

**FACTORS CONTRIBUTING TO MATERNAL STATE ANXIETY IN
PEDIATRIC DAY CARE SURGERY**

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Factors Contributing to Maternal State Anxiety in

Pediatric Day Care Surgery

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Abstract

Research evaluating the parental acceptance of pediatric day care surgery has shown that parents prefer this method to conventional surgery. However, parents continue to experience significant anxiety in the day care setting and it is currently unclear what factors are predictive of their distress. In this study, it was hypothesized that mothers' state anxiety while their child was undergoing day care surgery would be positively related to maternal trait anxiety and negatively related to maternal age, the number of children in the family, the presence of a support person for the mother, the child's age, and the number of previous pediatric hospitalizations of the hospitalized child. One hundred and thirty-five mothers attending British Columbia's Children's Hospital Day Care Surgery Unit between August and October, 1994, participated in this study while they waited for their child to undergo surgery by completing the State Scale of the State-Trait Anxiety Inventory, the Neuroticism Subscale of the NEO Five Factor Inventory, and a General Questionnaire developed by the author. Multiple regression analyses revealed that, after controlling for gender and the type of surgery children experienced, only maternal trait anxiety and the number of children in the family predicted maternal state anxiety in the expected directions. Mothers who expressed a desire for more information about their child's surgery in the General Questionnaire were found to be significantly more anxious than mothers who did not want more information, however this variable did not predict a significant amount of variance after that accounted for by maternal trait anxiety and the number of children in the family. Results are discussed in terms of intervention strategies for anxious parents in pediatric day care surgery units and limitations to this type of research.

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Factors contributing to maternal state anxiety in
pediatric day care surgery

The steadily rising costs of health care services, particularly inpatient care, have required health care professionals, insurance companies, and government to examine the economic, medical, and psychological advantages of alternatives to conventional hospital care (Shah, Robinson, Kinnis, & Davenport, 1972). One such alternative is day care surgery, also referred to as daycase, outpatient, short-stay, or ambulatory surgery (Shah & Robinson, 1977). The day care surgical unit, either free-standing or hospital based, provides a wide variety of outpatient surgical services under general anesthesia to patients of all ages.

While the procedure varies from unit to unit, the following description is characteristic of most day care programs. Patients typically arrive early in the day and are evaluated on several criteria to determine their fitness for surgery. Having met these criteria, patients meet briefly with their anesthesiologist to discuss previous operations under general anesthesia. Based on the information provided by both the nurses and their patients, the anesthesiologist can choose the suitable amount and type of anesthesia. Patients are then walked or wheeled into the operating theatre where the anesthetic induction takes place. The surgery may last anywhere from 15 minutes to 2 hours. Afterwards, the still-unconscious patients are transported by the anesthesiologist and surgeon or nurse to the post-operative care unit where they are carefully monitored until they have regained consciousness. Once awake, patients must again meet certain criteria before being permitted to leave the unit. When patients are deemed well enough to be discharged, nurses provides at-home care instructions such as for the administration of oral analgesics for pain management.

Because patients typically experience some degree of nausea, dizziness, headache, and pain following surgery (Patel, Hannallah, & Murphy, 1986; Thompson, Mathews, & McAuley, 1991), it is critical that both adults and children have a responsible adult to accompany them home and care for them during their recuperation (Miller-Browne & Britt-Lightkep, 1993). As a result, caregiving that was once the job of medical staff becomes the responsibility of caregivers. In the case of pediatric day care surgery, parents are generally responsible for managing their child's post-operative care.

Historical Overview of Day Care Surgery

Day care surgery is not a new approach. In fact, the concept of day care surgery developed at the turn of the century through more general discussion of the effects of early ambulation (Simpson, 1976). In 1899, Emil Reis described a lower incidence of post-operative complications and an absence of ill effects in adult females who were out of bed 24 to 48 hours after vaginal coeliotomy. Ten years later, James Nicoll (1909) wrote about 7,392 infants and children he had treated as outpatients for such conditions as talipes, cleft lip and palate, spina bifida, mastoid disease, and hernia. He recommended that more of children's operations be done on an outpatient basis. Nicoll's proposal ran contrary to custom, which dictated that major operations required 10 to 14 days of bed rest. This opinion pervaded the surgical field until the mid 1940s, at which time a series of articles began documenting the benefits of early ambulation in adults (Simpson, 1976).

Lawrie (1964) initiated a day care surgery program for children in 1949 as a way to avoid cross-infection. During the 1950s, 14% or more children were in hospital for illnesses acquired after admission. According to Lawrie, both parents and children preferred having their operations as daycases. The types of operations Lawrie

performed included hernia, circumcision, hydrocele, orchiopexy, and excision of cysts. He commented that "many young children are very unhappy in hospital, and on their return home they are disturbed - and disturbing - for some days or weeks" (p.1289). These negative effects were evident even when mothers stayed overnight in hospital with their children.

The economic, medical, and psychological advantages to day care surgery as an alternative to inpatient surgery seem obvious. Since patients do not stay in hospital overnight before or after surgery, the cost per surgical patient is less (Davenport, Shah, & Robinson, 1971). Furthermore, many more surgeries can be performed, thereby shortening extensive waiting lists (Atwell, Burn, Dewar, & Freeman, 1973). As the demand for inpatient beds decreases, there is more room in acute-care wards for seriously ill individuals (Brownlee, 1977). Medically, surgeons have observed that patients recuperate as well, if not better, at home than in hospital (Garraway, Ruckley, & Prescott, 1978; Lawrie, 1964; Leighton, Rowe-Jones, Knight, & Moore-Gillon, 1993; Osborne & Rudkin, 1993; Ruckley, 1980). Perhaps most importantly, patients may find day care surgery less stressful and anxiety-provoking than conventional surgery (Brownlee, 1977; Campbell, Scaife, & Johnstone, 1988; Stephenson, 1988).

Research on Parental Attitudes to Pediatric Day Care Surgery

Research evaluating the parental acceptance of pediatric day care surgery began in the 1960s. Shah, Papageorgis, Robinson, Kinnis, and Israels (1969) surveyed 611 parents whose children had undergone conventional hospital care. Despite the fact that none of the parents had yet experienced day care surgery for their children, 45.3% would have preferred it over conventional care. There were no significant differences found for the sex of the child, occupational class, number of employed members of the

family, family income, number of siblings, or difficulty in making the necessary arrangements to get to the hospital. Both groups of parents in this study felt anxious when their children were in hospital. However, parents choosing day care over conventional surgery believed they would be capable of making the necessary arrangements for home care. In addition, they felt that their children would be more comfortable at home, whereas the proponents of conventional care felt that the hospital would provide a higher level of comfort.

A study conducted at British Columbia's Children's Hospital compared parental attitudes towards day care and conventional surgery (Shah, Robinson, Kinnis, & Davenport, 1972). A sample of 232 children were randomly assigned to either day care or inpatient surgery, thus creating 116 control-experimental pairs of children matched for operation, sex, age, and socioeconomic class. A nurse administered an attitude questionnaire 7 to 10 days following surgery. Parents were asked about their feelings toward hospitalization and the type of care their child had received. They were then asked how they perceived the alternate forms of care, either day care or conventional, depending on what their child had experienced. Significantly more parents (78%) in the experimental group preferred home care for their children than those in the control group (33%), claiming that being at home was psychologically beneficial for their child.

Venugopal & Carpenter (1986) examined the attitudes of parents towards day care surgery at the University Hospital of the West Indies. The parents of 100 children aged 4 weeks to 11 years who had undergone day care surgery answered a questionnaire 4 weeks post-operatively regarding family and employment status of the parents, problems encountered in post-surgery care of the child, and their acceptance

of the day care surgery. It was found that 96 parents were willing to accept similar management should their child require surgery again. Of the 4 parents who were unwilling to repeat the procedure on a day case basis, 2 had children suffering post-operative pain and fever. Despite the adverse socioeconomic conditions of these families, the majority of the parents were satisfied with day care surgery for their children. This study showed that parental preference for day care surgery remained consistent cross-culturally.

A recent study conducted to evaluate parental attitudes and postoperative problems related to pediatric day stay tonsillectomy found that most parents (84%) were comfortable caring for their child at home, despite the fact that some parents had difficulties with pain relief and ensuring adequate fluid intake (Bartley & Connew, 1994). Several parents reported that looking after their child postoperatively was a positive experience. The authors caution, however, that "a significant number of parents will still encounter difficulties after the child has left the unit" (p. 452) and they recommend that parental support from nursing staff be improved.

Research on the Psychological Impact of Pediatric Day Care Surgery on Children

Research evaluating the psychological benefits of day care surgery for children has been more sparse. To study whether day care surgery actually reduces psychological upset in children, Campbell, Scaife, and Johnstone (1988) randomly allocated 49 children, aged 9 months to 6 years, to be admitted as surgical daycases or as inpatients. Inpatients were required to remain in hospital overnight pre- and post-operatively. Parents were asked to complete questionnaires regarding their child's behaviour and response to the surgery on three separate occasions - prior to the operation, 1 week post-operatively, and 3 months post-operatively. There were few

differences in the magnitude and direction of change between the day care and the inpatient groups. The trend was for day care patients to exhibit less change in tension level than the inpatient groups. Results revealed that daycase children were less affected by their hospital stay than children treated as inpatients, who were described as needing a greater amount of attention at home and were more likely to still be affected 3 months later. Psychological upset in this study incorporated observations or reports of behaviours such as eating and sleeping problems, enuresis, regression to previous levels of functioning, increased anxiety (particularly concerning hospitals), death fears, and concerns regarding the body and its functions (Scaife & Campbell, 1988).

Another study attempting to systematically investigate the psychological sequelae to day care surgery examined the relationship between children's use of self-statements and their reactions before and after elective day surgery (Brophy & Erickson, 1990). The participants were 40 boys and 21 girls between the ages of 5 and 11 years and their mothers. The purpose of this study was to predict children's adjustment during and after hospitalization. Results indicated that most children were not dramatically affected by their hospital experience, despite the fact that 62% of them were anxious prior to surgery. Children's use of negative self-statements was the only significant predictor of children's self-reported anxiety.

Overall, these studies indicate that parents are generally enthusiastic about day care surgery and that it may be less aversive to children than conventional surgery. The literature also suggests that, despite the improvement over conventional care, parents and children still suffer some degree of anxiety in day care surgery. It remains unclear what relationship exists between children's and parents' anxiety in this

particular medical setting. For example, in the previously cited study (Brophy & Erickson, 1990), it was noted that children whose mothers were either high or low in anxiety had higher standardized pulse scores. That is, mothers who appeared either very nervous or not at all nervous had children who seemed more anxious. Yap (1988a), in a review of the literature on pediatric preoperative procedures for conventional surgery, suggested that parental anxiety may be communicated to the child nonverbally as well as verbally. That is, overly anxious parents tend to model poor coping strategies and have difficulty meeting their child's emotional needs in a stressful situation. Alternately, parents who do not appear to experience any arousal in an ostensibly stressful situation may have children who are unprepared to deal effectively with their ensuing anxiety. On the basis of his review, Yap recommends that parents be psychologically prepared for the experience of having a child undergo surgery. Research to this end has focused on preparing parents for conventional pediatric surgery as opposed to day care surgery. For example, Skipper, Leonard, and Rhymes (1968) assigned a special nurse to the mothers of children undergoing tonsillectomies. These mothers demonstrated reduced anxiety, were more active in their child's care, and expressed more satisfaction with the hospital experience. Mahaffy (1965) found that children of mothers who were assigned a special nurse had lower systolic blood pressure, pulse rate, and temperature pre-operatively, post-operatively, and at discharge than children in the control group. Thus, there is limited evidence that helping parents cope with their child's hospitalization experience benefits both the child and the parent.

Preparing Children for Surgery

Due to the observation that anxiety related to pediatric hospitalization and/or surgery may lead to immediate and possibly long-term behavioural and emotional problems in children (Melamed & Siegel, 1975; Thompson & Vernon, 1993), there has been a considerable amount of research examining the preparation of children for hospitalization and conventional surgery (Demarest, Hooke, & Erickson, 1984; Fassler, 1980; Klinzig & Klinzig, 1987; Pinto & Hollandsworth, 1989; Reading, 1979; Rundio, Rudek, Spear, LaCarrubba, & Halpern, 1992; Schoessler, 1989; Schreier & Kaplan, 1983; Trouten, 1981; Yap, 1988a). Generally speaking, these studies have found that various interventions, such as showing relevant films modelling coping behaviour in hospital, hospital tours, or playing with hospital-related toys, are all more or less effective in reducing distress in children. It is currently unclear which of these techniques is most effective, as variables such as age, type of medical problem, and previous experience with hospitalization seem to moderate children's response to hospitalization. Substantially less empirical work has been done on the effects of preparing children for day care surgery (Atkins, 1987; Crocker, 1980; Faust, Olson, & Rodriguez, 1991; Turner, 1990). This is partly due to the difficulty encountered by day care surgery nurses to find the time to adequately prepare their patients and their families for the experience (Ellerton & Merriam, 1994; Kratz, 1993; Voepel-Lewis, Andrea, & Magee, 1992).

In order to develop appropriate interventions for children undergoing day care surgery, it is necessary to first evaluate what factors contribute to their anxiety. Parental anxiety has been shown to be positively related to child anxiety during a variety of medical and dental procedures, such as pediatric anesthetic induction (Bevan

et al., 1990), outpatient medical examinations (Heffernan & Azarnoff, 1971), bone marrow aspirations (Jay, Ozolins, Elliott, & Caldwell, 1983), routine dental examinations (Johnson & Baldwin, 1969; Wright & Alpern, 1971), and dental extractions (Johnson & Baldwin, 1968). Additionally, parental and child anxiety have been found to be positively related during pediatric psychiatric hospitalization (Kashani et al., 1990), prior to hospitalization (Vardaro, 1978), during hospitalization (Fosson, Martin, & Haley, 1990; Sides, 1978), and post-operatively (Bennett-Branson & Craig, 1993). It seems reasonable to assume that a similar relationship exists between parents' and children's anxiety in the pediatric day care surgery unit.

Parental Anxiety in Day Care Surgery

Parental anxiety in pediatric day care surgery should be investigated for three reasons: First, if parents' and children's anxiety are correlated, and if anxious children are likely to suffer from delayed recuperation (Jamison, Parris, & Maxson, 1987) and emotional and/or behavioural problems 20% of the time subsequent to surgery (Yap, 1988b), then the presence of parental anxiety may be important in order to identify "at-risk" children (Thompson, 1986) and target them for intervention. As previously stated, it may be that parents who are anxious are less able to provide the necessary emotional support for their hospitalized child (Alexander, White, & Powell, 1986), or that they are modelling maladaptive coping strategies (Melamed & Ridley-Johnson, 1988), or that they are parenting their child in a way that promotes maladaptive child behaviours (Bush, Melamed, Sheras, & Greenbaum, 1986). Given that children use their parents' responses to the environment to gauge their own emotional responses to ambiguous events, it is also possible that nervous or frightened parents lead their children to feel endangered (Ogilvie, 1990). A second reason to study parental anxiety

in pediatric day care surgery is that research has revealed that distressed parents are more likely to seek health services than those who are less distressed (Hatcher, Powers, & Richtsmeier, 1993; Mechanic, 1964; Roghmann & Haggerty, 1973).

Thus, anxious parents may be incurring more health care expenses than is warranted by their child's medical condition. This may ultimately undermine the savings in cost accomplished by having surgeries done on a day care basis in the first place. Third, even if parental anxiety is not actually related to children's anxiety in the day care surgery setting, it nevertheless merits attention, if only for humanitarian reasons.

Parental anxiety in pediatric day care surgery is likely related to a number of factors. Some of these variables, such as the parent's trait anxiety, the parent's age, the number of children in the family, the child's age, and the number of previous hospitalizations the child has undergone have been studied in a variety of medical settings with inconsistent findings. In general, research investigating these parent variables has focused on the mother, as she is most often the child's primary caretaker and, therefore, most likely to be the parent bringing the child to surgery and subsequently caring for him or her (Brophy & Erickson, 1990; Faust, Olson, & Rodriguez, 1991; Shah, Papageorgis, Kinnis, & Israels, 1969; Venugopal & Carpenter, 1986). As a result, only maternal variables will be considered in the current study although it is acknowledged that an increasing number of fathers are taking a more active caretaking role.

Maternal factors that may impact on maternal state anxiety. In the current study, it was expected that mothers with high trait anxiety would be more likely to experience heightened state anxiety during their child's surgery than mothers with low trait anxiety. High trait anxiety individuals exhibit state anxiety more frequently and

more intensely simply because they interpret more situations as dangerous or threatening (Spielberger, Gorsuch, & Lushene, 1970). Considering that general anesthesia and surgery are potentially life-threatening events, it is not unreasonable to assume that they are perceived as stressful. Trait anxiety, or the tendency to feel fearful or concerned in the face of a stressor does not preclude, however, the potential importance of other variables in the context of the pediatric day care surgery ward that may contribute to maternal state anxiety.

In a study evaluating emotional distress of mothers whose ill children were either in a pediatric intensive care unit, a general pediatric medical surgical unit, or nonhospitalized, one of the factors that was found to be predictive of maternal distress in all groups was maternal age (Berembaum & Hatcher, 1992). That is, younger mothers experienced greater stress than older mothers, indicating that maternal age was negatively associated with maternal anxiety. With respect to pediatric cancer, younger parents have been found to have more difficulty adjusting to their child's illness than older parents (Kupst et al., 1982; Morrow, Carpenter, & Hoagland, 1984; Morrow, Hoagland, & Carnrike, 1981). Alternatively, younger mothers may be at greater risk for distress while their child is undergoing surgery not simply because they are younger, but because they generally have fewer children and, consequently, are less likely to have parenting experience and to have been exposed to pediatric hospitalization. Relatively older mothers are more likely to have more children and hence, increased experience with parenting and, specifically, increased experience with medical interventions for their children. In a study of 45 mothers of acutely ill hospitalized children, mothers with one child reported greater stress than mothers of more than one child (Schepp, 1991). These two variables, maternal age and the

number of children a mother has, deserve further consideration in the pediatric day care surgery unit in terms of how they impact on maternal distress.

Another factor that has not received attention in the literature and which may also affect maternal anxiety in pediatric day care surgery is the presence of another adult (e.g., spouse, relative, or friend) who accompanies the mother to her child's day care surgery. Berenbaum and Hatcher (1992) and Perrin (1993) have suggested that the role of social support in maternal distress related to pediatric hospitalization should be examined. It is possible that a companion in the pediatric day care surgery setting reduces maternal distress by providing emotional and/or instrumental support. If the presence or absence of a support person is discovered to impact on maternal anxiety, it would be possible for nurses to make specific recommendations to mothers regarding whether or not they should bring a companion, thus reducing the anxiety generated by their children's surgery.

Child factors that may impact on maternal state anxiety. Currently, it is unclear whether children's age influences maternal anxiety and, if so, in what direction. A child's age may affect how anxiously mothers view day care surgery in that younger children may seem more vulnerable and less able to cope than older children. In a study examining maternal influences on children's fear and coping during a medical examination, however, children's age was not found to be significantly related to maternal state anxiety as measured by the State-Trait Anxiety Inventory (STAI - Spielberger, Gorsuch, & Lushene, 1970; Bush, Melamed, Sheras, & Greenbaum, 1986). Given that a revised version of the STAI was published in 1983, it is unclear whether these authors collected their data using an outdated version of the measure or prior to 1983. More importantly, this finding is questionable in

terms of how applicable it is to mothers of children undergoing surgery. Research has found that young children who have undergone surgery previously are themselves more likely to exhibit problematic behaviour prior to surgery than older children (Rutter, 1981; Vetter, 1993; Yap, 1988b). However, no research has addressed how parents respond to having younger versus older children in day care surgery. Thus, the impact of a child's age on maternal anxiety in pediatric day care surgery remains to be evaluated.

In line with Rutter (1981), Vetter (1993), and Yap's (1988b) findings, younger children were reportedly more distressed than older children during painful cancer treatment (Jay, Ozolins, Elliott, & Caldwell, 1983). However, children of all ages became less anxious with repeated cancer treatments. It appears that repeated exposure to pediatric hospitalization may habituate children to the stress accompanying certain medical treatments. It is reasonable to assume that this finding extends to the mothers of these children. Consistent with this assumption, in a study evaluating parent perceptions of a pediatric ambulatory surgery unit, stress correlated negatively with previous outpatient experience. That is, families whose child had previous hospitalization experience were also less anxious in the day care surgery unit (Voegel-Lewis, Andrea, & Magee, 1992). Additionally, an inverse relationship was found when examining the effects of previous hospitalizations of chronically ill children on maternal anxiety (Wells & Schwebel, 1987). These findings are in direct contrast with those of Berembaum and Hatcher (1992), who found that mothers whose children had been hospitalized more often were more anxious. With respect to children, Lumley, Melamed, and Abeles (1993) found that a history of prior surgery predicted presurgical anxiety for a group of 4 to 10-year-olds. Mothers have also been found to be

unaffected by the number of hospitalizations or treatments her child has experienced. For instance, in a study examining parental anxiety and parental contact with a clinic following their child's immunization, mothers who were anxious prior to the vaccine administration were more likely to contact the clinic regardless of any prior experience with immunization (Hatcher, Powers, & Richtsmeier, 1993). Thus, to date, the findings on the relationship between maternal anxiety and previous pediatric hospitalization or medical treatment are equivocal. That is, prior hospitalization or medical intervention has been documented to be positively, negatively, and unrelated to maternal distress. Further investigation into the importance of repeated hospitalization is therefore warranted (Perrin, 1993).

In terms of gender, researchers have found maternal distress to be greater for mothers of infant girls undergoing vaccination (Hatcher, Powers, & Richtsmeier, 1993). There do not appear to be any other reports of gender effects on maternal anxiety in medical settings in the literature. Studies that have focused on anxiety in hospitalized children themselves have found either no relationship between distress and gender (Sides, 1977; Vetter, 1993), higher distress in girls (Bradford & Spinks, 1992; Edwards, 1982: cited in Tiedeman & Clatworthy, 1990), or higher anxiety levels in boys (Tsigounis, 1978: cited in Tiedeman & Clatworthy, 1990). Given the inconsistent findings of the effects of child gender on maternal anxiety in medical settings and the absence of a theoretical rationale for why mothers would be differentially affected by their hospitalized child's gender, this variable was controlled for in the current study.

Previous research has not evaluated the impact of the type of pediatric day care surgery on maternal anxiety. Pediatric surgeries may vary in terms of their

perceived seriousness, the amount of pain or distress they cause, or in their potential for post-operative complications. As a result, they were controlled for in the current study.

Hypothesis of current study

The purpose of this study, therefore, was to examine the association between maternal state anxiety in day care surgery and six factors. The factors include four maternal variables, maternal trait anxiety, maternal age, the number of children the mother has, and the presence or absence of a support person for the mother; and two child variables, child's age and the number of previous hospitalizations the child has undergone. It is predicted that (1) maternal state anxiety will be positively related to maternal trait anxiety, and (2) maternal state anxiety will be negatively related to maternal age, the number of children in the family, the presence of a support person for the mother, the child's age, and the number of previous pediatric hospitalizations of the currently hospitalized child. There are no specific predictions about the relationships between maternal state anxiety and her child's gender and type of surgery as these are considered to be theoretically unimportant, however, they were controlled for in the data analysis.

Method

Participants

Cohen's (1992) power table (p. 158) was used to identify how many participants were necessary to test the hypotheses of this study using multiple regression. In order to test for moderate effect sizes with 8 variables and $p=.05$, at least 107 participants were required.

Participants were 150 mothers who brought their children to the Day Care

Surgery Unit in British Columbia's Children's Hospital (BCCH) between August and October, 1994. Of all the mothers who attended day care surgery during this time, those who were eligible to participate in this study were those whose child's physician had consented to the study and those who could communicate in English. Surgeons had been asked for their permission to invite their patient's mothers to participate in this study prior to data collection (see Appendix A). Those mothers whose children were undergoing dental surgery or who were participating in another study for the Anesthesiology Department were not invited to participate in the current study. Additionally, those mothers whose children suffered from serious mental or physical handicaps, or who were admitted as inpatients either before or after their day care surgery, were excluded.

The types of surgery included in this study were categorized as follows:

General surgery (e.g., abdominal surgery such as hernia repairs); Orthopedic surgery (e.g., fracture reductions, cast changes); Ear, Nose and Throat surgery (e.g., adenoidectomies, tonsillectomies); Plastic surgery (e.g., cleft lip and palate repair); Ophthalmologic surgery (e.g., correction of crossed eyes); and Genito-Urinary surgery (e.g., circumcisions).

A total of 227 mothers were invited to participate in the study. Seventy-seven mothers declined for various reasons yielding a response rate of 66.1%. Of those who declined to participate, 8 (10%) declined due to extreme anxiety, based on the observations of the researcher and nurses; 19 (25%) were not available (i.e., the researcher was actually unable to locate the mother after her child went into surgery and, as a result, she was not able to complete the questionnaires. This may have been due to the fact that the Unit nursing staff encouraged mothers to go to the cafeteria or

for a brief walk after their child had gone into the operating theatre); and the remaining 50 mothers (65%) declined for unknown reasons.

Of the 150 questionnaires that were completed, only 135 were included in the data analyses. Nine were not included because they were completed after the surgeon had spoken to the mother following the completion of her child's surgery. It was assumed that a mother's state anxiety would be reduced after having been informed by her child's surgeon that the operation was successful and that her child was recovering in the Post-Operative Care Unit. Alternatively, a mother's state anxiety may have been heightened if her child's surgeon told her that there were unforeseen complications during her child's surgery. In any event, only those questionnaires that were completed before the mother had any contact with her child's surgeon were included. An additional 4 questionnaires were dropped from the analyses because significant portions of them were not completed, despite attempts by the researcher to review each completed questionnaire for missing data. Finally, 2 additional questionnaires were eliminated due to the fact that they were completed by mothers whose children had multiple mental and physical handicaps (i.e., autism and a chromosomal disorder).

Demographic Information

The 135 participants were the mothers of 42 girls (M age = 5.27 years; SD = 4.18 years) and 92 boys (M age = 4.98 years; SD = 4.27 years). Children's ages ranged from 2.2 months to 16 years (M = 5.04 years; SD = 4.17 years).

Demographic information on participants is provided in Table 1. Mothers ranged in age from 20 to 50 years (M = 34.22 years; SD = 6.27 years) and were predominantly English-speaking, middle class individuals. Most of the participants lived with their partner or husband (n = 102; 75.6%) and had lived in Canada for an average of 29.81

Table 1

Demographic characteristics of the sample (N=135)

Variable	n	Mean (SD)
Maternal age	135	34.22 years (6.27 years)
Years in Canada	135	29.81 years (9.56 years)
Mother as primary caretaker	132	
Marital status	135	
married/common-law	113 (85.5%)	
separated/divorced	14 (10.4%)	
single	8 (5.9%)	
Mothers' level of schooling	134	
Grade 12 or less	64 (47.8%)	
College/Technical School	36 (26.9%)	
University/Graduate School	34 (25.4%)	
Mothers' first language	133	
English	113 (85.0%)	
French	3 (2.2%)	
Punjabe	1 (0.7%)	
Japanese	1 (0.7%)	
Other	15 (11.3%)	
Family SES	134	45.28 (14.64)

Table 1 (continued)

Demographic characteristics of the sample (N=135)

Variable	n	Mean (SD)
Other adults living in home	128	
partner	102 (75.6%)	
parents/in-laws	12 (8.9%)	
mothers' siblings	3 (2.2%)	
boarder	3 (2.2%)	
friend	2 (1.5%)	
other	6 (4.4%)	

Note. The discrepancy between the number of mothers who describe their marital status as "married" ($n = 113$) and the number of mothers who report living with their "partner" ($n = 102$) may be because some mothers reported their official marital status, despite being separated from their spouses. Alternatively, some mothers who indicated they were married may have thought it unnecessary to indicate on a subsequent question that they lived with their "partner."

years. Close to half of the participants had obtained grade 12 schooling or less, over one third had gone to college or technical school, and one fifth of the sample had attended university. Socioeconomic status (SES) was determined for both mothers and their partners using Blishen, Carroll, and Moore's (1987) socioeconomic index for Canada. The range of SES scores was from 21.00 (lowest possible rating) to 101.74 (highest possible rating). Family SES scores were obtained by calculating the mean SES scores of mothers and fathers. In the case of single parent families, mothers' SES scores were considered family SES scores. Only 3 mothers did not identify themselves as their child's primary caretaker (it should be noted, however, that even if mothers responded that they and the child's father should both be considered their child's primary caretakers, the mother was nevertheless scored as the primary caretaker).

Measures

Maternal state anxiety. In order to assess maternal state anxiety, mothers were administered the A-State Scale of the State-Trait Anxiety Inventory (STAI, Form Y-1; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). The STAI A-State Scale is a 20-item self-report questionnaire commonly used to study anxiety in adults by asking how people feel "right now" and to measure transitory anxiety that varies in intensity and changes over time. Sample items include "I feel upset" and "I am relaxed". The possible responses to these statements are "not at all", "somewhat", "moderately so", and "very much so". The range of scores on the A-State is 20 to 80 with 80 indicating highest anxiety.

The internal reliability of the A-State Scale ranges from .90 to .94 while test-retest correlations range from .36 to .62. These low test-retest correlations are to be

expected since the purpose of the A-State Scale is to measure transient mood states. Adequate validity of the A-State has been found in studies that demonstrate its ability to differentiate between normal and stressful conditions (see Spielberger et al., 1983).

Maternal trait anxiety. In order to assess maternal trait anxiety, mothers completed the Neuroticism subscale from the NEO Five Factor Inventory (Form S; Costa & McCrae, 1992; see Appendix B). This was used instead of the A-Trait Scale from the STAI due to concerns that participants would have difficulty differentiating the two scales in terms of how they felt "right now" versus how they feel "usually", given that questions from both scales appear similar and participants would complete one scale after the other. The Neuroticism subscale also measures a general tendency to experience negative feelings such as fear, sadness, embarrassment, anger, guilt, and disgust. It consists of 12 statements such as "I am not a worrier" and "I often feel tense and jittery". The range of responses are "strongly disagree", "disagree", "neutral", "agree", and "strongly agree". Scores range from 0 to 48, where 48 represents the highest level of trait anxiety.

Internal consistency for the Neuroticism subscale, calculated using coefficient alpha and data from a sample of 1,539 adults, was found to be .86. A measure of the scale's validity was assessed by correlating subscale scores with adjective self-reports, spouse ratings, and peer ratings. Neuroticism scores were correlated .62 ($p < .001$) with self-reported adjective factors, .52 ($p < .001$) with spouse ratings, and .36 ($p < .001$) with peer ratings, suggesting that both convergent and discriminant validity exist for this scale.

Maternal and child variables. Mothers were also administered the General Information about You and Your Child Questionnaire (see Appendix C). This

measure, developed by the author, asked a series of questions in three sections entitled "About You", "About Your Child", and "About Day Care Surgery." In the section entitled "About You", mothers were asked to provide the demographic information previously reported. Mothers also answered questions regarding the number of previous hospitalizations they had undergone up to and after the age of 18 years. This was done in order to facilitate mothers' memory of childhood hospitalization experiences. Participants were then asked to rate the overall severity of the reasons for those hospitalizations, their physical health afterwards, and their emotional response to having been in hospital. Finally, mothers rated their expectations of the effects of their child's surgery on themselves using a 5 point scale from "very positive" to "very negative" and indicated whether they had brought another adult with them to their child's day care surgery.

In the section entitled "About Your Child" mothers answered questions about their child's age, gender, and type of surgery. They also indicated the frequency of previous hospitalizations, and rated the severity of the reasons for those previous hospitalizations, the physical health their child experienced after being hospitalized, and their emotional response to being in hospital. Mothers indicated whether they wished they had received more information prior to their child's day care experience and identified who and what they used as resources in obtaining information about their child's impending surgery (e.g., surgeon, family doctor, nurse, library). Finally, mothers were asked to identify who their child's primary caretaker was and, on a 5-point scale of "very positive" to "very negative", what they predicted the effects of day care surgery would be on their child's emotional functioning.

In the section "About Day Care Surgery" mothers answered open-ended questions regarding what they liked and disliked about having their child in day care surgery and what may have made the experience easier for them. They were also invited to make any other comments about day care surgery and/or this study. Although this information was not analyzed quantitatively, it was used to gain insight as to what participants felt was the most positive and the most stressful component of pediatric day care surgery and what could make the experience less anxiety-provoking.

Procedure

Data collection occurred over 27 nonconsecutive days during August, September, and October of 1994. The first twenty questionnaires were considered to be a pilot study. These questionnaires were included in the analyses, however, because only minor revisions were made to the package. As the surgical unit was open Monday through Friday, data was collected more or less evenly on each weekday (e.g., 4 Mondays, 4 Tuesdays, 6 Wednesdays, 6 Thursdays, and 7 Fridays), predominantly in the morning. An average of 5.5 questionnaires were completed per day of data collection.

Mothers were informed about the possibility of participating in a research project when they first arrived at the Day Care Surgery Unit the day of their child's surgery. The admitting nurse distributed an information pamphlet (see Appendix D) for mothers to read before their child was taken to the operating theatre. After their children had been taken to the operating theatre, mothers were requested by the nurses to wait in the "parent-only" waiting area of the Day Care Surgery Unit. The experimenter approached mothers when they entered the designated waiting area and briefly explained the purpose of the investigation. Mothers were informed that the

study was designed to understand more about how parents felt in the pediatric Day Care Surgery Unit and that the questionnaires required approximately 10 to 15 minutes to complete. Mothers were encouraged to complete the questionnaires but were informed that nonparticipation would not affect their child's health care in any way. As well, mothers were told that their participation was confidential and anonymous and that the questionnaires would not be seen by anyone other than the researcher. Participants were assured that the questionnaires would be kept in a locked file to which only the experimenter had access. If the mother agreed to participate, she was provided with a package of questionnaires, consisting of a consent form (see Appendix E), an Information Sheet for Subjects (see Appendix F), a Subject Feedback Form (see Appendix G), the A-State scale of the State-Trait Anxiety Inventory (Form Y-1), the Neuroticism subscale of the NEO-FFI (Form S), and the General Information about You and Your Child Questionnaire. A copy of the consent form was printed on the reverse side of the Subject Feedback Form, which mothers kept. Mothers were instructed to read and complete the consent form first, the A-State Scale second, the Neuroticism scale third, and the General Information Questionnaire last. In addition, mothers were told not to write their names on any of the forms besides the consent form to maintain anonymity. The experimenter remained in or near the waiting area to answer any questions mothers had about the questionnaires and to observe whether the surgeon returned to discuss the surgery before they had finished answering all of the questions. The experimenter did not otherwise engage in any casual conversation with the participants or other individuals. When the forms were handed back to the researcher, they were quickly reviewed to ensure completeness. As much as possible, mothers were requested to complete unanswered items. Subsequently, consent forms

were filed separately from questionnaires to protect mothers' anonymity. Participants were encouraged to ask any questions they had about the questionnaire package or about the study. Finally, mothers were thanked for their participation.

Results

The means, ranges, and standard deviations for the variables used in hypothesis testing, with the exception of type of surgery and presence of a support person for the mother, are summarized in Table 2. Mothers reported a mean state anxiety score of 40.32 ($SD = 13.23$), where the range of possible scores was from 20 to 80, and a mean trait anxiety score of 17.67 ($SD = 7.50$), based on a range of possible scores from 12 to 60. Generally, mothers who took part in this study reported moderate levels of state anxiety and average levels of trait anxiety. Participants had an average of 2.19 children in their family ($SD = .97$) and their currently hospitalized child had undergone an average of 2.23 previous hospitalizations ($SD = 4.04$).

Table 3 shows the number of children undergoing various types of surgeries and the mean maternal state anxiety score for each category. As can be seen, the mean state anxiety scores appear to fall into two groups, one with relatively higher state anxiety scores clustered together, the other with lower anxiety scores clustered together. Thus, the seven categories of surgery were collapsed into two groups based on relatively higher versus lower maternal state anxiety scores to create a simplified surgery variable. The first group of surgical categories consisted of General surgery, Orthopedic surgery, Ophthalmologic surgery, and Genito-Urinary surgery ($n = 97$), while the second group of surgeries included Ear, Nose, and Throat surgery, Plastic surgery, and the Other category ($n = 38$). The mean maternal state anxiety score for the first group of surgery categories (relatively "higher" anxiety) was 41.92 ($SD =$

Table 2

Means, standard deviations, and ranges for maternal state anxiety scores, maternal neuroticism scores, maternal age, child's age, number of children in the family, and number of previous hospitalizations child has undergone (N = 135)

Variable	Mean (SD)	Range
Maternal A-State scores	40.32 (13.23)	20-76
Maternal NEO scores	17.67 (7.50)	3-43
Maternal age in years	34.22 (6.27)	21-51
Child's age in years	5.04 (4.17)	.2-16
Number of children in family	2.19 (.97)	1-6
Number of child's hospitalizations	2.23 (4.04)	0-30

Table 3

Type of day care surgery child experienced and mean maternal state anxiety score for each category (N = 135)

Type of surgery	n (%)	Mean state anxiety score (SD)
General	23 (17.0)	44.82 (14.55)
Orthopedic	6 (4.4)	42.50 (17.07)
Genito-urinary	32 (23.7)	41.16 (11.78)
Ophthalmologic	36 (27.7)	40.64 (14.76)
Plastic	4 (3.0)	36.50 (13.96)
Ear, nose, and throat	28 (20.7)	36.36 (9.63)
Other	6 (4.4)	34.67 (12.09)

13.81), whereas the mean maternal state anxiety score for the second group of surgical categories (relatively "lower" anxiety) was 36.11 ($SD = 10.18$). Levene's test for equality of variances showed that group 1 and group 2 had significantly different variances ($F = 6.47, p = .012$); a subsequent t-test for two groups with unequal variance was also significant ($t = -2.68, p = .009$). Thus, mothers whose children were undergoing General, Orthopedic, Ophthalmologic, or Genito-Urinary surgery expressed significantly higher state anxiety than mothers whose children were having Ear, Nose, and Throat, Plastic, or Other surgeries.

The number of mothers who were accompanied by another person to their child's day care surgery and the mother's relationship with that person is shown in Table 4. Husbands or partners accompanied participants in 68 of the 90 cases in which mothers came with another adult (75.6%), followed by parent(s) or parent(s)-in-law in 17 cases (18.9%). A friend or sibling each accompanied the mother in 4 cases (4.4% respectively).

Pearson product moment correlations, shown in Table 5, were used to analyze the zero-order relationships between the variables used in hypothesis-testing. As expected, there was a positive correlation between maternal state anxiety scores and neuroticism scores ($r = .21$). Maternal age and the number of children in the family were inversely correlated with maternal state anxiety ($r = -.15$ and $r = -.23$, respectively). Thus, older mothers and mothers with more children were less anxious. Not surprisingly, mothers and children's ages were positively correlated ($r = .52$), as were mothers' ages and the number of children they had ($r = .22$). Although maternal state anxiety was not related to the presence of a support person, both maternal age and the child's age were negatively correlated with the presence of a support person

Table 4

Adults who accompanied mothers to their child's day care surgery (N = 90)

Relationship to Mother	<u>n</u>	%
Husband/partner	68	75.6
Parent(s)/parent(s)-in-law	17	18.9
Sibling(s)/sibling(s)-in-law	4	4.4
Friend(s)	4	4.4
Babysitter(s)	0	0
Other	1	1.1

Table 5

Pearson product moment correlations for maternal state anxiety scores, maternal neuroticism scores, maternal age, number of children in the family, child age, child gender, type of surgery, child's previous hospitalizations, and presence of a maternal support person (N = 135)

	2.	3.	4.	5.	6.	7.	8.	9.
1. A-State scores	.21**	-.15*	-.23**	-.09	.04	.19*	-.14	.02
2. NEO scores		-.15*	-.01	.02	-.02	.02	.02	.02
3. Maternal age			.22**	.52**	-.05	-.10	-.02	-.18*
4. Number of children				.03	-.09	-.02	-.07	.02
5. Child age					-.03	-.17*	.06	-.27***
6. Child gender						-.10	-.09	-.07
7. Type of surgery							-.05	.10
8. Number of hospitalizations								.02
9. Maternal support								

Note. Child gender was coded with girl = 1 and boy = 2; presence of maternal a support person was coded with yes = 1 and no = 0. * $p \leq .05$; ** $p \leq .01$; *** $p = .001$.

for the mother ($r = -.18$ and $r = -.27$, respectively). That is, younger mothers and mothers of younger children in day care surgery were more likely to have brought a companion to their child's day care surgery. Lastly, neuroticism scores were negatively correlated with maternal age ($r = -.15$); that is, older mothers tended to have lower trait anxiety.

According to Cohen (1992), the conventional indices for small, medium, and large effect sizes for product moment correlations are .10, .30, and .50 respectively (p. 157). Given that effect sizes reflect the extent to which statistical findings differ from zero, or are visible to the "naked eye" (p.156), the correlations described above represent small to medium effect sizes that would be discernable to the careful observer.

Regression Analyses

The amount of unique variance in maternal state anxiety scores contributed by the 6 predictor variables was assessed using multiple regression, while controlling for the effects of type of surgery and child gender. That is, these two variables were entered into the regression equation first (Step 1) in order to assess the unique variance accounted for by the remaining variables (Step 2). The latter were not entered in any particular order, as there was no theoretical evidence to suggest there should be a differential impact between these variables on maternal state anxiety. The results are presented in Table 6 and show that only maternal trait anxiety and the number of children in the family predicted maternal state anxiety scores. That is, mothers with higher trait anxiety and fewer children were more anxious while their child was undergoing surgery. These results were observed regardless of whether multiple regressions were conducted using forward or backward elimination of

Table 6

Summary of hierarchical multiple regression analysis for variables predicting maternal state anxiety while controlling for the effects of child gender and type of surgery (N = 135)

Variable Block	<u>B</u>	<u>SE B</u>	<u>β</u>
Step 1			
Type of surgery	4.85	2.48	.17*
Child gender	1.00	2.38	.04
Step 2			
Number of children in family	-3.04	1.16	-.22**
Trait anxiety	.35	.15	.20*
Maternal age	-1.92	5.91	-.03
Maternal support	2.38	2.41	.09
Child's age	-1.47	8.73	-.02
Previous hospitalizations	-.48	.27	-.15

Note. $R^2 = .14$ for Step 1; $\Delta R^2 = .12$ for Step 2 (both $ps < .05$). * $p \leq .053$;

** $p \leq .010$.

variables, suggesting that the findings were robust.

The conventional values for small, medium, and large effect size indices using multiple regression analyses are .02, .15, and .35 respectively (Cohen, 1992). The effect size of the current regression analysis was calculated using the formula $f^2 = \frac{R^2}{(1 - R^2)}$, where R^2 , the variance accounted for by variables entered in Step 2 of the multiple regression analysis, was .12. This formula yielded a medium effect size of .14, suggesting that one could be expected to "see" the relationships between a mother's state anxiety and her trait anxiety, or between her state anxiety and the number of children she has, in the pediatric day care surgery setting. This value also provides support for having selected $N = 107$ as the minimum number of subjects required to test for a medium effect size using 8 variables in a multiple regression.

Exploratory Analyses

Previous hospitalization experience. Tables 7 and 8 summarize the frequency of both mothers' and children's previous hospitalizations and mothers' perceptions of their own and their children's previous hospital experiences. Mothers rated the severity of their own and their child's previous experiences with hospitalization on a 5-point scale, where 1 = "not serious"; 2 = "somewhat serious"; 3 = "serious"; 4 = "very serious"; and 5 = "life threatening." Physical and emotional health after discharge were also rated on 5-point scales where, for the former, 1 = "excellent"; 2 = "very good"; 3 = "good"; 4 = "fair"; and 5 = "poor", and, for the latter, 1 = "happy/pleased"; 2 = "good/calm"; 3 = "neutral"; 4 = "nervous/upset"; and 5 = "very upset/afraid/angry."

A total of 126 participants had been previously hospitalized. Mothers had an average of 1.19 hospitalization experiences prior to the age of 18 years ($SD = 1.66$)

Table 7

Mothers' previous hospitalization experiences (N = 126)

Variable	Mean (SD)	Range
Number of hospitalizations before age 18	1.19 (1.66)	0 - 10
Number of hospitalizations after 18	2.78 (4.07)	0 - 43
Severity of reason	1.76 (.99)	1 - 5
Physical health after discharge	2.08 (1.03)	1 - 5
Emotional health after discharge	2.68 (1.12)	1 - 5
Composite score for hospital experiences	2.17 (0.76)	1 - 4.7

Table 8

Children's previous hospitalization experience (N = 81)

Variable	Mean (SD)	Range
Number of previous hospitalizations	2.23 (4.04)	0 - 30
Severity of reason	1.97 (1.32)	1 - 5
Physical health after discharge	1.83 (1.07)	1 - 5
Emotional health after discharge	2.14 (1.29)	1 - 5
Composite score for hospital experiences	2.00 (1.07)	1 - 5

and a mean of 2.78 hospitalizations after age 18 ($SD = 4.07$). Neither of these frequencies was significantly related to maternal state anxiety. The mean for the overall severity of the reasons for their previous hospitalizations was 1.76 ($SD = .99$), which approached "somewhat serious." On average, mothers described their physical health following previous surgeries as "very good" ($M = 2.08$; $SD = 1.03$) and their emotional health as "neutral" ($M = 2.68$; $SD = 1.12$). Mothers' overall perceptions of their own and their child's previous hospitalizations were calculated using the mean score for the severity rating of the reason for prior hospitalizations and the physical and emotional outcome ratings. The composite score for mothers' hospital experiences was 2.17 ($SD = 0.76$), which can be interpreted to be a generally positive overall rating.

Children were reported to have an average of 2.23 previous hospitalizations ($SD = 4.04$) with a mean severity of reason rating of "somewhat serious" ($M = 1.97$; $SD = 1.32$). The average score for physical health after discharge approached "very good" ($M = 1.83$; $SD = 1.07$) and the average score for emotional health after discharge was reported to be "good/calm" ($M = 2.14$; $SD = 1.29$). The composite score for children's previous hospitalization experience was 2.00 ($SD = 1.07$), suggesting that, overall, mothers' viewed their children's prior experiences as favourable.

Pearson product moment correlations showed that mothers' and children's composite scores were not significantly related to maternal state anxiety. However, maternal hospitalization experiences were more strongly related to maternal state anxiety in pediatric day care surgery than were mothers' perceptions of their child's previous experience ($r = .15$, $p = .080$, and $r = .00$, $p = .997$, respectively). Also,

maternal and child composite scores of previous hospitalization experience were positively correlated ($r = .28$, $p = .001$). That is, mothers who described their own previous hospitalization experiences as either positive or negative tended to evaluate their child's previous experiences in a similar way.

Maternal expectancies. Mothers were asked to rate how they thought their child's surgical day care experience would affect them on a 5-point scale (1 = "very positive"; 2 = "somewhat positive"; 3 = "neutral"; 4 = "somewhat negative"; 5 = "very negative"). The mean expectancy rating was 2.30 ($SD = 1.00$), indicating that, on the whole, mothers expected their children's day care surgery to have a mildly positive effect on them. Mothers also rated on an identical scale how they thought their child's day care surgery experience would affect their child; the mean expectancy score obtained was 2.57 ($SD = 1.12$), suggesting that mothers generally expected that their child's surgery would have a more or less equally positive and negative effect on their children, or, alternately, that they expected their child to be indifferent to the experience. No relationship was found between mothers' expectations for herself or for her child and maternal state anxiety.

Sources of information. Table 9 summarizes the sources of information used by participants to obtain information about their child's surgery. Mothers indicated all the sources of information that were applicable to them: Not surprisingly, the majority of mothers received information from their child's surgeon ($N = 112$; 83.0%); less than half of the participants obtained information from their regular doctor ($N = 61$; 45.2%); and approximately one-third of mothers were provided with information by the day care nurses ($N = 49$; 36.3%).

Table 9

Mothers' sources of information regarding their child's surgery (N = 135)

Variable	Frequency (%)
Surgeon	112 (83.0)
Doctor	61 (45.2)
Nurse	49 (36.3)
Anesthetist	39 (28.9)
Friend	10 (7.4)
Relative	9 (6.7)
Library, videos	9 (6.7)
Other	10 (7.4)

Note. Total number of sources is not equal to the number of respondents as some participants endorsed multiple sources of information.

Desire for more information. Mothers were asked whether they would have liked even more information about their child's surgery. While only 17 participants (11.3%) answered "yes" to this question, these mothers experienced significantly higher state and trait anxiety than mothers who responded "no" ($r = .21, p = .014$ and $r = .15, p = .044$, respectively). When this variable was entered into the regression equation with the 6 predictor variables, controlling for type of surgery and child gender, it did not account for a significant amount of variance of maternal state anxiety scores. In this analysis, both trait anxiety and the number of children in the family remained the only significant predictors of maternal state anxiety, which further supports the robust nature of these results.

Comments by mothers. Mothers were asked to identify what, if anything, they liked about having their child in day care surgery. A total of 111 mothers responded to this question with one or more comments which were subsequently analyzed for recurring themes. Table 10 displays the content themes of positive comments made by mothers and their frequency and shows that mothers were especially pleased about the competence and professionalism of day care surgery staff ($n = 57; 51.4\%$). One mother wrote, "The nurses, doctors, and volunteers were very caring, considerate, friendly, and helpful to both parents and child" (Participant 69). Mothers were also glad that they were able to take their child home the same day ($n = 51; 45.9\%$). As one participant described, "I liked that he didn't have to be put through the traumatic experience of spending the night away from home in an unfamiliar environment" (Participant 146).

Table 11 summarizes comments participants reported when asked to identify what they disliked about having their child in day care surgery. It should be noted

Table 10

Content themes for comments mothers made regarding what they liked about pediatric day care surgery and their frequency (N = 111)

Comment Theme	Frequency (%)
Staff competence	57 (51.4)
No overnight stay	51 (45.9)
Pleasant atmosphere	26 (23.4)
Organized/efficient procedure	12 (10.8)
Proximity to child	9 (8.1)
Positive outcome	4 (3.6)
DCS is cost-effective	3 (2.7)
Other	2 (1.8)

Note. Total number of comments is not equal to the number of respondents as some participants made multiple statements.

Table 11

Content themes for comments mothers made regarding what they disliked about pediatric day care surgery and their frequency (N = 53)

Comment Theme	Frequency (%)
Delays in surgery time	22 (41.5)
Parent worrying/child distress	13 (24.5)
Procedural problems	10 (18.9)
Not being with child in O.R. and/or Post-op	8 (15.1)
Short notice of surgery time	6 (11.3)
Other	3 (5.6)

Note. Total number of comments is not equal to the number of respondents as some participants made multiple statements.

that, compared to 111 respondents for the previous question, only 53 participants answered this question, suggesting that most mothers were pleased with their experiences in day care surgery. Of those who were displeased, most expressed concern over delays in surgery time ($n = 22$; 41.5%). One mother wrote, "we had too long a wait which made the experience much more negative as he became tired, and much too hungry and thirsty. His earlier happy mood turned to very unhappy" (Participant 140). A less frequently voiced concern was the worry and distress mothers experienced having their child undergo surgery ($n = 13$; 24.5%). One woman poignantly described "the fear that something might go wrong with the operation and anaesthetic, and that my child might die or be brain-damaged" (Participant 42).

Mothers were asked to indicate what, if anything, would have made their experience in pediatric day care surgery easier. Table 12 summarizes the types of suggestions mothers provided and their frequency. The most popular suggestion for improvement was that mothers would have preferred to accompany their child into the operating room and/or the post-operative care unit ($n = 12$; 28.6 %). One mother stated, "As in other hospitals, it would be a more positive experience if parents could be there with their child during the anesthetic induction and when they wake up" (Participant 40).

Finally, mothers were invited to make any other comments about day care surgery or the current study; Table 13 reviews the types of comments mothers made and their frequency ($n = 47$). Generally, mothers took this opportunity to praise British Columbia's Children's Hospital and the day care surgery staff. One mother declared, "If I have to trust my child to someone else, the staff at B.C. Children's are who I would choose. They care!" (Participant 68). Other comments were directed to

Table 12

Content themes for comments mothers made regarding what would have made pediatric day care surgery better for them and their frequency (N = 42)

Comment Theme	Frequency (%)
Remain with child during/after operation	12 (28.6)
More information/explanation about surgery	7 (16.7)
More advance notice for surgery time	5 (11.9)
Earlier surgery time	3 (7.1)
Shorter pre-op wait	3 (7.1)
Other	10 (23.8)

Note. Total number of comments is not equal to the number of respondents as some participants made multiple statements.

Table 13

Content themes for general comments mothers made regarding the current study and/or pediatric day care surgery and their frequency (N = 47)

Comment Theme	Frequency (%)
Confidence in Hospital/Compliments for staff	26 (55.3)
Comments/Questions regarding study	12 (25.5)
DCS as a repeat experience	4 (8.5)
Complaints	4 (8.5)
No overnight stay	3 (6.4)
Other	3 (6.4)

Note. Total number of comments is not equal to the number of respondents as some participants made multiple statements.

the current study ($n = 12$; 25.5%). One person stated that she was "pleased to see someone interested in the role of the family in a child's experience with surgery" (Participant 8). Four mothers (8.5%) reflected on their previous experiences in day care surgery. One mother mused, "I'm sure parents that are experiencing surgery for their child for the first time may respond differently to this study. This is our third experience and it is not so stressful as the first...I admit I still feel a little concern" (Participant 116). This statement may help explain why the number of children in the family was a more successful predictor of maternal state anxiety than number of previous hospitalizations of the currently hospitalized child. Presumably, as the number of children in the family increases, the more likely the parents will have had one or more of their children in hospital and/or surgery. Thus, it may be that parental experience with other children in the family generalized to the currently hospitalized child.

Discussion

The purpose of this study was to evaluate the extent to which four maternal variables, maternal trait anxiety, maternal age, the number of children the mother has, and presence of a support person for the mother, and two child variables, child's age and the number of previous hospitalizations the child has undergone, predicted maternal state anxiety in a pediatric day care surgery unit. Of these six variables, only maternal trait anxiety and the number of children in the family were found to be predictive of maternal distress, after controlling for type of surgery and child gender. As hypothesized, mothers who were more trait anxious and who had fewer children were significantly more concerned.

With respect to trait anxiety, it is not surprising that mothers who are more

"neurotic" or trait anxious are also more likely to view their child's day care surgery as stressful. These mothers may be more inclined to focus on the negative or worrisome aspects of their child's surgery, such as the risk of anesthesia or post-operative pain, and may also anticipate difficulties in the caretaking of their recuperating child.

In contrast to these findings, a recent study that considered trait anxiety as a predictor of maternal state anxiety in pediatric surgery found that mothers experienced heightened state anxiety as a result of their child's surgery irrespective of their own trait-anxiety levels (Clewes & Endler, 1994). This discrepancy in findings may be due, at least in part, to differences in methodology. This study employed the Endler Multidimensional Anxiety Scales (EMAS), as opposed to the A-State scale of the STAI and the Neuroticism subscale of the NEO-FFI (used in the current study). Clewes and Endler argue that the STAI is a less sophisticated measure of anxiety because it assumes that state and trait anxiety are unidimensional constructs that do not change across different types of situations. Furthermore, according to these authors, the STAI fails to consider the role of perception of ostensibly stressful events. The interactional model of anxiety originally put forth by Endler examines the relationship between a person's perception of events and underlying dispositional factors (traits). That is, the model considers state anxiety as an interaction between an individual's view of a situation and his or her tendency to respond with anxiety to perceived stress. The EMAS, a measure based on this model, consists of both a state anxiety measure (A-State) and a trait anxiety scale (A-Trait). The former measures two components, cognitive-worry and autonomic-emotional, while the latter differentiates between the four situational categories in which trait anxiety is believed to occur: social evaluation, physical danger, ambiguous, and daily routines.

Ironically, in Clewes and Endler's study, mothers' trait anxiety in each of these categories was not predictive of either of their state anxiety scores, despite the fact that pediatric surgery could be argued to be a social evaluation situation for the mother, inasmuch as she and her child are being observed and evaluated in a stressful situation by medical staff. Pediatric surgery could also be considered a physically dangerous and ambiguous situation, given that surgery is potentially harmful, and that most parents are generally unsure of their role and responsibilities vis-à-vis their child in medical settings. The authors suggested that mothers' perception of and reaction to their child's surgery was one situation that could not be explained within the interactional model of anxiety, which implies that perhaps the model is not as comprehensive as one might hope. It is appealing to consider state and trait anxiety as related multidimensional constructs. However, given that the findings reported by Clewes and Endler suggest that state and trait anxiety were unrelated, and that their results could not be explained by their interactional model of anxiety, it is difficult to compare their findings to those of the current study.

With respect to the observation that the more children a mother had, the less anxious she reported feeling, one interpretation is that mothers with more children have additional parenting experience. These mothers may have had more opportunities to learn how to cope with stressful child-rearing situations and may have used some of these previously developed strategies to better deal with their child's surgery. More specifically, mothers who had several children are more likely to have pediatric hospitalization/surgery/medical intervention experience than mothers with fewer children. Mothers of several children may have developed successful coping strategies in their previous encounters with stressful pediatric medical interventions, or perhaps

they simply learned that these experiences had generally favourable outcomes. This interpretation may also explain why the number of previous hospitalizations of the child undergoing day care surgery failed to predict maternal anxiety. While previous experience with pediatric medical intervention may serve to reduce psychological upset in parents, few mothers are likely to have experienced repeated pediatric hospitalization with the same child. Rather, mothers with more children are more likely to have encountered stressful health-related concerns with several of their children. To evaluate this interpretation, future research on the prediction of parental anxiety in pediatric surgery settings could include the number of previous hospitalizations of all children in the family to see if this is more strongly related to parental anxiety than the number of children in the family.

In a study investigating mothers' preferences for control over their hospitalized child, Schepp (1992) found that mothers with fewer children preferred to have more control over their children's care. Consistent with the foregoing explanation, Schepp speculated that mothers with fewer children have fewer parenting experiences in addition to fewer experiences with pediatric hospitalization. Furthermore, Schepp posited that mothers with fewer children also have less experience altering their role as a parent. That is, mothers with fewer children may have felt less at ease relinquishing their caregiving responsibilities to medical staff and, as a result, may have preferred to maintain control over their hospitalized child. This explanation for why mothers of fewer children wanted more control over their hospitalized child may be applicable to the current study. That is, mothers who had fewer children may have experienced greater anxiety due to a threatened or altered parenting role when in day care surgery with their youngster. This interpretation could be investigated in future research by

comparing the number of children in the family, mothers' perceptions of their role as parents in the surgical unit, and maternal anxiety.

Another possible, although less compelling interpretation for the finding that the number of children was inversely related to maternal state anxiety in the pediatric day care setting is that mothers of several children may experience less anxiety when one of their children is undergoing surgery because of concomitant concerns for other children. Certainly, those mothers who brought their other children with them to the day care surgery unit had added caretaking responsibilities. These may have undermined mothers' ability to focus solely on the child undergoing surgery and made them less concerned as a result. Mothers of fewer children, in contrast, are less distracted by responsibility to other dependents and can focus all of their energy and concern on their one or two children. As anecdotal support for this explanation, consider the following observation: one mother in the day care surgery unit appeared duly concerned for her young son who had undergone a tonsillectomy, however, she was also very much aware that the delay in his surgery time and the rush hour traffic would make it difficult for her to pick up her daughter from school on time. As a result, she regularly asked her son's nurse if he was well enough to leave the unit and explained that she was in a hurry to tend to her other children. Thus, it appeared that her anxiety about her son was tempered by concern for her other children, to whom she felt equally responsible. The flaw in this interpretation, however, is that it assumes that mothers have a finite amount of psychic energy to devote to feeling anxious about one or more of their children! Most parents would probably argue that their concern for one child is not directly related to the anxiety experienced with other offspring in such a linear manner.

It is important to remember when trying to interpret these findings that, although trait anxiety and number of children are correlated with mothers' state anxiety when their children are undergoing surgery, they are not necessarily causative factors. The correlational analyses used in this study do not permit making causal inferences about the relationship found between variables. This is true even if the reverse relationship between these variables cannot be posited (e.g., higher maternal state anxiety causes higher trait anxiety and fewer children in the family). In order to understand the potential for these factors to be causally related to maternal distress, an experimental research design would be needed. However, given that maternal trait anxiety and the number of children in the family are not conditions that can be systematically assigned to mothers, these variables can only be considered in quasi-experimental designs. For example, mothers in pediatric day care surgery settings can be grouped according to whether they are high or low in trait anxiety, or whether they have one child or more than one child, and then compared in terms of how they respond to anxiety-reducing interventions. Another point that should be considered when interpreting these findings is the possibility that a third unknown variable is responsible for the relationship between state anxiety and both trait anxiety and the number of children in the family.

Correlational analyses indicated that maternal age was positively related to the number of children a mother had and to the currently hospitalized child's age. That is, older mothers had more offspring and brought relatively older offspring to day care surgery. However, regression analyses demonstrated that neither maternal age nor child age significantly contributed to maternal state anxiety, whereas number of children in the family did. This suggests that increased maternal and child age are

neither necessary nor sufficient for mothers to have relatively more children, and thus, to experience anxiety while their children are undergoing surgery. In other words, although older mothers are more likely to have more children (and older children), this does not preclude young mothers from also having several offspring, and thus, feeling less anxious during their child's day care surgery.

Finally, the presence of a support person for the mother was not found to be predictive of maternal state anxiety, although it was negatively related to both maternal and child age. That is, younger mothers and mothers who had younger children in day care surgery were more likely to have brought someone with them to hospital. However, contrary to expectations, mothers who brought a companion to stay with them while they waited for their child were not less anxious than mothers who waited alone. This may be due, in part, to the fact that there was often a volunteer working in the parent-only waiting area. This person was responsible for recording parents' whereabouts in the hospital in the event of an emergency and for providing emotional support. With respect to the latter, volunteers were observed to console distraught mothers, particularly when they were waiting alone. In effect, it may be that mothers who were unaccompanied were ultimately provided with companionship and empathic attention from the volunteer. Indeed, it may be that in some instances experienced volunteers were more effective in allaying maternal anxiety than inexperienced and highly anxious spouses or friends, who may inadvertently increase mothers' distress. Another possibility is that mothers who waited alone were more likely to have had experience with pediatric surgery. However, correlations between the presence of a support person with either the frequency of previous hospitalizations of the currently hospitalized child or the number

of children in the family were nonsignificant.

Mothers' overall evaluation of both their own and their children's previous hospitalization experiences were neutral to mildly positive. Neither of these two variables predicted maternal distress in the pediatric day care unit. This may be due to the way in which mothers were asked to rate their own or their child's previous experiences. Several mothers commented that it was difficult to describe on a 5-point scale their own or their child's physical and emotional well-being following previous medical interventions, particularly when they had had several hospital experiences with varying degrees of seriousness and physical and emotional outcome. Thus, it may be that these questions were too nonspecific to be effective in examining the relationship between previous hospitalizations and maternal distress. It may have been helpful to ask mothers to respond to the questions by focussing on the previous hospital experience that had the most impact on them.

In terms of other exploratory analyses, mothers' ratings on how they expected their child's day care surgery would affect them and their child were not related to maternal anxiety. That is, mothers generally expected their child's surgery to have a moderately positive effect on them and a neutral effect on their children, but neither of these ratings significantly predicted their distress. When asked if they would have liked more information about their child's surgery, only a small number of participants said yes. These mothers were significantly more distressed and reported higher trait anxiety than mothers who felt they had received enough information. The desire for more information, however, did not predict maternal state anxiety after maternal trait anxiety and the number of children in the family. This may be the result of shared variance with trait anxiety, such that mothers who have a general tendency to be

nervous or concerned in the face of stressors would also be more likely to feel that they were not adequately prepared for their child's experiences in hospital. As a result, trait anxious mothers might feel that they were not given as much information as they would have liked.

The desire for more information is also likely to be related to coping style and/or a dispositional need for control or predictability. The mothers who wanted more information about their child's day care surgery may be considered to be high monitors (sensitizers, vigilants), as conceptualized by Miller (e.g., 1988). That is, these mothers may have been information-seekers, the type who prefer to know "everything" about a stressful situation and who tend to scan for threat-relevant information. Alternately, blunterns/repressors/avoiders prefer to avoid control and avoid, deny, or repress threat-relevant information. Although a review of the relevant literature is beyond the scope of this discussion, the finding that blunterns are usually less aroused with low amounts of information and monitors are less aroused with high quantities of information may be related to the results of the current study (e.g., Miller & Mangan, 1983). That is, mothers who would have liked more information may have been less anxious had they been provided with an in-depth account of their children's impending surgery and postoperative care. By this logic, some of the mothers who did not want more information about their child's day care surgery may have been of the blunting variety, or, alternately, some may have been monitors who took it upon themselves to be thoroughly informed about every aspect of their child's surgery prior to participating in this research. Subsequent research could address the role of information-seeking, coping, and distress in parents of children undergoing day care surgery by using self-report measures like the Miller Behavioral Style Scale

(Miller, 1980) and/or the Repression-Sensitization Scale (Byrne, 1961). It may be useful to identify what and whom parents use as sources of information with respect to their information-seeking style in order to better prepare both types of copers for their child's surgery.

Limitations to the current study

There are a number of methodological limitations inherent in this study. First, the data were obtained solely through self-report measures which may be subject to participant biases and which may lack validity concerning the characteristic of interest, in this case, anxiety (Kazdin, 1992). For example, with respect to the former, mothers may have been tempted to endorse their distress more strongly in order to appear genuinely concerned as a result of a social desirability bias. Alternately, they may have been unwilling to admit to how anxious they truly felt if they thought it would reflect personal weakness. However, given that the distribution of both state and trait anxiety scores were not skewed, it is unlikely that participants answered in a uniformly positive or negative manner. These normal distributions further suggest that there was no participant self-selection bias whereby only non-anxious mothers would agree to complete the questionnaires. With respect to the issue of content validity, both anxiety scales employed in the current study demonstrated adequate content validity coefficients.

Generally speaking, multimodal measures of multifaceted psychological constructs are more reliable (Kazdin, 1992). Thus, future studies that consider maternal state anxiety in the pediatric surgical setting might include analyses of observable behaviours in addition to self-report questionnaires in order to measure psychological distress. In the case of anxiety, it may be particularly important to

sample from a variety of measurement techniques as a way of cross-validating or differentiating various indices of anxiety measures typically used in research. For example, Bush, Melamed, Sheras, and Greenbaum (1986) reported that in their study of maternal influences on children's fear and coping during a medical examination, self-reported maternal anxiety was unrelated to how mothers behaved in the examining rooms with their children. As a result, these authors conclude that it is more important to look at behaviour in the medical setting, rather than assuming post hoc that parent behaviour was consistent with questionnaire self-report. This is particularly important when trying to assess how parents' emotional experiences impact on their hospitalized children. However, it is extremely difficult to ascertain which behaviours to consider representative of distress, given the wide variety of behavioural coping techniques people use when in stressful situations. It is for this very reason that self-report measures of psychological states are so often the measure of choice.

Second, there were several potentially confounding variables that were introduced into this study by virtue of the applied setting. For example, a small percentage of children were sedated pre-operatively due to unmanageable behaviour and/or extreme anxiety. It is unclear what impact this may have had on the parents, who may have been alternately relieved to have a sleepy and calmed child prior to surgery, or embarrassed due to the fact that their child was obviously inconsolable and required unusual measures to be managed. Another potential confound of this study may be the effects of hospital staff. The day care unit nurses, surgeons, anesthesiologists, and volunteers may have impacted differently on mothers whereby some may have attempted to alleviate anxiety more than others. Some of the parents may have participated in a tour of the day care surgery unit, available on request, prior

to bringing their children for their operation, which could have had an effect on their anxiety. It is unknown how many participants in the current study attended a hospital tour before attending day care surgery.

Confounds may also have been introduced as a result of some parents leaving the day care surgery unit while their child underwent surgery while others remained in or around the parent-only waiting area. As previously stated, parents were often encouraged by the nursing staff to briefly leave the day care surgery unit immediately after their child had been taken into the operating room in order to get something to eat. As a result, some parents only participated in this study after having returned from a short walk or the cafeteria, whereas other parents chose to remain in the parent-only waiting area for the entire time their child was in surgery and in post-operative care. These parents generally completed the questionnaire immediately after they arrived in the parent-only waiting area. It is unclear what the influence of briefly leaving the unit may have had on mothers who completed the questionnaires upon their return. It is plausible that these mothers were less anxious after having something to eat or drink. However, as previously noted, the distribution of state anxiety scores was relatively normal, suggesting that there were no systematic biases in mothers' responses.

Third, in terms of external validity, because this study only includes English speaking middle class mothers, results can only be generalized to members of the population with similar cultural, socioeconomic, and geographical backgrounds. This is somewhat limiting, given the wide variety of backgrounds that exist in the population from which the sample was drawn. Further research might investigate whether there are cultural differences in parental anxiety in pediatric day care surgery.

Finally, a limitation that extends beyond this study to the research area in general is the apparent absence of a theoretical model of family coping with pediatric hospitalization. This model could guide research questions and integrate existing and future findings into some kind of conceptual framework. It might consider the impact of demographic variables, cultural variables, parent personality variables (e.g., trait anxiety, temperament, parenting style, coping style), child personality and family variables (e.g., number of children in the family, birth order of the child, child temperament and coping) and situational variables (e.g., type of medical intervention, length of intervention, pain during and after intervention) on parents' responses before, during, and following their child's day care surgery. These variables could then be assessed with respect to how they impact on children's responses to the stresses prior to, during, and after hospitalization in terms of their emotional and physical health. Thus, a better understanding of the link between parents' adaptation to their child's experience in hospital and their child's ability to master the situation can be achieved.

It is important to point out that the aim of understanding what impacts on anxiety in both parents and children in pediatric surgery, and how anxiety affects children's response to surgery, is not to ultimately identify a means to eradicate distress in both parties entirely. In fact, a number of individuals have expressed concern over this very goal, arguing that there must be a distinction between negative affect or stress and adaptive coping strategies (Burstein & Meichenbaum, 1979; Ray & Fitzgibbon, 1981; Salmon, 1993). The literature on prepatory worry generally cites Janis' 1958 model of coping with psychological stress in which a moderate level of anxiety prior to surgery is believed to be predictive of satisfactory post-surgical adjustment. Consistent with this model, Wells and Schwebel (1987) found that

moderately stressed mothers were more cooperative and had children who recovered more quickly than high or low stress mothers. The explanation for this finding is that patients and their families who are mildly anxious learn to anticipate accurately for their surgery and can thus prepare effectively for it.

Clinical Implications

Theoretical considerations aside, the findings of the current study have clinical implications in terms of helping day care surgery staff to identify particularly anxious mothers. Nurses could easily screen for these mothers by having them indicate how many children they have and asking them to complete the twelve items from the Neuroticism subscale of the NEO-FFI when they first arrive at the Day Care Surgery Unit. Those mothers who are then identified as being "at-risk" for heightened state anxiety while their child undergoes surgery (i.e., those with fewer children and higher trait anxiety scores) could then be provided with some kind of intervention, such as added information about their child's surgery in the form of an educational video presentation, and more emotional support. Another possibility is that these measures could be administered by the surgeon or general practitioner when the mother brings her child to be evaluated prior to being admitted into the day care unit. Then, if she is found to be at risk for heightened anxiety during her child's surgery, the surgeon can recommend that she attend the day care surgery unit tour which is available on request. This, in addition to increased information and social support, may also alleviate some of mothers' concern about their child's surgery. Again, the aim is not to entirely remove parents' elevated anxiety in response to pediatric surgery, but rather to help maintain it at an optimal level. Considering that mothers in this study were generally quite pleased with their child's day care surgery, this should not be a

difficult task.

The importance of studying parental and child anxiety, coping, and psychological and physical outcome in pediatric day care surgery is that it can help health care professionals teach parents and children effective ways of dealing with medical and other life stressors. Indeed, a quarter of the children who undergo hospitalization subsequently demonstrate positive coping behaviours, demonstrating that medical stressors can be positive opportunities for their emotional development (Sipowicz & Vernon, 1965). As previously noted, the difficulty for nursing staff in preparing families for pediatric day care surgery is the time constraint. Pre-admission programs may be helpful in terms of giving hospital staff more opportunities to prepare families for day care surgery (Ellerton & Merriam, 1994), however, these are generally expensive and likely to be among the first programs to be eradicated as a result of budget cuts. Another problem with pre-admission programs is that they are inconvenient for those families who must travel from afar to attend day care surgery. As a result, it becomes particularly important that parents are able to psychologically prepare their child for surgery. This, however, requires that parents themselves are psychologically prepared. Future research, taking the findings and limitations of the current study into account, can assist in identifying parents who may be unable to help themselves or their children in mastering the stresses caused by pediatric surgery.

In conclusion, while this study has some inherent limitations, it was successful in elucidating some of the factors that contribute to mothers' state anxiety in the pediatric day care surgery setting. Considering that about 50% of all pediatric surgical procedures are currently being performed on an outpatient basis (Bogetz, 1989), and that 45% of children are predicted to require hospitalization before the age of 7 years

(Bradford & Spinks, 1992), research examining this particular stressor can be valuable in terms of using pediatric day care surgery to promote psychological growth in families.

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Appendix A

Letter to Surgeons

June 9th, 1994

Dear Dr. _____,

My name is Natalie Franz and I am a student in the Master's Program in Clinical Psychology at Simon Fraser University under the supervision of Dr. David Cox. Having received ethical approval from both my university and the In-Hospital Research Review Committee at British Columbia's Children's Hospital for Research with Human Subjects, I am hoping to obtain permission from you to invite your patients' mothers in a research project in the Day Care Surgery Unit the day of their child's surgery.

In the summer of 1993 I was a practicum student in the Department of Psychology at B.C. Children's Hospital under the supervision of Dr. Joyce Ternes and had the opportunity to follow several children and their mothers through their day care surgery experience. I became interested in the process and subsequently wrote a literature review on parental acceptance of pediatric day care surgery which I presented to the Psychology Department members at the end of the practicum.

Currently, for the purpose of my Master's Thesis, I am proposing to examine a number of factors that may impact on maternal anxiety in the Day Care Surgery Unit. These factors include the child's age, the child's gender, the number of previous hospitalizations the child has undergone, the type of surgery the child is currently undergoing, maternal trait anxiety, maternal age, the number of children the mother has, and the presence or absence of a support person for the mother.

I plan to inform mothers about the possibility of participating in this research as soon as they arrive at the Day Care Surgery Unit the morning of their child's surgery via a flyer given out by the admitting nurse. Mothers will have the opportunity to indicate on this flyer whether or not they are interested in participating in this research project. Only those mothers who agree to be approached by the researcher in the parent-only waiting area of the Day Care Surgery Unit will be invited to participate in this project, which requires them to sign a consent form and complete two brief questionnaires, the State-Trait Anxiety Inventory (Form Y) (Spielberger et al, 1983) and a general information questionnaire. This should take no longer than 15 minutes and mothers will be assured that their participation is completely voluntary and that refusing to participate will in no way affect the quality of health care their child receives. Mothers who agree to participate will be guaranteed confidentiality and anonymity. They will be able to request research findings once the project is completed directly from me.

Under the supervision of Dr. Joyce Ternes and Donna Gerelle (Nurse Manager of the Day Care Surgery Unit), I will be collecting data during the months of July and August this year on a near-daily basis. I will telephone you shortly to see whether you give permission for me to invite your patients' mothers to participate in this research. If you would like a copy of my research proposal or any other documents pertaining to this study for your records I would be pleased to supply them. Similarly, if you have any suggestions, questions, comments, or concerns, I would be more than happy to discuss them with you at your convenience.

Sincerely,

Natalie S. Franz
Department of Psychology at SFU (tel. 291-3354)

cc. Dr. Joyce Ternes
cc. Donna Gerelle

Appendix B

Permission Letter to use the Neuroticism Subscale

PAR Psychological Assessment Resources, Inc.

Mailing Address: P.O. Box 998/Odessa, Florida 33556
 Street Address: 16204 N. Florida Ave./Lutz, Florida 33549

Telephone (813) 968-3003
 Telefax (813) 968-2598

CHECK # 124
 P.O. # _____
 DUE DATE _____
 AMOUNT 9.10
 DATE PAID 8/16/94
 INITIALS _____

August 8, 1994

Natalie S. Franz
 Department of Psychology
 Simon Fraser University
 Burnaby B.C.
 V5A 1S6 CANADA

Dear Ms. Franz:

In response to your recent request, permission is hereby granted to you to reproduce 12 items from the Neuroticism Scale of the NEO-FFI and reproduce up to 130 copies for use in your study of the role of maternal anxiety in pediatric day care surgery.

This Agreement is subject to the following restrictions:

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Appendix C

General Information About You and Your Child Questionnaire

GENERAL INFORMATION ABOUT YOU AND YOUR CHILD

The information you provide in this questionnaire will help us to understand more about how parents and their children feel about Day Care Surgery.

Please answer all of the following questions carefully. All information you provide will be kept confidential and anonymous. You do not need to identify yourself. You may discontinue *at any time* without affecting the health care your child receives.

If you have any questions, please ask Natalie, the researcher who gave you this questionnaire, for help.

About You:

1. What is your marital status? Please check one:

- Single
- Married
- Common law
- Separated
- Divorced
- Widowed
- Other: _____

2. What is your usual occupation?

- Homemaker
- Other: _____

3. If you have a partner, what is his or her occupation?

4. What other adults currently are living in your home? Please check all that apply:

- No-one, just me
- Your partner
- Your parent(s) or parent(s)-in-law
- Your brother(s) and sister(s)
- Friend(s)
- Boarder(s)
- Other: _____

5. Please indicate the highest level of schooling you have completed:

- Elementary School - Grade: _____
- High School - Grade: _____
- College - Years: _____
- Technical - Years: _____
- University - Years: _____
- Graduate School - Years: _____
- Other: _____

6. If you have a partner, please indicate the highest level of schooling he/she has completed:

- Elementary School - Grade: _____
- High School - Grade: _____
- College - Years: _____
- Technical - Years: _____
- University - Years: _____
- Graduate School - Years: _____
- Other: _____

7. Please indicate your first language:

- English
- French
- Chinese/Cantonese
- Japanese
- Punjabi
- Other: _____

8. How long have you lived in Canada?

- All my life
- Years: _____

9. When were you born (please indicate date, month, and year)?

_____ Date

_____ Month

_____ Year

10. How many children are currently under your care and living in your home? (*This includes foster children, adopted children and biological children*)

_____ Children

11. Did another adult accompany you today?

No

Yes

IF YES - Please indicate your relationship to this person:

Husband or partner

Mother, father, or in-laws

Sibling, sibling-in-law

Friend

Babysitter

Other: _____

12. How many times have you been hospitalized yourself for medical reasons?

_____ Times as a child or adolescent (before age 18)

_____ Times as an adult (after age 18)

_____ Never

IF NEVER - Please turn to Question 16.

13. In general, how serious were the reasons for your previous hospitalization(s)? Please check one of the following:

Not Serious

Somewhat Serious

Serious

Very Serious

Life-Threatening

14. In general, how was your physical health following your previous hospitalization(s)? Please check one of the following:

Excellent

Very Good

Good

Fair

Poor

About Your Child:

15. People respond to being in hospital very differently. In general, how did you feel during your previous hospitalization(s)? Please check one of the following:

- | | | | | | | | | | |
|--------------------------|----------------|--------------------------|------------|--------------------------|---------------------------|--------------------------|----------------|--------------------------|------------------------------|
| <input type="checkbox"/> | Happy, pleased | <input type="checkbox"/> | Good, calm | <input type="checkbox"/> | Neutral, not happy or sad | <input type="checkbox"/> | Nervous, upset | <input type="checkbox"/> | Very upset, afraid, or angry |
|--------------------------|----------------|--------------------------|------------|--------------------------|---------------------------|--------------------------|----------------|--------------------------|------------------------------|

17. When was your child born (please indicate date, month, and year)?

_____ Date
 _____ Month
 _____ Year

16. Think about the physical and/or emotional effects of your child's Day Care Surgery on you. Overall, do you expect the effects on you to be positive, negative, or somewhere in between? Please check one of the following:

- | | | | | | | | | | |
|--------------------------|---------------|--------------------------|-------------------|--------------------------|-----------------------------------|--------------------------|-------------------|--------------------------|---------------|
| <input type="checkbox"/> | Very Positive | <input type="checkbox"/> | Somewhat positive | <input type="checkbox"/> | Neutral, not positive or negative | <input type="checkbox"/> | Somewhat negative | <input type="checkbox"/> | Very negative |
|--------------------------|---------------|--------------------------|-------------------|--------------------------|-----------------------------------|--------------------------|-------------------|--------------------------|---------------|

18. Is your child a girl or a boy?

Girl
 Boy

19. How many times has your child been in hospital (not including his or her birth or today's surgery)?

_____ Times
 _____ Never

IF NEVER – Please turn to Question 23.

20. In general, how serious were the reasons for your child's previous hospitalizations? Please check one of the following:

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not Serious	Somewhat Serious	Serious	Very Serious	Life-Threatening

21. In general, how was your child's physical health following his/her previous hospitalization(s)? Please check one of the following:

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Excellent	Very Good	Good	Fair	Poor

22. Children respond to being in hospital very differently. In general, how did your child feel during his/her previous hospitalization(s)? Please check one of the following:

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Happy, pleased	Good, calm	Neutral, not happy or sad	Nervous, upset	Very upset, afraid, or angry

23. What kind of surgery is your child having today? Please check one of the following categories:

- General Surgery
- Orthopaedic Surgery
- Ear, Nose, and Throat Surgery
- Plastic Surgery
- Ophthalmology Surgery
- Genito-Urinary Surgery
- Other: _____

24. Where did you get information about your child's surgery? Please check all that apply:

- Family Doctor
- Surgeon
- Anesthetist
- Nurse(s)
- Relative(s)
- Friend(s)
- Library, videos
- Other: _____

25. Do you wish that you had received even more information about your child's surgery?

- No
 Yes

IF YES - Please indicate what kinds of information you would have wanted:

27. Think about the physical and/or emotional effects of Day Care Surgery on your child. Overall, do you expect the effects on your child to be positive, negative, or somewhere in between? Please check one of the following:

- | | | | | | | | | | |
|--------------------------|---------------|--------------------------|-------------------|--------------------------|-----------------------------------|--------------------------|-------------------|--------------------------|---------------|
| <input type="checkbox"/> | Very Positive | <input type="checkbox"/> | Somewhat positive | <input type="checkbox"/> | Neutral, not positive or negative | <input type="checkbox"/> | Somewhat negative | <input type="checkbox"/> | Very negative |
|--------------------------|---------------|--------------------------|-------------------|--------------------------|-----------------------------------|--------------------------|-------------------|--------------------------|---------------|

26. Who is usually responsible for taking care of your child when he/she is unwell? Please check one of the following:

- Myself
 Child's Father
 Child's Grandparent(s)
 Babysitter(s)
 Other: _____

About Day Care Surgery:

28. What did you like, if anything, about having your child in Day Care Surgery?

29. What did you dislike, if anything, about having your child in Day Care Surgery?

30. Is there anything that might have made the experience of Day Care Surgery easier for you?

31. Are there any other comments you want to make about Day Care Surgery or about this study?

Appendix D

Information Pamphlet for Mothers

A T T E N T I O N M O T H E R S

There is a Research Project taking place in the Day Care Surgery Unit at B. C. Children's during August, September, and October.

The purpose of this study is to understand more about how mothers feel and think about their child's day care surgery and what sorts of things affect how they feel and think.

If you think you might be interested in participating in this study and/or would like more information, please check "YES" at the bottom of this paper and give it to your child's nurse. A Research Assistant will approach you while you wait for your child in the Day Care Surgery Unit's waiting area.

Your participation in this study is completely voluntary. If you would like to take part, your participation will be completely anonymous and confidential.

If you prefer not to take part in this project, this will in no way affect the quality of health care your child receives. Simply check "NO" at the bottom of this page and give it to your child's nurse.

PLEASE CHECK ONE:

YES, I would like to have more information about this research project.

NO, I do not want to participate in this research project.

Appendix E
Consent Form

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SIMON FRASER UNIVERSITY

**Informed Consent by Subjects to Participate in a
Research Project**

Note: The University and those conducting this project subscribe to the ethical conduct of research and to the protection at all times of the interests, comfort, and safety of participants. This form and the information it contains are given to you for your own protection and full understanding of the procedures involved. Your signature on this form will signify that you have received an adequate opportunity to consider the information in the document, and that you voluntarily agree to participate in the project.

Having been asked by **NATALIE FRANZ** of the Psychology Department of **SIMON FRASER UNIVERSITY** to participate in a research project, I understand that I will be asked to complete two questionnaires, one asking me about how I feel at this moment and generally, and the other requesting general information about myself and my child.

I understand that I may withdraw my participation in this research at any time without my child's health care being affected.

I also understand that I may register any complaint I might have about the study with the chief researcher named above or with **DR. CHRIS WEBSTER**, Chair of the Psychology Department at **SIMON FRASER UNIVERSITY** at 291-3354, or with **DR. ELIZABETH HUNTSMAN**, Director of the Psychology Department at **BRITISH COLUMBIA'S CHILDREN'S HOSPITAL** at 875-2147.

I may obtain copies of the results of this study, upon its completion, by contacting:

Natalie Franz
Psychology Department
Simon Fraser University
Burnaby, B.C. V5A 1S6 tel. 291-3354

I have been informed that the questionnaires I complete will be anonymous and kept confidential by Natalie Franz.

I agree to participate by completing two (2) questionnaires while I wait for my child to undergo Day Care Surgery.

NAME (Please Print): _____

ADDRESS: _____

SIGNATURE: _____ WITNESS: _____

DATE: _____

Once signed, a copy of this Consent Form and a Subject Feedback Form should be provided to you.

Appendix F
Information Sheet for Participants

SIMON FRASER UNIVERSITY
INFORMATION SHEET FOR PARTICIPANTS

TITLE OF PROJECT:

Factors contributing to Maternal State Anxiety in Pediatric Day Care Surgery

PURPOSE OF PROJECT:

The purpose of this research is to understand more about how parents feel about their child's day care surgery and what sorts of things may affect how they feel. Mothers who participate in this study are asked to complete two questionnaires which are described in the next section.

PROCEDURES:

The first one questionnaire is called the **Self-Evaluation Questionnaire** and consists of two parts. The first part has 20 questions and requires subjects to describe how they feel at that very moment. The second part has 12 questions and asks about how the person feels most of the time.

The second questionnaire is called the **Information about You and Your Child Questionnaire**. It consists of 3 sections asking mothers some general questions about themselves and their child, as well as what they think about their child's day care surgery so far.

These two questionnaires should not take more than 15 minutes to complete. Mothers are thanked for participating in this research.

Appendix G

Subject Feedback Form

SIMON FRASER UNIVERSITY

UNIVERSITY RESEARCH ETHICS REVIEW COMMITTEE

Subject Feedback Form

Completion of this form is OPTIONAL, and is not a requirement for participation in this project. However, if you have served as a subject in a research project and would care to comment on the procedures involved, you may complete the following form and send it to the Chair, University Research Ethics Review Committee. All information received will be treated in a strictly confidential manner.

Name of Principal Investigator: NATALIE FRANZ
Title of Project: FACTORS CONTRIBUTING TO MATERNAL STATE ANXIETY IN PEDIATRIC DAY CARE SURGERY
Department: PSYCHOLOGY

1. Did you sign an informed Consent Form before starting? _____
2. Were there significant deviations from the originally stated procedures? _____
3. I wish to comment on my involvement in the above project which took place:

(Date) (Place) (Time)

4. Comments:

Completion of this section is optional:

Your Name: _____

Your Address: _____

Telephone: (w) _____ (h) _____

This form should be sent to the Chair, University Ethics Review Committee, c/o Vice President, Research, Simon Fraser University, Burnaby, B.C., V5A 1S6.