PARENTAL INSTRUCTION REGARDING

APPROPRIATE ASTHMA MANAGEMENT

by

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ABSTRACT

The purpose of this study was to determine if those children whose parents received instruction regarding appropriate asthma management actually experienced improvement in terms of fewer asthmatic attacks, fewer emergency room visits, fewer hospitalizations, less school absenteeism, use of more non-routine medication, and fewer phone calls to the emergency room and the physician's office than those children whose parents did not receive the instruction. A secondary purpose was to determine if mothers who received the instruction would score higher on a knowledge posttest than those mothers who did not receive the instruction. It was hypothesized that: (1) the mothers who received the instruction regarding appropriate asthma management would score higher on a knowledge posttest; and (2) those children whose mothers received the education would have fewer asthma attacks, fewer emergency room visits, fewer hospitalizations, less school absences, and fewer phone calls to the emergency room and physician's office than those mothers who did not receive the instruction. Thirty-two families participated in this experimental study based on a Solomon four-group design. Two groups (experimental) received the instruction at the onset of the study and two groups (control) received it after completion of the study. Eight

dependent variables were assessed for differences among group means. The first two variables, the pre- and posttest, measured the effect of testing and treatment. Knowledge gain was assessed and reliability of the test instrument for this study was determined. The remaining six dependent variables were scored on monthly diaries, maintained daily by the mothers for three months. These variables included: asthma attacks, emergency room visits, hospitalizations, school absences, non-routine medication, and phone calls to the emergency room and physician's office. There were no significant differences among group means on any of the variables. The results demonstrated the need to conduct the study with a larger sample over a longer period of time. The content included in the instructional module should be assessed more comprehensively by the knowledge test. The lack of significant difference in pretest and posttest scores most likely is a function of the content of the test and does not reflect accurately the learning that occurred.

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My family has expressed unending love and faith in me and for this, I am extremely grateful. Without their support, this accomplishment would not be a reality. Last, I thank my parents for their guidance and for providing me with a strong faith in God.

TABLE OF CONTENTS

Page

APPENDICES

LIST OF TABLES

Page

TABLE

This study was endorsed by
the Shawnee County Public Health Department

CHAPTER 1

INTRODUCTION

This study was undertaken to determine if those children whose parents received instruction regarding appropriate asthma management actually experienced improvement in terms of fewer asthmatic attacks, fewer emergency room visits, fewer hospitalizations, less school absenteeism, use of more non-routine medication, and fewer phone calls to the emergency room and physician's office than those children whose parents did not receive instruction. Asthma management has long been a concern to health professionals and remains a major health problem. The most recent studies available from the National Institute of Health Statistics (1979) suggested that five percent of all children under the age of 15 years have or have had asthma. It is the leading cause of school absenteeism due to chronic illness. The cost of asthma care consumes as much as 30 percent of some families' incomes (Hindi-Alexander, 1981). Mak (1982) cited asthma as the most frequent cause for emergency room visits and hospital admissions and as having an effect on the child's well-being and school attendance. Management of asthma through the years has assumed many forms based on diversified rationale.

The American Thoracic Society has defined asthma as:

> a disease characterized by an increased responsiveness of the trachea and bronchi to various stimuli and manifested by a widespread narrowing of the airways that changes in severity either spontaneously or as a result of therapy (Mathison, 1982, p. 128).

The Greek meaning of asthma is choking (Aas, 1971). Hindi-Alexander (1981) defined asthma as "a respiratory disease characterized by intermittent or chronic, usually reversible, airway obstruction" (p. 143). She elaborated more by stating that asthma should not cause permanent damage, nor should it interfere with normal childhood activities.

Early literature emphasized "parents must" try to avoid or prevent triggering situations (Aas, 1971). This approach resulted in tense family situations with problems compounded by parental guilt and anger, and it had minimal positive effects. Institutions became the management of choice. Children whose families could afford the treatment were sent to asthma centers where the child and later, his family, learned ways to manage asthma effectively. This management concept still exists but has many limitations.

Ford (1979) described a theory that expressed asthma as an imbalance, genetic or acquired, involving hormones, enzymes, and chemicals. It is postulated that regulation of these factors can control or prevent asthma. This type

of regulation is the Yin Yang theory practiced thousands of years ago by the Chinese. This immuno-manipulation has not proved useful for treatment of asthma and does contain potential inherent dangers of some of the measures. For example, manipulation of cyclic nucleotides which are essential to cell life could be a destructive measure.

Australian researchers explored the concept of changing the allergenic potency of the important allergens. This concept is based on the theory that, if people cannot learn to live with their environment, then possibly the environment, or the potency of the allergens in it, can be altered to allow better adaptation for the person (Ford, 1979).

Biofeedback is another asthmatic management effort gaining considerable popularity. Many studies currently are being conducted to document the validity of this approach.

The medical treatment of asthma has progressed rapidly in the past few years. Scientists now have a much deeper understanding of the disease process and more effective and safer therapies are now available. Richards (1981) cites higher doses of theophylline, beta-2 adrenergic agents, cromolyn sodium, and steroid aerosols as yielding substantial reductions in hospitalizations and mortality. Provision for prevention and better control of symptoms with precise compliance and medical regimens

should result from these advances, yet there are many children incapacitated by the disease and asthma remains a major health problem.

After a diagnosis of asthma is made, the mutual goals of parents and professionals should be to minimize the number of asthmatic attacks, to restore lung function to normal for the child, and to promote the child's normal growth and development, individually and within the family and society. Without a doubt, childhood asthma has a substantial impact on the individual, the family, and the health care system. The traditional measures of control mentioned previously must be included in management but, obviously, are not the answer to the total management program.

In recent years, there has been an interest in parent educational programs on the part of national organizations, practitioners, and consumers. The parent and the professional have a mutual responsibility to monitor the child's treatment and to evaluate treatment to improve the child's function. To be effective in management, parents must have factual information. Action must be taken on this knowledge. The child must be treated to satisfy the needs for normal growth and development, understanding, respect, security, and love.

Redman (1981) noted an increase in the development of patient education in the last decade. Much valuable

experience has been gained in applying a general education theory and practice in many areas of clinical practice. Nursing process involves assessment, recording, intervention, and evaluation based on outcome criteria. This investigator believes that patient education should utilize and apply the same emphasis, particularly in the management of asthma. As noted through personal experience, clinical observations, and review of literature, a need exists for education regarding appropriate asthma management.

Megenity (1982) proposed a broad concept of teaching and developed a conceptual framework for improvement of patient education. Rosenstock's (1975) model of health behavior is consistent with this framework in terms of adherence and compliance to the medical regimen in relation to a client's lifestyle. Patient education alone will not secure compliance, but it is an idea that's time has come. It must be a major consideration of all who deliver health care. The major error in the delivery of client education is orientation to knowledge or skills without placing them in the context of the client (Redman, 1981). Providers' responsiveness to individual needs over an extended period of time make a difference in long term changes.

Monahan (1982) wrote that "chronic illness involves the stress of treatment that never ends for an illness

that is never cured" (p. 42). Asthma is a chronic disease that can be treated when managed well. The mortality rate is low in proportion to other chronic illnesses. It is, however, an illness that must be treated and "lived with". The management of instruction regarding learning to "live with" asthma requires knowledge of and the skill to utilize the client's and family's abilities.

Purpose of the Study

The purpose of the study was to determine if those children whose parents received instruction regarding appropriate asthma management actually experienced improvement in terms of fewer asthmatic attacks, fewer emergency room visits, fewer hospitalizations, less school absenteeism, use of more non-routine medication, and fewer phone calls to the emergency room and the physician's office than those children whose parents did not receive the instruction. A secondary purpose was to determine if mothers who received the instruction would score higher on a knowledge posttest than those mothers who did not receive the instruction.

Review of the Literature

The prevalence of asthma in children is somewhat higher than in adults according to the National Institute of Health Statistics (1979). Many hospitalizations are

related to improper actions taken by the client, family, or health care professional. Possibly many of the hospitalizations could be prevented if appropriate anticipatory management measures are instituted sooner. Effective management of the asthmatic client and the family has been a major concern for health professionals interested in health education.

Literature review supported the issue of non-compliance with medication among asthmatic children, but studies suggest also that there are other contributory factors equally important in management. Perhaps if some of these needs were met, the compliance of the medication regimen also would improve.

When addressing the concept of parental instruction regarding appropriate asthma management, this investigator found it necessary to pursue a review of literature in several areas. First, a conceptual framework of patient teaching is reviewed. Second, an overview is provided of the self-care philosophy and patient compliance behaviors. The third component of the review of literature presents studies pertaining to asthma management through various educational approaches. A summary completes the review of literature.

Patient Teaching

Megenity (1982) proposed a broad concept of teaching. She developed a conceptual framework for improvement of

patient education. The framework is similar to that of Hough and Duncan (1970). Megenity defined teaching as a four-phase act that includes the following components: (a) intended learning, (b) instruction, (c) evaluation, and (d) major determinants. She maintained that teaching is never static, but it is an ongoing and everchanging process.

An explanation of Megenity's (1982) concept of teaching follows. The intended learning is the "what" component of the concept. The learning intended should be specified before the instruction and evaluation are planned. The "how" component involves the instructional planning and implementation of the instructional plans. These plans must be consistent and flexible for successful implementation. Evaluation is the "whether" component and guides the decision making process. The teaching is evaluated both formatively (how well the teaching is actually working) and summatively (how well the expected outcomes are met). Based on the results of the evaluations, new plans for future use of the teaching content are derived.

The major determinants of the teaching act, as stated by Megenity (1981) are: (a) the nature of learning, (b) the nature of human development, (c) the sources and organization of knowledge, (d) cultural forces, and (e)

learning-teaching environment. One's perception, insight, and belief about how people learn, what they are able to learn, and how knowledge is organized are reflected in teaching plans and interactions with clients. A teaching plan must be woven out of the client's health education needs, the influence of determinants, and the teacher's personal knowledge and skills.

Health care providers must not underestimate the significance of patient education. It reflects a basic change in the standard of care and in the relationship between the providers and their clients. This investigator agrees with Redman (1981) when she stated that the self-care philosophy somewhat counters the once prevalent attitude of expecting the client to adapt to the provider's goals of compliance and cooperation. Self-care builds on the current lay health practices and supplements with teaching medical concepts, strategies, and skills not in the domain of most family resources.

Compliance Behavior and Self-Care

Studies completed by Dracup (1982), Ozuna (1981), and Rosenstock (1975) indicated that 30% to 60% of clients were not compliant with their proposed medical regimen. Rosenstock (1975) stated that for patients to comply with a regimen, they needed to: (a) be interested in their health, (b) believe and understand the diagnosis, (c)

assess correctly its potential impact on their life style, (d) believe in the benefits of the prescribed treatment, (e) find ways of using the regimen that are not more troublesome than the disease itself, and (f) know exactly the length of time to utilize the regimen. Health care providers frequently have given instruction in situations that maximize failure to understand.

Compliance as a health care issue is a concern to all health care disciplines because the outcome of the treatment regimen is dependent on the client's taking an active role in his care. The client will take what he regards as appropriate steps within his own life framework (Dracup, 1982, Ozuna, 1981, and Rosenstock, 1975). Change is difficult because it requires that the client add or omit behaviors to their lifestyle. Compliance indicates this change in behavior. The longer the regimen is to be followed, the less likely the compliance with the regimen (Ozuna, 1981).

Research Related to Asthma Management

Fireman (1981) designed a program to teach self-management skills to asthmatic children and their parents. Twenty-six asthmatic children age two to 14 years were selected and assigned sequentially to a study of comparison groups. They were then matched for age. The children were evaluated by the same allergist.

Appropriate asthma management, including avoidance, medications, and immuno-therapy, was initiated. Symptom and medication diaries were kept for six to 18 months. Educational intervention included four hours of individual instruction, group classes, telephone access, and monitoring for the study clients. Assessment of family attitudes and knowledge was conducted through a telephone survey at the end of the study.

In Fireman's study the nurse-educated asthmatic subjects revealed significantly fewer asthma attacks per client ($p < .01$), fewer school days missed due to asthma ($p < .05$), no hospitalizations (compared to ten days in the comparison group), and one emergency room visit (compared to 13 in the comparison group). The nurse-educated group used almost twice as much medication as the comparison group. The telephone survey suggested that parents' attitudes about their child's asthma and its management changed.

Maiman (1979) conducted a prospective study in an adult hospital emergency room. The study evaluated the effectiveness of a series of educational and motivational interventions in enhancing self-treatment. The author concluded that a nurse educator, through several simple educational techniques at the time of the emergency room visit, along with a telephone follow-up, was able to improve self-management by asthmatic adults and reduce

future use of emergency room services for asthmatic adults. This researcher implied that credibility of the nurse educator was enhanced by being an asthmatic, thus helping to improve the management of the clients. He also suggested that written information was not as effective when used as a substitute for oral communication. The effectiveness of written material was improved when employed by an asthmatic nurse. It was shown also that education techniques were more effective when reinforced by non-health profession persons who had had personal experience with asthma.

Parcel and Nader (1977) conducted a pilot program designed to meet the needs of children with asthma. Twelve children participated in a weekly forty-minute educational program for seven months in an elementary school curriculum. Results were measured with a preprogram and postprogram instrument. Their study revealed poor parental involvement and no improvement in the health status of the asthmatic children. The identified variables measured included: (a) reduction in the number of asthma attacks requiring emergency medical treatment, (b) decrease in the number of school days missed, (c) reduction in the level of anxiety associated with illness, (d) improvement in the attitudes toward self, and (e) improvement in the perception of self-control for health behavior. The only outcome

variable with significant change from premeasurement to postmeasurement was the children's health locus of control. A significant difference in pre- to posttest scores ($p < .02$) identified that the children as a group developed a more internal and less external perception as their source of reinforcement for health behavior. The other variables had no significant change. This investigator identified a need for modification in planning, staffing, and evaluation.

As a result of their study, Parcel and Nader (1977) made the following recommendations for their next study: (a) outline asthma self-management behavior in children, (b) consider parental behavior promotive of self-management, (c) outline a program team, (d) add premeasurement and postmeasurement of knowledge about asthma and management procedures to the measured variables, and (e) have parents keep simple logs to record data pertinent to the variables.

Mak (1982) surveyed a population of first and sixth graders to determine the prevalence of asthma, to determine the extent of school absenteeism due to chronic asthma, and to examine the pattern of health service utilization in asthmatic children. The results of this study revealed a combination prevalence of asthma in the first and sixth graders was eight percent, compared to the five percent identified by the National Institute of

Health Statistics (1979). Children with asthma had a significantly higher absentee rate than non-asthmatic children. Almost half of the children obtained their treatment of asthma in the emergency room. This finding was not affected by socioeconomic status, but race was an important variable. Emergency room users had a higher absentee rate and hospitalization rate than non-emergency room users. The results of this survey identified the inner-city blacks as a high-risk asthmatic population and suggest that health service efforts and educational programs be directed to this group of asthmatic children.

Clark and her colleagues (1981) conducted an experimental design study exploring self-management in low income families who had an asthmatic child. Their report of a convenience sample of 140 families enrolled in the study (approximately one-half of the total population) revealed that parents participating in a self-management educational program benefited more than those families in the control group.

Preliminary findings indicated that a comprehensive, multiple session approach to asthma education had a significant impact on the management practices of families. By learning and utilizing management techniques, these families significantly increased their skills. Fear and stress associated with wheezing was reduced. The combination of diminished stress and better

management ability contributed to less frequent school absences. High levels of management of asthma was linked to greater attendance at learning sessions (Clark, 1981).

Hindi-Alexander (1981) initiated an experimental study still in progress. The study is composed of a two part asthma education program: one for the community and one for the family. The following goals were established for the family: (a) to increase knowledge about the disease and its treatment, (b) to reduce morbidity, (c) to increase participation in recreational activities, (d) to improve family harmony, (e) to alleviate anxiety and promote the ability to relax, and (f) to develop some self-management ability (p. 143).

The family program met two hours a week for six weeks. Babysitters, teachers, caregivers, and family members were encouraged to attend. Short-term improvement of knowledge was assessed by questionnaires before and after participation in the six-week course. Long term evaluation included a monthly diary mailed in each month for 12 months and a psychosocial variable (Hindi-Alexander, 1981).

Hindi-Alexander (1981) cited recognition of early signs and symptoms of asthma and subsequent secondary psychosocial complications of the disease as being of great importance. These circumstances lead to unnecessary exacerbations, physician contacts, hospitalizations, loss

of time from school, and expense. Results of the study exhibited a highly significant ($p < .01$) improvement in knowledge about asthma for parents and children. Results of the long term evaluation are not yet available.

Creer (1979) designed a self-management program for children with severe asthma using behavior modification techniques to reduce the duration of hospitalization. The findings discussed were limited to individual cases. Sandler (1977) reported the effects of working with families of chronic asthmatic children before, during, and after hospitalization. Both Creer's and Sandler's studies supported the effectiveness of educational intervention for those children who have asthma and their families.

Richards (1981) conducted a study with 23 pediatric participants and their parents in a self-help program for childhood asthma. The children were six years and older and lived in a residential treatment center at the time of the study. Performance ratings were over a nine month period. Conclusions were that clients took their medication over 90% of the time within one month of implementation of the program and that both parents and children were satisfied with the program.

Green's (1980) study included 50 asthmatic children, grades two through seven, as a part of the Asthma Self Management Program sponsored by the Washington Lung Association. The Parcel-Meyer Children's Health Locus of

Control Scale (1976) was utilized to examine the reliability of a health locus of control scale for children and its relationship with a self-concept measure, the Piers-Harris Children's Self Concept Scale (1969). Both scales were shown to be reliable instruments for their sample of asthmatic children and both scales were found to be reliable measures of the effective impact of health education programs.

Summary

The review of literature substantially supported several concepts that enhance appropriate asthma management: (a) education is a priority, (b) management of childhood asthma is improved when the parents as well as the asthmatic child are involved in an educational program, (c) the results of education regarding asthma management can be measured by several variables, (d) education is only one component of effective asthma management, and (e) much research remains to be done in this area. Each study implicated various methods of education, all with similar results and numerous recommendations.

The benefits of client education for people with asthma or for those who experience its effect on the family cannot be disputed. The results of accomplishing the goal of client understanding and education regarding

asthma will promote health management behaviors which, in turn, will improve asthmatic conditions and reduce the undesirable effects on the family. The ability of parents to problem-solve in a potential crisis situation enhances their self-confidence in their own abilities to manage their child's asthma. Redman (1976) stated that "the more interconnections a piece of learning has with a person's experience and the more active he has been in using the learning in different situations, the deeper the impact will be on his memory" (p. 92).

Research Hypotheses

In this this study, seven hypotheses were proposed. They are:

Hypothesis I. Those mothers who receive instruction regarding appropriate asthma management will score higher on a knowledge posttest than those mothers who do not receive the instruction.

Hypothesis II. Those children whose parents receive instruction regarding appropriate asthma management will have fewer asthma attacks than those children whose parents do not receive the instruction.

Hypothesis III. Those children whose parents receive instruction regarding appropriate asthma management will have fewer emergency room visits than

those children whose parents do not receive the instruction.

Hypothesis IV. Those children whose parents receive instruction regarding appropriate asthma management will have fewer hospitalizations than those children whose parents do not receive the instruction.

Hypothesis V. Those children whose parents receive instruction regarding appropriate asthma management will have less school absenteeism than those children whose parents do not receive the instruction.

Hypothesis VI. Those children whose parents receive instruction regarding appropriate asthma management will use more non-routine medications than those children whose parents do not receive the instruction.

Hypothesis VII. Those children whose parents receive instruction regarding appropriate asthma management will have fewer phone calls to the emergency room and the physician's office than those parents who do not receive the instruction.

Definition of Terms

Asthma: a respiratory disease characterized by intermittent or chronic, usually reversible, airway obstruction (Hindi-Alexander, 1981, p. 143).

Asthmatic attacks: those episodes characterized by coughing and/or intermittent wheezing.

"Instruction" on asthma management: the presentation to parents of the criteria surrounding advantageous management of asthma.

"Appropriate" asthma management: that treatment of the asthmatic child which depends on favorable parental attitudes and understanding of the disease process and its management coupled with knowledgeable implementation of actions and directed toward the goal of optimum health for the child.

Emergency room visit: admission to an emergency room as an out-patient for treatment of an asthmatic attack unsuccessfully treated by other interventions.

Hospitalization: admission to a hospital as an in-patient for treatment of an asthmatic attack unsuccessfully treated by other interventions.

School absenteeism: nonattendance in the classroom for one half class day or more due to the symptoms of asthma.

Assumptions

1. Parents desire to improve management of their asthmatic child.

2. All parents will receive the same information and demonstrations during the instructional program.

Limitations

1. The length of the study does not project a true picture of the asthmatic child for at least a year.

2. The limited sample may provide a threat to external validity.

3. Some of the data are dependent upon parent report through the asthma diary.

4. It is a generally accepted tenet of educational programming that no single educational input, alone, will have a significant, lasting impact on health behavior unless it is supported by other educational inputs (Maiman, 1979).

5. The pretest was not used to determine which parents would benefit from the educational program.

CHAPTER II

METHODOLOGY

Research Design

This experimental study incorporated a Solomon four-group research design to determine if children whose parents received instruction regarding appropriate asthma management would have fewer asthmatic attacks, fewer emergency room visits, fewer hospitalizations, fewer school days missed, use more non-routine medications, and have fewer phone calls to the emergency room and physician's office than those children whose parents did not receive the instruction. A secondary purpose was to determine if mothers who received the instruction would score higher on a knowledge posttest than those mothers who did not receive the instruction.

The Solomon four-group design includes four groups, two experimental and two control. Pretests are administered to one control group and to one experimental group. Posttests are administered to all four groups. This design allows comparisons among the four groups to determine the effects of the testing and the treatment variables. Symbolic representation of this design follows where R = random assignment, O = observation, and X = treatment.

R	O		O
R	O	X	O
R		X	O
R			O

(Mason, 1978).

This chapter includes a description of the subjects and setting, the instruments used in the study, and the procedures utilized to collect the data. Data analysis is described and ethical considerations are discussed.

Subjects and Setting

Written consent (Appendix A) was obtained from a physicians pediatric group practice in a midwestern city, population 118,690, and a convenience sample of 40 asthmatic clients was selected. Criteria for participation in the study included that the child: (a) was living with his parents; (b) was one to 14 years of age; and (c) had a history of six or more asthmatic episodes, one of which had occurred in the last three months.

After phone consent was obtained from the mothers, the families were assigned randomly to one of four groups (n = 10) to facilitate the Solomon four-group design. Two groups (Group II and Group III) were designated as experimental and two groups (Group I and Group IV) as control. Those subjects in the experimental groups received the instruction in asthma management. Those

subjects in the control groups did not receive the instruction until after completion of the study. Group I (control) and Group II (experimental) received a pretest. All four groups received a posttest.

Mothers were informed that all information obtained was confidential and would only be used for the purposes of the study. It was stated that subjects had the right to withdraw at any time, but gratitude was expressed for remaining in the study the entire time.

Mothers attended the instructional sessions and responded to the pretest and the posttest, providing the data related to Hypothesis I. A total of 32 families (mother-child dyad) completed the study: Group I (control, pretest-posttest), n = 9; Group II (experimental, pretest-posttest), n = 7; Group III (experimental, posttest), n = 6; and Group IV (control, posttest), n = 10. Reasons for attrition included divorce, death in the family, change in job schedule, move out of town, and decision not to participate due to time involvement or personal lack of need for the information in the research project. The sample of 32 children included 17 males and 15 females, ranging in age from 16 months to 14 years. The mean age of the children was 7.28 years (SD = 3.41). The mean length of the child's history of asthma was 4.94 years (SD = 3.42). Fifty-nine percent of these children took asthma

medication on an around-the-clock regular schedule. Table 1 (p. 26) and Table 2 (p. 27) illustrate the breakdown of these statistics by groups. All of the children had experienced an asthma attack within three months prior to the study.

The average mother was 34 years of age, lived in the home, and had some college education. All of the mothers were high school graduates; three were in graduate school, one was in law school, and one had a law degree. Table 3 (p. 28) illustrates representation by groups on the percent of mothers reporting various levels of educational attainment. Twenty-three percent of the mothers (n = 30) had a personal history of asthma (see Table 2, p. 27).

For children participating in the study, the average father was 35 years of age and had some college education. One father completed the eleventh grade, one had a master's degree, and four had law degrees. Table 3 (p. 28) illustrates group representation on fathers' education. Twenty percent (n = 29) had a personal history of asthma (see Table 2, p. 27). One father was deceased, 76% lived in the home, and 21% were divorced and not living in the home. Twenty-six families had other children living in the home.

Table 1

Means and Standard Deviations on Selected Demographic Variables for Control and Experimental Groups

Variable (Measured in Years)	n	Group I	Group II	Group III	Group IV	Total Sample
Child's Age	32	9.56	5.57	6.67	6.80	7.28
		(3.36)[1]	(3.26)	(3.45)	(2.90)	(3.41)
Mother's Age	32	34.22	33.00	33.33	35.00	34.03
		(3.89)	(6.11)	(4.86)	(2.71)	(4.21)
Father's Age	30	35.00	33.43	33.67	37.20	35.10
		(4.28)	(6.24)	(5.43)	(3.43)	(4.82)
Child's history of asthma	32	7.40	2.90	4.76	4.21	4.94
		(4.16)	(1.97)	(2.91)	(2.72)	(3.42)

Note. Group I (control, pretest-posttest); Group II (experimental, pretest-posttest); Group III (experimental, posttest only); Group IV (control, posttest only).

[1]( ) = Standard Deviation

Table 2

Percent of Sample Reporting Selected Environmental Variables By Group

Variable	n	Group I	Group II	Group III	Group IV	Total Sample
Mother's history of asthma	30	22	29	16	25	23
Father's history of asthma	29	14	28	16	22	20
Child takes daily medication	32	56	57	83	50	59

Note. Group I (control, pretest-posttest); Group II (experimental, pretest-posttest); Group III (experimental, posttest only); Group IV (control, posttest only).

Table 3

Percent of Mothers and Fathers Reporting Various Levels of Educational Attainment by Group

Group	n	Educational Attainment				
		< 12 years	12 years	some college	college degree	> 4 years college
				Mothers		
I	9	0.0	9.4	12.5	6.3	0.0
II	7	0.0	18.8	0.0	0.0	3.1
III	6	0.0	9.4	3.1	0.0	6.3
IV	10	0.0	9.4	9.4	0.0	12.5
				Fathers		
I	7	0.0	3.1	9.4	6.3	3.1
II	7	3.1	9.4	3.1	6.3	0.0
III	6	0.0	9.4	3.1	0.0	6.3
IV	10	0.0	6.3	9.4	3.1	12.5

Note. Group I (control, pretest-posttest); Group II (experimental, pretest-posttest); Group III (experimental, posttest only); Group IV (control, posttest only).

The four groups were equivalent on all the demographic variables except the number of years the child had experienced asthma and the mother's educational level. There were significant differences [F (3,27) = 3.02, p = .047] among the four groups on the number of years the child had experienced asthma (see Table 1, p. 26). Visual inspection of the data on Table 3 (p. 28) suggested that Group II (experimental, pretest-posttest) included more mothers with high school education, but the sample size precluded further statistical evaluation.

Instruments

Three instruments were used to collect data for this study: a demographic data sheet, a monthly asthma diary, and a pre- and posttest knowledge questionnaire. The first two instruments were designed by the investigator. The knowledge questionnaire was developed by Hindi-Alexander (1981).

The purpose of the demographic data sheet (Appendix I) was to collect personal-social data. Information requested included family history, the asthmatic child's understanding of the disease, the child's external environment, and management of the child with asthma.

The monthly asthma diary (Appendix J) was constructed to obtain the following information daily for one month:

the number of asthma attacks, emergency room visits, hospitalizations, school absences, non-routine medications, phone calls to the physician or the emergency room, and additional comments from the parent. The inclusion of the demographic data sheet and the monthly asthma diary in the study was based on the results and recommendations from previous studies (Clark, 1981; Fireman, 1981; Hindi-Alexander, 1981; Parcel, 1977). It was the responsibility of the mother to record pertinent data daily on the diary and mail it to the investigator at the end of each month over a three month period.

A pre- and posttest knowledge questionnaire (Hindi-Alexander, 1981, Appendix H) measured the short term effectiveness of the educational program. Fifteen multiple choice and 11 true/false questions were included on the test. Reliability and validity data were not available on this instrument. The content measured by the test was presented during the four-week instruction sessions.

Procedures

For the purpose of presentation, procedures for the study are divided into three phases. The selection of the sample and assignment to groups are described in Phase I. Phase II includes the instructional module, pretest, and

posttest procedures. Procedures for measurement of long term outcomes comprise Phase III.

Phase I: Following the convenience sample selection, those mothers were called by an office nurse to determine their willingness to be contacted by the investigator and to participate in the study. To assure consistency of information given to these clients, a message of intent was read by the nurse (Appendix B). After this screening, the investigator telephoned the mothers willing to participate in the study.

The instructional module was described, including scheduling for the groups. Fathers were invited to attend the educational sessions although they provided no data for the study. Mothers understood that the requirements of the study included signing a written consent form, completing a demographic sheet, completing one and maybe two knowledge questionnaires, maintaining a simple one-page daily asthma diary for three months, and attending the four-week course.

Following phone consent, a written consent form (Appendix D) and demographic data sheet (Appendix I) were mailed to all mothers in the study. A stamped, self-addressed envelope was included for return of these documents.

Assignment to the four groups was accomplished using a random number generator. To determine whether the

groups were experimental or control, a coin was tossed twice. With the first coin toss, heads designated Group I as a control group. Group II was experimental. With the second coin toss, heads determined Group III as an experimental group. Group IV was a control. By utilizing this procedure for random assignment, the Solomon four-group design was established for hypothesis testing.

Phase II: Following group assignment, a letter explaining the knowledge questionnaire pretest (Appendix H) was mailed with the pretest to mothers in Group I (control, pretest-posttest) and Group II (experimental, pretest-posttest). A stamped, self-addressed envelope was included for return of this document. Mothers in all groups were notified by letter of their instruction dates (Appendices E & G) ten days prior to the first meeting. A phone call to each mother followed to assure receipt of the letters.

The instructional module (Appendix H) was the independent variable in this study. Groups II (experimental, pretest-posttest) and III (experimental, posttest) met two hours per week for four weeks at a central location. The investigator coordinated the parental instruction which was conducted by a pediatrician, two nurse specialists, a social worker, and a respiratory therapist. All instructors were knowledgeable in the management of children with asthma.

Content of the instructional sessions included:

I. Overview of asthma

II. Management of asthma

III. Coping with stress and behavior modification in the management of asthma

IV. Exercise, physical activity, and relaxation in the management of asthma

Every instructor received a copy of the instructional module (Appendix H) two months prior to the presentation.

The educational sessions for Group I (control, pretest-posttest) and Group IV (control, posttest) were scheduled following completion of the study. Groups II (experimental, pretest-posttest) and III (experimental, posttest) were scheduled for the educational sessions at the onset of the study. Each session was scheduled from 7:00 until 9:00 p.m. one evening per week for four weeks and included a time for discussion regarding the content presented. Parents in Group II (experimental, pretest-posttest) and Group III (experimental, posttest) received a folder containing information about asthma and objectives for each of the four sessions (Appendix H), at the beginning of the first session. At the end of the fourth session, Groups II (experimental, pretest-posttest) and III (experimental, posttest) completed the posttest knowledge questionnaire (Appendix H) and had an opportunity to evaluate the instruction as a whole. Light

refreshments were served at each session. Instructional content and method of presentation were derived from recommendations of previous studies (Clark, 1981; Fireman, 1981; Hindi-Alexander, 1981), personal clinical experience, and suggestions from qualified sources. At the completion of the fourth session of the instructional module for Groups II (experimental, pretest-posttest) and III (experimental, posttest) the knowledge questionnaire was mailed to Groups I (control, pretest-posttest) and IV (control, posttest). During the last month of the study a letter was sent to mothers in Groups I (control, pretest-posttest) and Group IV (control, posttest) reminding them of the dates, time, and location of the asthma education sessions.

Phase III: This phase of the study, measurement of long-term outcomes, extended over three months' time. At the conclusion of the fourth instructional session, Group II (experimental, pretest-posttest) and Group III (experimental, posttest) received the monthly asthma diary (Appendix J) with an explanation and a self-addressed, stamped envelope. The diary and a letter of explanation (Appendix L) were mailed to the Groups I (control, pretest-posttest) and IV (control, posttest). Mothers in Group I (control, pretest-posttest) and Group IV (control, posttest) were then contacted by phone to verify receipt of the diary and to answer any questions. In the middle

of the first month, a diary for the next month was mailed to all mothers. This procedure was followed for the succeeding two months. Occasional phone calls were necessary to prompt mothers to return the diaries.

Data Analysis

Appropriate descriptive statistics were used to analyze demographic data. Distribution on demographic variables was compared among the four groups by contingency tables and a one-way analysis of variance (ANOVA).

A Kuder-Richardson-20 procedure was used to estimate the reliability of subject responses to the posttest (Hindi-Alexander, 1981, Appendix H). An index of difficulty was calculated for each item on the test, and the average item difficulty was obtained for the entire test.

Planned comparisons of means, a repeated measures ANOVA procedure, and a one way ANOVA procedure were used in testing Hypothesis I to take full advantage of the Solomon four-group design. Planned comparisons of means were as follows: (a) testing effect: Group I (control, pretest-posttest) with Group IV (control, posttest); (b) treatment effect: Groups II (experimental, pretest-posttest) and III (experimental, posttest) with Groups I (control, pretest-posttest) and IV (control, posttest); (c) interaction of testing and treatment:

Group II (experimental, pretest-posttest) with Group III (experimental, posttest). Knowledge gain was assessed by a repeated measures ANOVA for Groups I (control, pretest-posttest) and II (experimental, pretest-posttest). A one way ANOVA was used for the overall test of posttest means.

One way ANOVA procedures were used in testing Hypotheses II thru VII. Alpha was set at .05 for all hypothesis testing.

Ethical Considerations

The proposal for this study was approved by the Human Subjects Committee, University of Kansas Medical Center, College of Health Sciences and Hospital prior to data collection. Participation of the mothers was voluntary. The investigator was available by phone to answer any questions of the participants. The risk was minimal, and all parents had the opportunity to benefit from the instruction. The local chapter of the American Lung Association was contacted and informed of the study. The results of the study were made available upon request. A letter of appreciation was sent to all participants at the completion of the study.

CHAPTER III

RESULTS

Seven hypotheses were tested. Reliability of the posttest knowledge questionnaire (Hindi-Alexander, 1981) was assessed, and the characteristics of the sample were examined. The hypotheses proposed were:

I. Those mothers who receive instruction regarding appropriate asthma management will score higher on a knowledge posttest than those mothers who do not receive the instruction.

II. Those children whose parents receive instruction regarding appropriate asthma management will experience fewer asthmatic attacks than those children whose parents to not receive the instruction.

III. Those children whose parents receive instruction regarding appropriate asthma management will have fewer emergency room visits than those children whose parents do not receive the instruction.

IV. Those children whose parents receive instruction regarding appropriate asthma management will have fewer hospitalizations than those children whose parents do not receive the instruction.

V. Those children whose parents receive instruction regarding appropriate asthma management will have less school absenteeism than those children whose parents do not receive the instruction.

VI. Those children whose parents receive instruction regarding appropriate asthma management will take more non-routine medication than those children whose parents do not receive the instruction.

VII. Those children whose parents receive instruction regarding appropriate asthma management will have fewer phone calls to the emergency room and the physician's office than those children whose parents do not receive the instruction.

This chapter documents the results of the assessment of the reliability of the knowledge questionnaire (Hindi-Alexander, 1981, Appendix H). Analysis of the hypotheses and characteristics of the sample follow.

Assessment of Reliability

Item number fourteen was deleted from the knowledge questionnaire (Hindi-Alexander, 1981, Appendix H) because of a change in insurance coverage for some families during the study. Two answers on item number twelve were counted correct due to a discussion during the instruction sessions. The Kuder-Richardson-20 procedure used to estimate the reliability of subject responses to the remaining 25 items on the posttest generated a coeffecient

Table 4

Mean, Standard Deviation, and Range by Group on Eight Dependent Variables

Variable	Group I Mean	Group I Range	Group II Mean	Group II Range	Group III Mean	Group III Range	Group IV Mean	Group IV Range	Total Sample Mean	Total Sample Range
Pretest	21.11 (2.52)[1]	17-25	20.86 (2.41)	16-23	0.00 (0.00)	0-0	0.00 (0.00)	0-0	21.00 (2.39)	16-25
Posttest	21.67 (1.94)	18-24	21.14 (0.90)	21-23	22.50 (1.38)	21-24	20.50 (3.24)	12-23	21.56 (2.30)	12-24
Asthma Attacks (Days)	6.11 (10.14)	0-30	6.29 (5.62)	0-14	4.67 (5.05)	0-14	4.40 (6.48)	0-18	5.34 (7.05)	0-30
Emergency Room Visits (Days)	0.00 (0.00)	0-0	0.43 (1.13)	0-3	0.33 (0.82)	0-2	0.10 (0.32)	0-1	0.19 (0.64)	0-3
Hospitalizations (Days)	0.56 (1.67)	0-5	1.00 (2.65)	0-7	0.00 (0.00)	0	0.00 (0.00)	0	0.38 (1.50)	0-7
School Absences (Days)	1.78 (2.99)	0-9	0.57 (0.79)	0-2	2.17 (3.13)	0-8	1.30 (2.11)	0-5	1.44 (2.37)	0-9
Non-routine medication (days)	16.11 (12.77)	0-35	17.71 (19.27)	0-46	15.67 (9.95)	1-30	14.70 (12.69)	0-30	15.94 (13.34)	0-46
Physician and Emergency Room Calls	3.22 (5.91)	0-17	2.14 (2.41)	0-6	1.83 (1.84)	0-4	0.60 (1.08)	0-3	1.91 (3.48)	0-17

Note. (Group I (control, pretest-posttest); Group II (experimental, pretest-posttest); Group III (experimental, posttest); Group IV (control, posttest).

[1]( ) = Standard Deviation

of .62. Item Difficulty Indexes on the posttest ranged from 0.44 to 1.00 with an average item difficulty of 0.80. Eight of 25 items had 0.00 variance.

Analysis of the Hypotheses

As stated previously, there were differences among the four groups on the number of years the child had experienced asthma. However, that variable was not correlated significantly with any of the dependent variables, thereby requiring no further consideration in testing Hypotheses I thru VII.

The results from testing the seven hypotheses follow.

Hypothesis I:

> Those mothers who receive instruction regarding appropriate asthma management will score higher on a knowledge posttest than those mothers who do not receive the instruction.

Procedures applied to the research data to test Hypothesis I were: planned comparisons of means, a repeated measures ANOVA, and a one way ANOVA. The mean on the pretest was 21.00 (SD = 2.39) (Groups I and II only), ranging from 16 to 25. The sample mean on the posttest was 21.56 (SD = 2.30), ranging from 12 to 24.

Group pretest and posttest means are shown on Table 4 (p. 39).

Using the Solomon four-group design, the testing effect was assessed by comparing the posttest mean of Group I (control, pretest-posttest) with the posttest mean of Group IV (control, posttest). There was no significant testing effect [t (28) = 0.81, p = .42]. Comparing the posttest means of Groups II (experimental, pretest-posttest) and III (experimental, posttest) with the means of Groups I (control, pretest-posttest) and IV (control, posttest), there was no significant treatment effect [t (28) = 0.86, p = .40]. Comparison of the means of Group II (experimental, pretest-posttest) with Group III (experimental, posttest) revealed no interaction of the testing and the treatment [t (28) = 0.59, p = .56]. Knowledge gain for Group II (experimental, pretest-posttest) was tested using a 2 x 2 repeated measures ANOVA with Group I (control, pretest-posttest) as a control and pretest and posttest scores as the repeated factor. There was no significant knowledge gain (see Table 5, p. 42). Results from the ANOVA on the overall posttest means resulted in no significant difference among the four groups [F (3,28) = 1.23, p = 0.32].

Table 5

Repeated Measures ANOVA on Pretest and Posttest Scores for Mothers in Groups I and II

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	p
Group	0.10	1	0.10	0.02	.90
Error	88.78	14	6.34	----	----
Test	6.67	1	6.67	2.94	0.11
Test by Group	1.05	1	1.05	0.46	0.51
Error	31.83	14	2.27	----	----

Note. Group I (control, pretest-posttest); Group II (experimental, pretest-posttest).

Hypothesis II:

> Those children whose parents receive instruction regarding appropriate asthma management will experience fewer asthmatic attacks than those children whose parents do not receive the instruction.

The sample mean on asthmatic attacks during Phase III of the study was 5.34 (SD = 7.05), ranging from 0 to 30 (Table 4, p. 39). A one way ANOVA was computed to examine the difference among group means on the number of

asthmatic attacks experienced. There was no significant difference among groups [F (3,28) = 0.14, p = .93].

Hypothesis III:

> Those children whose parents receive instruction regarding appropriate asthma management will have fewer emergency room visits than those children whose parents do not receive the instruction.

The sample mean on emergency room visits during Phase III of the study was 0.19 (SD = 0.64), ranging from 0 to 3 (see Table 4, p. 39). A one way ANOVA was computed to examine the difference among group means on the number of emergency room visits experienced. There was no significant difference among groups [F (3,28) = 0.72, p = .55].

Hypothesis IV:

> Those children whose parents receive instruction regarding appropriate asthma management will have fewer hospitalizations than those children whose parents do not receive the instruction.

The sample mean on hospitalizations during Phase III of the study was 0.38 (SD = 1.50), ranging from 0 to 7, (see Table 4, p. 39). A one way ANOVA was computed to examine the difference among group means on the number of

hospitalizations experienced. There was no significant difference among groups [F (3,28) = 0.77, p = .52].

Hypothesis V:

> Those children whose parents receive instruction regarding appropriate asthma management will have less school absenteeism than those children whose parents do not receive the instruction.

The sample mean on school absences during Phase III of the study was 1.44 (SD = 2.37), ranging from 0 to 9 (see Table 4, p. 39). A one way ANOVA was computed to examine the difference among group means on the number of school absences experienced. There was no significant difference among group means [F (3,28) = 0.55, p = .65].

Hypothesis VI:

> Those children whose parents receive instruction regarding appropriate asthma management will use more non-routine medications than those children whose parents do not receive the instruction.

The sample mean on non-routine medication during Phase III of the study was 15.94 (SD = 13.34), ranging from 0 to 46 (see Table 4, p. 39). A one way ANOVA was computed to examine the difference among group means on the number of non-routine medications administered.

There was no significant difference among group means [(F (3,28) = 0.90, p = .45].

Hypothesis VII:

> Those children whose parents receive instruction regarding appropriate asthma management will have fewer phone calls to the emergency room and the physician's office than those children whose parents do not receive the instruction.

The sample mean on the number of phone calls to the emergency room and the physician's office during Phase III of the study was 1.91 (SD = 3.48), ranging from 0 to 17 (see Table 5, p. 42). A one way ANOVA was computed to examine the difference among group means on the number of phone calls to the emergency room and the physician's office. There was no significant difference among group means [F (3,28) = 0.90, p = .45].

Characteristics of the Sample

The following statements summarize some of the characteristics of the sample relevant to asthma management. These characteristics are derived from responses on the demographic data sheet (Appendix I).

Fifty-six percent of the sample regarded the child with asthma as a family concern. Responses varied in how the child was a concern but primarily addressed finances,

parent apprehension in the child's well-being, family activity, avoidance of triggers, and feelings of helplessness.

Previous parental asthma education was primarily individualized. Considering 32 families, 96.7% had received physician instruction, and 7%, nurse instruction. Sixteen percent had attended the Superbreathers Family Asthma Program sponsored by the American Lung Association, and 23% had received instruction in other ways (respiratory therapist and self-directed reading). Most of this instruction had occurred a year or more ago or was termed "ongoing". Fifty percent of the subjects stated that they understood asthma and 75% believed that they managed it well. Forty-one percent professed that their child understood asthma. The mother was regarded as the primary manager of the child's asthma by 78% of the subjects. Six percent designated the child, 9% the mother and father, and 6% the mother, father, and child as managers of the child's asthma. Five of 32 owned an aerosol machine. There was no significant difference among groups on the following variables: type of pets inside or outside the home, type of heating and air-conditioning, and history of sibling asthma.

CHAPTER IV

DISCUSSION AND RECOMMENDATIONS

Reliability of the knowledge questionnaire (Hindi-Alexander, 1981) was assessed. Seven hypotheses were tested with no significant results. Selected characteristics of the sample relative to asthma were described. These findings which were reported in the previous chapter are discussed in the following sections. Implications for nursing practice and recommendations are presented.

Assessment of Reliabilty

The Kuder-Richardson-20 estimate of reliability for the knowledge questionnaire (Hindi-Alexander, 1981, Appendix H) is .62 which is low compared to a minimum of .70 expected for a classroom test (Good, 1980). With an average item difficulty of .80, there was a negatively skewed distribution of scores on this test. Since an underlying assumption of Kuder-Richardson-20 is a normal distribution of scores, a low estimate of reliability is not surprising. There was no variance on eight of the 25 items on the posttest. Reliability is also a function of the test length, and a reduction in the number of effective items would lower the estimate of reliability of the responses. A test which is appropriate for use in research would need to have a lower average item

difficulty and to have a greater number of items that discriminate among subjects. If test items were more difficult to discriminate actual knowledge gain among subjects and meet the criteria for research, subjects perhaps would not attain a level of satisfaction and accomplishment after receiving the educational instruction.

Analysis of Hypotheses

Hypothesis I:

> Those mothers who receive instruction regarding appropriate asthma management will score higher on a knowledge posttest than those mothers who do not receive the instruction.

There was no significant difference in the group means of the pretest and posttest scores (see Table 4, p. 39). The mean score on the pretest translates to 84% of the possible points. Mothers entered the study with a high level of knowledge as measured by the knowledge questionnaire (Hindi-Alexander, 1981). This high level of knowledge is supported further by comparing the Group IV (control, posttest) mean, 20.50 (SD = 3.34), on the posttest with the Group I (control, pretest-posttest) mean, 21.11 (SD = 2.52), of the pretest. When the means of the pretest and posttest are not significantly different the information provided by assessment of a

testing effect is less potent evidence of internal validity of the study.

Information was not available documenting the validity and reliabilty of the knowledge questionnaire (Hindi-Alexander, personal communication, April 4, 1984). Efforts were made to assure that the content measured by the test was included in the instructional module. In retrospect, however, there was no assessment of whether all the content included in the instructional module was represented on the knowledge questionnaire. One hundred percent of the mothers in Groups II (experimental, pretest-posttest) and III (experimental, posttest) considered the educational instruction beneficial in the management of their child with asthma. This same 100% stated that the sessions were worth their effort to attend and that they would recommend the instruction to other parents of children with asthma. The investigator's impression was that these parents received information not assessed on the test and therefore the validity of the test for this study is reduced. The lack of significant difference in pretest and posttest scores for Group I (control, pretest-posttest) and Group II (experimental, pretest-posttest) and posttest scores for all groups is most likely a function of the content of the test and should not be construed to mean that no learning occurred.

Parent evaluation of the instruction was positive. All participants considered the information beneficial in the management of their asthmatic child. One hundred percent of those in attendance indicated that the sessions were worth their time and effort and that they would recommend the instruction to others who have an asthmatic child. The investigator did receive inquiries from parents not in the study asking if they might attend the next instructional sessions. As a result of parent discussion and course evaluation, parents determined a need for a local support group for parents of asthmatic children. In evaluating what they liked most about the instruction, parents identified: (a) involvement with parents who experience similar circumstances, (b) information regarding medications, and (c) group participation in understanding how a child experiencing asthma might feel. In stating what they least liked about the instruction, some parents desired longer sessions. Other parents made no recommendations except to state that there was nothing that they liked least.

The investigator's perception and overall evaluation was that the sessions were worthwhile as determined by attendance, group discussion and participation, and parent's written evaluation and verbal communication. Parents spoke enthusiastically about initiation of a parent support group in the fall and were very interested

in the information offered regarding medications. The test did not assess the information that the parents cited as most valuable.

Hypotheses II - VII: These hypotheses will be discussed together and are stated as follows:

Hypothesis II:

> Those children whose parents receive instruction regarding appropriate asthma management will experience fewer asthmatic attacks than those children whose parents do not receive the instruction.

Hypothesis III:

> Those children whose parents receive instruction regarding appropriate asthma management will have fewer emergency room visits than those children whose parents do not receive the instruction.

Hypothesis IV:

> Those children whose parents receive instruction regarding appropriate asthma management will have fewer hospitalizations than those children whose parents do not receive the instruction.

Hypothesis V:

Those children whose parents receive instruction regarding appropriate asthma management will have less school absenteeism than those children whose parents do not receive the instruction.

Hypothesis VI:

Those children whose parents receive instruction regarding appropriate asthma management will use more non-routine medication than those children whose parents do not receive the instruction.

Hypothesis VII:

Those children whose parents receive instruction regarding appropriate asthma management will have fewer phone calls to the emergency room and the physician's office than those children whose parents do not receive the instruction.

Table 4 (p. 39) lists the range for each of the dependent variables in the hypotheses; none have normal distribution. The short time frame for data collection and limited sample contributes to the inadequate range of each of the variables and lack of significant findings. The range is wider for non-routine medications (0 - 46) but there is still no significant result.

Considering randomization of the four groups and high pretest mean scores, this sample was functioning on a sophisticated knowledge base. It is not surprising that there is little difference among the four groups. These children were not newly diagnosed clients and the families had been managing asthma for an average of 4.94 years (see Table 1, p. 26).

Many studies cited in the review of literature measured similar dependent variables. However, all of these studies enlisted larger sample selections and extended over longer periods of time (Clark, 1981; Fireman, 1981; Hindi-Alexander, 1981; Maiman, 1979; Mak, 1982).

Characteristics of the Sample

There is an existing homogeneity among the groups in this study. Many of the parents came to the instructional sessions with some knowledge of asthma management because of previous instruction. The overall attendance for the four sessions was 81%. Fifty-four percent of the mothers attended three of the four sessions, 23% attended half and 8% attended none of the instruction sessions. All 32 subjects participating in the study returned a calendar for each of three months. The high attendance during the instructional sessions and overall study participation indicate an interest and motivation toward improving asthma management even though many had previous education.

This sample revealed a strong history of asthma in the mother, father, or siblings in the family. Twenty-three percent of the mothers and 21% of the fathers stated they had a personal history of asthma. Nineteen percent of the families had at least one other child who also had asthma. Parents' previous experience with asthma may contribute to their higher knowledge level of management of asthma.

In this physicians group practice, there is a nurse who instructs families in asthma management. This instruction is given upon request of the attending physician. It is interesting that only seven percent of the mothers in this study indentified a nurse as an educational provider. Perhaps in this sample, these families had not been referred to this nurse, or if they had, they continued to identify the physician as the authority in the management of their child with asthma.

Implications for Nursing

There are important implications of this study for all nurses, even though the results are not in the predicted direction. All nurses are teachers. Specifically, there are important implications for those nurses who work with families experiencing chronic illness.

The comments returned by the parents on the written evaluation of the instructional sessions support that it was a beneficial experience. The educational process for the improvement in the management of asthmatic children is supported in the literature (i.e. Hindi-Alexander, 1981), but is not evidenced by the results of this study. The dependent variables are not included in the parent evaluation and investigator's perception of the results of the study. However, this feedback would support the educational process for parents whose children experience this chronic disease. The actual results of the study cannot be ignored and one must consider the possibility that education might not significantly contribute to the management of a child with asthma, particularly if the parents are already functioning on a high knowledge base.

Attitudes, beliefs, and lack of knowledge are more susceptible to change through an educational approach, while personality characteristics must be addressed by another strategy. Jones (1981) proposes that the chief cause of poor management of asthmatic children is a weak parental link and socioeconomic stress within the family. Financial responsibility is one of the factors that mothers in this study identify when asked how the child with asthma is a concern. Certainly nursing is a profession that can provide education for these families

in parenting skills, community referrals, and assessed areas of individual need.

It is within the conceptual framework of patient teaching and compliance and the issue of appropriate management of asthmatic children that the nurse truly can apply personal and professional skills. It is at the time of diagnosis, usually a crisis situation, that intervention occurs. The aim of education is promotion of health. The overall goals of parental instruction regarding the management of the asthmatic child are: (a) to assist the parents in understanding asthma, (b) to help the parents assume greater responsibility and involvement in the management of their child's asthma, and (c) to promote parental self-confidence in their own abilities to manage their child's asthma. Ultimately, the child is the benefactor when these goals are accomplished.

The possibility exists that early intervention assists parents in identifying and utilizing appropriate measures for improving the management of their asthmatic child. Parents did identify having previous education, but in this study it is impossible to determine when or how that education was received. The results of testing hypotheses II thru VII cannot be directly attributed to parental knowledge base, but it is factual that parents had earlier intervention and that these children are managed well. Considering that this study was conducted

in a midwestern city during the spring months, there is a relatively low incidence of hospitalizations, emergency room visits, and school days missed (e.g., Fireman, 1981). At the same time, one must acknowledge that there was no significant findings among these groups.

The goal of parent education is immediate, practical, and distant—such as compliance with a regimen. To accomplish this goal, many strategies must be utilized to change behavior. Parents should develop a feeling of self-control and self-determination to establish their own priorities in management of their child's health. Health care professionals must remember that parental education is part of the mission of the health care system, even though it is one of many goals of that system. However, the educational goal receives high priority in today's health care and nurses are in the role to facilitate accomplishment of this goal. Application of the nursing process provides the nurse a framework to enhance the education and management skills of these families and children who experience asthma and to impact their lives tremendously. The fact remains that parents must identify their need for education before the nurse can work toward the educational goal. The educational goal should be directed toward parent needs.

Recommendations for Further Study

1. Replicate this study with a different population.

2. Replicate the study with newly diagnosed patients over a longer period of time with a larger sample size.

3. Conduct a pilot study to determine: (a) parents asthma education level, and (b) what parents identify as their educational needs in the management of their child with asthma.

4. Structure and evaluate the instructional module to meet the needs identified in the pilot study.

5. Develop a tool to measure the information provided in the instructional sessions.

6. Include a measure of the anxiety variable among parents.

7. Consider the number of children in the family experiencing asthma and parental history of asthma in future studies. The impact of these variables in this study was negated due to small sample size, but they should be considered in future studies.

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APPENDIX A

REQUEST FOR PHYSICIAN CONSENT

PHYSICIAN GROUP CONSENT

September 6, 1983

Dan A. Kelly, M.D.
Pediatrics, P.A.
904 S.W. Mulvane
Topeka, Kansas 66606

Dear Dr. Kelly:

Refer to our meeting of September 2, 1983 wherein we discussed my project concerning "Parental Instruction Regarding Appropriate Asthma Management" and the possibility of utilizing a population of clients from Pediatrics P.A. As we discussed, this project is part of my graduate work while completing the requirements for a Master's Degree in Nursing at the University of Kansas.

I understand that you will meet with your Board of Directors and present the project for approval. If necessary, I will be available to meet with you and the Board to answer any questions. I will await for your reply concerning the outcome of your meeting.

Thank you for your time and effort in this matter.

Sincerely,

Linda L. Ladehoff, R.N.,B.S.N.

PEDIATRICS, P. A.

904 Mulvane
Topeka, Kansas 66606
(913) 232-8224

WILLIAM H. CROUCH, JR., M.D.
ROBERT D. FARMAN, M.D.
DAN A. KELLY, M.D.
F. E. PATRICK, M.D.

BARTLETT W. RAMSEY, M.D.
STEVEN W. CROUCH, M.D.
HAL E. COPPLE, M.D.
NAOMI B. PATTERSON, PH.D.

September 16, 1983

Mrs. Linda L. Ladehoff, R.N., B.S.N.

Dear Mrs. Ladehoff:

In response to your recent letter of September 6, 1983, the Board of Directors at Pediatrics, P.A. was in full agreement that we would enjoy being involved in your project concerning "Parental Instruction Regarding Appropriate Asthma Management."

We will request a computer print-out of our asthma patients and advise you upon its receipt so you may begin your patient selection process.

Sincerely,

Dan A. Kelly, M.D.

DAK:mff

APPENDIX B

OFFICE NURSE TELEPHONE CONTACT

Ms._____, this is _____ in Dr._____'s office. We have a nurse conducting a study to learn more about the effects of patient's knowledge concerning their asthmatic child. Dr. _____ endorses the study and we would like to know if you would be willing to participate. If you would, she will be in contact with you within the next three weeks.

Thank you.

APPENDIX C

LETTER TO PARTICIPANTS

Letter to Participants

Dear _____:

My name is Linda Ladehoff and I am a Registered Nurse working on my graduate thesis through the University of Kansas College of Health Sciences, Graduate School of Nursing. I am conducting a study to learn more about the effects of parental education and the effect it has on the asthmatic child.

I understand that you have indicated a willingness to participate in such a study and I would very much appreciate your participating. It will involve the following:

1. Completing the enclosed consent form and demographic data form and returning them to me by mail.

2. Attending four two-hour asthma education programs on Tuesday evenings from 7-9 p.m. These sessions will be held at the Shawnee County Public Health Department.

3. Keeping a one page diary for three months, regarding the health of your asthmatic child.

4. Evaluating the program at the conclusion of the four-week presentation.

5. Completing a pre- and posttest or a posttest only.

Permission to proceed with this study has been obtained from Pediatrics, P.A. Your participation in the study will help evaluate the effects of an educational program for parents of asthmatic children as well as the potential effects on the children. Participation may also be advantageous to you if you have questions concerning the management and care of your asthmatic child. The study is endorsed by the Shawnee County Public Health Department.

Any information obtained during this study will be confidential and will only be used for the purposes of the study. Your name will not be used in connection with the reporting of the results. If you choose not to participate in this study, the care you are receiving through Pediatrics, P.A. will not be affected.

Letter to Participants
Page two

I would very much appreciate your participation in this study. If you choose to participate, please complete the Demographic Data form and the Informed Consent Statement and return it in the enclosed, addressed, stamped envelope.

Sincerely,

Linda L. Ladehoff, R.N.,B.S.N.

LLL:ps
Enclosures (2)

APPENDIX D

PARENTAL INFORMED CONSENT STATEMENT

Parental Informed Consent Statement

I understand that a study is being conducted to evaluate parental education regarding the management of their child with asthma. My participation in this study means that I will have the opportunity to attend four, two-hour sessions of instruction regarding the management of my/our asthmatic child. I understand that there will be two groups to receive the instruction, one group approximately five months later than the other group. My participation also includes completing a demographic data form at the beginning of the study and maintaining a simple one page per month diary, to be mailed in at the end of each month over a three-month period of time. I understand that all information obtained will remain confidential and will only be used for the purposes of the study.

I understand that I may withdraw from the study at any time, but gratitude is expressed for remaining in the study the entire time. The results of the study will be made available to me/us at my/our request.

I certify the signature below will indicate that my/our participation in the study is voluntary and that if I/we withdraw from the study at any time, it will not affect the treatment we are receiving from our pediatrician.

I understand that the University of Kansas Medical Center College of Health Sciences and Hospital does not maintain a policy of medical treatment or compensation for physical injuries incurred as a result of participating in biomedical or behavior research.

Date:_____ _____

Parent Signature

Date:_____ _____

Investigator's Signature

APPENDIX E

LETTER OF DATE AND LOCATION FOR GROUP II AND GROUP III

January 27, 1984

Dear Parents:

The first instruction module on Management of Asthmatic Children will be during the month of February, 1984. The classes will be held on Tuesday nights from 7-9 p.m. on February 7, 14, 21, and 28, 1984 at the Shawnee County Health Department, 1615 W. 8th Street.

I truly appreciate your participation in this study and look forward to meeting with you weekly.

Sincerely,

Linda L. Ladehoff, R.N.,B.S.N.

APPENDIX F

LETTER TO PARENTS COMPLETING PRETEST

January 27, 1984

Dear Parents:

Please complete the enclosed knowledge questionnaire pertaining to the management of your child with asthma and return it in the enclosed, addressed, stamped envelope by February 7, 1984. This questionnaire is **NOT** graded but its completion and return is important to the study. The information contained will be confidential and will only be used for the purposes of the study. Once again, thank you for your continued time and participation.

Sincerely,

Linda L. Ladehoff, R.N.,B.S.N.

Enclosures

APPENDIX G

LETTER OF ASSIGNMENT TO GROUP I AND GROUP IV

January 27, 1984

Dear Parent:

You have been assigned to the group of parents that will receive the instruction module of Management of Asthmatic Children during the month of September, 1984. The dates, time, and place will be announced at a later time.

The latter part of February you will receive a letter regarding completion of the asthma diary each month.

Thank you for your interest and participation.

Sincerely,

Linda L. Ladehoff, R.N.,B.S.N.

LL:bb

APPENDIX H

INSTRUCTIONAL MODULE AND CONSENT TO USE KNOWLEDGE QUESTIONNAIRE

Parental Instruction Regarding Appropriate Asthma Management

Purpose:

To provide parents an opportunity to enhance or reinforce their knowledge regarding asthma and the management of their child's asthma.

Goals:

At the conclusion of this instruction, the parents will:

1. Possess a basic knowledge in understanding asthma.
2. Assume greater responsibility and involvement in the management of their child's asthma.
3. Have greater self-confidence in their own abilities to manage their child's asthma.

Asthma Instructional Content

Session I:	Overview of Asthma Physician, instructor
Session II:	Management of Asthma Nurse Specialist, instructor
Session III:	Coping with Stress and Behavior Modification in the Management of Asthma Social Worker, instructor
Session IV:	Exercise, Physical Activity, and Relaxation in the Management of Asthma Occupational Therapist, instructor

Parental Instruction Regarding Appropriate Asthma Management

Staff: Professional

Physician (1)

Nurse Specialist (2)

Social Worker (1)

Respiratory Therapist (1)

Activities

Activity	Parent Time
Instruction	4¼ hours
Relaxation Training/Exercise	1/4 hour
Audiovisual Media	3/4 hour
Quizzes	1/2 hour
Discussion	2 hours
Review	1/4 hour
Total	8 hours

Audiovisual Media

produced by the American Lung Association

A Regular Kid - 16mm movie (15 min.)

Better Breathing for Kids - Understanding Asthma
in the Classroom - slidetape (10 min.)

Session I: Overview of Asthma

Objectives:

At the conclusion of this session, the parent will be able to:

1. Define asthma.

2. Understand how asthma affects the body.

3. Identify early warning signs of an asthma attack.

4. Determine ways to reduce or avoid an asthma attack.

5. Know the names of the medications, how they work, and when to use them.

6. Determine the appropriate steps to take in the event of an asthma attack.

Session I: Overview of Asthma

A. Introduction of self and interest in asthma

B. Definition

Statistics

C. Pulmonary physiology

1. Normal lung function

2. Pathophysiology of asthma

a. Nature of the disease

b. Course of the disease

c. Prognosis

D. Etiology of asthma

1. Genetic predisposition

2. Early/late onset

3. Psychophysiological asthma

4. Other triggering factors

E. Medications

Bronchodilators, adrenalin, cromolyn, steroids, immunotherapy

1. In conjunction with overall medical management

2. Including routes of administration, dosage, blood levels, protocols, effects, side effects

F. Management of an attack

1. Early warning signs—what to look for and listen for

2. Early intervention

    a. Environmental management—internal and external

    b. Medication

    c. Exercise

G. Discussion

SESSION I

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Session II: Management of Asthma

Objectives:

At the conclusion of this session, the parent will be able to:

1. Identify triggers of asthma.
2. Determine ways to avoid or manage the triggers of asthma.
3. Determine methods effective for prevention of asthma attacks.
4. Identify early warning signs and determine ways to reduce or avoid an asthma attack (review).
5. Assess the need for developing individual protocols in the management of their asthmatic child.
6. Understand the correct usage and care of the inhaler.
7. State what to do in the event of an asthma attack (review).
8. Talk with the physician or nurse effectively concerning the care and treatment of the asthmatic child.

Session II: Management of Asthma

A. Introduction of self and interest in asthma

B. Philosophy of asthma management

C. Causes/triggers of asthma

   1. Allergens, infections, exercise, irritants, inhalants, emotion, weather, nighttime

   2. Avoidance and environmental control

D. Preventive measures

   1. Nutrition

   2. Parental education and self-control

   3. Child's education regarding asthma

   4. Family asthma program

   5. Medication

E. Self-management skills

   1. Early recognition and avoidance of triggers

   2. Development of individual protocols

   3. Demonstration of use of inhalers and peak flow meters

F. Management of an attack

   1. Early warning signs

      a. What to look for

      b. What to listen for

   2. Early intervention—Environmental management

      a. External

      b. Internal

c. Medication

d. Exercise

G. Ways to talk with the physician or nurse

1. Observations and what to say

2. Record what they say

3. Ask questions

H. Discussion

SESSION II

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Session III: Coping with Stress and Behavior Modification in the Management of Asthma

Objectives:

At the conclusion of this session, the parent will be able to:

1. Identify major stressors in the management of asthma.
2. Recognize the social and psychological impact of asthma on the child and his family.
3. Determine the need for behavior modification in appropriate asthma management.
4. Discuss inherent problems associated with behavior modification.

Session III: Coping with Stress and Behavior Modification in the Management of Asthma

A. Introduction of self and interest in asthma

B. Overview of philosophy of asthma management

C. Identification of stressors

   1. Emotional

   2. Environmental

   3. Psychosocially

   4. Financially

   5. Physical well-being of child and family

   6. Developmental well-being of child and family

D. Social and psychological impact of asthma

   1. Child

   2. Family

      a. Normalization of family and peer relationships

      b. Development of good working relationship between family and physician

      c. School

E. Reasons asthma treatment fails

F. Coping with stress and behavior modification

   1. Benefits vs. difficulties

   2. Recognizing early warning signs and act with appropriate interventions

   3. Utilizing preventive measures of management

4. Determining expectations and responsibilities

    a. Parent

    b. Child

5. Utilizing methods of problem-solving and decision making

6. Communicating effectively

7. Being an educated consumer

8. Parents as role models

G. Discussion

SESSION III

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Session IV: Exercise, Physical Activity, and Relaxation in the Management of Asthma

Objectives:

At the conclusion of this session, the parent will be able to:

1. Differentiate varying philosophies of exercise for asthmatic children.
2. Interpret the physician's philosophy regarding exercise for the asthmatic child.
3. Perceive the basic normal physiology of breathing.
4. Utilize age appropriate exercises and games with the asthmatic child.

Session IV: Exercise, Physical Activity, and Relaxation in the Management of Asthma

A. Introduction of self and interest in asthma

B. Philosophies of exercise for asthmatic children

C. Utilization of exercises with consent of physician

D. Review of normal physiology of breathing

E. Exercise physiology

    1. Importance

    2. Development of individual protocols

    3. Progress and rewards

F. Consideration of developmental level

    1. Exercises

        a. Easy breathing techniques

        b. Conditioning exercises

    2. Games

    3. Relaxation techniques

    4. Physical activity

    5. Peak flow readings

G. Demonstration and group participation

    1. Exercises

    2. Peak flow readings

H. Discussion

SESSION IV

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September 6, 1983

Michele Hindi-Alexander, Ph.D.
State University of New York at Buffalo
Department of Medicine
100 High Street
Buffalo, New York 14203

Dear Dr. Alexander:

Referring to our phone conversation September 3, 1983, this letter is follow-up to obtain your written consent to use the Adult Knowledge Questionnaire in my study of "Parental Instruction Regarding Appropriate Asthma Management". As we discussed, this project is part of my graduate work while completing the requirements for a Master's Degree in Nursing at the University of Kansas.

I understand that your questionnaire is copyrighted; however, you indicated in our phone conversation that I would be permitted to use it in my study without charge, and that I would furnish you with the results of my study when completed. You also indicated the validity and reliability of information on the questionnaire is under study and that this information will be available later in the year.

May I have your written consent regarding these matters?

Thank you for your continuing effort in this regard.

Sincerely,

Linda L. Ladehoff, R.N.,B.S.N.

State University of New York at Buffalo

DEPARTMENT OF MEDICINE

Allergy Division
Asthma Self-Management Program
Elliott Middleton, Jr., M.D.
Michele Alexander, Ph.D.

FACULTY OF HEALTH SCIENCES

School of Medicine
Buffalo General Hospital

November 11, 1983

Linda L. Ladehoff, R.N., B.S.N.

Dear Linda:

I welcome this opportunity to further validate our Pre/Post Knowledge Questionnaire, and you hereby have my written consent to use it.

Best wishes,

Sincerely,

Michele C. Hindi-Alexander, Ph.D.
Research Assistant Professor
Director,
Asthma Self-Management Program

MHA/jc

100 HIGH STREET BUFFALO, NEW YORK 14203 TEL. (716) 845-2995/2985

ASTHMA SELF-MANAGEMENT PROGRAM

K O P R
1-4

I D
5-10

KNOWLEDGE QUESTIONNAIRE Date_____
11-14

Program _____ Name_____

Circle only ONE answer for each question.

1. Asthma is:

   1 a heart disease
   2 an emotional illness
   3 a lung disease
   4 a kidney disease

15

2. Asthma attacks can be triggered by:

   1 emotional stress
   2 changes in temperature or humidity
   3 exercise
   4 all of the above

16

3. Asthma affects what percent of people?

   1 less than 1%
   2 less than 40%
   3 between 3% and 5%
   4 about 90%

17

4. Asthma affects:

   1 young poeple only
   2 females only
   3 males only
   4 males and females of all ages

18

5. Which group of medications is MOST OFTEN used in the treatment of asthma?

   1 corticosteroids
   2 cromolyn sodium (Intal, Aarane)
   3 bronchodilators
   4 aspirin

19

6. The narrowing of bronchial tubes in an asthma attack is due to:

   1 tightening of bronchial muscles
   2 increase in mucous secretion
   3 swelling of bronchial walls
   4 all of the above

20

7. In general, people who have asthma:

   1 must not go swimming
   2 can participate in most activities
   3 are crippled
   4 cannot participate in sports

21

8. People who have asthma should:

   1 learn the names of the medications the doctors prescribe for them
   2 learn how the medications work
   3 not learn about the medications
   4 numbers 1 and 2

22

9. If a person feels a wheezing episode coming on (recognize Early Warning Signs), he/she should:

1 stop what he/she is doing
2 remain calm
3 take medication
4 all of the above

23

10. The triggers of asthma include:

1 cigarette smoke
2 air pollution
3 cold air
4 all of the above

24

11. Bronchodilators:

1 can be used before exposure
2 are steroids
3 will relax and open airways in minutes
4 both 1 and 3

25

12. Corticosteroids:

1 are bronchodilators
2 are medications which must not be used on a regular basis
3 will reduce inflammation in the lungs
4 are a good treatment after exercise-induced asthma

26

13. A possible side effect of long-term oral or injected corticosteroid (cortisone) treatment is:

1 change in facial appearance
2 excessive growth in height
3 loss of appetite
4 weight loss

27

14. If I have an asthma attack late at night or over a weekend, and I do not respond to previously-prescribed medications, I should first:

1 double the amount of bronchodilator medication
2 call my physician, no matter what time it is
3 wait until the next morning or Monday, then call my physician
4 go to the Emergency Room

28

15. When I am going to be exposed to something I know will trigger the asthma, I should:

1 take my medication when I start wheezing
2 take medication just before exposure
3 take medication the night before exposure
4 double my medication at the regular time

29

PLEASE CIRCLE - TRUE/FALSE

16. Left untreated, asthma will go away eventually. true false

30

17. Persons with asthma should not be required to do any chores around the house because this true false

18. Viral respiratory tract infections are known to be a major trigger of asthma, but bacterial infections usually are not. true false _____ 32

19. As a person becomes more knowledgeable, she/he should be able to take more responsibility for his/her own self management. true false _____ 33

20. Pulmonary function tests are breathing tests used in the diagnosis of asthma and in the evaluation of its treatment. true false _____ 34

21. Some persons with asthma need allergy shots. true false _____ 35

22. Asthma can usually be controlled with proper medication. true false _____ 36

23. If mild exercise brings on an occasional asthma attack, the person should never exercise. true false _____ 37

24. The physical activity which persons with asthma usually tolerate best is swimming. true false _____ 38

25. Even if a person with asthma exercises regularly, he/she will probably never be able to build up a tolerance for more strenuous activity. true false _____ 39

26. The effectiveness of allergy shots should be reassessed about every two years. true false _____ 40

27. Would you tell other persons with asthma to come to this program?

1 yes 2 only in some cases
2 maybe 4 no

_____ 41

28. Did the program answer many of your questions?

What questions were not answered?

Thank you.

COURSE EVALUATION

Do you consider the course content beneficial to you in management of your asthmatic child? Yes__ No__

Was the course worth your time and effort to attend? Yes__ No__

Would you recommend the course to someone who has an asthmatic child? Yes__ No__

What did you like most about the course?

What did you like least about the course?

Suggestions:

Thank you.

10-83 (L. Ladehoff)

APPENDIX I

DEMOGRAPHIC DATA

Identification #_____

Demographic Data Questionnaire

	Age	History of Asthma	Living in Home	Education
1. Mother				
Father				

2. Child's age_____ and sex_____who has asthma.
3. How long has child had asthma?_____
4. Does this child take medication regularly?_____
5. Do you own a maximist machine or aerosol machine of any kind?

_____

6. When was this child's last asthma attack in which you sought professional help?_____
7. Please list pets in the home._____
8. Is the child with asthma a constant family concern?_____
   If so, how?_____
9. Type of heating_____air-conditioning_____
10. What type of instruction have you had regarding the management of your child's asthma? (Please include physician instruction, nurse instruction, classes, seminars, etc.)

_____

_____

11. When was this instruction?_____
12. Do you think that you understand asthma?_____
13. Do you think that you can manage your child's asthma well?

_____

14. Do you think your child understands his disease?_____
15. Who has the prime responsibility for the management of your child's asthma?_____
16. Please list other children in the home:

Age_____Sex_____History of Asthma_____

_____

_____

10-83 (L. Ladehoff)

Thank you.

APPENDIX J

MONTHLY ASTHMA DIARY

Monthly Asthma Diary

Identification #_____
Child's Name_____
Current Medications_____

Month_____

Day of Month	Asthma Attacks	Emergency Room Visits	Hospital-izations	School Absen-teeism	Medication*	Phone Calls to DR. Office or Emergency Rm.	Comments
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
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30							
31							

Please place a check (✓) on current date in appropriate column if event occurred that day. *Also, in medication column please write "C" for current medications the child had that day and list any other medications the child took on that day. Any additional comments are welcome.

10-83 (L. Ladehoff)

Thank you.

APPENDIX K

LETTER OF EXPLANATION CONCERNING ASTHMA DIARY FOR GROUP I AND GROUP IV

Letter of Explanation

Dear Parent:

Enclosed is a one-page asthma diary to be completed for the Month of _____. This part of the study is to learn more about the effects of parental education and the affect it has on the asthmatic child. Please post it in a safe, convenient place where you will remember to complete it at the end of each day. A stamped, addressed envelope is also enclosed for return of the diary at the end of the month. You will be contacted by phone before the first of the month to verify receipt of the diary and to answer any questions you might have.

This same procedure will be followed the succeeding two months. Thank you for your interest and participation.

Sincerely,

Linda L. Ladehoff, R.N.,B.S.N.

LLL:ps
Enclosure

APPENDIX L

LETTER TO PARENTS IN GROUP I AND GROUP IV COMPLETING POSTTEST

February 28, 1984

Dear Parents:

Please complete the enclosed knowledge questionnaire pertaining to the management of your child with asthma and return it with the March diary in the enclosed addressed, stamped envelope. This questionnaire is NOT graded but its completion and return is important to the study. The information obtained will be confidential and will only be used for the purposes of the study. Once again, thank you for you continued time and participation.

Sincerely,

Linda L. Ladehoff, R.N., B.S.N.

APPENDIX M

LETTER OF DATE AND LOCATION FOR GROUP I AND GROUP IV

August 24, 1984

Dear Parents:

The second instruction module on Management of Asthmatic Children will be during the month of September, 1984. The classes will be held on Tuesday nights from 7-9 p.m. on September 4, 11, 18, and 25, 1984 at the Shawnee County Health Department, 1615 W. 8th Street.

I truly appreciate your participation in this study and look forward to meeting with you weekly.

Sincerely,

Linda L. Ladehoff, R.N.,B.S.N.

APPENDIX N

LETTER OF APPRECIATION FOR PARTICIPATION

Dear Parents:

I extend my sincere thanks and appreciation to you for the time and effort you have expended in helping complete my thesis. I would be happy to share the results. I hope it has been as valued a learning experience for you as it has for me.

Sincerely,

Linda L. Ladehoff, R.N.,B.S.N.

LLL:bb