic when they first saw him/her. Parents were told that their child could continue to sleep for as long as an hour before waking up.

4. Parents were told that as a part of the routine care given in the Recovery Room, the child would have an oxygen mask

on and this mask could stay on until their child began to wake up.

5. Parents were told that they could comfort their child as they normally would, even if this included picking up and holding their child.

Setting

This study was conducted in the Post Anesthetic Recovery Room (PARR) at a metropolitan, tertiary referral children's hospital. All children having surgery at this hospital are admitted to this Recovery Room following surgery. In addition, children undergoing medical procedures which require that the child be heavily sedated, such as upper endoscopy and Computerized Axial Tomography scanning (CAT scan), are admitted to PARR until they are assessed to be suitable for discharge back to the ward. On an average day, between 30 to 40 patients are managed in PARR over a ten hour period.

PARR is a large, open, brightly lit, and usually noisy room. There are stretcher bays on both sides of the room and two nursing desks in the middle of the room. Each of the stretcher bays is identified by number to facilitate traffic flow and patient assignment. Although there is room for 13 patients in PARR at any one time, the usual patient census is 8. Nonetheless, PARR is usually a very crowded looking room especially when there are additional people such as parents present.

Patient Management in the OR and PARR

Anesthetic staff and nursing staff in the PARR were told that the purpose of the study was to identify whether children in the recovery room who have their parents with them display different behaviours than those whose parents are not with them. PARR nursing staff were made aware of which group the child was assigned to in order that they know which children's parents were to come to PARR. This information was not given to the anesthetic staff. Both groups of staff expressed interest in the study and verbally communicated to the researcher their willingness to assist in the study.

All children in the study were managed according to the routine identified in the following section except that children in the parent-present group had their parents join them in the PARR as soon as the Recovery Room routine admitting procedure was completed and the nurse had assessed that the child had no signs of cardiac or respiratory instability. Nursing staff were reminded if the child was in the parent-present group when the child was admitted to PARR. In addition, with the first few children in the parent-present group, the nurse had to be reminded by the researcher to call for the child's parents. All parents who were to join their child in the PARR did so before the child began to rouse and all parents remained with their child throughout the entire PARR period.

Anesthetic Management

Anesthetists are normally assigned to designated operating rooms on a rotating basis. This method of assignment was not altered for the purposes of the study. In total, 11

anesthetists were involved in the anesthetic management of the 20 children in the whole study group. However, in order to assist with variable control, the anesthetists agreed that each child would receive a standard anesthetic which consisted of:

1. Intravenous induction of anesthetic with Sodium Pentothal 4.7 - 6.8 milligrams per kilogram of body weight, Atropine .01 - .02 milligrams per kilogram of body weight, and Succinylcholine 1.1 - 2.3 milligrams per kilogram of body weight.

2. Maintenance of anesthetic with oxygen, nitrous oxide, and halothane.

3. Administration of intravenous Droperidol 61 - 88 micrograms per kilogram of body weight as an antiemetic prior to the end of the surgical procedure.

Nursing Management

Nursing staff in PARR are routinely assigned to care for patients in two designated stretcher bays. The stretcher bays assigned to each nurse are determined by the time of day the nurse begins her shift. All patients in the study were cared for in either stretcher bay number two or number three and were therefore cared for by the nurse who started her shift at 0800. When this nurse was on a scheduled break, the patient was cared for by the float nurse as is the normal practice in the PARR. This method of assigning the nursing staff to care for the study patients minimized the influence of researcher bias in the assignment process. In total, 12 female nurses were involved in providing nursing care to patients in the study.

All children in the study were managed according to the

normal nursing routine in the Recovery Room. This routine included:

1. Admitting procedure - following completion of the surgical procedure, the child was positioned in a side lying position on the stretcher and was accompanied to PARR by an anesthetist and an operating room nurse. Report was given to the PARR nurse by the anesthetist and operating room nurse and included a description of the child's pre-operative and intra-operative course with specific attention to any problems which had occurred. Assessment of the child's level of consciousness, respiratory status, circulatory status, temperature, and operative site was done by the PARR nurse and the results communicated to the anesthetist. When the PARR nurse was satisfied with the patient's status, she indicated to the anesthetist that she was prepared to accept responsibility for the patient.

2. Following admission, assessment of the patient's level of consciousness, respiratory status, circulatory status, and operative site was completed at least every fifteen minutes. Analgesics and oral fluids were given at the nurse's discretion if these had been ordered by the physician.

3. In the PARR where the study was completed, children undergoing strabismus repair remain a minimum of thirty minutes. If the child receives an analgesic by the intra-muscular or the intravenous route, the child remains in PARR a minimum of thirty minutes from the time the analgesic is given. Children are discharged from PARR only after they meet all criteria identified in the PARR discharge policy and a discharge order

has been signed by an anesthetist.

Data Collection

Postoperative behaviour of all children in the study group was recorded using a video camera. Recording was started as soon as the child was placed in the assigned PARR stretcher bay. Although the researcher's initial plan was to videotape each child for a minimum of one half hour and a maximum of one hour, it was necessary to videotape some children for up to two hours as they were still sleeping at the end of one hour. Videotaping of the child was stopped when the child was discharged from the PARR. Although filming was of the child at all times, the parent and staff members interacting with the child were also filmed. That is, the camera remained focused on the child at all times and other people were filmed only when they came into the camera's range of focus.

Originally the researcher had planned to do all of the videotaping herself but was unable to do so due to a change in employment part way through the study. In total, the researcher videotaped 12 of the children and three assistants, trained by the researcher in the study protocol, videotaped the other 10 children. Two of these children were subsequently dropped from the study as one child was identified as being developmentally delayed and one child experienced post anesthetic respiratory problems.

Technical difficulties with the videotaping, although minimal, did create some interesting problems and anxious moments for the researcher. Given the financial resources

available for the project, the researcher used video equipment borrowed from the School of Nursing. One of the limitations of the equipment was that it did not record the date and time of the recording on the videotape. This contributed to making coding of the videotapes more difficult and time consuming than was initially anticipated. In addition, there was no mobile tripod available for use to allow the researcher to move the camera as the child moved about in bed. In order to make the camera mobile, the researcher taped the camera and stationary tripod to a table on wheels. This worked extremely well except for the one occasion on which the camera and tripod fell off the table. On another occasion, the video camera would not work and neither the researcher nor her assistant were able to quickly identify why. In this instance, the researcher, who was familiar with the data collection tool which would be used in coding the videotapes, observed the child until the camera was fixed. It is fortunate that the child remained asleep until the camera was fixed as, in retrospect, it would have been difficult to identify and time different behaviours if they had occurred simultaneously. Data were lost on some occasions when the camera was not moved as quickly as the child moved, for example when the child moved quickly from side to side, and when the camera's view of the child was temporarily obstructed either by the parent or the nurse.

Demographic data for each child (see Appendix D, p. 126) were collected prospectively and retrospectively by the researcher from the child's parents and the chart. Detailed data regarding administration of medications, including

analgesics (see Appendix D, p. 126), were collected retrospectively from the child's chart.

Data Analysis

All videotapes were coded by a research assistant who was familiar with the PARR because of her past employment, was oriented to the study criteria, and had assisted the researcher with the videotaping.

Behavioural Checklist

Preliminary coding of the videotapes was done using the behavioural checklist developed for the study proposal. This checklist recorded three categories of behaviour: (a) vocalizations; (b) facial expressions; and (c) body movement. The content validity of these categories and words was based on the work of Johnson (1977), McCaffrey (1972), McGrath et al. (1985), Munhart and McCaffrey (1983), and the researcher's experience as a pediatric nurse in a variety of clinical settings, including the recovery room. Definitions for some of these behaviours were developed by the researcher as definitions were not available in the work done by these authors.

During preliminary coding of the videotapes, several behaviours were identified which had not been included in the behavioural checklist developed for the study proposal. Therefore, the behavioural checklist was revised to include these additional behaviours (see Appendix E, p. 127) and the videotapes were recoded by the research assistant. Although not all of the new behaviours can be considered pain behaviours, it

was useful to include them in the analysis as they add significantly to the understanding of the effect of parental presence on the postoperative child's behaviour in the PARR. These new behaviours included the child's pain complaints (solicited and unsolicited), denial of pain, touching the operative site, reaching for eyes, kicking, frowning, grimacing, smiling, reaching for body contact, giving hugs, being held by parent or nurse, requesting fluids (solicited and unsolicited), drinking, eating a popsicle, asking for his/her mother, miscellaneous complaining (solicited and unsolicited), responding to offer(s) for pain medication, and refusal behaviour.

Facial expression was extremely difficult to identify on the videotapes due to the distance of the camera from the patient. As the following facial expressions were not noted during the coding of the videotapes, they were dropped from the original behavioural checklist: biting of lower lip, clenched teeth, tightly shut lips, wide-open eyes, and wrinkled forehead. Broad facial expressions such as frown, grimace, and smile were more easily identified and, as indicated previously, were added to the revised behavioural checklist (see Appendix E, p. 127). The items previously named gasping, immobile, and rhythmic were dropped from the original behavioural checklist as they were not demonstrated by any of the children in the study.

Coding of Videotapes

Each videotape was analyzed from the first signs of the child awakening to the time the child was discharged from the PARR. The duration and frequency of each of the behaviours on

the revised checklist was recorded. In addition, the duration of behaviour that could not be coded due to obstruction of the video camera, that is, lost data, was recorded. A behaviour began when the child initiated the vocalization, facial expression, or body movement. A behaviour ended with the completion of the vocalization, facial expression, or body movement or when there was a significant pause or interruption in the ongoing behaviour.

Inter-rater Reliability

Sample episodes of five videotapes were coded by the researcher in order to establish the inter-rater reliability of the behavioural checklist and definitions. Inter-rater reliability between the researcher and the research assistant was $r = .91$. It was not necessary to revise any of the definitions as both the researcher and the research assistant were consistent in their labelling of the behaviours. Labelling of the behaviours was directed by the behaviour definitions.

Statistical Analysis

Although the experimental treatment of the study was the presence of parents in the pediatric Recovery Room, initial review of the data suggested that there could be interesting and perhaps significant differences between genders in both the parent-present and the parent-absent groups. Therefore, the independent variable for all tests was either the presence or absence of the child's parent in the PARR, the gender of the child, or a combination of both and analysis was done for the following groups: (a) parent-present, (b) parent-absent, (c) males, (d) females, (e) females parent-present, (f) females

parent-absent, (g) males parent-present, and (h) males parent-absent. The dependent variable was the child's behaviour in the PARR which was specifically identified on the behavioural checklist (see Appendix F, p. 130). A significance level of $p < .05$ was preselected for all tests.

Prior to analysis of data, t-test, chi square, and calculation and comparison of the mean for each of the groups identified above were used to test for significant differences for the following variables: (a) age of the child, (b) anesthetic time (c) length of PARR stay, (d) administration of analgesic medications, (e) administration of narcotic analgesics, (f) administration of non-narcotic analgesics, and (g) previous experience with surgery. No significant differences were found between groups for these variables with the exception of administration of analgesic medication in the female parent-absent and the male parent-absent groups. As can be seen in Table 1, p. 75, five children in the female parent-present and 2 children in the male parent-absent group received analgesic medication.

Following coding of the videotapes, the mean duration per second and mean frequency per minute of each behaviour was calculated for each child after adjusting for lost data (behaviour which could not be recorded due to obstruction of the video camera). All items on the behavioural checklist (see Appendix E, p. 127) were then reviewed for frequency of occurrence and similar items, such as grimace and frown, were combined in order to facilitate the analysis. The final behavioural checklist (see Appendix F, p. 130) had 26 items as

compared to 30 on the original checklist.

Data analysis was first performed using a non-parametric statistical test, that is, Kruskal-Wallis one-way analysis of variance. Kruskal-Wallis tests whether all samples are from the same population through a two step process. First, all cases from the groups are ranked in a single series. The Kruskal-Wallis H statistic, which has approximately a chi-square distribution, is then calculated (Hull & Nie, 1981). Following review of all the data, it was decided to perform Kruskal-Wallis analysis for any behaviour which was demonstrated by seven or more children. Thus, Kruskal-Wallis one-way analysis of variance was completed for 14 of the 26 behaviours to test for significance of difference between results in the following groups: (a) parent-present and parent-absent, (b) females and males, (c) females parent-present and females parent-absent, (d) males parent-present and males parent-absent , (e) females parent-present and males parent-present, and (f) females parent-absent and males parent-absent.

In addition to the Kruskal-Wallis one-way analysis of variance, further descriptive analyses were done between the same groups for all items on the behavioural checklist (see Appendix F, p. 130). The average frequency per second and average duration per minute of each behaviour for each group was determined by first calculating the total frequency and duration of the behaviour in each group and then dividing these totals by the number of children in the group. Following this, the difference in average frequency per second and average duration per minute of each behaviour between the groups previously

identified was calculated in per cent (see Table 2, p. 78). For example, children in the parent-present group demonstrated purposeless behaviour 7% more frequently and 30% longer than children in the parent-absent group.

Ethical Considerations

In order to ensure that the rights of the children and their parents were protected, the researcher observed the following protocol:

1. Access was gained to the study setting by submitting the research proposal to the In-Hospital Research Review Committee and receiving approval to carry out the research study (see Appendix G, p. 131).

2. Approval to conduct the research study was requested and received from The University of British Columbia Behavioural Sciences Screening Committee for Research and Other Studies Involving Human Subjects (see Appendix H, p. 132).

3. Confidentiality was ensured. The family's participation in the study was made known only to the health care professionals who were actively involved in caring for the child. All of the videotapes and data collection sheets were coded, without any personally identifying marks, and stored in a locked filing cabinet. Access to the videotapes was restricted to the researcher, the research assistant, and the two members of the researcher's thesis committee. The videotapes and data sheets will not be destroyed as all parents gave the researcher signed consent to use the videotapes for teaching purposes (see Appendix C, p. 125).

4. The researcher respected the rights of the parent to refuse to have their child participate in the study or to withdraw their child from the study at any time. This was communicated to the parent in the letter the parent received and was reiterated when the researcher met the parent on the day of the child's surgery.

5. The researcher made allowances to bring the parents of children in the parent-absent group to the Recovery Room if this was seen as necessary by the child's nurse. This was communicated to parents of children in this group before data collection began. It was not necessary to do this for any of the children in the study.

6. The researcher agreed to share the findings of the study with parents who requested this on the consent form.

Summary

This chapter has described the quasi-experimental approach used in order to allow the researcher to introduce parents into the pediatric Recovery Room as the experimental treatment in a study of the effect of their presence on the postoperative behaviour of the preschool age children. As no studies of this subject have been found in the researcher's review of the literature, videotaping was chosen as the data collection method in order to obtain as much data as possible. Despite some logistical problems, this method of data collection resulted in a rich and very useful body of information. As can be seen in the following chapter, the researcher's findings from the analysis of the data represent a significant contribution to the

research base of the behaviour of pediatric patients in the recovery room.

Chapter Four

RESEARCH FINDINGS

The behaviour of 20 postoperative preschool age children in the pediatric Recovery Room was captured in 26 hours of videotapes. Following this, the videotapes were systematically analyzed; the findings of the analysis are presented in this chapter. As will be seen by the reader, the data give a rich and meaningful picture of the behaviour of two groups of preschool age children in the pediatric Recovery Room - children whose parents were with them in the Recovery Room and those whose parents were not present in the Recovery Room.

Summary of Demographic Data

Twenty children, 10 male and 10 female, and their parents participated in the research study. Half of the children, 5 male and 5 female, had their parent(s) with them in the Recovery Room. Nine of the children in the parent-present group were accompanied by their mother only and one male child had both parents with him. Ten children, 5 male and 5 female, did not have their parent(s) with them in the Recovery Room. Seventeen children underwent bilateral strabismus repair while the other three children had strabismus repair of one eye only.

The study criteria required the children to be between the age of three to six years. The actual range of ages of the children included in the study was three years to five years, six months. The average age of the children in the study was four years.

As reported earlier, children who had previously undergone

surgery were initially excluded from the study. However, this selection criterion was changed to include children who had previously had surgery in order to allow the researcher to obtain an adequate sample size within a reasonable time period. Of the 20 children who participated in the study, 8 had undergone surgery previously. These children were equally distributed between the parent-present and the parent-absent groups.

Demographic data related to administration of medication in the Recovery Room were collected retrospectively. Analgesics were the only medications administered during this period. Twelve children received a narcotic analgesic by either the intra-muscular route (7 children) or the oral route (5 children). Two children were given a non-narcotic analgesic by the oral route. Three children received an analgesic medication in the Surgical Day Care Unit after their return from the Recovery Room. Two of these children had not been medicated in the Recovery Room and one had been given a narcotic analgesic in the Recovery Room.

Table 1 (see p. 75) illustrates the mean of each of these variables, as well as the variables of anesthetic time and length of PARR stay. As can be seen in this table, these uncontrolled variables were evenly distributed between the groups and the groups were therefore considered to be parallel.

Findings from Kruskal-Wallis One-Way Analysis of Variance

The experimental treatment in this study was parental presence in the pediatric Recovery Room. Preliminary review of

Table 1

Mean of Variables by Group

Group	Age (Months)	Anesthetic Time (Minutes)	PARR Time (Minutes)	No. Receiving Analgesic Medication	No. Receiving Narcotic Medication	No. Receiving Non Narcotic Medication	No. Having Previous Surgery
Parent Present	48.1	57.0	80.6	7	6	1	4
Parent Absent	48.7	49.0	73.6	7	6	1	4

Female	49.2	49.7	72.0	9	7	1	3
Male	47.6	56.3	82.2	5	4	1	5

Female Parent Present	48.8	50.0	77.0	4	3	1	1
Female Parent Absent	49.6	49.0	66.0	5	4	1	2

Male Parent Present	47.4	64.0	84.0	3	3	0	3
Male Parent Absent	47.8	48.0	80.0	2	2	0	2

the raw data suggested however that there could be interesting and possibly significant differences between groups other than the parent-present and the parent-absent groups. Therefore, the independent variable for all tests was either the presence or absence of the child's parent in the PARR, the gender of the child, or a combination of both, and the dependent variable was

the child's behaviour in the PARR.

Kruskal-Wallis one-way analysis of variance was used to test for significance of difference for specific behaviours between the following groups: (a) parent-present and parent-absent, (b) females and males, (c) females parent-present and females parent-absent, (d) males parent-present and males parent-absent, (e) females parent-present and males parent-present, and (f) females parent-absent and males parent-absent.

Statistically significant differences were found in four of these six groups. No statistically significant differences were found in the male parent-present group versus the female parent-present group or the male parent-absent group versus the female parent-absent group. The behaviours for which statistically significant differences were found are presented in the following sections.

Parent-Present versus Parent-Absent Group

Children in the parent-present group were held more frequently ($p = .006$) and for longer ($p = .004$) than children in the parent-absent group (see Table 2, column 2, p. 78). Duration of drinking was also greater ($p = .019$) for children in the parent-present group than the parent-absent group.

Children in the parent-absent group demonstrated protective behaviour more frequently ($p = .019$) and for longer duration ($p = .034$) than children in the parent-present group. No other statistically significant differences were found between the parent-present group and the parent-absent group.

Females versus Males

Females demonstrated the behaviour of rubbing the operative

site more frequently (p = .023) and for longer (p = .049) than males (see Table 2, column 3, p. 78). No other statistically significant differences were found between the female and male groups.

Females Parent-Present versus Female Parent-Absent

Females in the parent-present group were held more frequently (p = .019) and for longer (p = .019), drank for longer (p = .047), and had more frequent voluntary miscellaneous complaints (p = .019) than females in the parent-absent group (see Table 2, column 4, p. 78). No other statistically significant differences were found between these two groups.

Males Parent-Present versus Male Parent-Absent

The only significant difference in behaviour between these groups was that males in the parent-absent group displayed protective behaviour of greater duration (p = .028) than males in the parent-present group (see Table 2, column 5, p. 78).

Findings of Descriptive Analyses

In addition to the Kruskal-Wallis one-way analysis of variance, further descriptive analyses were calculated for the same groups of children for all items on the behavioural checklist (see Appendix F, p. 130). While it is recognized that the number of children in some of the groups was small, these analyses identified more differences between groups than the Kruskal-Wallis statistics. The findings of these further analyses are presented in the following section and are illustrated in Table 2 (p. 78-80).

Table 2

Percentage Difference Between Groups for Frequency (f) and Duration (d) of Behaviours

Behavior	Group					
	Parent Present/ Parent Absent	Female/ Male	Female Parent Present/Absent	Male Parent Present/Absent	Female and Male Parent Present	Female and Male Parent Absent
Purposeless						
No. in group with behaviour	7/9	7/9	3/4	4/5	3/4	4/5
f:	> 7%	<49%	< 4%	>12%	< 53%	<44%
d:	>30%	<56%	< 32%	<29%	< 57%	<55%
Rubbing						
No. in group with behaviour	10/10	10/10	5/5	5/5	5/5	5/5
f:	<37%	>65% *	<42%	<21%	>57%	>69%
d:	<59%	>67% *	<66%	<36%	>49%	>73%
Protective						
No. in group with behaviour	10/7	7/10	2/5	5/5	2/5	5/5
f:	<36% *	>53%	<8%	<75%	>81%	>27%
d:	<57% *	>40%	<23%	<92% *	>81%	>27%
Touch						
No. in group with behaviour	2/5	5/2	2/3	0/2	2/0	3/2
f:	<87%	>77%	<84%	<100%	>100%	>73%
d:	<95%	>41%	<91%	<100%	>100%	>36%
Reach for eyes						
No. in group with behaviour	2/3	4/1	2/2	0/1	2/0	2/1
f:	<21%	>79%	>13%	<100%	>100%	>54%
d:	<40%	>86%	<93%	<100%	>100%	>98%
Kick						
No. in group with behaviour	1/3	1/3	0/1	1/2	0/1	1/2
f:	<88%	<56%	<100%	<82%	<100%	<48%
d:	<95%	<66%	<100%	<93%	<100%	<64%
Cry/Sob						
No. in group with behaviour	8/7	8/7	4/4	4/3	4/4	4/3
f:	>35%	>25%	>27%	>45%	>16%	>37%
d:	>46%	<20%	>64%	>27%	> 3%	<50%
Scream/Exclamation						
No. in group with behaviour	4/1	2/3	1/1	1/0	1/3	1/0
f:	>12%	>48%	<59%	>100%	<45%	>100%
d:	<63%	>63%	<100%	>100%	<100%	>100%

* $P < .05$

(Table continues)

Table 2

Percentage Difference Between Groups for Frequency (f) and Duration (d) of Behaviours

Behaviour	Group					
	Parent Present/ Parent Absent	Female/ Male	Female Parent Present/Absent	Male Parent Present/Absent	Female and Male Parent Present	Female and Male Parent Absent
Smile						
No. in group with behaviour	2/1	2/1	1/1	1/0	1/1	1/0
f:	<10%	>69%	<55%	>100%	<1%	>100%
d:	>25%	>76%	>13%	>100%	>48%	>100%
Grimace/Frown						
No. in group with behaviour	5/6	5/6	3/2	2/4	3/2	2/4
f:	<17%	>21%	<47%	>30%	<25%	>50%
d:	>80%	<75%	>34%	>87%	<83%	<12%
Reach for body contact/hugs						
No. in group with behaviour	4/1	4/1	3/1	1/0	3/1	1/0
f:	>81%	>92%	>80%	>100%	>90%	>100%
d:	>95%	>100%	>95%	---	>100%	>100%
Being Held						
No. in group with behaviour	7/1	4/4	4/0	3/1	4/3	0/1
f:	>90% *	> 7%	>100% *	>77%	>24%	<100%
d:	>98% *	>22%	>100% *	>94%	>26%	<100%
C/o pain - unsolicited						
No. in group with behaviour	4/3	5/2	3/2	1/1	3/1	2/1
f:	>39%	>73%	>30%	>66%	>66%	>83%
C/o pain - solicited						
No. in group with behaviour	7/8	8/7	4/4	3/4	4/3	4/4
f:	<17%	>50%	<12%	<26%	>54%	>45%
No c/o pain - solicited						
No. in group with behaviour	1/4	1/4	0/1	1/3	0/1	1/3
f:	<77%	<84%	<100%	<72%	<100%	<80%
Fluid request - unsolicited						
No. in group with behaviour	3/1	2/2	2/0	1/1	2/1	0/1
f:	>52%	>14%	>100%	<58%	>75%	<100%
Yes to fluids						
No. in group with behaviour	5/4	3/6	2/1	3/3	2/3	1/3
f:	>30%	<35%	>87%	<34%	>31%	<88%

* $P < .05$

(Table continues)

Table 2

Percentage Difference Between Groups for Frequency (f) and Duration (d) of Behaviours

Behaviour	Group					
	Parent Present/ Parent Absent	Female/ Male	Female Parent Present/Absent	Male Parent Present/Absent	Female and Male Parent Present	Female and Male Parent Absent
No to fluids						
No. in group with behaviour	3/2	2/3	1/1	2/1	1/2	1/1
f:	>48%	<43%	>22%	>60%	<55%	<13%
Takes fluids						
No. in group with behaviour	9/8	9/8	5/4	4/4	5/4	4/4
f:	>37%	>30%	>49%	>18%	>42%	> 6%
d:	>42% *	<33%	>75% *	> 8%	> 2%	<72%
Asks for mom on own						
No. in group with behaviour	0/6	2/4	0/2	0/4	0/0	2/4
f:	<100%	<78%	<100%	<100%	---	<78%
Wants mom when asked						
No. in group with behaviour	0/5	4/1	0/4	0/1	0/0	4/1
f:	<100%	>72%	<100%	<100%	---	<72%
Misc c/o - unsolicited						
No. in group with behaviour	6/2	4/4	4/0	2/2	4/2	0/2
f:	>48%	<29%	>100% *	>29%	>41%	<100%
Misc c/o - solicited						
No. in group with behaviour	2/1	2/1	1/1	1/0	1/1	1/0
f:	>48%	>82%	<72%	>100%	>16%	>100%
Refusal Behaviour						
No. in group with behaviour	2/2	3/1	2/1	0/1	2/0	1/1
f:	<86%	>73%	<82%	<100%	>100%	>68%
Yes to medication						
No. in group with behaviour	0/3	3/0	0/3	0/0	0/0	3/0
f:	<100%	>100%	<100%	---	---	>100%
No to medication						
No. in group with behaviour	2/1	1/2	1/0	1/1	1/1	0/1
f:	>33%	<60%	>100%	<10%	<33%	<100%

* $P < .05$

Parent-Present versus Parent-Absent

As can be seen in Table 2 on p. 78, children in the parent-absent group demonstrated more body movement and less vocalization than children in the parent-present group. Although all children in both groups rubbed their eyes, children in the parent-absent group demonstrated this behaviour with greater frequency and duration. Fewer children in the parent-absent group demonstrated protective behaviour but on average they demonstrated this behaviour with greater frequency and duration than children in the parent-present group. Children in the parent-absent group demonstrated touch, reaching for eyes, and kicking with greater frequency and duration than children in the parent-present group. When children were asked whether they were having pain or were sore, children in the parent-absent group denied having pain with greater frequency than children in the parent-present group. While refusal behaviour was demonstrated by an equal number of children in the two groups, children in the parent-absent group demonstrated this behaviour with more frequency than children in the parent-present group.

Children in the parent-present group expressed unsolicited complaints of pain, unsolicited requests for fluids, and unsolicited miscellaneous complaints more frequently than children in the parent-absent group. Children in the parent-present group also drank more frequently and for longer, reached for body contact and hugs more frequently, and were held more frequently and for longer than children in the parent-absent group. While only one child in the parent-absent group was held, it is interesting to note that not all parents picked up

their children despite being previously told by the researcher that they could. In fact, three of the ten children in the parent-present group were not picked up by their parent.

All children in the parent-absent group expressed a desire to have their mother with them. Six of these children spontaneously asked to have their mother while the other four answered yes when their nurse asked if they wanted their mothers. The number of times a child asked for his/her mother ranged from 2 to 36.

Females versus Males

Females demonstrated rubbing, protective behaviour, touching, reaching for eyes, crying/sobbing, and screaming/exclaiming with greater frequency and duration than males. One female in the parent-present group sobbed for almost the entire time she was in PARR, including time periods during which she appeared to be sleeping. Screaming was usually associated with getting an injection. Females reached for body contact and hugs more frequently than males but males asked for their mothers more frequently. Females complained of pain more frequently both voluntarily and when asked while males denied having pain more frequently when asked. Consistent with this is the fact that more females said yes and more males said no to pain medication when asked. Refusal behaviour was demonstrated more frequently by females than males.

Other Findings

In this study, 17 of the 20 children complained of pain. Although 7 of these 17 children made unsolicited complaints of

pain, the other 10 did not complain of pain until asked. Of the 3 remaining children who did not verbally acknowledge pain, one was asked if she was having pain and did not answer and the other two were not asked.

Analgesic medication was given to 14 of the 20 children in the study. Of the 14 children who received analgesics, 3 said yes when asked if they wanted pain medication and the other 11 were not asked if they wanted pain medication. Two of these children who were not asked either whether they were having pain or whether they wanted pain medication, were given analgesic medication. Of the 6 children who were not given analgesic medication, 3 said no when asked if they wanted pain medication and 3 were not asked if they wanted pain medication. The three children who stated they did not want pain medication had previously stated that they were having pain.

Fluids, either in the form of juice or popsicles, were taken by 17 of the 20 children in the study. Three of these children asked for fluids on their own and one child asked for fluids but did not drink them when offered. Of the other 16 children in the study, 13 were asked whether they wanted fluids. Five children said no but four of these did take some fluids during their PARR stay. Of the other 9 children who were given fluids, 3 were not asked if they wanted fluids and 3 did not answer when asked.

Summary

The findings of Kruskal-Wallis one-way analysis of variance as well as further descriptive analyses demonstrate that there

are significant differences in the behaviour of postoperative preschool age children in the pediatric recovery room when parents are and are not present.

In summary, statistically significant differences were found between children in the parent-present and parent-absent groups with children in the parent-present group being held more frequently and for longer, drinking for longer, and demonstrating protective behaviour with less frequency and shorter duration than children in the parent-absent group. Females demonstrated rubbing behaviour with significantly more frequency and duration than males. Other statistically significant differences included males in the parent-absent group displaying protective behaviour of greater duration than males in the parent-present group and females in the parent-present group being held more frequently and for longer, drinking for longer, and verbalizing voluntary miscellaneous complaints more frequently than females in the parent-absent group. Further descriptive analyses identified more differences between groups than Kruskal-Wallis one-way analysis of variance. These differences included children in the parent-present group demonstrating less body movement and more vocalization than children in the parent-absent group. Children in the parent-present group also expressed more complaints, demonstrated more refusal behaviour, drank more, and sought body contact more frequently than children in the parent-absent group. Discussion of these interesting findings and their significance follows in the next chapter.

Chapter Five

DISCUSSION and IMPLICATIONS

This study explored the effect of parental presence on the behaviour of the postoperative preschool age child in the pediatric recovery room by addressing three questions:

1. Do children who have their parents with them in the recovery room display different behaviours than those whose parents are not with them?

2. What are the different behaviours displayed by children whose parents are with them and children whose parents are not with them?

3. Do children who have their parents with them in the recovery room display pain behaviour that is different than that demonstrated by children whose parents are not with them?

In this chapter, the research findings described in the previous chapter are discussed; in addition, nursing implications of the research findings are presented. In order to assist the reader to clearly understand the context in which the findings are discussed, limitations of the research study are reviewed prior to the discussion of the research findings.

Limitations

Several major limitations of this study are acknowledged. For logistical reasons, children in the study were not all cared for by the same anesthetic or nursing staff. Therefore, the effect of the care giver on the child's behaviour could not be controlled for. However, even if all the children had been cared for by the same staff members, it would have been

difficult to control for other factors including mood of the staff members and noise level in the PARR. In addition, parental anxiety levels were not measured and the effect of parental anxiety on the child's behaviour could not be controlled for. It has been suggested by several authors that a highly anxious parent may transmit this emotional state to the child, thereby intensifying the child's own fear and anxiety (Jay, Ozolins, & Elliot, 1983; Klinzing & Klinzing, 1977; Lutz, 1986; Wolfer & Visintainer, 1975).

The majority of children in the study received analgesic medication during their stay in the Recovery Room. Although no attempt was made by the researcher to correlate differences in behaviour displayed by a child before and after receiving this medication, it is recognized that analgesic medication may have affected the behaviour observed. It should be noted however that the majority of the behaviour observed was demonstrated before the analgesic would have begun to take effect as most of the children left the Recovery Room approximately one-half hour after receiving an analgesic.

Data were collected in this study by videotaping all of the subjects during their stay in PARR. While this proved to be an effective means of capturing a rich assortment of data, some data were lost when the camera was obstructed by staff and/or parents and when the child turned away from the camera. Facial expression was not well captured on the videotape as the camera had to be placed far enough from the child to capture all body movement. At the expense of detail of facial expression, which would require close-up, use of two cameras would assist in

preventing loss of data. Lack of time overlay on the videotapes made coding of the videotapes more difficult.

Finally, given the size and nature of the sample, the research findings are specific to the study group and cannot be considered broadly generalizable.

Discussion of Findings

Statistically significant differences between the parent-present versus the parent-absent groups were found for 3 of the 26 items on the behavioural checklist. Children in the parent-present group were held more frequently and for longer, drank more frequently and for longer, and demonstrated protective behaviour less frequently and for shorter duration than children in the parent-absent group. Discussion of these findings is integrated with the discussion of findings of further descriptive analyses which demonstrated other differences between the parent-present versus parent-absent groups considered noteworthy by the researcher.

Tools used to assess pediatric pain often rely on projective techniques or behavioural observation. Behavioural observation tools usually include observations of body movement, facial expression, and vocalization (Craig, Mcmahon, Morison, & Zaskow, 1984; McCaffrey, 1969; McGrath, Johnson, Goodman, Schillinger, Dunn, & Chapman, 1985). Children in both groups demonstrated many behaviours, such as rubbing, protective behaviour, crying, screaming, and frowning, which are commonly included in pediatric pain assessment tools. This suggests that, although many of these tools have not been tested for

validity and reliability, they are useful as one means of assessing pediatric pain.

In the following section of the chapter, the research findings are discussed using the framework of the behavioural checklist (see Appendix F, p. 130). As body movement, vocalization, and facial expression are the items most commonly found on pediatric pain assessment tools, these items are discussed first.

Body Movement

As can be seen in Table 2 on p. 78, all behaviours in this category, with the exception of purposeless behaviour, were demonstrated with greater frequency and duration by children in the parent-absent group than the parent-present group. Purposeless, protective, and rubbing behaviour was displayed by more than half the children in the study while touch, reaching for their eyes, and kicking behaviour was displayed by less than half the children in the study. This difference in the behaviour displayed by different children in the study supports the following assumptions which were stated in Chapter One: (a) the pain experience is different for every child even when the pain experience is the same and the child's pain is evident through the behavioural response to the stimulus and (b) "pain is interwoven with emotions such as fear, anger, loneliness, and anxiety, and thus some of the emotion beyond the pain itself may account for the behaviours observed" (Smith, 1976, p. 205).

Children in the parent-present group were frequently told by their parents not to rub their eyes. Nonetheless, these children continued to do so. On some occasions, children who

were reaching for their eyes were stopped by their parents but as soon as the parent let go of the child's hand the child would once again reach for or rub the eye.

Both rubbing and protective behaviour can be described as means of attempting to reduce the discomfort associated with the surgery. Adults frequently describe the feeling of having sand in the eye following strabismus repair and rubbing is an instinctive response to this sensation. In the researcher's experience, increased sensitivity to and discomfort in bright light is a common complaint of children following strabismus repair. While most children in the study kept their eyes closed the majority of the time, protective behaviour was seen both when they had their eyes open and closed and was seldom used to keep the nurse from inspecting the operative site. This behaviour was displayed with significantly less frequency and duration by children in the parent-present group than children in the parent-absent group. Touching behaviour was brief in duration and appeared to be very gentle and exploratory in nature, that is, the children appeared to be making sure that their eyes were still there and alright. It did not appear that touching was used to reduce discomfort.

Kicking was demonstrated by only four children but three of those were from the parent-absent group. Kicking is described by some authors as a pain behaviour (Gross & Gardner, 1980; McGrath, Johnson, Goodman, Schillinger, Dunn, & Chapman, 1985; Smith, 1976) but in the researcher's experience, this behaviour is also demonstrated by children who are feeling frustrated or angry. In this study, the researcher concluded that one child

in the parent-absent group demonstrated kicking behaviour to express feelings of frustration and/or anger. No conclusion was reached regarding the meaning of the kicking behaviour of the other three children.

Of the four behaviours described in the preceding section, that is, rubbing, protective, purposeless, and kicking, the behaviours of rubbing and self-protection are considered by the researcher to be means of coping with pain. Considering these behaviours as pain coping mechanisms can lead to one of two conclusions: (a) children in the parent-absent group experienced more pain than children in the parent-present group, or (b) children in the two groups experienced the same amount of pain but coped with it in different ways.

Purposeless behaviour is not a behaviour usually included on pain tools but it was included for the purposes of this study as it is the researcher's experience that children emerging from anesthetic usually demonstrate purposeless behaviour. Children in the parent-present group demonstrated such behaviour with greater frequency and duration than children in the parent-absent group. Children in the parent-absent group were stimulated by the nurse only during the taking of vital signs or attempts to rouse the child. Children in the parent-present group received more stimulation as parents sitting with their child were frequently observed to be talking to the child and/or stroking the child. This difference in stimulation may account for the difference in purposeless behaviour between the two groups.

Non-Verbal Vocalization

Vocalization behaviour was condensed to two data categories on the final behavioural checklist - crying/sobbing and screaming/exclaiming as defined in Appendix E (see p. 127). Crying/sobbing was demonstrated by 8 children in the parent-present group versus 7 children in the parent-absent group. Screaming/exclaiming was demonstrated by 4 children in the parent-present group versus 1 child in the parent-absent group. Children in the parent-present group demonstrated crying/sobbing with greater duration and both crying/sobbing and screaming/exclaiming more frequently than children in the parent-absent group. Only one child in the parent-absent group demonstrated screaming/exclaiming but she did so with greater frequency and duration than any child in the parent-present group. While it may be that this is the child's usual behaviour when she is separated from her parents, placed in an unfamiliar environment, or experiencing pain, there may in fact be reasons other than these for this behaviour. Nonetheless, the researcher concluded that this behaviour was the child's way of expressing her fear and anxiety in this unfamiliar environment.

Crying has been described by some authors as a negative behaviour in reports of studies of the effect of parental presence on children's behaviour during dental procedures and anesthetic induction (Frankl, Shiere, & Fogels, 1962; Shaw & Routh, 1982). Shaw and Routh (1982) concluded, however, that the presence of the child's mother acted as a disinhibitor as the children felt more secure in their mothers' presence and were therefore more likely to express their feelings.

Hunsberger, Love, and Byrne (1984) stated that "often the crying or fussing child is equated with the non-coping child" (p. 152).

In this study, crying/sobbing and screaming/exclaiming appeared to be used as effective coping mechanisms. Parents reacted to their child's crying/sobbing and screaming/exclaiming by talking to the child in a soothing voice, by stroking some part of the child's body, or by holding the child. Although three children in the parent-present group were never picked up and held by their parent, it is interesting to note that two of these children never demonstrated crying/sobbing or screaming/exclaiming behaviour. Although nursing staff also talked to or stroked children demonstrating these behaviours, they did so less frequently than parents did and for shorter time periods. Only one child in the parent-absent group was picked up and held by a nurse. In the researcher's opinion, children in the parent-absent group demonstrated these behaviours with less frequency and duration because they may not have perceived them as leading to the comfort they sought.

Facial Expression

As stated previously, facial expression was very difficult to code from the videotapes. Grimacing/frowning was demonstrated by 5 children in the parent-present group and 6 children in the parent-absent group. Children in the parent-absent group demonstrated grimacing/frowning less frequently but with greater duration than children in the parent-absent group. This suggests once again that children in the parent-absent group either experienced more pain than children in the parent-present group or coped with it in different ways.

Reaching for Body Contact/Hugs

This behaviour was displayed by five children in total. Four of these children were from the parent-present group and one of these four was not held by her parent. This behaviour suggested to the researcher that children in the postoperative period will initiate body contact and hugging with a parent but will not usually do so with a previously unknown care giver. As nursing staff did not initiate hugging or body contact, it is not known whether the children in this group would have allowed themselves to be hugged or held by a nurse who did initiate this behaviour. It is the researcher's opinion that the children who demonstrated this behaviour did so in order to be comforted by their parents. Therefore, hospital policies which do not permit parental visiting in the recovery room deny children the opportunity to seek comfort from and be comforted by their parents.

Being Held

As stated previously, seven children in the parent-present group and one child in the parent-absent group were picked up and held. In viewing the videotapes, it was observed that some parents appeared physically uncomfortable after holding their child for prolonged periods of time. Nonetheless, they continued to hold their child and in several cases, the child was not returned to the bed until it was time to take the child to the Surgical Day Care Unit. The one child who was picked up and held by a nurse asked to be put back to bed after a short period of time. None of the children held by parents spontaneously asked to return to bed. Although there may be

many reasons why the child in the parent-absent group was the only one who asked to go back to bed, it is the researcher's opinion that this child may have made the request as he did not feel as safe and secure with the nurse as he does with his parent.

It is interesting to note that not all parents automatically picked up and held their child. Parents who did hold their children did so only after asking the nurse if it was all right to do so. Although two of the children in the parent-present group did not demonstrate crying/sobbing during their PARR stay, it seems reasonable to suggest, based on the behaviour of parents who did pick up their children, that the other parents would have picked up their children if the nurse had taken the initiative to tell them it was alright to do so.

In the researcher's experience, nurses working in the PARR in which the study was done often hold infants who are crying but seldom pick up and hold older children. This nursing behaviour may be a function of the patient assignment in the PARR. Each nurse is assigned two patients and while it may be possible to move around easily and observe a second patient while holding an infant, it is not as easy to do this while holding a preschool age child. In many cases, the nurses will call the child's parent into the PARR, contrary to current PARR policy, in order to comfort the child rather than pick up and hold the child themselves. This behaviour demonstrates that nursing staff believe that parents can play an important role in the Recovery Room and therefore supports the argument for parental visiting in this setting.

Pain Complaints

Pain complaints were separated into two categories in the data coding - those that were unsolicited or made spontaneously by the child and those that were made when the child was asked "Does it hurt?", "Are your eyes sore?", "How do your eyes feel?", "Are your eyes ok?", and other similar questions. Four children in the parent-present group and three children in the parent-absent group spontaneously complained of pain but children in the parent-present group complained more frequently. When asked if they were having pain, seven children in the parent-present group and eight children in the parent-absent group stated they were, but one child in the parent-present group and four children in the parent-absent group stated they were not. Four children answered both yes and no when asked if they were having pain. No correlation could be seen between the change in answer and the child having received pain medication. However, two of the children changed their answer from yes to no after being asked if they wanted some medicine "to make their eyes feel better". This behaviour suggests that these two children wished for some reason to avoid taking the medicine offered and therefore changed their answer to no.

Although it has been suggested by some authors that young children cannot accurately report on their pain experience (Lynn, 1986; McBride, 1977), others suggest that children as young as three and four years of age are able to report accurately on both location and intensity of pain (Aradine, Beyer, & Tompkins, 1988; Eland, 1977). The findings of this study support the belief that children as young as three years

of age can accurately report on the presence or absence of pain. As no attempts were made to have the children quantify their pain experience, no conclusion can be drawn regarding the accuracy of young children in reporting pain intensity.

The only significant difference in pain reporting behaviour between groups was that those children in the parent-present group complaining of pain did so more frequently than children in the parent-absent group. It is assumed that most parents would normally attempt to respond to their child's pain complaints with some form of action (Hunsberger, Love, & Byrne, 1984; Jay, Ozolins, & Elliot, 1983; Stevens, Hunsberger, & Browne, 1987). Therefore, it is likely that children in the parent-present group continued to complain with the expectation that their parent would help them in some way. Hunsberger, Love, and Byrne (1984) suggested that because of the trust relationship between the parent and the child, the parent can help the child identify and express their concerns. It is the researcher's opinion that children in the parent-absent group may have stopped complaining when they did not get the response from the nurse, for example being picked up and held, that they would normally have gotten from their parent. It may also be true that children in the parent-absent group did not feel safe enough with the nurse to continue to complain. As identified previously, these children demonstrated more rubbing of their eyes and significantly more protective behaviour than children in the parent-present group did in order to cope with the pain experience.

The most significant finding regarding pain reporting

behaviour is that although 35% of the children in the study made unsolicited complaints of pain, 75% of children in the study complained of pain when asked. Thus, it appears that the most important component of the nurse's assessment of the child's pain, that is, the child's perception of the pain experience, is one which the nurse must actively solicit. Without this information, the pain assessment of a conscious child cannot be said to be complete (Beales, 1982).

Fluids

Fluids, either in the form of juice or popsicles, were taken by 9 children in the parent-present group and 8 children in the parent-absent group. Children in the parent-present group asked more frequently for fluids and responded more frequently to offers of fluids than children in the parent-absent group. Although there were no significant differences in the number of children in each group who took fluids, children in the parent-present group drank for significantly longer than children in the parent-absent group. Children in the parent-present group drank 37% more frequently and 42% longer than children in the parent-absent group.

Children having a general anesthetic are required to fast for at least six hours prior to surgery and intravenous fluids are not routinely administered in the Operating Room to children having strabismus repair. Fluids are routinely offered in the Recovery Room in order to offset any dehydration the child may experience as a result of fasting. Rehydration contributes to the child's feeling of well-being postoperatively and, as can be seen, children in the parent-present group received more fluids

than children in the parent-absent group. Although almost equal numbers of children in both groups were given popsicles, children in the parent-absent group were frequently observed not to eat the popsicle or to fall asleep while holding the popsicle. Children in the parent-present group received both encouragement and help in eating the popsicle and usually finished the popsicles they were given. Thus, it can be seen that parents played an important role in facilitating the child's rehydration and consequently the child's recuperation.

It appears that the offering of fluids has become so routine for nurses in the Recovery Room that, in some cases, they neither asked the children if they wanted fluids nor gave them a choice in the type of fluids they were given. In fact, three children who were not asked if they wanted fluids, three children who were asked but did not answer, and four children who said they did not want fluids were given fluids anyway. This behaviour on the part of nursing staff demonstrates an inconsistency in practice which must be altered if patients are to believe that they can have input regarding the care they are to receive.

Requests for Mother

It is natural that children in the parent-absent group were the only children to ask for their mothers. It is interesting to note, however, that no children in the parent-present group asked for the other, non-attending parent.

Although only six of the children in the parent-absent group made unsolicited requests for their mothers, all children nodded yes when asked if they wanted to go see their mothers.

Many of the children in this group were crying at the same time that they were asking for their mother. Only one child asked for his father and he alternated this with his request for his mother. It is the researcher's belief that children asked for their parents in order to be comforted and feel more secure in an unfamiliar environment. Although males made more unsolicited requests for their mothers, the researcher is unable to provide an explanation for this gender difference.

Miscellaneous Complaints

Miscellaneous complaints included "I'm dizzy", "I can't see", "I'm thirsty", "I want the covers on", "I'm tired of rocking", "I want to go back to bed", "I'm hungry", "I want my soother", "I want to get up", "It's too bright", and "I'm tired". The same complaint was seldom repeated more than twice by one child and none of the complaints identified were voiced by more than two children.

Children in the parent-present group voiced miscellaneous unsolicited and solicited complaints 48% more frequently than children in the parent-absent group and although all children who were asked a question which related to a miscellaneous complaint responded with a complaint, nine children were never asked this type of question. Seven of these nine children were from the parent-absent group. It is likely that if these children had been asked if they had complaints, the answer would have been yes. Once again, it appears that while children in the parent-present group were comfortable in expressing their complaints to their mother, children in the parent-absent group were not comfortable in spontaneously expressing their

complaints to an unknown care giver. These findings also suggest that nursing staff were more apt to ask the child about complaints when a parent was present and observing the quality and quantity of care their child was receiving.

The other significant finding regarding miscellaneous complaints was that four children in the parent-present group asked to go home. Given that they were in an unfamiliar environment but had their mother with them, it seems logical that these children would ask to return to a familiar environment. It is the researcher's opinion that these children felt more secure with their parents and wanted to achieve a greater feeling of security by going home whereas children in the parent-absent group attempted to reach the same, initial level of security by getting their parent to be with them.

Refusal Behaviour

Refusal behaviours included pushing away medication, pushing away fluids, pulling away from nurse during taking of vital signs, refusing to put on a hospital gown, and refusing to go back to bed. Although this behaviour was demonstrated by an equal number of children in the parent-present and parent-absent groups, children in the parent-absent group demonstrated refusal behaviour 86% more frequently. It was noted that when children in the parent-present group demonstrated refusal behaviour their parents usually convinced them or attempted to convince them to carry out the desired action. In most cases, parents are willing partners in the care of their child provided they are given the opportunity and encouragement to assist in the child's care.

Response to Offer of Pain Medication

Six of the twenty children were asked if they wanted pain medication. An equal number of children answered yes and no to this question yet all of them stated that they were having pain when asked. Although it is not possible to state why the children answered in this way, it is likely that the children's responses relate to their previous experience with medication. If, in the child's past experience, the child had received medication and felt better because of it, it is more likely that the child would have answered yes to the offer of pain medication. If, in the child's past experience, the child received medication that tasted bad or did not make the child feel better or the child has been told that medicine is a bad thing, it is more likely that the child would answer no to the offer of pain medication. Thus, management of the child's pain could be improved if the nurse was knowledgeable regarding the child's previous experience with pain and pain medication.

Based on this review and discussion of the findings specific to items on the behavioural checklist, it can be concluded that children who have their parents with them in the recovery room display general behaviours which are similar to those demonstrated by children whose parents are not with them. However, it can also be said that there are significant and meaningful differences between these two groups in the frequency and duration of some of the behaviours displayed. These differences led the researcher to the conclusion that although children who have their parents with them do not display pain behaviour that is different than that demonstrated by children

whose parents are not with them, these two groups of children cope with the pain experience in different ways. Simply stated, children with parents make more attempts to cope with the pain experience by crying and verbal complaining, perhaps with the expectation that their parent will comfort them, whereas children without parents make more attempts to cope with the pain experience by trying to reduce the pain themselves through rubbing and protective behaviour.

Observations Of and By Parents

While it was not the researcher's intention to study the parents behaviour in the PARR, it is worthwhile to comment on some observations made during the research study.

First, all of the parents when approached regarding their child's inclusion in the research study stated that they wished to be with their child in the Recovery Room. Yet, no parents withdrew their child from the study when they discovered that their child would be in the parent-absent group. These parents indicated that they felt the research project was important and expressed the hope that if their child had to have surgery again, the research study would have demonstrated that all parents should be allowed in the Recovery Room and they would be able to be with their child the next time.

Several of the parents in the parent-present group told the researcher that they felt better knowing they would be with their child in the Recovery Room. In addition, two comments noted on the videotape were "I wish I could have done this the first time" and "She'd be different if I weren't here". This

last comment was made by a mother whose child rested quietly on her lap for most of the PARR stay.

The researcher noted that many parents seemed hesitant in touching their child at first and frequently required encouragement to do so. Most parents also seemed hesitant to make requests of the nursing staff. In addition, during the periods in which their children were sleeping, many parents who were seen to be looking around the room appeared anxious. Some of the parents conversed freely with the person doing the videotaping but conversations between parents and the nursing staff were limited. This may have occurred for three reasons. First, the person doing the videotaping was near the child's stretcher at all times. It may be that the parent was bored or thought the person doing the videotaping was bored and therefore initiated conversation as a method of diversion. Second, the person doing the videotaping may have been perceived by the parents to be less threatening and less invested in their child's care. Finally, the nursing staff in the Recovery Room often appear to be very busy and the parent may not have felt it was appropriate to engage the nursing staff in conversation. However, if parental visiting in the recovery room is to become a routine practice, nursing staff must not only develop more sensitivity to the needs of the parent and recognize that parental anxiety may be transmitted to the child (Klinzing & Klinzing, 1977), they must also develop the skill to initiate therapeutic interactions which serve to reduce parental anxiety.

Observations of Nursing Practice

While it was also not the researcher's purpose to observe nursing practice in the PARR, it is worthwhile to comment on some observations made during the research study.

Assessment of pain in pediatric patients is recognized as being a difficult problem (Abu-Saad, 1984; Jeans, 1983a). In the researcher's opinion, obtaining the child's perception of the pain experience is one of the most important aspects of the PARR assessment process. In this study, all but two of the children were asked at least one question relating to their perception of their pain. It was noted that many of the nurses asked what could be considered leading questions such as "Are your eyes sore?' and "Do your eyes hurt?" rather than neutral questions such as "How do your eyes feel?". It is unknown whether the type of questioning influenced the childrens' responses to the nurses questioning but it is generally accepted that neutral questions or statements of empathy are more appropriate when attempting to obtain accurate information (Egan, 1986). It was also noted that the nursing staff only occasionally requested the parent's opinion regarding the child's pain or lack of pain.

The most significant observation regarding nursing practice is the fact that the nursing staff also did not consistently involve the children in decision making about pain medication. It is the belief of the researcher that preschool age children can accurately report on the presence or absence of pain and that these children should be involved in the decisions about administration of pain medication. Of the fourteen children in

the study who were given analgesic medication, only three were asked if they wanted something for pain. One nurse told the mother she was giving the child the pain medication to prevent the child from having pain. Clearly these practices are inconsistent with providing patients with care individualized to meet their needs.

Implications for Nursing Practice

This study has clearly demonstrated that parents do have an effect on the behaviour of postoperative preschool age children in the pediatric recovery room. As stated previously, children with accompanying parents make more attempts to cope with the pain experience by crying and complaining with apparent expectation that their parent will comfort them whereas children without parents make more attempts to cope with the pain experience by trying to reduce the pain themselves through rubbing and protective behaviour. Allowing parents to be with their child in the pediatric recovery room therefore provides the child with additional or different ways of coping with the pain experience in what is often an unfamiliar and frightening environment.

The findings of this study reinforce the need for nurses to advocate, on behalf of pediatric patients, for change in policies which currently restrict parents from being with their children in the postoperative recovery room. If this is achieved, it must be recognized that the role of the nurse in the recovery room will change. As parents begin to provide some of the hands on care, such as giving fluids and sponging the

child, the nurse's role will be changed to give up some of these measures and take on responsibilities related to parental support and education. Nurses will be accountable to provide parents visiting their children in this setting with an adequate orientation both to the setting and to the role of the parent in the PARR. Parents must be provided with sufficient information to allow them to participate as a partners in their children's care and to meet their children's needs (Lutz, 1986; McCaffrey, 1969; Mahaffy, 1965; McGuire & Dizard, 1982; Stevens, Hunsberger, & Browne, 1987). However, it is also the nurse's responsibility to determine how involved parents wish to be in their child's care and to reassure the parent that, if they do not feel able to stay in the recovery room, a nurse will always be available to their child (Broome, 1985). If the parent decides to visit in the recovery room, the nurse has a responsibility to make the parent feel comfortable in this environment as the benefit to the child of having a parent in the recovery room may be diminished if the parent does not feel he/she is allowed to hold the child, touch or talk to the child, and is afraid to ask the nurse if this is permitted.

This study also demonstrated that, even when parents were present in the Recovery Room, nurses seldom used them as a resource in planning for their child's care. Stevens, Hunsberger, and Browne (1987) state "little evidence exists to support the notion that parents can validly assess their child's pain" (p. 163). However, parents can help the child identify and express their concerns (Hunsberger, Love, & Byrne, 1984) and suggest to the nurse which means of distraction are most

effective in comforting their child (Broome, 1975). In addition, parents can share with the nurse their perception of the meaning of the child's behaviour. In the recovery room, this is particularly critical as the nurse has not usually seen the child before and therefore cannot be expected to have an understanding of how the child deals with pain, fear, or anxiety. Thus, the parents can provide the nurse with meaningful information which can be used by the nurse in making pain management decisions.

Every nurse demonstrates a different degree of expertise in communication skills. However, in the pediatric recovery room, nurses usually communicate only with the other health care professionals and the patient. If parents are to be allowed to visit routinely in the pediatric recovery room, nursing staff must be provided the opportunity to relearn and enhance the skills required for effective and meaningful communication with parents. Without this skill, it is the researcher's experience that many nurses do not feel comfortable in communicating with parents about their children's care. Nursing staff may also need to enhance their communication skills with children in order to feel comfortable when observed by parents during conversations with children and provision of care.

Pediatric pain assessment tools will continue to evolve as research in this field continues. Tools initially used to assess pediatric pain focussed primarily on behaviours in the categories of body movement, facial expression, and vocalization. Given the definition of pain provided by Katz et. al. (1984) on p. 7, tools which are used to assess pediatric

pain behaviour must begin to include such behaviours as verbal complaints, verbal requests, reaching for hugs, smiling, and refusal behaviour.

These findings demonstrate the need for nurses in this PARR, and perhaps others, to more actively solicit the child's perception regarding the pain experience and the need for pain medication. In this study, several children received analgesic medication even though they had not been asked if they wanted it and in some cases, when they were asked and stated they did not want it. Nursing which is practiced in this way is inconsistent with the goals of minimizing the stress associated with hospitalization and making hospitalization as positive an experience as possible as it results in nurses 'doing to' rather than 'caring for' the child (Richards, 1975). In the unfamiliar and often frightening environment of the recovery room, allowing the child to participate in the decision making process may increase the child's sense of control over the situation resulting in a possible decrease in the child's anxiety level (Hunsberger, Love, & Byrne, 1984).

Implications for Nursing Research

Many questions have been raised as a result of this research study. The most important question to be answered is whether the findings of this study are valid for children of different ages and children undergoing procedures other than surgical repair of strabismus. This question can only be answered if similar studies are done with different and larger study groups such as toddlers undergoing surgical repair of

hernia and school age children undergoing surgical removal of tonsils.

Other questions of interest are: (1) Can pain scoring tools be used effectively in the pediatric recovery room setting? (2) Do children in the parent-present group have lower, equal, or higher pain scores than children in the parent-absent group when scored by the child, the nurse, and the parent? (3) Do children in the parent-present group demonstrate different post-hospitalization behaviours than children in the parent-absent group? and (4) Do pain scores of children in the parent-present and parent-absent group correlate in any way with the differences in behaviour between the two groups?

Use of videotaping in this study proved to be an effective means of capturing a rich body of data. Given that technological changes are rapidly occurring in the world of video, it is the researcher's opinion that videotaping should be used more frequently for data collection as it is, when used to its potential, far more accurate than a human observer in recording human behaviour. In addition, use of videotaping addresses some of the problems of testing reliability, both inter-rater and intra-rater, and some forms of validity.

Summary

This chapter has discussed selected findings of the research study and some implications of these findings for nursing practice. The researcher concluded that although children in the two groups did not demonstrate many significantly different behaviours, the duration and frequency

of certain behaviors varied significantly between the groups. Possible explanations for these differences in behaviour have been explored, leading the researcher to conclude that, for this sample of children, their parents' presence in the recovery room provided them with an important additional way of coping effectively, including with the pain experience. In addition, the findings lead to other research questions which merit investigation. The next chapter will present a summary of the research and outline a selection of the conclusions and recommendations generated by the study.

Chapter Six

SUMMARY and RECOMMENDATIONS

Summary

This study was designed to examine the effect of parental presence on the behaviour of the postoperative preschool age child in the pediatric recovery room. Extensive review of the literature identified that: the immediate postoperative period is one of the three most stressful in the child's hospitalization; pain and separation from parents are two common experiences for hospitalized children; perception of pain can be influenced by a variety of factors including fear and separation anxiety; and, parental presence is commonly advocated as a means of reducing anxiety and pain perception in pediatric patients. There were, however, little objective data to support the concept of parental presence in areas such as the recovery room.

Thus, the research study explored the effect of parental presence on the behaviour of the postoperative preschool age child in the pediatric recovery room by addressing the following specific questions:

1. Do children who have their parents with them in the recovery room display different behaviours than those whose parents are not with them?

2. What are the different behaviours displayed by children whose parents are with them and children whose parents are not with them?

3. Do children who have their parents with them in the recovery room display pain behaviour that is different than that

demonstrated by children whose parents are not with them?

In order to attempt to answer these questions, the researcher videotaped 20 children between the ages of three and six years for the duration of their PARR stay following surgical repair of strabismus. The experimental treatment was parental presence in the Recovery Room with equal numbers of children being assigned to the parent-present and the parent-absent groups.

Analysis of the research findings demonstrated that although children who had their parents with them demonstrated behaviours similar to those who did not have their parents with them, the duration and frequency with which some behaviours were displayed varied substantially between the two groups. Children in the parent-present group were held with significantly greater frequency and duration, demonstrated protective behaviour with significantly less duration and frequency, and drank with significantly greater duration than children in the parent-absent group. Although not statistically significant, children in the parent-present group exhibited less body movement and more vocalization than children in the parent-absent group. Children in the parent-present group also expressed more complaints, demonstrated more refusal behaviour, and sought body contact more than children in the parent-absent group. In addition, although children in the parent-present group did not display pain behaviour that was different than that displayed by children in the parent-absent group, the researcher concluded that the difference in duration and frequency of behaviour demonstrated by the two groups of children represented different

means of coping with the pain experience. Children in the parent-present group made more attempts to cope with the pain experience by crying and complaining with the apparent expectation that their parent would comfort them whereas children in the parent-absent group made more attempts to cope with the pain experience by trying to reduce the pain themselves through rubbing and protective behaviour.

Use of videotaping as the method of data collection also allowed the researcher to make some unplanned observations regarding nursing practice and the role of parents in the Recovery Room. Decisions by nursing staff regarding the child's pain and pain management were seldom made in consultation with the child and/or the child's parents. Parents seldom initiated conversations with nursing staff, frequently appeared to be looking anxiously around the Recovery Room, and seldom initiated physical contact with their child without asking permission to do this.

It was the researcher's conclusion that parental presence in the recovery room provides children with additional ways of coping with the pain experience in the unfamiliar and often frightening environment of the recovery room. However, the researcher also concluded that many parents appeared to be uncomfortable in the Recovery Room setting. In the opinion of the researcher, this study provides objective findings to support the concept of parental presence in the recovery room. Specific recommendations regarding this and other conclusions from these findings are presented in the following section of this chapter.

Recommendations

A number of recommendations specific to nursing practice, education, and research arise from the findings of this study.

Recommendations for Nursing Practice and Education

The findings of this study suggest that parental presence in the pediatric recovery room provides the child with an important additional way of coping with the pain experience. It is therefore recommended that:

1. Nursing management of pediatric patients in recovery rooms be reviewed and consideration be given to the potential role of parents in this setting.

2. Pediatric hospital continuing education programs include content which will provide nursing staff with the opportunity to enhance skills in communication with children and parents and pediatric pain assessment and management.

Recommendations for Nursing Research

This research study represents a beginning step in the examination of the effect of parental presence on the behaviour of children in settings where parents are not now routinely permitted to visit. It is therefore recommended that:

1. Studies of this nature be repeated in a variety of clinical settings in order to more fully examine the relationship between parental presence and children's behaviour.

2. Researchers continue to test the validity and reliability of pediatric pain assessment tools to assist clinicians in more clearly differentiating pain behaviours from other behaviours demonstrated by children in the immediate postoperative period.

3. Videotaping be used more frequently as a method of data collection as it maximizes the amount of reliable, valid data which can be examined by researchers. In addition, videotapes can be used effectively in the presentation of research findings and the ongoing education of nurses.

In conclusion, this research study into the effect of parental presence on the behaviour of the postoperative preschool age child in the pediatric recovery room contributes to the knowledge base nurses can use in assessing pediatric pain and in advocating for parental presence in the pediatric recovery room. Specifically, the findings of this study describe pediatric pain and separation behaviour more completely than the current literature and demonstrate the difference between two groups of children in such a way that the benefits of parental visiting are apparent. In addition, the findings of the study add to the knowledge of children's behaviour in the pediatric recovery room and identify several areas, such as fluid management, pain assessment and management, parental support and education, in which opportunities exist to improve nursing practice and child/parent care. Finally, this study emphasizes the need for continued research in the area of pediatric pain assessment and pain management.

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Appendix A

Physician Consent Form

I, the undersigned, understand that Laurel Brunke, a Master's in Nursing candidate at University of British Columbia will be contacting parents of children under my medical care for inclusion of their children in a study of "The Effect of Parental Presence in Recovery Room on Postoperative Pediatric Pain Behaviour". Parents will receive an introductory letter from my office in which Laurel Brunke explains the study.

I understand that the Recovery Room policy at Hospital X does not permit parents to visit in the Recovery Room. However, I understand that for the purposes of this study, the parents of half the children will be invited to be with their child in Recovery Room until he/she returns to the Daycare Surgery Unit.

I understand that Laurel Brunke will be videotaping the children included in the study for a maximum of one hour following their admission to the Recovery Room and that these videotapes will be analyzed for differences in behaviours of children in the parent-present and the parent-absent groups.

I understand that all information obtained in the study will remain confidential and anonymous.

In signing this form, I am agreeing to the potential inclusion of my patients that meet the study criteria in this study providing that parental consent for the patients has also been obtained.

_____ _____

Signature Date

Appendix D

Data Collection Sheet

Code: _____ Date: _____

Gender: _____ DOB: _____

Hospital orientation: Yes No Video: Yes No

Parent with child in RR: Mother Father Both None

Operative site: Right eye Left eye Both eyes

Muscles: _____

Surgeon: _____ Anesthetist: _____

RR nurse: _____ Anesthetic time: _____

Adm time (RR): _____ Ready for discharge: _____

Disc time (RR): _____ Disc time (DCU): _____

Induction: Mask IV

Wt: _____ Halothane Nitrous Other

STP: _____ Atr: _____ Sux: _____ Pan: _____

Drop: Dose _____ Time _____ Other: _____

Meds: Name _____ Dose _____ Route _____ Time _____

Name _____ Dose _____ Route _____ Time _____

_____

_____

_____

_____

Appendix E

Behavioural Checklist and Definitions of Behaviours

Vocalizations

All emitted sounds that are not language or are incomprehensible to an observer.

Cry - vocal expression characterized by prolonged rhythmic and high-pitched sounds accompanied by tears running down face. Excludes meaningful utterances.

Scream - nonverbal expression distinct from crying. Single, prolonged high-pitched sound.

Sob - crying accompanied by audible, convulsive catches of the breath.

Exclamation - abrupt or emphatic utterance.

Facial expressions

Frown - furrowing of the eyebrows and forehead.

Grimace - pained expression resulting from distortion of all facial features.

Smile - a pleased or amused expression.

Body movement

Protective - placement of hand or arm over the surgical site. Movement of the head away from the nurse to avoid the nurse touching the surgical site.

Purposeless - tossing and turning in bed and/or random gross movements of arms and legs without intention to make aggressive contact.

Touch - gentling touching the surgical site without rubbing it or covering it.

Reach for eyes - reaching for but not touching the operative site.

Kick - striking out with the foot or feet.

Rubbing - applying pressure to the surgical site with hand, arm, or bed linen.

Fluid Requests

Unsolicited fluid request - request for drink or popsicle by the child without questioning or prompting by the nurse or parent.

Yes to fluids - child answers yes to offer of fluids.

No to fluids - child answers no to offer of fluids.

Pain complaints

Unsolicited pain complaints - statements of pain made by the child without questioning or prompting by the nurse or parent.

Solicited pain complaints - statements of pain made by the child in response to questioning or prompting by the nurse or parent.

Denies pain - statements of denial of pain made by the child in response to questioning or prompting by the nurse or parent.

Miscellaneous Complaints

Unsolicited miscellaneous complaints - miscellaneous complaints made by the child without questioning or prompting by the nurse or parent.

Solicited miscellaneous complaints - child makes miscellaneous complaints in response to questioning or prompting by the nurse or parent.

Other Behaviours

Reaching for body contact - behaviour initiated by the child intended to result in body contact with either nurse or parent.

Hugs - child initiates hugging behaviour with nurse or parent.

Being held - child is held by nurse or parent either in bed or chair.

Taking fluids - child is drinking fluids or eating a popsicle.

Asks for mom on own - request by child for mom without questioning or prompting by nurse.

Wants mom when asked - child answers yes when asked if he\she wants to see mom.

Refusal behaviour - child verbally refuses to do something he\she is asked to do by nurse or parent or child pulls away to avoid having something done to him\her.

Yes to medication - child answers yes to offer of pain medication.

No to medication - child answers no to offer of medication.

Appendix F

Behavioural Checklist

1. Purposeless
2. Rubbing
3. Protective
4. Touch
5. Reach for eyes
6. Kick
7. Cry/sob
8. Scream/exclamation
9. Smile
10. Grimace/frown
11. Reach for body contact/hugs
12. Being held
13. Pain complaints - solicited
14. Pain complaints - unsolicited
15. Denies pain
16. Fluid request - unsolicited
17. Yes to fluids
18. No to fluids
19. Takes fluids
20. Asks for mom on own
21. Wants mom when asked
22. Miscellaneous complaints - solicited
23. Miscellaneous complaints - unsolicited
24. Refusal behaviour
25. Yes to medication
26. No to medication

Appendix G

In-Hospital Research Review Committee Approval

Dear Ms. Brunke:

Re: Application to the In-Hospital Research Review Committee

The In-Hospital Research Review Committee of Children's Hospital has approved your proposed research project entitled "Effect of Parental Presence on the Behaviour of the Post-Operative Preschool Age Child in the Paediatric Recovery Room".

Good luck with your research.

Sincerely,