

**A STUDY OF PARENTS AND THEIR CHILDREN WITH ASTHMA**

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**In Partial Fulfillment of the**

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**A STUDY OF PARENTS AND THEIR CHILDREN WITH ASTHMA**

**BY**

**ALLISON MURDOCH-SCHON**

**A Thesis/Practicum submitted to the Faculty of Graduate Studies of The University  
of Manitoba in partial fulfillment of the requirements of the degree  
of  
MASTER OF EDUCATION**

**Allison Murdoch-Schon**

**1997 (c)**

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To the memory of Richard Jan Karkota whose life exemplified Mother Teresa's words: "The value of our life does not depend on the place we occupy. It depends on the way we occupy that place."

## **Abstract**

The purpose of this study was to examine relationships between and among demographic variables of both parents and their children with asthma; psychosocial variables of parents; as well as an outcome variable - the number of hospitalizations due to asthma. The data were collected by a mailed out questionnaire of a random stratified sample of 267 respondents of children with asthma (ages nine and under) on the mailing list of the Manitoba Lung Association. Relationships between the variables were examined using the chi-square test, level of significance selected at  $p < 0.05$ . Demographic profiles of children in this study indicate a majority of children were males, ages six to nine years who had mild asthma for more than two years and were infrequently hospitalized. Demographics of respondents indicate that the majority of respondents were females, from an urban centre, reporting both higher income and education levels. The analyses of psychosocial variables indicate that respondents were highly knowledgeable about asthma, highly confident about managing asthma, and frequently utilized a variety of resources for information about asthma, mostly medical. The majority of statistically significant relationships were found between higher income and education level of respondents and more frequent use of medical resources, media and specific services available at the Manitoba Lung Association.

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## **Chapter 1**

### **Pediatric Asthma**

#### **Introduction**

Asthma is most common of all chronic childhood conditions (Gergen & Weiss, 1990; Newacheck, Budetti & Halfon, 1986). It is the leading cause of hospitalizations in young children and it accounts for a significant number of school absences and utilization of health care resources (Karetzky, 1977; Parcel, Gilman, Nader & Bunce, 1979; Wigal, Creer, Kostas & Lewis, 1990). Asthma is a complex disease that lacks a universally accepted definition, its natural history is poorly understood, and it has a wide spectrum of severity between and among children (Duffy & Halloran, 1987; Weiss & Budetti, 1993). Asthma is a chronic condition that cannot be cured, the disease is managed with a combination of behavioral and medical interventions. Parents must master a variety of skills and behaviors including how to prevent and control symptoms of acute asthma attacks; how to assess the degree of difficulty their child is experiencing in breathing; assess effectiveness of medications; determine the severity of attacks; and if required, when to seek emergency medical attention. Morray & Redding (1995) examined factors associated with duration of hospital stay of children with asthma. They reported a prolonged presence of asthma symptoms

before arrival in the emergency department in the long-stay group. In addition, they reported that only one of the children in the long-stay group had augmented home therapy within 24 hours before hospitalization. These findings support the need for parents of children with asthma to be knowledgeable and confident in managing their child's asthma.

### **Prevalence**

Globally, the prevalence of asthma is divergent, depending upon the criteria utilized to define and diagnose it. Prevalence appears to be anywhere from 3.5% and up to 11% (Mitchell & Dawson, 1973; Peckham & Butler, 1978; Williams & McNichol, 1969). Manfreda, Becker, Wang, Roos and Anthonisen (1993) reported Manitoba prevalence rates of physician-diagnosed childhood asthma (see Table 1). The highest prevalence rate reported was in males, ages five to nine years.

Table 1

#### **Prevalence of Childhood Asthma in Manitoba - 1989-1990**

---

| <b><u>Age</u></b> | <b><u>Males</u></b> | <b><u>Females</u></b> |
|-------------------|---------------------|-----------------------|
| 0-4 years         | 4.1%                | 2.4%                  |
| 5-9 years         | 5.3%                | 3.5%                  |

---

Childhood asthma has a relatively low mortality rate, but a high morbidity rate (Weiss & Budetti, 1993). Childhood asthma is increasing in morbidity, incidence and prevalence (Infante-Rivard, Sukia, Roberge & Baumgarten, 1987; Manfreda et al. 1993; Weiss & Wagener, 1990; Wilson-Pessano & McNabb, 1985). Utilization of health care services as a consequence of asthma is high (Ellis, 1983; Karetzky, 1977; Marion, Creer & Reynolds, 1985; Mesters, 1993). In Manitoba, children with asthma under nine years accounted for 26.1% of the annual medical payments made for asthma from April 1992 to March 1994 (Manitoba Health Services Commission, 1994). Asthma also accounts for a significant number of childhood hospitalizations (Ellis 1983; Karetzky, 1977; Marion, Creer & Reynolds, 1985). These indices substantiate the fact that asthma is a major health concern (Creer, Kostas & Lewis, 1990).

### **Management of Asthma**

Presently, there is no cure for asthma. However, its course can be influenced by medical and behavioral interventions. As with other chronic conditions, patient education is seen as a successful adjunct in helping families manage the disease effectively (Feldman, Clark & Evans, 1987; Klingelhofer, 1897; Klingelhofer & Gershwin, 1988; Mesters, 1993; Wigal et al., 1990). There is no shortage of programs designed to help reduce the

impact of asthma on the family. Various settings and types have been formulated but all essentially have the same common purpose--to reduce the impact by improving self-management (Clark, Feldman, Evans, Dzuzy, Levison et al., 1986; Klingelhofer & Gershwin, 1988; Lewis, Rachelfsky, Lewis, de la Sota & Kaplan, 1984; Parcel, Nader & Tiernan, 1980).

The literature identifies what knowledge and skills are required to manage childhood asthma effectively (Carson, Council & Schauer, 1991; Clark, Feldman, Freudenberg, Millman, Wasilewski & Valle, 1980; Fireman, Friday, Gira, Vierthaler & Michaels, 1981; Hindi-Alexander & Cropp, 1984; Lewis, Rachelfsky et al., 1984). Parents are important in self-management of childhood asthma, as parents must assume primary responsibility for tasks that their young children are developmentally incapable of performing (Clark, Feldman, Evans, Dzuzy et al., 1986; Wilson, Mitchell, Rolnick & Fish, 1993). The literature provides little information about the optimal age of independence in self-management of asthma due to the varying individual differences in abilities among children. It is generally agreed that children under 10 years are primarily dependent on their parents for asthma management (Clark, Feldman, Evans, Dzuzy et al., 1984; Lewis, Rachelfsky et al., 1984; Schlösser & Havermans, 1992; Wilson, Mitchell et al., 1993). For the purposes of this study self-management will refer to parental management of her/his child's asthma.



## **Parental Management**

Parents must meet the challenge of an intermittent disease with a wide spectrum of severity and with it, a variety of self-management behaviours wed with a medical regimen to prevent and control asthma (Clark, Feldman, Freudenberg et al., 1980; Fireman et al., 1981; Hindi-Alexander & Cropp, 1984; Lewis, Rachelfsky et al., 1984; McNabb, Wilson-Pessano & Jacobs, 1986; Wilson, Mitchell et al., 1993; Wilson-Pessano & McNabb, 1985).

Parents must assume a great deal of responsibility and decision-making for effective self-management. Parents need to be both well informed and confident in managing their child's asthma. Yet, it appears most training programs in childhood asthma are successful at imparting knowledge to parents but few report any statistical significance in reducing morbidity (Howland, Bauchner, & Adair, 1988). Asthma morbidity is measured in clinical outcomes such as frequency of attacks, and frequency of utilization of health care services, especially hospitalizations (Rachelfsky, 1987).

Hence, competence in self-management should yield fewer school absences, fewer attacks, fewer hospitalizations and utilization of health care services (Klingelhofer & Gershwin, 1988). Although programs in self-management tend to report improved clinical outcomes, their long term effects are not widely substantiated. The evaluations of these programs do not appear to affirm the efficacy of asthma self-management programs in imparting

confidence in asthma self-management (Clark, 1989; Deaves, 1993; Donnelly, Donnelly & Thong, 1987; Howland et al., 1988; Klingelhofer & Gershwin, 1988). It is paradoxical that in spite of educational interventions aimed at self-management and significant improvements in the treatment of asthma, morbidity in young children continues to increase.

### **Statement of Purpose of Study**

The purpose of this study is to examine the relationships between and among: demographic variables of both parents and children with asthma; psychosocial variables of parents; as well as an outcome variable -number of child hospitalizations due to asthma. The research questions of this investigation are:

1. What are the relationships between and among psychosocial variables of parents of children with asthma (ages nine and under) and an outcome variable - the number of child hospitalizations due to asthma? The psychosocial variables are: parental knowledge of asthma; perceived parental confidence in self-management; and utilization of resources/ services.
2. What are the relationships between and among: demographic variables of both parents and children; psychosocial variables of

parents; as well as the number of child hospitalizations due to asthma? The demographic variables of parents are: gender; family income; education; and geographic location of residence(rural or urban). The demographic variables of asthmatic children are: age, gender; severity of asthma; and duration of asthma. Psychosocial variables of parents are: parental knowledge of asthma; perceived parental confidence in self-management; and parental utilization of resources/services.

### **Limitations of this Study**

The limitations of this study are related to two sources of bias; the sample selected and the instrument used.

#### **Sample**

- A. The sample is only representative of parents on the mailing list of the Manitoba Lung Association who have children nine years and under with asthma. Generalizations are limited to the sample selected, they are not representative of the general population of all parents of children with asthma.
- B. Medical Diagnosis. Since no medical referral is required, the diagnosis

of child's asthma cannot be assured. This further limits generalizations to the sample selected.

- C. **Sample Bias.** Participants actively sought out information from the Manitoba Lung Association about childhood asthma, and were invited to participate in this study. Respondents may be more knowledgeable and confident than non-respondents. Hence, results may be overestimated.

### **Instrument**

The results of this study are based on retrospective reports by respondents. Respondents may respond inaccurately due to difficulty recalling events over the past year or may report socially desirable responses. The validity and reliability of respondent self-reports is well documented in research literature (Popham & Yalow 1983; Warheit, Bell & Schwab, 1979). The probability of socially desirable bias is minimized in mail-out surveys in comparison to face-to-face or telephone interviews (Dillman, 1978).

A review of the literature did not locate a reliable, valid instrument to measure variables of interest in this study, so the investigator designed the instrument. Hence, only face validity can be ensured.

**In addition, the scenarios developed to measure perceived parental confidence only measures respondents' perception of confidence, not their actual ability to perform these management skills. According to Maibach & Murphy (1995), self-efficacy is seen as dynamic and hence subject to change and influenced by many variables. These limitations can potentially overestimate or underestimate the findings in this study.**

## **Chapter 2**

### **Review of Literature**

#### **Demographic Variables of Children with Asthma**

The demographic variables of children with asthma included in this study are: age; gender; severity of asthma; and duration of asthma. These demographic variables were reviewed in the literature with respect to their relationship to psychosocial and demographic variables of parents, and the number of hospitalizations.

#### **Age of Child**

A review of the literature indicates no information that relates age of child and variables of interest in this study. The literature does report that preschool children with asthma have a higher rate of hospitalization due to asthma than their school-aged counterparts (Gergen & Weiss, 1990). This should impact on the kinds of services and resources utilized as well as the number of hospitalizations in younger children.

### **Gender of Child**

The literature indicates an unexplained epidemiological feature of childhood asthma, a preponderance of males (Anderson, Bland, Patel & Peckham, 1986; Blair, 1977; Gergen, Mullaly & Evans, 1988; Horwood, Fergusson & Shannon, 1985; Karetzky, 1977; Lee, Winslow, Speight & Hey, 1983; Mak, Johnston, Abbey & Talamo, 1982; Manfreda et al., 1993; Peckham & Butler, 1978; Taylor & Newacheck, 1992). With respect to the purpose of this study there is no literature that describes relationships between gender of child, demographic, and psychosocial variables of parents, as well as number of hospitalizations of child.

### **Severity of Asthma**

Asthma has a wide spectrum of morbidity, ranging from intermittent, self-limiting episodes to severe functional impairment requiring hospitalization in an intensive care setting (Weiss & Budetti, 1993). There is no universal agreement on the classification of severity (Mesters, 1993). Generally, it is agreed that children with increasing severity utilize health care services at a higher rate (McNabb, Wilson-Pessano, Hughes & Scamagas, 1985). The literature fails to identify a relationship between and among level of severity, parental knowledge of asthma, parental perceived confidence in their

management of their child's asthma, utilization of services/resources and number of hospitalizations. This leaves unanswered whether parents with children with increasing severity of asthma have less perceived confidence, utilize resources/services at a higher rate, and are hospitalized more frequently.

### **Duration of Child's Asthma**

The passage of time since the child's diagnosis is one variable that should have important theoretical implications in this study. However, reviewing the literature reveals a gap in this area. This raises the question of whether a relationship exists between duration of child's asthma, parental knowledge, perceived parental confidence, utilization of services/resources and number of child hospitalizations. It would appear likely that parents of a newly diagnosed asthmatic child would have a higher rate of hospitalizations, less parental knowledge, lower perceived confidence, and a higher rate of utilization of resources/services.

### **Demographics of Parents of Children with Asthma**

The demographic variables of parents of children with asthma included in this study are: gender, education, family income and geographic location



(rural or urban). These demographic variables were reviewed in the literature with respect to their relationship to psychosocial variables of parents, demographic variables of children with asthma, and the number of hospitalizations outlined previously.

### **Gender of Parent**

No information has been located regarding parental gender and any of the psychosocial variables and number of child hospitalizations that will be examined in this study.

### **Education Level of Parent**

Mullen & Mullen (1983) reported lower educated mothers have a tendency to seek and utilize health care at a lower rate than their higher educated counterparts. This study will examine education level to see if it bears any relationship to parental knowledge, perceived confidence, utilization of resources/services and number of hospitalizations of asthmatic child.

### **Family Income**

There is substantial data in the literature pertaining to asthma and socio-

economic status (SES). Studies in the United States report that lower income groups often utilize health care services less than higher income groups (Kaplan & Macie-Taylor, 1985; Mullen & Mullen, 1983; Newacheck & Halfon, 1986; Newacheck & Starfield, 1988). They also report a higher rate of hospitalizations among the poor in general, as well as poor children with asthma (Halfon & Newacheck, 1986; Newacheck, Butler, Harper, Piontkowski, & Franks, 1980; Newacheck & Starfield, 1988). It would appear unlikely that this gap exists in the context of our health care system. It does however, raise the question of whether low rates of health care utilization includes parental utilization of services/resources. Brook, Mendelberg & Heim (1993) and Spykerboer et al. (1986) report no relationship between income and parental knowledge. The literature fails to identify a relationship between income, and perceived parental confidence.

### **Geographic Location of Parent**

No information in the literature identifies a relationship between parent's residence (rural vs. urban), psychosocial variables of parents, demographic variables of children with asthma, and number of hospitalizations. For the purposes of this study, parents will be grouped according to whether they live in Winnipeg (inside the perimeter --as urban or outside--as rural). This crude classification should help identify if physical distance presents a

barrier to utilization of resources/services and further impacts on parental knowledge, perceived parental confidence and frequency of hospitalizations.

The preceding discussion illustrates the many gaps in the current literature on relationships between and among demographic variables of parents and children, parental psychosocial variables as well as number of hospitalizations.

### **Psychosocial Variables**

The psychosocial variables that will be examined in this study are: parental knowledge of asthma; perceived parental confidence in self-management of their child's asthma; and utilization of resources/services.

### **Parental Knowledge of Asthma**

There is substantial data in the literature that examines parental knowledge of asthma. However, parental knowledge is measured as an outcome in terms of efficacy of health education and asthma self-management programs (Brook et al., 1993; Creer, Backial et al., 1988; Duffy & Halloran, 1987; Hindi-Alexander & Cropp, 1984; Lewis, Rachelfsky, Lewis et al., 1984; Mesters, 1993; Parcel, Nader et al., 1980; Rubin, Bauman et al., 1989;

Rubin, Leventhal et al., 1986). Research regarding knowledge concludes that for the most part, parental knowledge about asthma is adequate (Mesters, 1993; Spykerboer et al., 1986). However, sub-optimal parental knowledge of asthma has been reported (Van Asperen, Jandera, DeNeef, Hill & Law (1986) and Reddihough, Landau, Jones & Richards (1977). More importantly, knowledgeable parents are believed to be enhanced in their ability to manage their child's asthma (Spykerboer et al., 1986; Whitman, West, Brough & Welch, 1985). Carson et al. (1991) reported a relationship between increasing parental knowledge and increased perceived ability to manage their child's asthma. Brook et al. (1993) maintain that increasing parental knowledge of asthma decreases the hospitalization of the child.

The literature reports an increase in parental knowledge after participation in asthma educational programs (Brook, Mendelberg, & Heim, 1993; Duffy & Halloran, 1987; Hindi-Alexander & Cropp, 1981; and Van Asperen, Jandera, De Neef, Hill & Law, 1986).

Although there is an abundance of literature regarding parental knowledge, it fails to substantiate a clear relationship between and among other psychosocial variables of parents, demographic variables of both parents and children with asthma, and number of child hospitalizations. Family income does not appear to influence parental knowledge (Brook et al., 1993;

Spykerboer et al., 1986).

### **Perceived Parental Confidence in Self-Management of Their Child's Asthma**

Little research was found that examined the relationship between parental knowledge and perceived confidence in self-management. This study will attempt to fill this gap. Self-efficacy--the perceived capability of performing a behaviour--is seen as a mediating link between knowledge and behaviour (Bandura, 1977). This concept appears to play a key role in behaviour change, but it is a relative newcomer and little research has examined its role in self-management (Stretcher, McEnvoy, DeVellis, Becker & Rosenstock, 1986). Clark, Feldman, Freudenberg, Millman, Wasilewski, & Valle (1980) reported that just over half of respondents reported being confident in managing their child's last asthma attack. Mesters (1993) found most parents had difficulty in applying the knowledge they had. Parental perceived confidence in management of their child's asthma will be used as a proxy measure of self-efficacy in this study.

The literature does not provide information on a relationship between perceived parental confidence, utilization of services/resources and number of hospitalizations. Moe (1992) reported increased parental confidence likely

would lead to self-efficacy and hence behaviour change. However, no further research substantiates or challenges this.

### **Utilization of Services/Resources**

The earlier discussion has illustrated the fact that self-management programs can reduce the impact of the child's asthma on the family. However, it can only impact on those who participate and utilize the resources. As stated previously, the literature indicates utilization of programs is extremely low (Bryne, D., Drury, J., MacKay, R., Robinson, S., Faranda, C. & MacAdam, 1993; Klingelhofer, 1987; Weiss & Hermalin, 1986).

As stated previously, parental knowledge is often utilized as an outcome measure in evaluating the efficacy of asthma education programs.

Evaluation of many asthma self-management programs report a gain in parental knowledge by participants (Brook, Mendelberg, & Heim, 1993; Duffy & Halloran, 1987; Hindi-Alexander & Cropp, 1981; and Van Asperen, Jandera, De Neef, Hill & Law, 1986). Hence most evaluations of asthma education programs appear successful in imparting knowledge to participants.

In a study of health information sources of parents of young children relating to skin cancer prevention, parents reported to utilize more than one source of information; and the most frequently reported source was health care providers. Parents who reported using health care providers frequently were generally more knowledgeable about skin cancer prevention behaviors. Respondents in this study with lower educational attainment most frequently selected friends or family as a source of information (Buller, Callister & Reichert, 1995).

### **Number of Hospitalizations Over Past Year**

A final dependent variable in the asthma literature is hospitalizations as a consequence of asthma. Hospitalizations due to asthma are often utilized as an outcome measure in evaluating efficacy of an asthma self-management program (Brook et al., 1993; Clark, Feldman, Evans, Levison et al., 1986; Clark, Feldman, Freudenberg et al., 1980; Fireman et al., 1981; Hindi-Alexander & Cropp, 1984; Klingelhofer & Gershwin, 1988; Lewis, Rachelfsky et al., 1984; Rubin, Leventhal et al., 1986; Weiss & Hermalin, 1987). Brook, Mendelberg & Heim (1993) reported a statistically significant reduction in the rate of hospitalization in children whose parents participated in the education project in comparison with the control group.

A review of the literature did not find studies that examine relationships between hospitalizations of a child, parental perceived confidence, parental knowledge and utilization of services. The number of hospitalizations will be assessed using parental reports over the past year since the nature of asthma is seasonal and episodic.

### **Summary of Literature Review**

The review of this literature identifies that asthma self-management programs are essentially a successful adjunct in the treatment of childhood asthma. However, little research clearly substantiates a relationship between improved self-management, parental knowledge and parental confidence. Relationships between utilization of resources/services with respect to parental knowledge, perceived parental confidence and number of hospitalizations appear to be virtually absent from the literature.

Hospitalizations as a consequence of asthma appear to be utilized primarily as a measure of morbidity. There also appears to be a gap in examining relationships between these variables and dependent demographic variables. This study will attempt to examine these gaps.



## **Chapter 3**

### **Procedures**

#### **Introduction**

The purpose of this study is to examine relationships between and among demographic variables of both parents and asthmatic children (ages nine and under); psychosocial variables of parents; as well as outcome variable - the number of child hospitalizations due to asthma.

#### **Design**

This study is a descriptive study that meets the stated-criteria of a non-experimental design (LoBiondo-Wood & Haber, 1990; Moore, 1983). A survey questionnaire was used to examine the relationships between psychosocial and demographic variables. This type of interrelationship study is described by LoBiondo-Wood & Haber (1990) as a correlational type of experimental design whereby the researcher is interested in quantifying the magnitude and extent of relationship between variables.

### **Population and Sampling Procedure**

**This study was part of a larger needs assessment study. The population frame for this study was parents on the mailing list of the Manitoba Lung Association who have children 9 years and under with asthma. The mailing list includes name and address of parent and child, date of birth of child, and telephone number of parent. The total number of parents (with children with asthma 9 years of age and under) on the mailing list was 697, with 528 families residing in Winnipeg and the remaining 169 families residing outside the perimeter of the city of Winnipeg. A stratified random sample of parents was selected from the mailing list. The sample was selected randomly through computer generated numbers. The strata were rural, which was 24% of the sample and urban, which consisted of the remaining 76% of the sample.**

**The sample size was 500, based on Rea's formula for minimum size for selected small samples at a 95% level of confidence with a margin of error not exceeding .05% (Rea & Parker, 1992). This sample size assumed a 50% response rate which is an average rate for mailed out surveys (Dillman, 1978).**

## **Data Collection**

Quantitative data were collected by means of a mailed out self-administered questionnaire. The questionnaire consisted primarily of closed ended questions. This method is the most effective way for collecting data from a large diverse sample that allows complete anonymity and eliminates interview bias (Lo-Biondo-Wood et al, 1990).

## **Questionnaire Development**

The questionnaire was developed primarily by utilizing questions from previous asthma questionnaires, with the investigator also developing some new questions. The questionnaire consisted of 41 questions (plus subparts) divided into six sections. Refer to Appendix A for a copy of the questionnaire. The sections were:

- A. Parental Knowledge
- B. Medicines
- C. Perceived Parental Confidence
- D. Utilization of Resources/Services
- E. Number of Hospitalizations/Demographics of Child
- F. Demographics of Respondent

The development and measurement of the variables under investigation in this study will be discussed with respect to each of the research questions.

Research Question #1 is:

- 1. What are the relationships between and among psychosocial variables of parents of children with asthma (ages nine and under) and an outcome variable - the number of child hospitalizations due to asthma? The psychosocial variables are: parental knowledge of asthma; perceived parental confidence in self-management; and utilization of resources/services.**

#### **Section A. Parental Knowledge Variable (Questions 1-13)**

This section of the questionnaire consisted of 13 questions with subparts for a total of 40 items that assessed parental knowledge. The questions were a combination of questions used in previous asthma questionnaires as well as new items developed on the basis of the investigator's work-related experience. The 13 questions (40 items) were submitted to a panel of asthma experts. The panel consisted of a pediatric emergency physician, pediatric allergist, a respiratory nurse, and a pediatric patient educator. The panel were asked to evaluate the questions for face validity. The instrument was modified a number of times as a result of their consultation

and evaluation, before the present form was derived.

In addition, the panel was asked to rate the 13 questions (40 items) on the basis of three categories: 1) most important or need to know, 2) could know, 3) or nice to know. In general, there was agreement that 28 out of the 40 items were the most important knowledge for parents to know.

Measurement of parental knowledge was based on correct responses to the 28 selected items which were considered by a panel of experts to be the most important knowledge. Respondents were scored on the number of correct responses. For each correct response, one point was given (zero points for incorrect or missing responses). Each respondent could receive a possible 28 points. A score out of 28 was given and converted into a percentage. The percentages were later recoded into two categories; high and low. A cut point of 85 percent was selected on the basis that these items were the most important knowledge. Respondents scoring 85% and greater were considered high knowledge. Respondents scoring less than 85% were considered low knowledge.

### **Section B. Medicines (Questions 14-17)**

This section was utilized for the purpose of the needs assessment study only, hence it was not analysed for the thesis investigation.

The principal modality of treatment for asthma is prescribed medications. The three questions were developed in consultation with a pediatric allergist. The questions assessed the types of medications that parents were giving their child, the use of ancillary devices, and side-effects of common asthma medicines.

### **Section C. Perceived Parental Confidence Variable (Question 18)**

No universally accepted tool to assess parental efficacy in the management of their child's asthma was found in the literature. Hence, perceived parental confidence was used as a proxy measure for parental efficacy. The question in this section consisted of 10 items. These 10 items were scenarios, utilized from both a previous asthma thesis questionnaire (Mesters, 1993) and from the pediatric emergency experience of the investigator. In each scenario, parents were asked to imagine the scenario and describe how confident they would be in managing their child's asthma in the situation. Perceived parental confidence was measured by parental response to Section C of the questionnaire. Confidence was assessed by the respondent's number of "confident" responses on each question. For every "very confident," or "fairly confident" response, a score of one was assigned. A score of zero was given to those who selected "undecided/uncertain," or "a little confident," or "not at all confident," or no response. On the basis of

parental responses to the 10 scenario's in this section, a total score was calculated. The mean scores were later recoded into three categories; high, middle, and low. "High confidence" included those respondents who were either confident or fairly confident on all ten questions. "Middle confidence" included those who were confident or fairly confident on eight or nine out of the ten scenario's. "Low confidence" included those who responded confidently or fairly confident on seven or less out of the ten scenarios. The cut point for confidence scores was based on the distribution of confidence scores.

**Section D. Utilization of Resources/Services Variable (Questions 19 and 26)**

Two questions with subparts in this section were developed by the investigator to assess utilization of resources and services for asthma. This variable was separated into two sub-parts, utilization of services, and utilization of resources.

**Utilization of Services Variable (Question 26)**

The basis for this question were the programs and services available to parents of children with asthma. The services/programs available were

presented in five closed-ended categories. Respondents were asked the following question:

*Which of the following services and/or programs for asthma are you aware of, and which have you used (check all that apply)*

aware of    Used

*Information and pamphlets about childhood asthma*

*Asthma Care Training*

*Asthma Lecture Series*

*Breathe Free Camp*

*Concerned parents of Children with Asthma*

Utilization of services was measured by respondents response to “used” category. Respondents were considered users if they selected this category.

#### Utilization of Resources Variable

The second sub-set of this variable is utilization of resources for information about asthma. Information about resources were collected by asking respondents to indicate the sources of information about asthma they used in the past twelve months. The sources of information were presented in 26 closed-ended categories. The question used to measure this was as follows:



*Listed below are several sources that people might use to get information about asthma. Please check each of the sources that you have used to get information about asthma over the last 12 months (check all that apply)*

- a. *Your family doctor*
- b. *Pediatrician (children's doctor)*
- c. *Allergy doctor*
- d. *Hospital (emergency and/or in-hospital)*
- e. *Manitoba Lung Association*
- f. *Public Health Nurse*
- g. *Pharmacies*
- h. *Health stores (eg. Vita Health)*
- i. *Naturopaths*
- j. *Health books*
- k. *Friends, relatives, neighbours*
- l. *Television*
- m. *Radio*
- n. *Magazines (eg. Readers Digest, Chatelaine)*
- o. *Health magazines and newsletters (eg. Airwaves)*
- p. *Newspapers*
- q. *Other (please specify)*

These categories were later recoded into five categories of types of sources in order to reduce the number of categories. The categories were selected on the basis of the type of source that the respondents used in the past year.

The five compressed categories were:

1. **Medical.** This category included respondents who selected one or more of the following sources: pediatrician; allergy doctor; hospital (emergency and/or in-hospital); public health nurse; pharmacies; and naturopaths.
2. **Manitoba Lung Association (MLA).** This mutually exclusive category

consisted of respondents who selected the MLA as a source of information about asthma over the last 12 months.

3. **Friends, relatives, and neighbours.** This mutually exclusive category included only those respondents who selected friends, relatives and neighbours as a source of information.
4. **Media.** This category included respondents who selected one or more of the following sources: health books; television; radio; magazines; health magazines; and newspapers as sources of information about asthma.
5. **Health store.** This mutually exclusive category included only those who selected health stores as a source of information about asthma.

#### **Section E. Number of Hospitalizations Variable (Question 35)**

This variable was assessed by directly asking respondents to recall the category of number of hospitalizations due to asthma over the past year.

The question in the survey was as follows:

*How many times has your child been hospitalized overnight in the last 12 months because of asthma? (Check one)*

- a. 0 times
- b. 1-2 times
- c. 3-5 times
- d. More than 5 times

Asthma is often seasonal in nature, with exacerbations tending to occur

more frequently in the spring and fall. In order to minimize the potential effects of skewing of the data, number of hospitalizations were measured over the past twelve months.

It was assumed that, although it might be difficult to recall the exact number of hospitalizations over the past twelve months, categories developed would assist respondents to correctly recall the category of number of hospitalizations of their child due to asthma. It is likely that hospitalization of a child is a traumatic event and respondents would likely be able to remember the relative category of number of hospitalizations over the last year. These categories were recoded into three categories; 1) 0 times; 2) 1-2 times; and 3) 3-5 times or more. It is generally agreed that a high number of hospitalizations due to asthma is three or more in a year.

The preceding discussion of research question one presents measurement of parental psychosocial variables as well as number of hospitalizations. The development of the questionnaire and measurement of demographic variables of both parents and children will now be presented in research question 2.

### **Research Question 2.**

**2. What are the relationships between and among: demographic**

**variables of both parents and children; psychosocial variables of parents; as well as the number of child hospitalizations due to asthma?**

The demographic variables of parents are: gender; family income; education; and geographic location of residence(rural or urban). The demographic variables of asthmatic children are: age; gender; severity of asthma; and duration of asthma. Psychosocial variables of parents are: parental knowledge of asthma; perceived parental confidence in self-management; and parental utilization of resources/services.

The following discussion will examine how the demographic variables of both parents and children were measured in this investigation.

#### **Demographic Variables of Child (Questions 31-34)**

Demographic variables were assessed by asking respondents to complete section E of the questionnaire (Appendix A).

##### **Age of Child (Question 31)**

Age of child was assessed by asking respondents to indicate age of child in

years on last birthday. This information was recoded into two categories to reduce the number of categories for analysis. The two age categories were five years of age and under, and six to nine years of age.

#### **Gender of Child (Question 32)**

Gender of child was measured by asking respondents to indicate if their child was male or female.

#### **Duration of Child's Asthma Variable (Question 33)**

Duration of child's asthma was measured by asking respondents to indicate the relative length of time their child has had asthma in one of three categories:

*less than a year*  
*1-2 years*  
*more than 2 years*

These three categories were selected in consultation with an asthma expert, a pediatric allergist. Children with asthma in the last year are generally considered newly diagnosed asthmatics. Children with asthma for one to two years would be considered relatively new asthmatics and children with asthma for two years would likely be considered more stable in terms of parental knowledge, confidence and management.

### Severity of Asthma Variable (Question 34)

Severity of asthma was assessed by using frequency of symptoms as a proxy measure for severity. Since there is no standard classification of severity of asthma, the current classification is based upon frequency of symptoms (Sheffer & Taggart, 1993). The categories of frequency of symptoms were developed in consultation with a pediatric allergist. Respondents were asked to report the frequency of asthma symptoms by selecting one of four categories. The question in the survey was:

*Which group best describes your child's asthma? (Check one)*

- a. Asthma symptoms only with colds or certain times of year*
- b. Asthma symptoms usually 1-2 times a week*
- c. Asthma symptoms most days*
- d. Does not fit into any of above*

Mild asthmatics generally have symptoms when they have colds and with seasonal allergies like dust and pollens in the spring, or stubble burning in the fall. Children with asthma that is classified as moderate, have symptoms a few times a week. Severe asthmatics have asthma symptoms generally almost daily. Some types of asthma are not grouped into a type. In order to take this into account, a "does not fit" category was developed. Sheffer & Taggart (1993) report a similar classification of severity.

**Section F. Demographic Variables of Respondents (Questions 38-41)**

Demographic variables of respondents were assessed by asking respondents to complete Section F of the questionnaire (Appendix A).

**Gender of Parent Variable (Question 38)**

Parental gender was assessed by asking respondents to indicate if they were either male or female.

**Education of Parent Variable (Question 39)**

Education of parent was assessed by asking respondents to identify their highest grade or year of school completed. The four categories were:

- a. Grade 1-9*
- b. High School*
- c. Some university/technical/college*
- d. Completed university/technical/college*

These categories were based on previous questionnaires that assessed education. These categories were recoded in two categories; 1) those with

high school or less, and 2) those respondents who had either some or completed some type of post-secondary education.

#### **Family Income (Question 40)**

Family income was assessed by asking respondents the following question:

*Please check the line which best represents your average total family income before taxes:*

- a. Under 10,000*
- b. 10,000-19,999*
- c. 20,000-29,999*
- d. 30,999-39,999*
- e. 40,000-60,000*
- f. Over 60,000*

These categories were selected from previous Canadian instruments that measured income and appear fairly standard. The distribution of income categories was similar to groupings contained in Statistics Canada surveys. This information was recoded into five categories to reduce the number of categories for analysis.



### **Geographical Location (Question 41)**

**Geographical location was determined by asking respondents to indicate if they lived in Winnipeg (inside the perimeter) or outside Winnipeg. Urban respondents were those who indicated that they lived in the city, inside the perimeter. Rural respondents were classified as respondents who indicated that they lived outside Winnipeg. This classification was based on relative proximity to services/programs at the Manitoba Lung Association. The majority of services and programs are available within Winnipeg.**

### **Validity of Instrument**

**A review of the literature did not reveal a valid, consistent instrument to measure the variables of interest in this investigation. As discussed previously, the instrument was developed primarily through the use of previous asthma questionnaires and new items were constructed on the basis of work-related experience of the investigator. Hence, only the most rudimentary type of validity could be determined. Face validity was determined by a panel of experts. In general, there was agreement among panel members that the questionnaire appeared to measure the variables of interest in this study.**

## **Conducting the Survey**

The questionnaire (accompanied by a cover letter) was sent to 500 randomly selected parents of children with asthma. The questionnaire and cover letter was submitted to the Faculty of Education Ethics Committee for approval. Ethics approval was obtained after the cover letter was revised (see Appendix D). The questionnaire was sent out in October 1995. The cover letter (see Appendix B) explained the purpose of the survey, who was collecting the data, assured anonymity and confidentiality, and stated that surveys were being tracked only for the purposes of sending a reminder note two weeks later. Parents were asked to complete and return the questionnaire. A post card reminder (see Appendix C) was mailed out to non-respondents two weeks after the mailing of the initial questionnaire to non-respondents. The reminder requested that parents return their survey as soon as possible and indicated that if they did not receive a copy of the survey, they could contact the investigator.

Parents on the mailing list were sent out the questionnaire and the first question asked was: *Do you have one or more children ages 9 years and under who has asthma?* If yes, they were asked to proceed to respond to the questions. No confirmation of medical diagnosis was elicited.

### **Response Rate**

The response rate was 60%. This was determined by using Dillman's formula for calculating response rates for surveys (Dillman, 1978).

Response rate = [number returned / (number in sample - (noneligible + nonreachable))] \* 100.

$$277 / (500 - (10 + 29)) * 100 = 60\%$$

There were 277 questionnaires returned, of these, ten were non-eligible. The respondents of these ten questionnaires indicated that they did not have a child nine years of age or under with asthma and hence did not meet the criteria for inclusion into the study. Twenty-nine surveys were returned because the respondent's address was unknown, and respondents could not be located.

Seventy-two percent (192/267) of all responses were received in the two week period following the initial mail out. The remaining 18% of all responses were received subsequent to the postcard reminder two weeks later.

Seventy-six percent of all respondents indicated they were from Winnipeg, and the remaining 24% of the sample indicated they lived outside Winnipeg.

in rural Manitoba. Hence, there was an exact match between the stratification of the theoretical sample and the actual sample.

Dillman (1978) states that to reduce error in estimating the population characteristics, it is important to know whether non-respondents differ from respondents. The extent of differences between respondents and non-respondents cannot be determined without extensive follow-up of non-respondents. In this study, there was no information available to compare respondents with non-respondents. The only information available on non-respondents was their name, address, phone number, name and birth date of child.

### **Data Analyses**

Data were coded, entered into the computer for SAS analysis. All data entries were checked for accuracy.

#### **Analyses of Survey Data Related to Research Questions**

Descriptive procedures were utilized to analyse the data. Frequency distributions of categorical variables were used to profile respondents. The analyses of this investigation are based upon 267 respondents.

### **Analyses of survey data related to research question #1.**

**The analyses of the survey data which relate to research question #1 was based on respondents' response to these variables: parental knowledge score; perceived parental confidence score; type and utilization of resources/services; and number of hospitalizations. Analyses tested the significance of each of these four variables in relation to each other.**

**Relationships between the variables were examined using the chi square test. The chi square test of significance is appropriate for data using percentages. The chi square statistic consists of the sum of the observed frequency of each cell minus the expected frequency for that cell, squared and then divided by each cell's expected frequency. This sum is then compared to the critical value of chi square at the appropriate degree of freedom and desired level of significance. LoBiondo-Wood & Haber (1994) states, "Chi-square is a non parametric test that is used to determine whether the frequency in each category is different from what would be expected by chance" (p. 414).**

**The level of significance selected was  $p < .05$ . This level appears to be generally accepted as the minimum level of statistical significance in research studies (Healey, 1990; LoBiondo-Wood &, 1990). The major limit of**

this level of significance is that the investigator had 5 chances out of 100 to be wrong in concluding that the results were not due to chance (Lo-Biondo-Wood & Haber, 1994). However, the likelihood of finding statistical significance increases with sample size. Consequently, the level of significance was set at  $p < .05$ , a realistic compromise between the probability of Type I and Type II errors (Healey, 1990).

Analyses of survey data related to research question #2.

- 2. What are the relationships between and among: demographic variables of both parents and children; psychosocial variables of parents; as well as the number of child hospitalizations due to asthma? The demographic variables of parents are: gender; family income; education; and geographic location of residence (rural or urban). The demographic variables of asthmatic children are: age, gender; severity of asthma; and duration of asthma. The psychosocial variables of parents are: parental knowledge of asthma; perceived parental confidence in self-management; and parental utilization of resources/services.**

**Relationships between and among demographic variables, psychosocial variables, as well as number of hospitalizations were examined. Chi-square analyses were used to determine statistical significance.**

## **Chapter 4**

### **Results**

The results of this study will be presented in five sections. Section A: Demographics of children; Section B: Demographics of respondents; Section C: Psychosocial variables of respondents; Section D: Number of hospitalizations variables; Section E: Results pertaining to research questions.

#### **Section A. Demographics of Children with Asthma**

The sample was divided into subgroups according to the variables under investigation. Table 2 summarizes the demographic variables of the respondents' children.



Table 2

**Demographics of Children with Asthma (N=245)**

| <b>Age of Child<br/>(N = 255)</b>           | <b>Urban</b>     | <b>Rural</b>    | <b>Total</b> | <b>Percentage of<br/>Respondents</b> |
|---|------------------|-----------------|--------------|--------------------------------------|
| 0-5   | 64               | 16              | 80           | 33%                                  |
| 6-9   | 123              | 52              | 175          | 67%                                  |
| <b>Total</b>                                | <b>187 (76%)</b> | <b>58 (24%)</b> | <b>245</b>   | <b>100%</b>                          |
| <b>Gender of Children (N = 245)</b>         |                  |                 |              |                                      |
| Male  | 118              | 36              | 154          | 63%                                  |
| Female                                      | 69               | 22              | 91           | 37%                                  |
| <b>Duration of Child's Asthma (N = 245)</b> |                  |                 |              |                                      |
| <1 year                                     | 10               | 2               | 12           | 5%                                   |
| 1-2 years                                   | 23               | 7               | 30           | 12%                                  |
| >2 years                                    | 154              | 49              | 203          | 83%                                  |
| <b>Severity of Asthma (N = 245)</b>         |                  |                 |              |                                      |
| Mild  | 150              | 43              | 193          | 79%                                  |
| Moderate                                    | 9                | 1               | 10           | 4%                                   |
| Severe                                      | 14               | 8               | 22           | 9%                                   |
| Doesn't fit                                 | 13               | 7               | 20           | 8%                                   |
| <b>Total</b>                                | <b>186</b>       | <b>59</b>       | <b>245</b>   | <b>100%</b>                          |

Note: Percentages are rounded off.

### **Age of Child Variable**

Table 2 shows that over two-thirds of children in the sample were between the ages of six to nine years. The remaining children were five years and under.

### **Gender of Child Variable**

The majority of children were male according to Table 2. In this study, 63% of respondents reported having a male child with asthma, and the remaining 37% of the children were female. A greater number of males than females with asthma is consistent with the reports in the literature. This unexplained epidemiological feature of asthma is well documented in the literature (Anderson, Bland, Patel & Peckham, 1986; Blair, 1977; Gergen, Mullaly & Evans, 1988; Horwood, Fergusson & Shannon, 1985; Karetzky, 1977; Lee, Winslow, Speight & Hey, 1983; Mak, Johnston, Abbey & Talamo, 1982; Manfreda et al., 1993; Peckham & Butler, 1978; Taylor & Newacheck, 1992). This study provides evidence to support this.

### **Duration of Child's Asthma Variable**

Five percent of the population had their asthma for less than a year. This

indicates a relatively stable group with only a few diagnosed in the last year and only 12% of the sample having been diagnosed in the last one-to-two years. The majority of respondents in this sample reported that their child has had asthma for longer than two years.

### **Severity of Asthma Variable**

Seventy-nine percent of respondents reported that their child had mild asthma. Only 9% of respondents reported that their child had severe asthma, and the remaining 4% were classified as moderate.

### **Summary of Demographic Variables of Children**

In summary, the majority of respondents' children were males between the ages of six to nine years, who had mild asthma for more than two years.

### **Section B. Demographic Variables of Respondents**

Table 3 reflects the demographic characteristics of the respondents.

Table 3

**Demographics of Respondents**


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|  | Urban      | Rural     | Total | Percentage of Respondents |
|--|------------|-----------|-------|---------------------------|
| <b>Gender (N = 260)</b>                |            |           |       |                           |
| Male                                   | 5          | 19        | 24    | 9%                        |
| Female                                 | 59         | 177       | 236   | 91%                       |
| Total                                  | 64         | 196       | 260   | 100%                      |
| <b>Education (N = 260)</b>             |            |           |       |                           |
| Completed Grades 9-12                  | 52         | 25        | 77    | 30%                       |
| Some university/ completed             | 144        | 39        | 183   | 70%                       |
| Total                                  | 196        | 64        | 260   | 100%                      |
| <b>Income (N = 233)</b>                |            |           |       |                           |
| Under \$20,000                         | 13         | 0         | 13    | 6%                        |
| \$20,000-29,999                        | 22         | 15        | 37    | 16%                       |
| \$30,000-39,999                        | 22         | 13        | 35    | 15%                       |
| \$40,000-60,000                        | 70         | 15        | 85    | 36%                       |
| Over \$60,000                          | 49         | 14        | 63    | 27%                       |
| Total                                  | 176        | 57        | 233   | 100%                      |
| <b>Geographical Location (N = 262)</b> |            |           |       |                           |
|  | 198<br>76% | 64<br>24% |       |                           |

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### **Gender of Parent**

The majority of respondents in this sample were female. Only 9% of respondents were male.

### **Education Of Parent**

Table 3 illustrates the distribution of categories of education of respondents. This distribution reflects that the respondents in this study were highly educated. Seventy percent of respondents reported having some or completed post-secondary education. The remaining 30% of respondents reported having grade 12 education or less.

### **Income of Respondents**

Table 3 presents the distribution of income categories of the sample. As the table shows, lower income categories are under represented. The majority of respondents fell into higher income categories

Almost two-thirds of the respondents reported a family income of \$40,000 and over. This variable had the highest reported frequency of missing responses, 13% of respondents did not report family income.

### **Urban/Rural**

Table 3 illustrates the geographical location of respondents. Approximately three-quarters of the population were urban. The remaining one-quarter of the sample was from rural Manitoba. The stratification of the sample matched the theoretical sample.

### **Summary of Demographics of Respondents**

Overall, the demographic profile of respondents in this study indicates that the majority of respondents were well-educated, urban females, and had a family income of more than \$40,000.

### **Section C. Psychosocial Variables of Respondents**

The following section discusses the findings of psychosocial variables.

#### **Knowledge Variable**

As discussed in Chapter 3, high knowledge was indicated by respondents scoring 85% and greater. Low knowledge was indicated by respondents scoring less than 85%. Table 4 reports the distribution of knowledge scores

in these two categories. Overall, knowledge scores were quite high.

**Table 4**

**Knowledge of Respondents (N=260)**

---

|                  |           |
|------------------|-----------|
| Low < 85         | 66 (25%)  |
| High <u>≥</u> 85 | 194 (75%) |

---

Table 4 indicates that respondents' knowledge about asthma is very good. Seventy-five percent of respondents scored in the high knowledge category. These findings support Spykerboer, Donnelly, & Thong (1986) findings that parental knowledge of asthma is good. Their study indicated that over two-thirds of respondents had high knowledge scores. However, this contradicts Mesters (1993) and Van Asperen, Jandera, De Neef, Hill & Law (1986) who reported sub-optimal knowledge. It is worth noting that the studies that reported sub-optimal knowledge included questions on parental opinions about asthma medicines and their effects on children. This might explain lower knowledge scores in these studies. This study did not include parental opinions about asthma medicines in the knowledge test.

The question most frequently answered incorrectly was: "*Children with*

*asthma will outgrow their asthma as they get older.*” The correct response is “*don’t know.*” Some children may outgrow their asthma. Sixty-nine percent of respondents answered incorrectly. However, it should be noted that 47% of respondents selected “false” as their response to this question. This finding is supported in the relevant literature. This is consistent with Mesters (1993) needs assessment study that reported many parents believed their child would outgrow their asthma.

Another question frequently answered incorrectly was, “*It can be cured with proper use of medicines.*” Seventeen percent of respondents responded incorrectly. Table 5 illustrates the breakdown of these responses.

Table 5

**Incorrectly Answered**

|   | <b>True</b>     | <b>False</b>     | <b>Don't Know</b> |
|---|-----------------|------------------|-------------------|
| <b>Children with asthma will outgrow their asthma as they get older (N = 254)</b> | <b>57 (22%)</b> | <b>120 (47%)</b> | <b>77 (30%)</b>   |
| <b>It can be cured with proper use of medicines (N = 260)</b>                     | <b>43 (17%)</b> | <b>203 (78%)</b> | <b>14 (5%)</b>    |

Note: Total percentages may not equal 100% due to rounding of percentages.



In summary, respondents' knowledge was very good with only a few questions answered incorrectly.

### **Medicines**

Although this section was primarily collected for the needs assessment, it is worth noting the findings concerning parental responses to medicines and their side-effects. Respondents generally reported being unsure about asthma medicines. Thirty-four percent did not know if taking steroids for more than one week is harmful or not. Twenty-three percent of respondents did not know if asthma medicines were harmful to young children and 21% did not know if asthma medicines were addicting. Table 6 reports respondents' scores on these questions. Income and education levels did not appear to be related to the incorrect responses of respondents.

In summary, respondents appear less decisive about asthma medicines. This appears to be a common finding in the literature. Donnelly, Donnelly, & Thong (1987); Donnelly, Donnelly & Thong (1989); Mesters, Pieterse & Meertens (1991); and Smith, Seale, & Shaw (1984) reported that parents expressed concerns that asthma medicines were addictive and harmful to children.

Table 6

**Asthma Medicines (N = 259)**


---

|   | <b>True</b> | <b>False</b> | <b>Don't Know</b> |
|---|-------------|--------------|-------------------|
| 1. Taking steroid pills for more than 1 week is harmful to young children | 80 (31%)    | 91 (45%)     | 88 (34%)          |
| 2. Asthma medicines are harmful to young children                         | 28 (11%)    | 173 (67%)    | 59 (23%)          |
| 3. Asthma medicines are addicting   | 21 (8%)     | 188 (72%)    | 54 (21%)          |

---

Note: Total percentages may not equal 100% due to rounding of percentages.

In this study, the most frequently selected topics/information about asthma selected by respondents were medicines, effects, and their side-effects (see Table 7). This supports the findings that respondents are concerned and unsure about asthma medicines and effects.

Table 7

**Selected Topics (N = 242)**


---

| <b><u>Topics</u></b>             | <b><u>No. of Respondents</u></b> | <b><u>Percentage of Respondents</u></b> |
|----------------------------------|----------------------------------|---|
| Medicines, effects, side-effects | 204                              | 84%                                     |
| Indoor/outdoor pollutants        | 140                              | 58%                                     |
| Prevention                       | 122                              | 50%                                     |
| Managing better                  | 119                              | 49%                                     |
| Understanding better...          | 107                              | 44%                                     |
| Allergy proofing                 | 106                              | 44%                                     |
| Other                            | 47                               | 19%                                     |

---

Note: Percentages are rounded off. Total exceeds 100% as respondents were asked to check more than one response.

### **Side Effects**

Although the data in this section were collected and analyzed for the needs assessment, the findings are worth presenting. Since pharmacotherapy is the principal modality of treatment of asthma, parental understanding of

side-effects was examined in this study. The literature in this area reports parental understanding as sub-optimal (Donnelly et. al, 1987).

In this study, many respondents knew little about the side-effects of asthma medicines. Less than half of the respondents using Ventolin reported the most common side effect--rapid heart rate. Reporting of side-effects in inhaled steroids was even less favorable. Table 8 clearly illustrates this. Respondents also incorrectly attributed growth problems to Ventolin and to inhaled steroids. A cautionary note is required about these findings. It appears that some respondents reported the side-effects their child experienced rather than their knowledge of side-effects from the drug.

Table 8

**Side-Effects (N = 211)**

| <b>Effects</b>   | <b>Ventolin</b> | <b>Beclovent</b> | <b>Pulmicort</b> | <b>Intal</b> |
|------------------|-----------------|------------------|------------------|--------------|
|                  | 196 (93%)       | 86 (41%)         | 64 (30%)         | 52 (25%)     |
| Tremors          | 55 (28%)        |                  |                  |              |
| Nervousness      | 64 (33%)        |                  |                  |              |
| Wheezing         | 9 (4%)          |                  |                  |              |
| Fast heart rate  | 89 (45%)        |                  |                  |              |
| Coughing         | 61 (31%)        |                  |                  | 21 (40%)     |
| Headache         | 35 (18%)        |                  |                  |              |
| Trouble sleeping | 53 (27%)        |                  |                  |              |
| Sore throat      |                 | 18 (21%)         | 16 (25%)         |              |
| Hoarseness       |                 | 7 (7%)           | 11 (17%)         |              |
| Yeast infection  |                 | 24 (28%)         | 19 (30%)         |              |
| Growth problems* | 27 (14%)        | 9 (4%)           | 18 (28%)         |              |

\* = misconception

Note: Percentages are rounded off. Total exceeds 100% as respondents were asked to check more than one response.

### **Perceived Parental Confidence Variable**

As discussed previously, confidence scores were recoded into three

categories: high, mid, and low confidence (see Table 9). The majority of respondents reported being highly confident, with the remaining respondents distributed equally between mid and low confidence scores.

Table 9

**Confidence Distribution (N=260)**

---

|                |           |
|----------------|-----------|
| High = 10      | 163 (63%) |
| Mid = 8, 9     | 46 (18%)  |
| Low = $\leq$ 7 | 51 (19%)  |

---

Sixty-three percent of respondents reported being confident on all ten questions. Only 19% of respondents reported low confidence. Overall, respondents reported being highly confident in their ability to manage their child's asthma. Clark, Feldman, Freudenberg, Millman, Wasilewski & Valle (1979) reported parents were generally confident in managing their child's last asthma attack.

The most frequently reported "undecided" response in this section was:

*"How confident are you deciding when to take your child to the hospital if necessary?"* Thirteen percent of respondents reported being undecided in their level of confidence.

The scenario in which respondents' most frequently reported low confidence was: *"How confident are you in deciding how serious the attack is?"* Seven percent of respondents reported being either a "little confident" or "not at all confident" about their level of confidence.

In summary, respondents were highly confident in their perceived ability to manage their child's asthma. There were only two scenarios in which respondents reported a low confidence level or were undecided about what they might do. It is noteworthy that respondents reported high confidence in scenarios that involved administering asthma medications and evaluating their effectiveness.

### **Utilization of Resources/Services Variables**

As discussed in Chapter 3, the utilization of resources and services were measured by parental response to two close-ended questions in section D which asked them which of the programs at the Manitoba Lung Association did they use, and which sources of information did they use over the last 12 months to get information about asthma. Utilization of resources and services were divided into two subsets; utilization of resources variable, and utilization of services variable.

### Utilization of Services Variable

Table 10 identifies the utilization of services at the Manitoba Lung Association.

Table 10

#### Utilization of Services (N= 263)

| Service/Program       | No. of Respondents | Percentage of Respondents |
|-----------------------|--------------------|---------------------------|
| Information/pamphlets | 241                | 92%                       |
| Asthma Lecture Series | 138                | 53%                       |
| Asthma Care Training  | 65                 | 25%                       |
| Breathe Free Camp     | 2                  | <1%                       |
| Concerned Parents     | 29                 | 11%                       |

Note: Total exceeds 100% as respondents were asked to check more than one response.

The majority of respondents reported using the service of information/pamphlets about childhood asthma. Just over half of respondents reported using the Asthma Lecture Series. The vast majority (95%) had children five years of age and older and were more likely to live in the city.



A large majority of respondents did not utilize Asthma Care Training. Further analyses showed that the majority of users of this program had children five years and older.

Breathe Free Camp was the program least frequently selected. It appears that this service was poorly utilized by children in this sample. Children ages nine and under would be less likely to attend a 14 day camp than older children. The measurement of utilization of services was not time-dependent. The investigator did not measure when the services were utilized.

In conclusion, the most frequently utilized program/service at the Manitoba Lung Association was information and pamphlets about childhood asthma. This service does not require on-site attendance. Attendance at on-site programs was reported as low. This finding was supported in the literature (Klingelhofer, 1987; Weiss & Hermalin, 1986).

#### **Utilization of Resources Variable**

As discussed in Chapter 3, utilization of resources was measured by asking respondents to indicate the sources of information they utilized in the last 12 months to get information about asthma. Respondent responses were

categorized into five of the types of sources; Medical, Manitoba Lung Association (MLA), Friends, relatives and neighbors, Media, and Health stores (see Table 11).

Table 11

Resources (N=260)

---

| Resource                        | Utilized  | Not Utilized |
|---------------------------------|-----------|--------------|
| Medical                         | 255 (98%) | 5 (2%)       |
| Manitoba Lung Association       | 179 (69%) | 81(31%)      |
| Friends, Relatives & Neighbours | 105 (40%) | 155 (60%)    |
| Media                           | 173 (67%) | 87 (33%)     |
| Health Store                    | 11 (4%)   | 249 (96%)    |

---

Note: Percentages were rounded off. Total exceeds 100% as respondents were asked to check more than one response.

The most frequently reported resource for information about asthma in the last 12 months was medical resources. Virtually all respondents report utilizing medical resources in the last 12 months. Further analyses of this category indicate that the majority of respondents selected two to three of

the possible medical choices in this category. This is not surprising, since medical management of childhood asthma is the primary method of treatment. Only two percent of the sample did not utilize medical resources for information about asthma. This supports Buller, Callister & Reichert (1995) findings that parents' most frequent source of information was from health care providers.

The other frequently selected category was the Manitoba Lung Association. Sixty-nine percent of the respondents in this study reported using the Manitoba Lung Association as a resource for information over the last 12 months. This is not a surprising finding, since the population were taken from the mailing list of the Manitoba Lung Association. The media were also a frequently identified source by 67% of respondents.

In summary, respondents reported utilizing a variety of resources of information about asthma. The most frequently selected type of resource reported was medical. The least frequently selected resource was the health store. In a study of health information sources of parents of young children relating to skin cancer prevention, parents frequently utilized more than one source of information (Buller, Callister, and Reichert, 1995). They also reported that the most frequent resource for information were health care providers. Mesters (1993) reported that 85% of parents of children with

asthma recently consulted a physician. Hence, this study provides support for the finding that parents tend to use more than one resource for information, and the most frequently selected resource is medical.

#### **Section D. Number of Hospitalizations Variable**

As stated previously, the number of hospitalizations was measured by respondents selecting a category reflecting the number of hospitalizations for asthma over the past 12 months (see Table 12).

Table 12

#### **Number of Hospitalizations (N= 251)**

---

|                      |           |
|----------------------|-----------|
| 0 times              | 231 (92%) |
| 1-2 times            | 19 (8%)   |
| 3-5 times<br>or more | 1 (<1%)   |

---

Note: Total percentages may not equal 100% due to rounding of percentages.

The majority (92%) of respondents reported that their children had not been hospitalized because of asthma over the past 12 months. Eight percent of

respondents reported that their child had been hospitalized one to two times in the past 12 months because of asthma, and less than 1% reported being hospitalized three times or greater.

Hospitalizations due to asthma are often used as an outcome measure of morbidity. The majority of the children in this study were mild asthmatics and thus they will be more likely to experience lower hospitalization rates in comparison to more severe asthmatics, who would likely be more unstable and thus require hospitalizations to manage acute episodes.

### **Summary of Psychosocial Variables and Outcome Variable- Number of Hospitalizations**

In summary, respondents reported high knowledge, high confidence, and frequently reported utilizing medical resources for information about asthma in the past 12 months. Respondents also reported a low number of hospitalizations, and a low utilization of available on-site programs/services for childhood asthma.

This next section examines the findings with respect to the two research questions.

## **Section E. Analyses of variables in research questions**

### **Research Question 1**

- 1. What are the relationships between and among psychosocial variables of parents of children with asthma (ages nine and under) and an outcome variable - the number of child hospitalizations due to asthma? The psychosocial variables are: parental knowledge of asthma; perceived parental confidence in self-management; and utilization of resources/services.**

Chi-square analyses of variables under investigation in research question one demonstrate three statistically significant relationships found between these four variables. The following discussion presents these associations. Table 13 indicates an association between high knowledge of respondents and utilization of the media as a resource of information about asthma. It is worth noting that knowledge was highly skewed in this sample, the majority of respondents reported high knowledge. There was no difference demonstrated between users and non-users with respect to low knowledge. This relationship had not been previously examined in the literature.

Table 13

**Knowledge Level by Utilization of Media Resources**


---

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Media                          |                               | Total        |
|--|--------------------------------|-------------------------------|--------------|
| Knowledge                                  | Used Source                    | Not Used Source               |              |
| Low <85                                    | 39<br>15<br>54.93<br>22.54     | 32<br>12.31<br>45.07<br>36.78 | 71<br>27.31  |
| High >=85                                  | 134<br>51.54<br>70.90<br>77.46 | 55<br>21.15<br>29.10<br>63.22 | 189<br>72.69 |
| Total                                      | 173(66.54)                     | 87(33.46)                     | 260(100)     |

## Statistics for Table of Knowledge by Media

| Statistic  | DF | Value | Probability      |
|------------|----|-------|------------------|
| Chi-Square | 1  | 5.912 | 0.015 (p < 0.05) |

---

The second statistically significant relationship was found between knowledge and utilization of services (see Table 14).

Table 14

**Knowledge Level by Utilization of Information/Pamphlets Service**


---

| Knowledge      | Information/Pamphlets          |                              | Total        |
|----------------|--------------------------------|------------------------------|--------------|
|                | Used Service                   | Not Used Service             |              |
| Low <85        | 62<br>23.57<br>83.78<br>25.73  | 12<br>4.56<br>16.22<br>54.55 | 74<br>28.14  |
| High $\geq$ 85 | 179<br>68.06<br>94.71<br>74.27 | 10<br>3.80<br>5.29<br>45.45  | 189<br>71.86 |
| Total          | 241(91.63)                     | 22(8.37)                     | 263(100)     |

**Statistics for Table of Knowledge by Information/Pamphlets**


---

| Statistic  | DF | Value | Prob.            |
|------------|----|-------|------------------|
| Chi-Square | 1  | 8.281 | 0.004 (p < 0.05) |

---

Table 14 reflects an association between knowledge and utilization of information/pamphlets about asthma. The majority of respondents who used this service scored higher with respect to knowledge. However, Table 14 indicates that the sample was skewed with respect to both knowledge and use of this service.



The final statistically significant relationship with respect to psychosocial variables was found between knowledge level and utilization of Asthma Lecture Series (see Table 15).

Table 15

Knowledge Level by Utilization of Asthma Lecture Series

| Knowledge | Asthma Lecture Series          |                               | Total        |
|-----------|--------------------------------|-------------------------------|--------------|
|           | Used Service                   | Not Used Service              |              |
| Low <85   | 31<br>11.79<br>41.89<br>22.46  | 43<br>16.35<br>58.11<br>34.40 | 74<br>28.14  |
| High ≥85  | 107<br>40.68<br>56.61<br>77.54 | 82<br>31.18<br>43.39<br>65.60 | 189<br>71.86 |
| Total     | 138(52.47)                     | 125(47.53)                    | 263(100)     |

Statistics for Table of Knowledge by Asthma Lecture Series

| Statistic  | df | Value | Prob.            |
|------------|----|-------|------------------|
| Chi-Square | 1  | 4.622 | 0.032 (p < 0.05) |

Table 15 indicates a relationship between respondents knowledge scores

and use of this service. The majority of respondents who scored high knowledge reported using Asthma Lecture Series service. Again, one must be aware of the skewing of the sample with regard to knowledge scores.

Both knowledge and confidence scores were highly skewed in this study, with the majority of respondents reporting both high knowledge and confidence levels. Thus, there was little variability in the subgroups.

Utilization of resources also was very highly skewed in some categories. As reported earlier, 98% of respondents reported using medical resources in the last 12 months. As a result of skewed data, further examination of relationships cannot be determined.

As stated previously, the reported number of hospitalizations of children in this study was also low, reflecting the low severity of asthma of the children in this sample. Thus, further analyses cannot be determined.

### **Summary of Results of Analyses of Variables in Research**

#### **Question 1.**

Respondents in this sample were highly knowledgeable, highly confident, utilized a variety of resources for information about asthma, and reported a

low number of hospitalizations for asthma over the past year.

Statistically significant relationships were found between knowledge and utilization of resources/services. It appears that those who scored higher on knowledge, utilized information/pamphlets about childhood asthma and/or attended Asthma Lecture Series. Both of these services were utilized more frequently by respondents.

### **Discussion of Results**

Many asthma education programs report an increase in parental knowledge after attendance or participation in an asthma education program (Brook, Mendelberg & Heim, 1993; Duffy & Halloran, 1989; Hindi-Alexander & Cropp, 1981; Van Asperen, Jandera, De Neef, Hill & Law, 1986). This study supports higher knowledge levels with information and attendance at an on-site program for asthma self-management.

Carson et al. (1991) reported a relationship between increasing knowledge and increased perceived ability to manage their child's asthma in an evaluation of an asthma education program. Respondents in this study reported both high knowledge and confidence, but did not substantiate a statistically significant relationship between knowledge and confidence.

In a pilot study, Brook, Mendelberg, & Heim (1993) reported that increasing parental knowledge of asthma decreased the hospitalization of the child. This study did not find a statistically significant relationship between knowledge and hospitalizations. A possible explanation could be that an association was obscured due to the nature of the sample.

The next section examines the findings with respect to the variables of interest of research question 2.

### **Research Question 2**

- 2. What are the relationships between and among: demographic variables of both parents and children; psychosocial variables of parents; as well as the number of child hospitalizations due to asthma? The demographic variables of parents are: gender; family income; education; and geographic location of residence(rural or urban). The demographic variables of asthmatic children are: age, gender; severity of asthma; and duration of asthma. Psychosocial variables of parents are: parental knowledge of asthma; perceived parental confidence in self-management; parental utilization of resources/services.**

There were several statistically significant relationships found with respect

**to this second research question. The statistically significant relationships are presented and discussed below.**

**There was a statistically significant relationship found between respondents knowledge and education level (see Table 16).**

Table 16

**Knowledge Level by Education of Respondent**


---

| Knowledge | Education                     |                                | Total        |
|-----------|-------------------------------|--------------------------------|--------------|
|           | High School                   | Uni/college                    |              |
| Low <85   | 29<br>11.11<br>41.43<br>37.66 | 41<br>15.71<br>58.57<br>22.28  | 70<br>26.82% |
| High >=85 | 48<br>18.39<br>25.13<br>62.34 | 143<br>54.79<br>74.87<br>77.72 | 191<br>73.18 |
| Total     | 77(29.50%)                    | 184(70.50%)                    | 261 (100.0)  |

**Statistic for Table of Knowledge by Education of Parent**

| Statistic  | DF | Value | Prob.            |
|------------|----|-------|------------------|
| Chi-Square | 1  | 6.542 | 0.011 (p < 0.05) |

---

There was an association between knowledge and education of respondents. The majority of respondents who scored high on the knowledge test reported being in the higher education category. This association had not been reported on in the relevant literature.

There was a statistically significant relationship found between perceived parental confidence and reported duration of child's asthma (see Table 17).

Table 17

**Duration of Child's Asthma by Perceived Parental Confidence**

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Confidence                     |                               |                               | Total        |
|--|--------------------------------|-------------------------------|-------------------------------|--------------|
|  | High                           | Mid                           | Low                           |              |
| Less than<br>1 year                        | 5<br>2.01<br>41.67<br>3.11     | 3<br>1.20<br>25.00<br>7.32    | 4<br>1.61<br>33.33<br>8.51    | 12 (4.82%)   |
| 1-2 times                                  | 17<br>6.83<br>56.67<br>10.56   | 2<br>.80<br>6.67<br>4.88      | 11<br>4.42<br>36.67<br>23.40  | 30 (12.05%)  |
| More than<br>2 years                       | 139<br>55.82<br>67.15<br>86.34 | 36<br>14.46<br>17.39<br>87.80 | 32<br>12.85<br>15.46<br>68.09 | 207 (83.13%) |
| Total                                      | 161<br>64.66                   | 41<br>16.47                   | 32<br>18.88                   | 249 (100%)   |

**Statistics for Duration of child's asthma by perceived parental Confidence**

| Statistic  | DF | Value  | Prob.            |
|------------|----|--------|------------------|
| Chi-Square | 4  | 11.504 | 0.021 (p < 0.05) |

Caution - one-third of the cells have expected counts less than 5.

Table 17 indicates that respondents scoring high confidence reported that their child had asthma for more than two years. This relationship had not been reported in the literature. The relationship does seem logical. The major source of expectation of self-efficacy is previous performance accomplishments (Schlosser & Havermans, 1992). Hence, successful performance of asthma management behaviors over time would lead to increased perceived parental capabilities. One might expect that the longer the child has had their asthma, the more confident the parent would be. One should note that 86% of respondents in the study reported having children who have had their asthma for longer than two years. Skewing of the data indicates under representation of respondents reporting low confidence scores and short duration of child's asthma.

There was a statistically significant relationship between number of hospitalizations and duration of child's asthma (see Table 18).



Table 18

**Duration of Child's Asthma By Number of Hospitalizations**

| Length of Asthma | Number of Hospitalizations |                 |                 | Total           |
|------------------|----------------------------|-----------------|-----------------|-----------------|
|                  | 0 times                    | 1-2 times       | 3 or more times |                 |
| <1 year          | 8                          | 4               | 0               | 12              |
|                  | 3.21                       | 1.61            | 0               | 4.82            |
|                  | 66.67                      | 33.33           | 0               |                 |
|                  | 3.49                       | 21.05           | 0               |                 |
| 1-2 years        | 26                         | 4               | 0               | 30              |
|                  | 10.44                      | 1.61            | 0               | 12.05           |
|                  | 86.67                      | 13.33           | 0               |                 |
|                  | 11.35                      | 21.05           | 0               |                 |
| >2 years         | 195                        | 11              | 1               | 207             |
|                  | 78.31                      | 4.42            | 0.40            | 83.13           |
|                  | 94.20                      | 5.31            | 0.48            |                 |
|                  | 85.15                      | 57.89           | 100             |                 |
| <b>Total</b>     | <b>221(91.97)</b>          | <b>19(7.63)</b> | <b>1(0.40)</b>  | <b>249(100)</b> |

**Statistics for Table of Duration of Child's Asthma By Number of Hospitalizations**

| Statistic  | df | Value  | Prob.            |
|------------|----|--------|------------------|
| Chi-Square | 4  | 14.366 | 0.006 (p < 0.05) |

Warning: 56% of cells have expected counts less than 5.

Table 18 indicates an association between those not hospitalized in the past

twelve months and children with asthma for more than two years.

Respondents who reported that their child had not been hospitalized over the past 12 months because of asthma had children with asthma for longer than two years. Both variables were highly skewed, with both the majority of children have never been hospitalized and had their asthma for longer than two years. Although this relationship has not been previously reported in the literature, it does appear to be plausible, given the nature of the sample. Respondents were both highly knowledgeable, and highly confident in management of their childrens' asthma. The children in this sample had a very low hospitalization rate, possibly reflecting respondent's high knowledge and confidence, and the children's low severity of their illness.

Statistical significance was also found between gender of respondent and utilization of Asthma Care Training (see Table 19).

Table 19

**Gender of Respondent by Utilization of Asthma Care Training**

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Asthma Care Training          |                                | Total        |
|--|-------------------------------|--------------------------------|--------------|
|  | Used Service                  | Not Used Service               |              |
| <b>Gender</b>                              |                               |                                |              |
| <b>Male</b>                                | 10<br>3.88<br>41.67<br>15.63  | 14<br>5.43<br>58.33<br>7.22    | 24 (9.30%)   |
| <b>Female</b>                              | 54<br>20.93<br>23.08<br>84.38 | 180<br>69.77<br>76.92<br>92.78 | 234 (90.70%) |
| <b>Total</b>                               | 62 (24.81%)                   | 194(75.19%)                    | 258(100%)    |

**Statistics for Table of Gender of Parent by Use of Asthma Care Training**

| Statistic  | DF | Value | Prob             |
|------------|----|-------|------------------|
| Chi-Square | 1  | 4.033 | 0.045 (p < 0.05) |

It appears that more females did not utilize this service. However, the vast majority of respondents were female.

There was also statistical significance found between where respondents lived and utilization of Asthma Care Training (see Table 20).

Table 20

**Geographical Location by Use of Asthma Care Training Program**

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Asthma Care Training          |                             | Total       |
|--|-------------------------------|-----------------------------|-------------|
|  | Used Service                  | Not Used                    |             |
| In Winnipeg                                | 40<br>15.50<br>20.41<br>63.49 | 156<br>60.47<br>79.59<br>80 | 196 (75.97) |
| Outside                                    | 23<br>8.91<br>37.10<br>36.51  | 39<br>15.12<br>62.90<br>20  | 62 (24.03%) |
| Total                                      | 63 (24.62%)                   | 195 (75.58%)                | 258 (100%)  |

**Statistics for Table of Geographic Location by Use of Asthma Care Training**

| Statistic  | DF | Value | Prob.            |
|------------|----|-------|------------------|
| Chi-Square | 1  | 7.108 | 0.008 (p < 0.05) |

Table 20 indicates an association between rural respondents and their utilization of this service. Those who lived in rural Manitoba utilized this service more frequently than respondents who lived in the city.

Table 21 reveals a statistically significant finding between age of child and utilization of Asthma Lecture Series.

Table 21

**Age of Child by Utilization of Asthma Lecture Series**


---

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Asthma Lecture Series         |                            | Total        |
|--|-------------------------------|----------------------------|--------------|
|  | Used Service                  | Not Used                   |              |
| Age of Child<br>≤5                         | 44<br>16.73<br>44.44<br>31.88 | 55<br>20.91<br>55.56<br>44 | 99 (37.64%)  |
| Age 6-9                                    | 94<br>35.74<br>57.32<br>68.12 | 70<br>26.62<br>42.68<br>56 | 164 (62.36%) |
| Total                                      | 138 (52.47%)                  | 125 (47.53%)               | 263 (100%)   |

**Statistics for Table of Age of Child by Asthma Lecture Series**


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| Statistic  | DF | Value | Prob.            |
|------------|----|-------|------------------|
| Chi-Square | 1  | 4.102 | 0.043 (p < 0.05) |

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The nature of this relationship is that respondents with children between six and nine years reported using this service more frequently. It may be that the topics are more suitable for parents of this age group.

Unfortunately, when the service was utilized was not determined.

Statistical significance was found between reported family income and

**utilization of medical resources as sources of information about asthma (see Table 22).**

Table 22

Income by Use of Medical Resources

| Income                | Medical     |                 | Total    |
|-----------------------|-------------|-----------------|----------|
|                       | Used Source | Not Used Source |          |
| <\$19,999             | 13          | 0               | 13       |
|                       | 5.68        | 0               | 5.68     |
|                       | 100         | 0               |          |
|                       | 5.78        | 0               |          |
| \$20,000-<br>\$29,999 | 37          | 0               | 37       |
|                       | 16.16       | 0               | 16.16    |
|                       | 100         | 0               |          |
|                       | 16.44       | 0               |          |
| \$30,999-<br>\$39,999 | 32          | 3               | 35       |
|                       | 13.97       | 1.31            | 15.28    |
|                       | 91.43       | 8.57            |          |
|                       | 14.22       | 75              |          |
| \$40,000-<br>\$49,999 | 83          | 0               | 83       |
|                       | 36.24       | 0               | 36.24    |
|                       | 100         | 0               |          |
|                       | 36.89       | 0               |          |
| >\$60,000             | 60          | 1               | 61       |
|                       | 26.20       | 0.44            | 26.64    |
|                       | 98.36       | 1.64            |          |
|                       | 26.67       | 25              |          |
| Total                 | 225(98.25)  | 4(1.75)         | 229(100) |

## Statistics for Table of Income by Medical Resources

| Statistic  | df | Value  | Prob.            |
|------------|----|--------|------------------|
| Chi-Square | 4  | 11.867 | 0.018 (p < 0.05) |

Caution: 50% of cells have expected counts less than 5.

It appears that those who reported higher income levels used medical resources more. This finding is consistent with U.S. findings that report lower income groups utilize health care service at a lower rate than higher income groups (Kaplan & Macie-Taylor, 1985; Mullen & Mullen, 1983; Newacheck & Starfield, 1988).

A caution is required due to the high skewing of both higher income levels and high utilization of this source. As a result of this skewing, it is impossible to compare non-users and respondents in lower income categories.

There was a statistically significant relationship found between respondents level of education and utilization of medical resources as sources of information about childhood asthma (see Table 23).



Table 23

**Education Level of Respondent by Use of Medical Resources**

| Education              | Medical Resources              |                         | Total        |
|------------------------|--------------------------------|-------------------------|--------------|
|                        | Used Source                    | Not Used Source         |              |
| High School            | 71<br>27.95<br>94.67<br>28.51  | 4<br>1.57<br>5.33<br>80 | 75<br>29.53  |
| University/<br>College | 178<br>70.08<br>99.44<br>71.49 | 1<br>0.39<br>0.56<br>20 | 179<br>70.47 |
| Total                  | 249(98.03)                     | 5(1.97)                 | 254(100)     |

**Statistics for Table of Education by Medical Resources**

| Statistic  | df | Value | Prob.            |
|------------|----|-------|------------------|
| Chi-Square | 1  | 6.244 | 0.012 (p < 0.05) |

**Warning: 50% of cells have expected counts less than 5.**

Table 23 indicates that respondents who reported higher education levels utilized medical resources more frequently. An American study done by Mullen & Mullen (1983) reported that lower educated mothers tend to seek and utilize health care at lower rates than their higher educated counterparts. This study does provide support for this finding. However, a

caution is required due to skewing and the chi-square warning that half of the cells have low frequency counts. The nature of the sample reflects high skewing with respect to both education and utilization of medical sources.

A similar relationship was found between education and utilization of Manitoba Lung Association as a resource (see Table 24).

Table 24

**Education Level by Use of Manitoba Lung Association as a resource**


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| Frequency<br>Percent<br>Row Pct<br>Col Pct  | Lung Association               |                               | Total        |
|---|--------------------------------|-------------------------------|--------------|
|   | Used Source                    | Not Used                      |              |
| High School                                 | 44<br>17.32<br>58.67<br>25.14  | 31<br>12.20<br>41.33<br>39.24 | 75 (29.53%)  |
| Some university/<br>University<br>Completed | 131<br>51.57<br>73.18<br>74.86 | 48<br>18.90<br>26.82<br>60.76 | 179 (70.47%) |
| Total                                       | 175 (68.90%)                   | 70 (31.10%)                   | 254 (100%)   |

**Statistics for Table of Education by Manitoba Lung Association Resource**


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| Statistic  | DF | Value | Prob.            |
|------------|----|-------|------------------|
| Chi-Square | 1  | 5.198 | 0.023 (p < 0.05) |

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Those respondents with higher education reported using the Manitoba Lung Association as a resource more frequently.

## **Summary of Analyses of Variables Relating to Research Question 2**

With respect to Research Question 2, nine statistically significant relationships were found. They were:

1. Respondents with more education had greater knowledge about asthma.
2. Respondents with greater confidence in managing asthma had children who have had their asthma for longer than two years.
3. Low hospitalization rate associated with children who had their asthma for more than two years.
4. More females reported not using Asthma Care Training as a service.
5. Rural respondents utilized Asthma Care Training as a service for asthma more frequently than urban respondents.
6. Respondents with older children utilized Asthma Lecture Series more frequently.
7. Respondents with higher income levels utilized medical resources more frequently.
8. Higher education levels were associated with more frequent utilization of medical resources.
9. Higher education levels were associated with more frequent utilization of Manitoba Lung Association as a resource.

## **Discussion of Results**

**A review of the literature indicates that income does not appear to influence parental knowledge (Brook et al., 1993; Spykerboer et al., 1986). The findings of this study supports this.**

**As discussed previously, due to the nature of the sample, further analyses of many of the variables was not possible.**

**The majority of statistically significant relationships demonstrate an association between the demographics of respondents and the type of services/resources they reported using. There was a statistically significant finding between knowledge and education level of respondents. Respondents reporting high knowledge levels reported a higher education level. The next chapter discusses the implications of these findings.**

## **Chapter 5**

### **Summary of Results**

**This last section includes a summary of the results of this study, recommendations for further study and investigation, and a conclusion.**

#### **Summary**

**The data were collected by a self administered mail out questionnaire which was sent to a random sample of parents of children with asthma ages nine years and under on the mailing list of the Manitoba Lung Association. The responses of 267 respondents were analyzed into subgroups according to variables under investigation in the two research questions. These variables were examined and tested for statistical significance.**

**The demographic profile of the children in this study indicate that the majority of children were males, ages six to nine years, who had mild asthma for more than two years. The reported hospitalization rate was quite low. The epidemiological finding of more males affected with asthma was supported in this study.**

**The demographic profile of respondents indicate that they were mostly**

urban females, with both high income and education levels. Knowledge about childhood asthma was quite high, and respondents reported being highly confident in their perceived ability to manage their child's asthma. Respondents reported frequently utilizing medical resources for information about asthma. Attendance at on-site programs/services were low, the most frequently utilized service reported was mail-out pamphlets/information about asthma. Findings of this study support Klingerhofer (1987) that utilization of asthma programs is quite low.

Chi-square analysis of psychosocial variables resulted in statistically significant relationships between respondents' level of knowledge and utilization of services and resources. Respondents reporting high knowledge levels about asthma reported using specific services and resources more frequently. Thus, higher knowledge levels were associated with utilization of specific services and resources. These relationships had not been reported in the asthma literature.

Chi-square analysis between and among respondents psychosocial variables: demographic variables of both respondents and their children; and number of hospitalizations demonstrated a number of statistically significant relationships. The relationships were:

1. Respondents with more education had greater knowledge about

**asthma.**

- 2. Respondents with greater confidence in managing asthma had children who have had their asthma for longer than two years.**
- 3. Low hospitalization rate associated with children who had their asthma for more than two years.**
- 4. More females reported not using Asthma Care Training as a service.**
- 5. Rural respondents utilized Asthma Care Training as a service for asthma more frequently than urban respondents.**
- 6. Respondents with older children utilized Asthma Lecture Series more frequently.**
- 7. Respondents with higher income levels utilized medical resources more frequently.**
- 8. Higher education levels were associated with more frequent utilization of medical resources.**
- 9. Higher education levels were associated with more frequent utilization of Manitoba Lung Association as a resource.**
- 10. Higher knowledge levels were associated with more frequent utilization of media resources.**
- 11. Higher knowledge level associated with more frequent use of information/pamphlets service.**
- 12. Higher knowledge levels associated with more frequent use of Asthma Lecture Series service.**



**The preceding list illustrates that the majority of statistically significant relationships report an association between demographics of respondents and their utilization of services/resources. These findings indicate a relationship between higher income and education levels of respondents and their utilization of resources. Respondents in higher income and education categories utilized medical, media and the Manitoba Lung Association as resources more frequently.**

**As reported in the Chapter 2 literature review, U.S. studies have reported that lower income groups tend to utilize health care resources at a lower rate than their higher income counterparts. Further analyses of income level of respondents and frequency of utilization of resources support a general increasing linear trend. Respondents in this study reporting lower income categories tended to utilize less resources than respondents in the higher income categories.**

**The demographics of respondents in this study are similar to other studies in the relevant asthma literature. Participants in asthma education programs or studies are typically females, reporting both higher income and educational attainments (Donnelly, Donnelly, & Thong, 1989; Duffy & Halloran, 1987; Mesters, 1993; & Spykerboer, Donnelly & Thong, 1986). The demographic profile of respondents in this study support this pattern.**

These demographics have been examined in the literature with respect to Rogers' theory of "Diffusion of Innovations." The characteristics of the respondents in this study appear to fit into Rogers (1983) categories of "early adopters" in the process of adopting a new innovation or idea. Early adopters generally have more years of education, higher socioeconomic status, and greater exposure to mass media channels of communication and actively seek out information. Many empirical research studies support these generalizations (Rogers, 1983; Rogers & Shoemaker, 1971).

The low number of hospitalizations in this study is worthy of further discussion. One might question whether health care reform has played a role in increasing the criteria for hospital admission. Other possible reasons for this low rate could be that advances in the treatment of asthma may decrease hospitalizations. It has been suggested that hospitalizations are no longer a measure of asthma morbidity, rather an indicator of parental knowledge and self-confidence (Brook et al., 1993). The respondents in this study were highly knowledgeable, and perceived themselves as confident in the management of their child's asthma and reported a low rate of child hospitalization. This study lends support to the hypothesis that hospitalizations are an indicator of parental knowledge and self-confidence.

The next section of this chapter discusses recommendations for further

study and investigation.

### **Recommendations for Further Study and Investigation**

The variability of reported parental knowledge in the literature reflects a lack of uniformity of measurement. A reliable and valid measure of the strength of parental confidence is recommended. Maibach & Murphy (1995) propose three measurement dimensions of self-efficacy: level; strength; and generality. Measurement of level of self-efficacy should include various levels of challenges. Measurement of strength should include an average to determine overall strength. Measurement of generality should reflect relationships across and within behavioral domains and over time. This study only assessed the relative strength of perceived parental confidence in given situations. It did not assess generality or level of self-efficacy.

Finally, a cross-sectional sample of all parents of children with asthma would be beneficial in order to generalize the findings and eliminate the biases evident in this sample. A highly diversified sample of parents of children with asthma would be beneficial to substantiate or refute the findings of this study.

This last section discusses conclusions that can be made as a result of this

investigation.

### **Conclusions from this Study**

The majority of respondents in this study were females who were highly knowledgeable, highly confident, and utilized a variety of resources/services for information about asthma, and reported higher income and education levels.

Respondents reported that the majority of children were males; between the ages of 6-9 years, had mild asthma for more than two years and few had been hospitalized in the past 12 months.

Many of the relationships that were reported in the literature on childhood asthma were not supported in this study. Many of the relationships hypothesized by the investigator in Chapter 2 were also not found in this study. There was little variability reported among many of the variables under investigation in this study. Such relationships between and among variables examined in this study are likely obscured or confounded by the skewing of the data in this study. Hence, the lack of statistically significant findings among and between many of the variables is suspect due to the homogenous sample.

**This quantitative study explored both demographic and psychosocial variables in parents of young children with asthma. The statistically significant relationships found in this study report an association between demographic variables of respondents and their utilization of services and resources. The majority of respondents reporting higher income and education levels reported utilizing programs/services available at the MLA more frequently and utilizing medical resources for information about asthma. High asthma knowledge was also associated with utilization of media resources, and specific programs and services available at the Manitoba Lung Association.**

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## Appendix A

### ASTHMA QUESTIONNAIRE

Do you have one or more children ages 9 years and under who has asthma?

Yes \_\_ No \_\_

**IF YES PLEASE PROCEED TO SECTION A.**

**IF NO PLEASE RETURN THIS QUESTIONNAIRE IN THE PREPAID RETURN ENVELOPE.**

#### Section A

*The following are statements about asthma. Some of them you will think are true - if so, circle True. Some of them you will think are not true - if so, circle False. If you are not sure if they are true or false, circle Don't Know.*

1. Children with asthma:

- |    |   |      |       |            |
|----|---|------|-------|------------|
| a. | can normally take part in physical exercise ..... | True | False | Don't Know |
| b. | are very anxious .....                            | True | False | Don't Know |
| c. | will outgrow their asthma as they get older ..... | True | False | Don't Know |
| d. | look different than other children .....          | True | False | Don't Know |

2. When a child has asthma:

- |    |   |      |       |            |
|----|---|------|-------|------------|
| a. | the symptoms can occur at any time .....                  | True | False | Don't Know |
| b. | the heart doesn't work right .....                        | True | False | Don't Know |
| c. | something is wrong with the child's blood .....           | True | False | Don't Know |
| d. | different things cause asthma in different children ..... | True | False | Don't Know |
| e. | it can be cured with proper use of medicines .....        | True | False | Don't Know |
| f. | the tubes in the airways swell .....                      | True | False | Don't Know |

3. When a child has asthma symptoms and/or attacks:

- |    |   |      |       |            |
|----|---|------|-------|------------|
| a. | nothing can be done to stop the symptoms and/or attacks ..... | True | False | Don't Know |
| b. | giving asthma medicines as prescribed can help .....          | True | False | Don't Know |
| c. | encouraging the child to try to relax and rest can help ..... | True | False | Don't Know |
| d. | encouraging the child to breathe slower can help .....        | True | False | Don't Know |
| e. | taking the child to hospital can help .....                   | True | False | Don't Know |

4. Preventing asthma symptoms and/or attacks:

- |    |   |      |       |            |
|----|---|------|-------|------------|
| a. | can be helped by taking prescribed preventive medicines .....                             | True | False | Don't Know |
| b. | is something only a child's doctor can do .....   | True | False | Don't Know |
| c. | can be possible by staying away or removing those things that cause asthma symptoms ..... | True | False | Don't Know |

5. Asthma medicines:
- a. have side-effects ..... True False Don't Know
  - b. are harmful to young children ..... True False Don't Know
  - c. are addicting ..... True False Don't Know
  - d. are to be given as prescribed by a doctor ..... True False Don't Know
6. In the treatment of asthma symptoms and/or attacks:
- a. antibiotics are important ..... True False Don't Know
  - b. taking steroid pills for more than 1 week is harmful ..... True False Don't Know
  - c. avoiding cigarette smoke is important ..... True False Don't Know
7. Preventive asthma medicines help treat the swelling in the airways in the lungs ..... True False Don't Know
8. Asthma medicines that treat the symptoms help relax the tightness in the airways of the lungs ..... True False Don't Know
9. Asthma reliever medicines help a child's asthma symptoms within a few minutes .... True False Don't Know
10. Asthma is caused by poor diet during a mother's pregnancy ..... True False Don't Know
11. Taking prescribed asthma medicines: (circle one only)
- a. can be used to prevent an asthma attack
  - b. can be used to help stop an attack
  - c. both a. and b.
  - d. none of the above
12. Symptoms of asthma include: (check all that apply)
- a. tightness in the chest ..... \_\_\_\_\_
  - b. shortness of breath ..... \_\_\_\_\_
  - c. wheezing ..... \_\_\_\_\_
  - d. sore throat ..... \_\_\_\_\_
  - e. coughing ..... \_\_\_\_\_
  - f. breathing faster ..... \_\_\_\_\_
  - g. blue fingernails and lips ..... \_\_\_\_\_
  - h. difficulty speaking ..... \_\_\_\_\_
13. The following is a list of activities. Please check the ones that can help during an asthma attack (check all that apply):
- a. give child prescribed asthma medicines ..... \_\_\_\_\_
  - b. rest or restrict child's activities ..... \_\_\_\_\_
  - c. encourage child to practice breathing exercises ..... \_\_\_\_\_
  - d. remove child from cause of attack if possible ..... \_\_\_\_\_

e. rest child sitting up .....

14. Does your child use inhaled medicines for asthma? ..... Yes \_\_\_\_\_ No \_\_\_\_\_

**IF YES, PLEASE ANSWER SECTION B.**

**IF NO, PLEASE GO TO SECTION C.**

**Section B (FOR PARENTS WHOSE CHILDREN USE INHALED MEDICINES)**

15. Which kind of inhaled medicine does your child use? (check all that apply)

- |               |       |                      |       |
|---------------|-------|----------------------|-------|
| a. compressor | _____ | e. puffer/inhaler    | _____ |
| b. turbuhaler | _____ | f. none of the above | _____ |
| c. diskhaler  | _____ | g. other (please     |       |
| d. rotahaler  | _____ | specify):            | _____ |

16. Which medicines does your child take for asthma? (check all that apply)

- |                        |       |                  |       |
|------------------------|-------|------------------|-------|
| a. Ventolin/Salbutamol | _____ | g. Beclovent     | _____ |
| b. Berotec             | _____ | h. Vanceril      | _____ |
| c. Bricanyl            | _____ | i. Becloforte    | _____ |
| d. Atrovent            | _____ | j. Pulmicort     | _____ |
| e. Intal               | _____ | k. other (please |       |
| f. Tilade              | _____ | specify):        | _____ |

17. Side-effects of your child's inhaled medicines are: (check all that apply)

- |                    |       |                       |       |
|--------------------|-------|-----------------------|-------|
| a. tremors         | _____ | h. headache           | _____ |
| b. nervousness     | _____ | i. dry mouth          | _____ |
| c. sore throat     | _____ | j. sore stomach       | _____ |
| d. diarrhea        | _____ | k. trouble sleeping   | _____ |
| e. wheezing        | _____ | l. growth problems    | _____ |
| f. fast heart beat | _____ | m. hoarseness         | _____ |
| g. coughing        | _____ | n. yeast infection of |       |
|                    |       | the mouth             | _____ |

**Section C**

***The following questions deal with how confident you feel you are in managing your child's asthma.***

18. Circle the letter(s) (using the scale below) that best represents your level of confidence in the following situations.

***VC = Very confident***

***FC = Fairly confident***

***U = Undecided/uncertain***

***LC = A little confident***

***NC = Not at all confident***

**When your child has an asthma attack:**

- |    |   |    |    |   |    |    |
|----|---|----|----|---|----|----|
| a. | How confident are you in recognizing an asthma attack? .....          | VC | FC | U | LC | NC |
| b. | How confident are you in treating an attack? .....                    | VC | FC | U | LC | NC |
| c. | How confident are you in your ability to help your child relax? ..... | VC | FC | U | LC | NC |
| d. | How confident are you in deciding how serious the attack is? .....    | VC | FC | U | LC | NC |

**When your child has asthma symptoms:**

- |    |   |    |    |   |    |    |
|----|---|----|----|---|----|----|
| e. | How confident are you in deciding when to start giving prescribed asthma medicines? ..... | VC | FC | U | LC | NC |
| f. | How confident are you in deciding whether the medicines are working? .....                | VC | FC | U | LC | NC |

**When your child's asthma symptoms and/or attack get worse:**

- |    |   |    |    |   |    |    |
|----|---|----|----|---|----|----|
| g. | How confident are you in deciding what prescribed asthma medicines to give? .....         | VC | FC | U | LC | NC |
| h. | How confident are you deciding what to do next? .....                                     | VC | FC | U | LC | NC |
| i. | How confident are you in deciding when to take your child to hospital if necessary? ..... | VC | FC | U | LC | NC |
| j. | In general, how confident are you in managing your child's asthma? .....                  | VC | FC | U | LC | NC |

**Section D**

*This section of the questionnaire asks you about your program and information needs.*

19. Which of the following services and/or programs for asthma are you aware of, and which have you used (check all that apply).
- |  | <u>Aware of</u> | <u>Used</u> |
|--|-----------------|-------------|
| Information and pamphlets about childhood asthma ..... | —               | —           |
| Asthma Care Training .....                             | —               | —           |
| Asthma Lecture Series .....                            | —               | —           |
| Breathe Free Camp .....                                | —               | —           |
| Concerned Parents of Children with Asthma .....        | —               | —           |

**IF YOU HAVE PARTICIPATED IN ANY OF THE PROGRAMS AT THE MANITOBA LUNG ASSOCIATION OR RECEIVED INFORMATION, PLEASE ANSWER THE FOLLOWING QUESTIONS.**

**IF NOT, GO TO QUESTION 22.**

20. How useful was the information you received from the Manitoba Lung Association? (check one)
- Very useful     
  Somewhat Useful     
  Undecided     
  Rarely useful     
  Not at all useful
21. Did the information help you better understand your child's asthma? ..... Yes  No
22. Please check which of the following that you see as **major reasons** why you have **not** used the Manitoba Lung Association services and programs in the past (check all that apply):
- a. not aware of programs/services .....
  - b. too busy .....
  - c. don't have transportation .....
  - d. programs don't apply to me or my child .....
  - e. no programs available close to my home .....
  - f. Other (please specify): ..... \_\_\_\_\_  
 \_\_\_\_\_
23. Have you ever taken your child to a naturopath? ..... Yes  No
24. Have you ever used approaches like vitamins and herbs, etc. for treating your child's asthma? .....  
 Yes  No
25. From the list below, please check the topics that you would like more information about (check all that apply):
- a. understanding your child's asthma better .....
  - b. medicines, effects and side-effects .....
  - c. managing your child's asthma better .....



- d. preventing your child's asthma .....
- e. indoor and outdoor air pollutants (eg. insect spraying, stubble burning, perfumes, etc.) and their effect on your child's asthma .....
- f. allergy proofing your home .....
- g. **Other (please specify):** \_\_\_\_\_

26. Listed below are several sources that people might use to get information about asthma. Please check each of the sources that you have used to get information about asthma over the last 12 months (check all that apply).

- a. Your family doctor .....
- b. Pediatrician (children's doctor) .....
- c. Allergy doctor .....
- d. Hospital (emergency and/or in-hospital) .....
- e. Manitoba Lung Association .....
- f. Public Health Nurse .....
- g. Pharmacies .....
- h. Health stores (eg. Vita Health) .....
- i. Naturopaths .....
- j. Health books .....
- k. Friends, relatives, neighbours .....
- l. Television .....
- m. Radio .....
- n. Magazines (eg. Readers Digest, Chatelaine) .....
- o. Health magazines and newsletters (eg. Airwave) .....
- p. Newspapers .....
- q. **Other (please specify):** \_\_\_\_\_

27. From the list below please check **two** types of programs and/or services that would best suit your needs.

- a. a buddy system with another parent whose child has asthma .....
- b. small group sessions (less than 10 people) including family members .....
- c. large group sessions (10 or more people) including family members .....
- d. self-care workbook mailed to your home .....
- e. 24-hour telephone information/support line .....
- f. video to view at home .....
- g. one-to-one counselling with an expert in asthma education at an asthma education centre .....
- h. **Other (please specify):** \_\_\_\_\_

28. Which of the following camping experiences would best meet your child's needs? (check one)

- a. None. I do not feel my child would benefit from camp .....
- b. day camp (close to your home) for children with asthma with trained medical supervision .....
- c. 12-day camp for children with asthma with trained medical supervision .....
- d. regular camp with children who do not have asthma .....

29. Is your ability to manage your child's asthma affected by any of the following? (check all that apply)
- a. not sure what to do ..... \_\_\_\_\_
  - b. frightened ..... \_\_\_\_\_
  - c. unable to contact health care professional ..... \_\_\_\_\_
  - d. out of medicines ..... \_\_\_\_\_
  - e. can't afford the medicines ..... \_\_\_\_\_
  - f. none of the above ..... \_\_\_\_\_
  - g. Other (please specify): \_\_\_\_\_  
\_\_\_\_\_

30. How strongly do you agree that the Manitoba Lung Association should engage in political activities in areas that affect lung health? (eg. stubble burning, tobacco sales, smoking prevention, smoke free environments)? (circle the letter(s) using the scale below that best represents your opinion about this statement).
- SA = Strongly Agree                      N = Neither agree nor disagree                      D = Disagree  
 A = Agree    SD = Strongly disagree

**Section E**

*This section of the questionnaire asks you for information about your child that will help in the analysis of this survey.*

***If you have more than one child with asthma please answer these questions about your OLDEST child who is 9 years and under with asthma.***

31. Age of child (in years on last birthday) \_\_\_\_\_
32. My child is:    Male \_\_\_\_\_                      Female \_\_\_\_\_
33. How long has your child had asthma?
- less than a year                                      \_\_\_\_\_
  - 1 - 2 years    \_\_\_\_\_
  - more than 2 years                                      \_\_\_\_\_
34. Which group best describes your child's asthma? (check one)
- a. asthma symptoms only with colds or certain times of year ..... \_\_\_\_\_
  - b. asthma symptoms usually 1-2 times a week ..... \_\_\_\_\_
  - c. asthma symptoms most days ..... \_\_\_\_\_
  - d. does not fit into any of above ..... \_\_\_\_\_

35. How many times has your child been hospitalized overnight in the last 12 months because of asthma? (check one)
- a. 0 times .....
  - b. 1 - 2 times .....
  - c. 3 - 5 times .....
  - d. more than 5 times .....

36. Has your child ever been admitted to intensive care because of asthma? .....
- Yes \_\_\_\_\_  
No \_\_\_\_\_  
Don't Know \_\_\_\_\_

37. How many children do you have living in your home with you at this time? (under the age of 18 years)
- \_\_\_\_\_

**Section F**

*This last section of the questionnaire asks you for information about yourself that will help in the analysis of the survey.*

38. Are you:                      Male \_\_\_\_\_                      Female \_\_\_\_\_
39. What is the highest grade or year of school you completed? (check one)
- a. Grade 1 - 9 .....
  - b. High School .....
  - c. some university/technical/college .....
  - d. completed university/technical/college .....

40. Please check the line which best represents your average total family income before taxes:
- a. Under \$10,000 .....
  - b. 10,000 - 19,999 .....
  - c. 20,000 - 29,999 .....
  - d. 30,000 - 39,999 .....
  - e. 40,000 - 60,000 .....
  - f. over 60,000 .....

41. Do you live (check one): .....
- in Winnipeg (inside the Perimeter) \_\_\_\_\_  
outside Winnipeg \_\_\_\_\_

42. Please add additional comments or suggestions about programs and/or services for children with asthma in the space below.

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**Appendix B**  
**COVER LETTER**

October 26, 1994

Dear Parent:

I am a registered nurse and a student in the Masters of Education program in the Faculty of Education at the University of Manitoba. I am conducting a study in conjunction with the Manitoba Lung Association. This study is also my Masters of Education thesis.

The purpose of this study is to find out about your knowledge, beliefs and confidence about children's asthma. I would also like your thoughts about health education programs at the Manitoba Lung Association. The information you give will help the Manitoba Lung Association plan programs that are responsive to your needs and interests.

You are one of 500 parents of children with asthma to receive this questionnaire. You will notice a number on the front of the questionnaire. This is so that we may check your name off the mailing list when your questionnaire is returned. If you prefer, you may scratch this number out. Your name will never be placed on the questionnaire.

You may be assured of complete CONFIDENTIALITY. Your questionnaire will be destroyed after it is transferred to a computer file. Your answers will be combined with other parents' and used only for statistical purposes.

The questionnaire takes about 20 minutes to complete. If you have any questions about the study, please contact either myself at 474-1601 or my thesis advisor Dr. Dexter Harvey at 474-9223.

You may call the Manitoba Lung Association in March, 1995 for the results of this study.

Thank you for your assistance.

Sincerely,

Allison Murdoch-Schon, B.N.  
Project Director

Pat Miles, B.N.  
Respiratory Health Promotion Director  
Manitoba Lung Association

**Appendix C****REMINDER NOTICE**

About two weeks ago, a questionnaire seeking your knowledge and beliefs about asthma and health education programs for children, was mailed to you.

Because it has been sent to only a small, but representative sample of Manitoba parents, it is extremely important that yours also be included in the study if the results are to accurately represent the opinions of parents of children with asthma. If you have already completed and returned it to me, please accept my sincere thanks. If not, please do so today.

If you need a copy of the questionnaire, please call me at 474-1601 and one will be sent to you today.

Sincerely,

Allison Murdoch-Schon, B.N.  
Project Director

**Appendix D**  
**ETHICS COMMITTEE APPROVAL**



THE UNIVERSITY OF MANITOBA

FACULTY OF EDUCATION  
Research and Ethics Committee

Winnipeg, Manitoba  
Canada R3T 2N2  
Telephone: (204) 474-8285  
Fax: (204) 275-5962

October 4, 1994

Ms Allison Murdoch-Schon  
564 Mulvey Avenue  
Winnipeg, Manitoba  
R3L 0S1

Dear Ms Murdoch-Schon:

Thank you for sending me the revised letter of information/consent concerning the proposed research, "Parental Perceived Confidence in Management of their Child's Asthma". I have reviewed this letter and am pleased to report that it conforms to the ethics policies and procedures of the Faculty. Accordingly, I have attached a copy of the signed ethics approval form.

Good luck with your research.

Yours truly,

Zana Lutfiyya, Ph.D.  
Chair, Research and Ethics Committee

ZL/ew

Enc.

cc. D. Harvey, Advisor



## Faculty of Education ETHICS APPROVAL FORM

To be completed by the applicant:

Title of Study:

Parental Perceived Confidence in Management of their Child's Asthma

Name of Principal Investigator(s) (please print):

Allison Murdoch-Schon

Name of Thesis/Dissertation Advisor or Course Instructor (if Principal Investigator is a student) (please print):

Dr. Dexter Harvey

I/We, the undersigned, agree to abide by the University of Manitoba's ethical standards and guidelines for research involving human subjects, and agree to carry out the study named above as described in the Ethics Review Application.

Allison Murdoch-Schon  
Signature(s) of Principal Investigator(s)

Dexter Harvey  
Signature of Thesis/Dissertation Advisor or Course Instructor  
(if required)

|  |                        |
|--|------------------------|
| <del>To be completed by the Research and Ethics Committee.</del>   |                        |
| <del>This is to certify that the Faculty of Education Research and Ethics Committee has reviewed the proposed study named above and has concluded that it conforms with the University of Manitoba's ethical standards and guidelines for research involving human subjects.</del> |                        |
| <del>Name of Research and Ethics Committee Chairperson</del>   | <del>Date</del>        |
| <u>Zana Lestjerna</u>  | <u>October 5, 1996</u> |
| <del>Signature of Research and Ethics Committee Chairperson</del>  |                        |