

**ASTHMA MANAGEMENT ABILITIES CAUSAL MODEL:
AN EMPIRICAL TEST AMONG PARENT CAREGIVERS
OF THE PRE-SCHOOL ASTHMATIC CHILDREN**



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Entitled**

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**ASTHMA MANAGEMENT ABILITIES CAUSAL MODEL: AN EMPIRICAL TEST
AMONG PARENT CAREGIVERS OF THE PRE-SCHOOL ASTHMATIC CHILDREN**

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SOMCHIT HANUCHARURNKUL, Ph.D., MUKDA VANGVEERAVONG, M.D.,
SIRICHAIR KANJANAWASEE, Ph.D.**ABSTRACT**

In asthma care for infants and young children, the increase of parent caregivers' abilities to manage asthma care has been documented as the major goal for successful asthma management. By using Orem's theory of dependent-care as the conceptual framework, the purposes of this study were to examine the causal relationship among perceived social support, family hardiness, quality of professional care, and caregiver burden as they related to asthma management abilities of parent caregivers of the pre-school asthmatic children.

A sample of 253 parent caregivers of pre-school asthmatic children who came to visit Chest and Allergy Clinics at three hospitals within the Bangkok metropolitan area was recruited. Parent caregivers were asked to complete 5 questionnaires, which were: Social Support Questionnaire (SSQ); Family Hardiness Index (FHI); The Care of My Child with Asthma Scale; Caregivers' Perceptions of the Quality of Professional Care Scale (CPQPCS); and Asthma Management Abilities Scale.

By using the LISREL 8.52 program, the causal relationships among five major variables were tested. The results revealed that the final model was proved to have a good fit with the data ($\chi^2 = 29.02$, $df = 43$, $p\text{-value} = 0.9491$, $GFI = 0.98$, $AGFI = 0.96$, and $RMSEA = 0.000$) and could explain 2% of the variance in caregiver burden, and 55% of the variance in asthma management abilities of parent caregivers. As expected by the model, there was a significant medium negative direct effect of caregiver burden on asthma management abilities ($\gamma = -0.39$, $p < .001$). Quality of professional care and family hardiness were found to have medium direct significant positive effects ($\gamma = 0.36$, $p < .001$; $\gamma = 0.37$, $p < .001$) on asthma management abilities. Perceived social support had a small but significant direct negative effect ($\gamma = -0.16$, $p < .05$) on caregiver burden as well as an indirect influence on asthma management abilities through caregiver burden ($\gamma = 0.06$, $p < .05$).

Results indicated that even though the factor of burden still had some influence on management abilities of parent caregivers, the quality of professional care as well as family hardiness were two other good predictors and worked directly to influence asthma management abilities in this study. These findings support the role of health care professionals and hardiness among family members in increasing the dependent-care agency of parent caregivers to take good care of pre-school asthmatic children.

KEY WORDS: ASTHMA MANAGEMENT ABILITIES/ CAREGIVER BURDEN/
FAMILY HARDINESS/ SOCIAL SUPPORT/ QUALITY OF
PROFESSIONAL CARE/ PRE-SCHOOL ASTHMATIC CHILDREN

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รูปแบบจำลองการวิเคราะห์เชิงสาเหตุของความสามารถในการดูแลโรคหืด: การทดสอบเชิงประจักษ์ในผู้ปกครอง
ผู้ดูแลเด็กก่อนวัยเรียนโรคหืด (ASTHMA MANAGEMENT ABILITIES CAUSAL MODEL: AN
EMPIRICAL TEST AMONG PARENT CAREGIVERS OF THE PRE-SCHOOL ASTHMATIC
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บทคัดย่อ

ในการดูแลเด็กโรคหืด การเพิ่มความสามารถของผู้ปกครองนับเป็นจุดมุ่งหมายหลักที่จะทำให้การดูแลเด็กโรคหืดประสบผลสำเร็จ ทฤษฎีการพยาบาลของโอเร็มได้นำมาใช้เป็นกรอบแนวคิดในการศึกษา โดยมีจุดมุ่งหมายเพื่อวิเคราะห์ความสัมพันธ์เชิงเหตุผลระหว่างตัวแปร การรับรู้แรงสนับสนุนทางสังคม ความเข้มแข็งของครอบครัว คุณภาพการดูแลของบุคลากรทางการแพทย์ ภาระในการดูแล ที่มีผลต่อความสามารถในการดูแลเด็กโรคหืด

ผู้ร่วมการศึกษาคือผู้ปกครองของเด็กก่อนวัยเรียนโรคหืดจำนวน 253 คน ที่พาเด็กมารับการตรวจรักษาที่คลินิกโรคระบบหายใจและภูมิแพ้ในโรงพยาบาลของรัฐ 3 แห่งในเขตกรุงเทพมหานคร และมีคุณสมบัติครบตามเกณฑ์ ทำการตอบแบบสอบถามจำนวน 5 ชุด ได้แก่ แบบวัดความเข้มแข็งของครอบครัวในการมองโลก แบบวัดคุณภาพการดูแลของบุคลากรทางการแพทย์ แบบวัดแรงสนับสนุนทางสังคม แบบวัดภาระในการดูแลเด็กโรคหืด และแบบวัดความสามารถของผู้ดูแลในการดูแลเด็กโรคหืด

รูปแบบจำลองเชิงเหตุผลที่สร้างขึ้น ได้รับการทดสอบโดยใช้โปรแกรมลิสเรล 8.52 ผลการศึกษาค้นพบว่ารูปแบบสุดท้ายที่ได้รับการปรับแก้ มีความสอดคล้องกับข้อมูลเชิงประจักษ์ ($\chi^2 = 29.02$, $df = 43$, $p\text{-value} = 0.9491$, $GFI = 0.98$, $AGFI = 0.96$, $RMSEA = 0.000$) สามารถทำนายความแปรปรวนในตัวแปรภาระการดูแลได้ร้อยละ 2 และความสามารถของผู้ดูแลได้ร้อยละ 55 ภาระในการดูแลมีอิทธิพลโดยตรงขนาดปานกลางในทางลบต่อความสามารถของผู้ดูแลอย่างมีนัยสำคัญทางสถิติ ($\gamma = -0.39$, $p < .001$) คุณภาพการดูแลของบุคลากรทางการแพทย์ และ ความเข้มแข็งของครอบครัว มีอิทธิพลโดยตรงขนาดปานกลางในทางบวกต่อความสามารถของผู้ดูแลอย่างมีนัยสำคัญทางสถิติ ($\gamma = 0.36$, $p < .001$, $\gamma = 0.37$, $p < .001$ ตามลำดับ) การรับรู้แรงสนับสนุนทางสังคม มีอิทธิพลโดยตรงในทางลบต่อภาระในการดูแล ($\gamma = -0.16$, $p < .05$) และอิทธิพลอ้อมต่อความสามารถของผู้ดูแลผ่านภาระในการดูแล ($\gamma = 0.06$, $p < .05$)

ผลการศึกษาชี้ให้เห็นว่า ถึงแม้ว่าภาระในการดูแลยังคงมีอิทธิพลต่อความสามารถของผู้ดูแล แต่คุณภาพการดูแลของบุคลากรทางการแพทย์ ตลอดจนความเข้มแข็งของครอบครัว ก็เป็นตัวบ่งชี้ที่ดีและมีอิทธิพลโดยตรงต่อความสามารถของผู้ดูแลในการดูแลเด็กโรคหืด ผลการศึกษานี้สนับสนุนบทบาทของบุคลากรทางการแพทย์และความเข้มแข็งของครอบครัว ในการเพิ่มความสามารถของผู้ดูแลในการที่จะดูแลเด็กก่อนวัยเรียนโรคหืดให้มีประสิทธิภาพมากที่สุด

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CHAPTER I

INTRODUCTION

Background of the Study

Asthma is a chronic disease of the airways that is usually reversible and life threatening. Inappropriate treatment and care may cause some serious problems as well as complications such as pneumonia, pneumothorax, atelectasis, respiratory failure, or even death especially in young children, who's their airways and lung functions are not fully developed (Loughlin & Eigen, 1994).

The prevalence of asthma in children is increasing throughout the world, ranging from 2.4-30.8% (National Heart, Lung, and Blood Institute, 1995). In Thailand, the incidence of asthma in children is also increased significantly during the past decade from 4.5% in the year 1987 to 13% in the year 1996-1997, meaning that by then there are nearly 2 millions Thai children who suffer from asthma (Vichayanond et al., 1996). Children with asthma often develop symptoms within their first few years of life (Reisman, Canny & Levison, 1991). Studies revealed that the numbers of case in 0-5 year age group were significantly high compared to other age groups, which was almost 60-70% of all asthma cases (Vangveeravong, 1998).

In childhood asthma, prevention and proper management are the most important goals for asthma management in order to maintain control of symptoms, prevent exacerbation, attain normal lung function, maintain normal level of ability to exercise and handle daily activities as well as prevent further complications to the respiratory system especially in infants and young children, whose physiology and mechanical functions of their respiratory system are undergoing maturational changes (Loughlin & Eigen, 1994).

Because the center of asthma management is at home, responsibility for asthma management and administering the treatment regimens fall on parent caregivers in the family. All asthma managements and cares challenge parent caregivers and require them to make permanent sacrifices because of the increased care demands and restrictions imposed by the illness (Griffin, 1980). The severity of asthma symptoms

when exacerbate, unpredicted attack, anxiety about their children's health, lack of knowledge about the disease and care, fear of the child dying, as well as the physical and financial responsibilities involved in caregiving, all affect parent caregivers' abilities to care for their children (Casper & Erickson, 1985).

Managing children's illness as well as maintaining their normal growth and development and household tasks overwhelm parent caregivers. Psychological, social, physical, and economic burden may occur as caregivers juggle multiple roles and commitments (Ory et al., 1999). The worsening of an existing child's illnesses and development of new other problems may occur (Dewis & Niskala, 1992), particularly for parent caregivers who are overwhelmed and have minimal resources (Cain & Wicks, 2000).

Even though the factors of burdensome were correlated with management abilities of parent caregivers but a number of studies reported that social support (Srangnok, 2000; Palmer, 2001; Horner, Surratt & Smith, 2002), family hardiness (Mansour, Lamphear & DeWitt, 2000), and quality of educative and supportive care from health care providers also helped reducing this burdensome and on the other hand enhancing parent caregivers' abilities in taking care of their children (Partridge & Hills, 2000; Svavarsdottir, McCubbin & Kane, 2000). However, the studies on how social support, family hardiness, and quality of professional care work to reduce burdensome and increase caregiver management abilities are limited.

In this study, researcher is interesting in using Orem's theory of dependent-care (Orem, 2001) as a theoretical framework to explain why parent caregivers of pre-school asthmatic children could maintain their management abilities inspite of burdensome and what factors will help them enhancing these abilities. In Thailand, the studies about parent caregiver's abilities in asthma management are very limited. According to an integrated review of self-care research in Thailand (Hanucharunkul, Leucha, Wittayasoporn & Maneesriwongkul, 2000), results indicated that few studies had been conducted with dependent-care in chronically ill children especially for pre-school asthmatic children. Lack of knowledge about these factors will impede nurses from understanding and collaborating with parent caregivers as they attempt to meet dependent-care demands in taking care of their asthmatic children in the future.

Significance to the study

Findings from this study are expected to provide basic knowledge of the factors contributing to asthma management abilities of parent caregivers. Knowing these factors will guide nurse in developing intervention programs to enhance caregivers' abilities to care for their children. In addition, this study develops a model under Orem's theory of dependent-care; thus, it provides the evidence in testing theory and can expand knowledge of nursing science.

Purpose of the study

The purpose of this study is to determine the causal relationships among variables of basic conditioning factors (perceived social support, family hardiness, and quality of professional care) and agencies of parent caregivers (caregiver burden) as they relate to asthma management abilities to take care of the pre-school asthmatic children.

Research questions

Research questions in this study are as follows.

1. What are the relationships among basic conditioning factors (perceived social support, family hardiness, and quality of professional care) and dependent-care agencies (caregiver burden) as they relate to the asthma management abilities of parent caregivers of pre-school asthmatic children?
2. How do basic conditioning factors (perceived social support, family hardiness, and quality of professional care) and dependent-care agencies (caregiver burden) influence asthma management abilities of parent caregivers of pre-school asthmatic children?

Theoretical framework

The theoretical model of asthma management abilities in this study was synthesized and deductively derived from Orem's theory of dependent-care (Orem, 2001) and related literatures. Orem (2001) has developed dependent-care theory to explain relationships between action capabilities of the dependent individuals and demands for care of the dependent person especially children. Its adequacy is measured against the component parts of their agencies to engage in dependent-care

and demand for care in the achievement of the desired ends and goals those are maintaining life, health and well-being.

In the construct model of asthma management abilities of parent caregivers, two major constructs based on dependent-care theory are selected: basic conditioning factors and dependent-care agency (Figure 1.1). In this study, basic conditioning factors refer to perceived social support, family hardiness, and quality of professional care, dependent-care agencies refer to caregiver burden and asthma management abilities of the parent caregivers.

<i>Conceptual Model</i>	Basic Conditioning Factor			Dependent Care Agency	
	Resource Availability	Family system factor	Health care system	Foundational Capabilities	Productive Operation
<i>Middle Range Theory</i>	Perceived social support	Family Hardiness	Quality of professional care	Caregiver burden	Asthma management abilities

Figure 1.1 Construct of model associated with asthma management abilities in caregivers of the asthmatic children

Conceptualization of Dependent-Care Agency

Dependent-care agency is conceptualized as the complex, acquired ability of mature or maturing persons to know and meet some or all the self-care requisites of infants, children or adult persons who have health-derived or health-associated limitations of self-care agency, which places them in socially dependent relationships for care (Orem, 2001).

The elements of dependent-care agency require that the caregivers have the capabilities to know the therapeutic self-care demand and self-care abilities of those who are dependent on them. Like self-care agency, the structures of the dependent-care agency are formalized as a three-part structure, which can be hierarchically arranged according to the degree to which they are foundational to one another (Orem, 2001) (Figure 1.2).

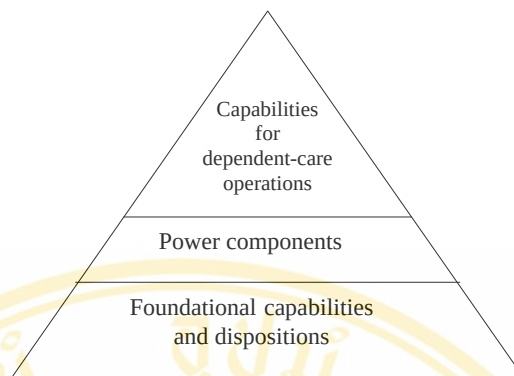


Figure 1.2 The substantive structure of dependent-care agency (Orem, 2001).

Three-part structures of the dependent-care agency are as follows:

1. Five sets of foundational capabilities and dispositions. This structure is the most foundational capabilities that come into play when individuals perform any type of deliberate actions, not just dependent-care activities. Orem organizes these capabilities into various foundations, which are: a) a category comprising selected basic capabilities such as sensation and attention; b) a category comprising knowing and doing capabilities such as abilities to reason and make judgment; c) a category comprising dispositions affecting goal sought such as the abilities to self examine; d) a category comprising significant orientate capabilities and dispositions essential to engage in dependent-care such as orientation to health and abilities to manage self, etc. (Orem, 2001; Schott-Baer, Fisher & Gregory, 1995).
2. A set of power components enabling performance of dependent-care operations. This structure is the power components, which relates specifically to the engagement in dependent-care.
3. Capabilities for dependent-care operations. This structure is the most immediate abilities those necessary to perform dependent-care operation, consists of: a) estimative operations-investigating conditions and factors in self and environment that are significant for dependent-care; b) transitional operations-making judgments and decisions about one can, should, and will do to meet dependent-care requisites; and c) productive operations-performing measures to meet dependent-care requisites.

In this study, two variables are selected and conceptualized as dependent-care agency, which are: 1) caregiver burden is conceptualized as foundational capabilities and dispositions which concerning about caregiver's health and abilities to manage his/her own care that may affect his/her abilities to engage in dependent-care; 2) asthma management abilities is conceptualized as capabilities for dependent-care operation which focus on parent caregivers who perform asthma management actions to meet self-care requisites of their asthmatic children.

Asthma management abilities.

In childhood asthma, attack prevention and management when attack are the most important requirements for asthma management in order to maintain control of symptoms, preventing exacerbations, attaining normal lung functions, maintaining normal level of ability to exercise and handle daily activities as well as prevent further complications (Loughlin & Eigen, 1994). In order to achieve successful asthma managements, parent caregivers need to perform high level of their capabilities to meet care requirement of their children. Parent caregivers have to learn and practice preventive skills (avoiding asthma triggers and controlling the environment), treatment skills (assessing and monitoring asthmatic symptoms, taking asthmatic medications correctly, evaluating treatment outcome) (Vichayanon et al., 2000), promoting normal growth and development as well as seeking information about asthma (Sumranchaiyadham, 1998; Palmer, 2001; Horner, Surratt & Smith, 2002; Rattanawan, 2001; Santati et al., 2003) (Figure 1.3).

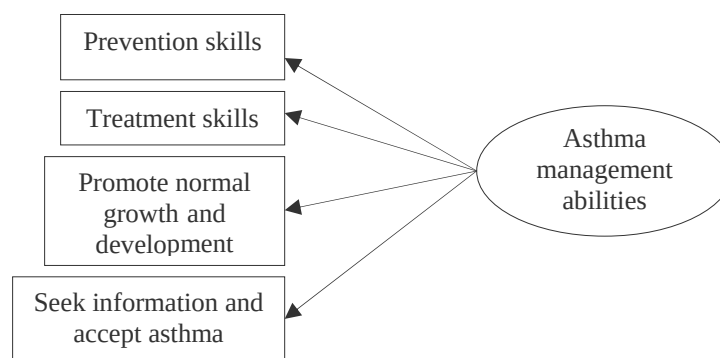


Figure 1.3 Components of asthma management abilities of parent caregivers

A number of studies revealed that three difference factors that would help gaining parent caregivers' abilities in their studies were: 1) quality of care; 2) family hardiness; and 3) social supports (Jerrette & Costello, 1996; Patterson et al., 1997; Mansour, Lamphear & DeWitt, 2000; Palmer, 2001; Clark & Partridge, 2002; Dixon-Woods et al., 2002; Haby et al., 2002; Santati et al., 2003). These factors will be elaborated subsequently in each concept. However, some factor such as caregiver burden may decrease asthma management ability of parent caregivers.

Caregiver burden.

In caregiving activities that provide to an ill person, the perception of burden associated with that care can be expected to have an effect on caregivers' health and abilities to manage their own selves that may affect their abilities to engage in dependent-care operations. A review of the related literature shows that burden is a negative consequence to family of which patient is a member (Hoenig & Hamilton, 1967; Platt & Hirsch, 1981; Montgomery et al., 1985; Noh & Turner, 1987; Klien, 1989; Oberst et al., 1989; Obrest & Hughes, 1990; Oberst et al., 1991; Carey et al., 1991; Schott-Bare, 1993; Biegel et al., 1994; Jones, 1996; Cain & Wicks, 2000). In this context, burden is broadly viewed as a stress that causes from imbalance between dependent-care demand and dependent-care agency of caregivers and leads to impact the lives of caregivers, and in reverse to the patients and their families (Lawton et al., 1989).

From this perspective, the concept of caregiver burden has been clarified by using Lazarus's stress and coping model (Lazarus & Folkman, 1984). By elaborating in Lazarus's conception, a potential stressor arouses the process of appraisal, during which the potential for threat is assessed (primary appraisal). This process is what defines the external situation as a stressor or nonstressor. The assessment of person's capability for coping with threat is termed "secondary appraisal", somehow they have viewed caregiver burden as an example of an external demand or potential threat that has been appraised as stressor (Lawton et al., 1989). Thus, the meaning of burden is further used by some researchers interchangeably with stress. (Montgomery, et al., 1985).

Further more, Oberst, Hughes and Carey et al. also define burden as consist of two components which are demand and difficulty. Demand or objective burden refers to the extent to which treatment plans or other activities in caring for the patient require time and energy. Difficulty or subjective burden refers to the difficulty and the bother of caregiving activities posed on caregivers (Oberst et al, 1989;1991; Obrest & Hughes, 1990; Oberst et al, 1991; Carey et al, 1991). In this study, researcher define caregiver burden as consists of two components, which are the extent of time and amount of effort or difficulty associate with the care of a child with asthma (Figure 1.4).

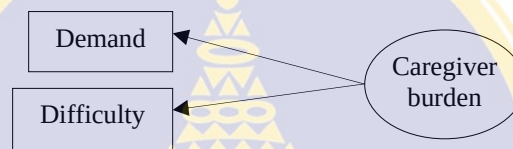


Figure 1.4 Components of caregiver burden.

To further define burden in parents of the asthmatic children, like other parent of children with chronic illnesses, parent caregivers of asthmatic children have been found to experience both extra demands on their time and energy and more pressure to take proper care of their children than parent caregivers of healthy children (Tavormina et al., 1981). A number of researchers studied caregiver burden in which families deal on a daily basis with caregiving demands for asthmatic children and found that asthmatic children were difficult to care (Eiser et al, 1991; Brown et al., 1996; Svavarsdottir et al., 2000; Palmer, 2001; Santati et al., 2003). Most of the caregiving times were spent on handling asthma episodes, providing emotional support for the child, managing discipline and behavior problems related to use of asthmatic drugs, and giving developmental support.

Besides from burden with the routine asthma managements and developmental care, parent caregivers were found to experience burden with their own work responsibilities and household managements for other members in the families (Svarvarsdottir et al, 2000; Santati et al., 2003). In addition to psychological and physiological burdens, some parents mentioned a financial burden. On occasion, cost has prevented them from being able to purchase medications and changing to their

home environment, thus preventing them from being competent managers of their children's disease (Teague et al., 1993; Jones, 1996; Ory et al., 1999; Cain & Wicks, 2000).

Within Orem's theory of dependent-care, managing dependent-care demands for asthmatic children overwhelm parent caregivers. Parent caregivers have to spend most of their resources, times and energies on difficult caregiving tasks that would create a great number of physical, psychological, and financial burdens. The perception of burden associates with these cares will affect their health and abilities to manage their own selves, which in turn may affect their operability to manage asthma care for their children.

Therefore, it can be hypothesized that caregiver burden has negative influence on asthma management abilities of parent caregiver. However, various resources from family, social environment and health care system may protect individual from burdensome and help them maintain their abilities to care for their children. These resources can be conceptualized under basic conditioning factor within Orem's perspectives.

Basic Conditioning Factors

According to Orem (2001), basic conditioning factors are "factors internal or external to individuals that affect their abilities to engage in dependent-care or affect the kind and amount of dependent-care required" (p.245), which include age, gender, developmental state, health state, sociocultural orientation, health care system factors, family system factors, pattern of living, environmental factors, and resource availability and adequacy. In this study, 3 selective factors, which belief to influence asthma management abilities of parent caregiver and caregiver burden are perceived social support, family hardiness, and quality of professional care.

Perceived social support.

Perceived social support in this study is conceptualized as a perception of parent caregiver about resource availability and adequacy in 3 areas, which are information, emotion, and tangible support from 4 sources: 1) family members; 2) siblings and relatives; 3) friends, co-workers, and neighbors; and 4) other providers

in the community that affects their abilities to engage in dependent-care of their children (Figure 1.5).

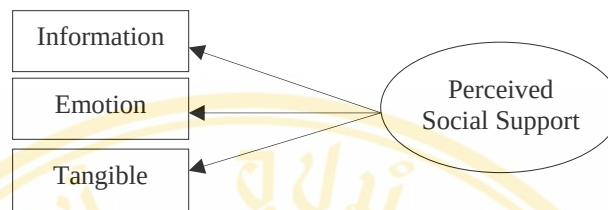


Figure 1.5 Components of perceived social support of parent caregivers

One of the most important determinants of satisfaction with support is the person's perception of support (Hansell et al., 1998). A major premise is that once a person develops stable beliefs about supportiveness of others, day-to-day thoughts about social support are shaded to fit these preexisting beliefs. In comparison to those with low levels of perceived support, those with high levels should interpret the same behaviors as more supportive, have better memory and display greater attention to supportive behaviors, and be able to think about supportive with greater ease and speed (Baldwin, 1992; Lakey & Drew, 1997; Mankowski & Wyer, 1997).

Influence of social support on burden and management abilities are widely recognized in both empirical and clinical literature. In doing asthma management, decrease in management abilities to control environment, avoid asthma triggers, and manage treatment regimens might be related to lack of social support as well as physiological and financial burden (Halfon, Newacheck, 1993; Aday et al., 1993; Cornelius, 1993; Crain et al., 1998; Finkelstein et al., 1995; Halfon, 1993; Mak et al., 1982; Newacheck, Hughes & Stoddard, 1996).

Beside from routine asthma care, most parent caregivers of the asthmatic children have to accommodate the added role in maintaining household activities and their office work. Social support from family members, friends, co-workers, and teachers at schools has been mentioned most and brings a great help. Social support from networks can also increase knowledge and strengthen parent caregivers' confidences to engage in their health practices (Bandura, 1997).

True to fundamental support system function, parent caregivers who perceive that others will provide resources when need, could increase their overall self

confidence, stability, and controlling over environment, all of which contribute to increase management abilities and in reverse reduces burden (Cobb, 1976; Dean & Lin, 1977; Turner, 1981; Cohen & Wills, 1985; House & Kahn, 1985). Thus, a positive influence on asthma management abilities of parent caregiver and negative influence of social support on caregiver burden can be postulated.

Considering the relationship between social support and family hardiness, a large body of evidence suggests that social support is an important source of support within personal and family. Failla & Jones (1991) found that loss of social support was linked to lower levels of family hardiness, whereas total functional social support (consisting of affect, aid, and affirmation) was related to higher level of family hardiness. Similarity result was found in the study of Olsen et al. (1999), that perception of the helpfulness of family and social support were positively related to family hardiness. This finding reflects the contribution of social support on family's confidence in their capabilities to solve the problem or difficulty within family. Moreover, family with high level of hardiness trends to have relationships or seek support from various sources that will support transformational coping in times of stress than family with low level of hardiness. Therefore, the relationship between social support and family hardiness can be expected.

In summary, it can be hypothesized that perceived social support has negative influence on caregiver burden and positive influence on asthma management abilities of parent caregiver. Social support and family hardiness are positively correlated with each others.

Family hardiness.

Family living with a chronically ill child needs to adapt to live in a complex, unpredictable, changing environment, and to meet the demand for care of the dependent child. The prolonged experience of multiple stressors may result in great tension and strain, which eventually may diminish family coping abilities and cause maladaptive behavior which would affect the internal strength and ability to work together to solve problems and difficulties within the family (Huang, 1996). Some families doing well; other families do not. How the family copes with the child's

condition is contingent upon various factors; one of which is family hardiness (McCubbin et al., 1996).

Existential psychology is central to the theoretical underpinnings of hardiness (Kobasa, 1979a, 1979b, 1982b). Two major premises of existential theory are pertinent: (a) personality which is actively constructed through a dynamic process and (b) although life is stressful because it is always changing, people can turn stressful life events into opportunities for growth (Kobasa, 1982b). Three intertwined concepts are especially relevant to this optimistic orientation: control is a sense of control over outcomes of life events and hardship; challenge is a view of change as beneficial and growth producing rather than threatening; and commitment is an active versus passive orientation in adjusting to and managing stressful situations (McCubbin et al., 1996). The dimension of family hardiness is shown in Figure 1.6.

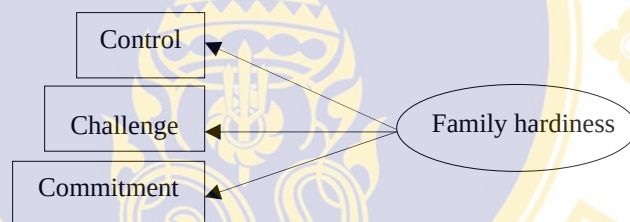


Figure 1.6 Components of family hardiness.

There is a need to better understanding the effect of family characteristics on caregiver because the family unit may have an impact on caregiver outcomes. In most cases especially in Thai culture, family is the most important social structure in which caregivers reside, from which caregivers receive assistance when need, and views it as a resource to develop effective or ineffective systems of care for an ill child (Clark, 2002).

In caregiving phenomena, even though few studies of hardiness focused on family but a number of researches revealed that caregivers with high level of family hardiness were most likely to handle stressful situation, higher in overall transformational coping (Kobasa, 1979) and higher in ability to manage, work, and solve problems within family (McCubbin & Thompson, 1991; Failla & Jones, 1991; Huang, 1996). The results indicated that caregivers with high family hardiness possibly received more assistance to deal with stress or burdensome in caregiving

(Clark, 2002) effective using of coping skills, which would strengthen family relationships and family functioning. Internal strength and durability within the family would help caregiver in setting up his/her own effective system for care or in this study ability to manage asthma care for the asthmatic children. Thus, a negative influence of family hardiness on caregiver burden and positive effect on asthma management abilities of parent caregiver can be expected.

In addition, a number of studies revealed that hardiness persons trends to be better in actively recruit social resources, utilize more effective coping strategies to deal with stress, seeking help and information or reach high quality of supports from various sources such as from other family members, health care providers or their social networks than low-hardy (Orr & Westman, 1990; Huang, 1996; Clark, 2002; DiBartolo & Soeken, 2003; Clark & King, 2003). Thus, it is expected that family hardiness is positively correlated with social support and quality of professional care.

In summary, it can be hypothesized that family hardiness has negative influence on caregiver burden and positive influence on asthma management abilities. Family hardiness is positively correlated with social support and quality of professional care.

Quality of Professional Care

Quality of professional care in this study is the parent caregiver's subjective perception of the characteristic of care that they have got from health care providers in four components: 1) responsiveness; 2) individualization; 3) coordination; and 4) proficiency (Figure 1.7).

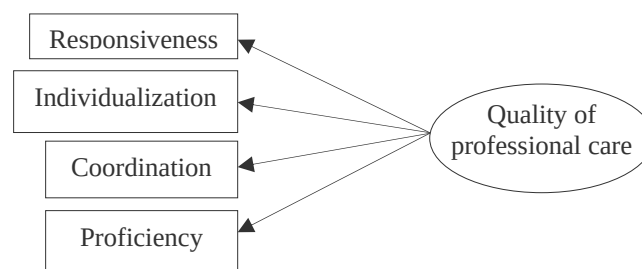


Figure 1.7 Component of quality of professional care.

Because most general health care practice for children is family driven and family centered so parent caregiver perception of quality of care is an important outcome measure to the evaluation of professional care (McDaniel & Nash, 1990; Lin, 1996; Mitchell, Heinrich, Moritz & Hinshaw, 1997; Committee on Quality of Health Care in America, IOM, 2001). The importance of quality of care is unquestioned; it is the right of all patients and their families and the responsibility of all health care providers. It is the foundation of social contract between provider and patient. Patients with high satisfaction with care or service are more likely to comply with medical regimens (Wartman, 1983); to participate in their treatment (Bartlett, Grayson, Barker & Levine, 1984), and to return and continue to use the medical services (Ware, Wright & Synder, 1975).

A number of studies revealed that the elements of excellent care were rooted in the providers themselves, not in technical tasks of care, such as: providers were knowledgeable, attentive and caring; able to establish rapport with patients, caregivers, and families; provide individualized care; engage patients, caregivers, and family as partners in the planning; provide information; continuity and coordination of care (Radwin & Alster, 1999; Radwin, 2000).

These elements were perceived to help patients, caregivers, and their families increased and sustained their hardiness. It was also believed to help bearing the effects of treatments and disease by helping them develop effective coping strategies (emotional-focused and problem-focused coping strategies) that could strengthen their confidence as well as lessen their stress or burdensome in giving care. (Lazarus & Folkman, 1984; Radwin & Alster, 1999).

Moreover, some studies found that family with high level of hardiness tended to be better in seeking excellence care from health care provider than family with low level of hardiness (Clark, 2002; Huang, 1996). Therefore, negative influence of quality of professional care on caregiver burden and positive relationship between quality of professional care and family hardiness are expected.

Concerning to the influence of quality of professional care on management abilities, a number of studies found that caregivers viewed the excellence care from nurse and other healthcare providers as family resources that had a positive affect on caregivers' abilities (Wittaya-sooporn, 1996; Garwick et al., 1998; Radwin & Alster,

1999; Lynn-McHale & Deatrick, 2000; Christakis et al., 2002, Santati et al., 2003). This finding was supported by Krishnasamy (1996), who claimed that quality of care from nurses as well as friends and family were among the strongest potential resources people had in managing with the disease.

Logically, parent caregivers who receive high quality of care about asthma and its treatment from healthcare providers would be more likely to manage their care more efficiently. Thus, positive influence of quality of professional care on asthma management abilities of parent caregivers can be expected.

In summary, literature review suggested that social support, family hardiness, and quality of professional care are positively influence on asthma management abilities of parent caregivers and negatively influence on caregiver burden. Caregiver burden is negatively influence on asthma management abilities. In addition, social support, family hardiness, and quality of professional care are positively correlates with each other. The order and direction of all the relationship are drawn from the literature and from Orem's statement in her conceptual model which stated that "basic conditioning factors influence self-care agency" (Orem, 2001, pp.168) (see Figure 1.8).

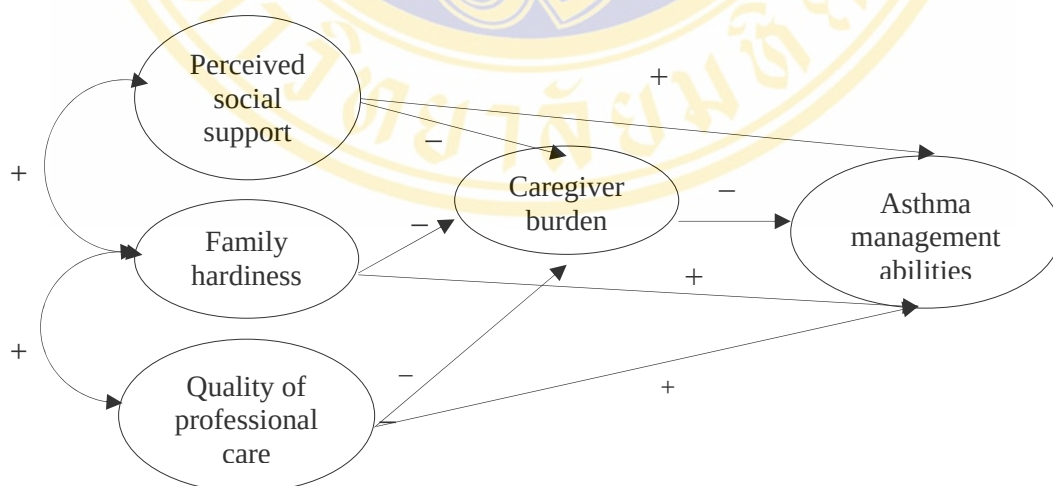


Figure 1.8 A hypothesized model associated with asthma management abilities in caregivers of Thai asthmatic children.

The proposed model is considered as a middle-range theory for determining the asthma management abilities of parent caregivers in taking care of the asthmatic

children, which will be tested for empirical support. If the study accepts the hypothesis, it would help in strengthening the theoretical basis of Orem's theory and would be expected to guide nurse in developing intervention programs and reducing factors that would impede the development of asthma management abilities of parent caregivers.

Research hypotheses

The research hypotheses reflect the order of the linkage in the model. To support the relationship depicts at each stage of the model, each path, as tests, has to explain a significant ($p < 0.05$) percentage of the variance in the dependent variable.

1. Perceived social support has a direct negative effect on caregiver burden, direct positive effect on asthma management abilities, as well as indirect influences on asthma management abilities through caregiver burden.
2. Family hardiness has a direct negative effect on caregiver burden, direct positive effect on asthma management abilities as well as indirect influences on asthma management abilities through caregiver burden.
3. Quality of professional care has a direct negative effect on caregiver burden, direct positive effect on asthma management abilities, as well as indirect influences on asthma management abilities through caregiver burden.
4. Caregiver burden has a direct negative effect on asthma management abilities.
5. Perceived social support and family hardiness are positive correlated with each other.
6. Family hardiness and quality of professional care are positive correlated with each other.

Definition of terms

Asthma management abilities

Conceptual definition: Asthma management abilities are parent caregivers' abilities to take care of their dependent asthmatic children in prevention and control of

asthma symptoms as well as maintain normal growth and development of their children

Operational definition: Asthma management abilities are measured by the Asthma Management Abilities Scale modified from the Mother's Behavior in Taking Care of Asthma Child Scale by Rattanawarn (2001). The scale consists of 4 categories, which are: 1) prevention of asthma attack; 2) treatment and care when an attack occurs; 3) promotion of normal growth and development; 4) seeking information and accepting asthma.

Caregiver burden

Conceptual definition: Caregiver burden is the perception of parent caregivers about the amount of time and difficulty to perform caregiving activities for their dependent children. The two responses of caregiver are: 1) the extent of time a caregiver spends in performing child asthma management and 2) the amount of effort or difficulty that asthma management causes a caregiver.

Operational definition: Caregiver burden is measured by The Care of My Child Scale developed by McCubbin & Svavarsdottir (1996).

Perceived social support

Conceptual definition: Perceived social support is a parent caregiver's perception of provision of supports: information, emotion, and tangible support, which are given by: 1) family members; 2) siblings and relatives; 3) friends, co-worker, and neighbors; and 4) other providers in the community.

Operational definition: Perceived social support is measured by the Social Support Questionnaire (SSQ) developed by Pipatananond (2001).

Family hardiness

Conceptual definition: Family hardiness is the internal strengths and durability of the family unit, which characterized by a sense of control, challenge, and commitment that function as major factor within family in developing the effective systems of care for the dependent individual.

Operational definition: Family hardiness is measured by the Family Hardiness Index (FHI), which was developed by McCubbin, McCubbin, & Thompson (1987).

Quality of professional care

Conceptual definition: Quality of professional care is the parent caregiver's subjective perception of the characteristics of care that they have got from health care providers in four components: 1) responsiveness; 2) individualization; 3) coordination; and 4) proficiency.

Operational definition: Quality of professional care is measured by the Caregivers' Perceptions of the Quality of Professional Care Scale (CPQPCS) modified from the Oncology Patients' Perceptions of the Quality of Nursing Care Scale (OPPQNCS) developed by Radwin et al. (2003).

Assumption

The following assumptions are identified as

1. Each caregiver is active and capable to perform dependent-care for his/her child in the very best manner.
2. Each caregiver acts deliberately in performing all asthma managements for his/her child.
3. All asthma managements cause burdensome to parent caregivers.

Summary

In this chapter, the purpose of the study, background and significance, statement of problem and research questions, theoretical framework, definitions, and assumptions were presented. The theoretical model of asthma management abilities in this study was deductively derived from Orem's theory of dependent-care (Orem, 2001) and related literatures to explain why parent caregivers of pre-school asthmatic children could maintain their abilities to meet dependent-care demands in asthma management inspite of burdensome and factors contribute to these management abilities are identified.

CHAPTER 2

LITERATURE REVIEW

This chapter presents an integrative review of the theoretical and empirical literature describing the concepts in the studying model and the interrelationships among them. The purpose of this literature review is to identify gaps in caregiver research that need further investigation to elucidate the selected factors on asthma management abilities in parent caregiver of the asthmatic children. The scopes of review of the literature are as followed.

- Nature of asthma and care requirement
- Asthma management abilities
- Caregiver burden
- Perceived social support.
- Family hardiness
- Quality of professional care

Nature of asthma and care requirement

Asthma symptoms occur intermittently and with variable duration. Airway inflammation has long been recognized as a characteristic pathologic feature in severe fatal asthma (Olser, 1991). More recently the presence of airway inflammation in some patients with relatively mild asthma has been recognized (Canny & Levison, 1994). The histologic findings include sub-epithelial fibrosis and collagen deposition, epithelial shedding, goblet cell metaplasia, smooth muscle hypertrophy, and leukocytic infiltration of submucosa. Other characteristic findings include mucosal edema due to microvascular leakage and hypersecretion of mucus, which results in mucus plugging of peripheral airways and focal atelectasis (Djukanovic et al., 1990).

Although the cause of asthma is not completely understood, its characteristic feature is bronchial hyperreactivity. It is believed that the degree of bronchial

reactivity is related to the extent of inflammation in the airways (O'Bryne, 1990). Bronchial hyper-responsiveness is detectable soon after birth (LeSouef et al., 1989), and it is postulated that the expression of airway reactivity is determined by complex interactions between genetic, atopic, environmental and socioeconomic factors such as respiratory infections, parental smoking, air pollution, poverty, inner city living, crowding in the home, etc.

Infants, with their small airways, may wheeze with any source of bronchial narrowing. Nocturnal episodes of paroxysmal coughing are classic sign of asthma and may be accompanied by wheezing and complaints of painful breathing (McFadden & Gillbert, 1992). Most parents do not know that the paroxysmal coughing spells can be symptomatic of asthma and so they seek health care for their children's "cold" (Horner, 1992). Thus, for effective asthma management, most health care providers suggest that both parents and families should have a certain level of ability in regular assessment and monitoring, effective environmental management, trigger avoidance, the administration of preventive medicines in anticipation of foreseeable symptom fluctuations, and symptom management during attacks in order to provide the most beneficial action to control all those problems (Zimmerman et al., 1999).

During the past two decades, the prevalence of asthma was increased significantly through out the world (Canny & Levison, 1994). Recent community surveys indicated that asthma morbidity is frequently due to underdiagnosis, undertreatment, poor education, and inadequate supervision of care (Speight, Lee & Hey, 1983; Clifford et al., 1989; Hill, Standen & Tattersfield, 1989). For these reasons, there is a need for every country through out the world to establish the guidelines for diagnosis and management of asthma to guide practice within each country such as in the United State, National Heart, Lung and Blood Institute, National Institutes of Health (NHLBI) had established guidelines for the diagnosis and management of asthma in 1997. In Thailand, the Thai Royal College of Pediatrics also established the National Guidelines for Diagnosis and Management of Childhood Asthma in the year 2000 by following the guideline of NHLBI (1997), which consisted of 6 processes: 1) educate patient and establish partnership; 2) assessment of asthma severity; 3) avoidance and control of triggers; 4) establish medication plans for long-term

management; 5) establish plans for managing exacerbation; and 6) provide regular follow up care.

Followed the guideline for diagnosis and management by NHLBI (1997), National Guidelines for Diagnosis and Management of Childhood Asthma for pediatricians in Thailand (Vichayanon et al., 2000), and many studies both in qualitative and quantitative in nursing (Sumranchaiyadham, 1998; Palmer, 2001; Horner, Surratt & Smith, 2002; Rattanawan, 2002; Santati et al., 2003), which revealed the needs and demands in taking care of the asthmatic children, researcher concluded that parent caregivers of asthmatic children need to enhance their abilities to meet all those demands and assure the quality of care in asthma management in 4 categories; 1) prevention of asthma attack; 2) care and management when an attack occurs; 3) promote normal growth and development; and 4) seeking information and accepting asthma. The detail of each category is as followed:

1) Prevention of asthma attack. The most important goal for asthma management is to prevent asthmatic children from exacerbation and facilitate family management strategies. Parent caregivers need to be able to identify and avoid triggers for the child's symptom and plan step by step in advance to manage asthma care to prevent this exacerbation. This goal is achieved through a three-prolong approached that includes:

1.1 Environmental management: identifying and eliminating environmental triggers and respiratory infections that can stimulate an asthma episode, are important ground work. Identification of allergen triggers is frequently accomplished through parents' observation or skin testing.

1.2 Medication management: The mainstay of preventive asthma treatment is anti-inflammatory drugs and plan is modified according to the severity (Larsen, 1992; Taylor & Newacheck, 1992). For children who experience moderate to severe asthma, inhaled corticosteroids are given along with anti-inflammatory drugs. Younger children have difficulty coordinating inhalation of aerosolized medications delivered via meter dose inhaler (MDI). For these children a spacer can be used with the MDI: the dose is released into spacer, and then the child breathes in the medication

through the oral or facial spacer port (Jackson & Saunders, 1993). Medication can also be administered by nebulizer units.

At the higher dosages, children on inhaled corticosteroids may develop thrush and dysphonia (MaFadden & Gilbert, 1992). Oral hygiene, including brushing the teeth after meals or mouth washes after treatment is a good means to prevent thrush (Norbeck, 1981). Families need to be taught the signs of thrush so that corrective therapy can be initiated.

Parent caregivers must learn to perform an intricate preventive management in order to reduce frequent asthma exacerbation and severity of asthma episodes. Medication therapy alone is insufficient in meeting this goal. Environmental and triggers managements are the most important components for successful asthma prevention, and thereby reducing the morbidity and mortality associate with asthma.

1.3 Psychoeducational management: psychoeducational management is an important adjunct to medication therapy. Families are taught how to manage asthma through the provision of factual information, clarification of misinformation, and facilitating their mastery of assessment, and decision-making (Lehrer, Sargunraj & Hochron, 1992). Debriefing involves reviewing parents' and the children's decisions in daily living vis-à-vis asthma, evaluating the family management that took place during asthma episode, clarifying the families' interpretation of signs and symptoms, and reinforce the families strengths in handling these situations.

Relaxation therapy is an important tool. The child can be taught various exercises in breathing and muscle training to relax the breathing apparatus. Lehrer et al (1992) found that relaxing facial and trapezius muscles eases the work of breathing and improves pulmonary function.

Psychoeducational techniques improve self-esteem, increase compliance with prescribed therapies as understanding improves, and result in reduction of symptom frequency and severity. In order to reap these positive benefits, these strategies must be on-going and reinforce one another.

2) Care and management when an attack occurs. During the phase of asthma attack, proper and prompt response from parent caregiver is very essential to prevent both mortality and morbidity from the disease. The importance of early intervention should have been emphasized to the parents. Three foundational managements for acute attack are as followed (Vichayanon et al., 2000)

Parent caregivers must learn how to monitor and early detect the precipitating signs of asthma attack before the symptoms occur because early intervention is needed.

2.1 Evaluate the severity of the exacerbation correctly is another essential thing that parent caregiver should know in order to plan for the further intervention. For infants and young children who are incapable to perform objective measurements of pulmonary function test, signs and symptoms should be evaluated (color changes, respiratory rate, location and extent of retractions, use of accessory muscles, ability to talk in full sentences, duration of inspiratory and expiratory phrases, presence or absence of cough and wheezing, etc.)

2.2 β_2 agonists, the most potent and rapid-acting agents in this regard, will be used to treat acute attack. It can be delivered by a variety of methods: oral, metered-dose inhaler with spacer or handheld nebulizer. Parent caregivers should be taught to use inhaled β_2 agonists properly and correctly and have to evaluate the child's symptoms after each dose delivered. If the child's symptom does not recover after 15 minutes of the 2nd dose delivered, emergency department's visit is needed. Home therapy may involve the introduction of another acute relief medication, oral prednisone, for a short "burst" (e.g. 3 to 10 days) to re-stabilize the underlying disease activity.

In infants and young children, response to therapy should be carefully monitored. Once control of asthma symptoms is established and sustained, a careful step down in therapy should be attempted, if clear benefit is not observed, alternative therapies or diagnoses should be considered (Lemanske & Green, 1998).

3) Promote normal growth and development of the asthmatic child. Children with chronic perennial asthma frequently exhibit linear growth retardation (Russel,

1994). Thus cross-sectional comparison of asthmatic children with their pubertal peers often reveals a temporary relative slowing of growth velocity, despite growth potential and eventual adult height attained are likely to be normal. Delays in height attainment correlate well with delays in skeletal maturation and pubertal development and seem to be independent of the severity of asthma. The validity of the conclusions regarding growth and asthma reached in many reports frequently is compromised by attempts at compressing the analyses of the naturally deliberate growth process into short-term periods of observation (Lemanske & Green, 1998).

In infants and young children whose growth and development are in the process of on going develop, parent caregiver could promote the children growth by pay attention to weight, height and development that should appropriate with age of the children. Appropriate food and energy intake as well as balancing between exercise and rest is important for promoting normal growth for these children. Parents would make sure that children must have activity which is appropriate to their abilities and development and do not cause too exhaust for them. In exercise-induced asthma cases, exercise is not prohibited. These children should take bronchodilator medication 30 minutes prior the time of exercises to prevent the attack. Allow them to exercise 2-3 times/ week or regularly everyday will make them sleep well at night. They should have enough rest about 6-8 hours at night (Whaley & Wong, 1990)

4) Seeking information and accepting asthma. There is no question that education is an integral part of asthma therapy. Parent caregivers themselves need to seek more information about asthma in order to gain abilities to take proper care of their children.

Accepting asthma as part of the child' s life will make both parent caregiver and child lead normal life, reduce stress due to the disease itself and burden from the management and at the same time ready to take proper care of unpredicted symptoms.

Asthma management abilities in caregiver

The term “management abilities” in this study is referred to dependent-care agency in Orem's theory (2001), which defines as the productive operational capabilities in doing operations to achieve practical results in dependent-care. In the

reviewed literature, the meaning among the concepts that already in use relate to doing caregiving well, which are mastery (Lawton et al., 1989), self-efficacy (Haley et al., 1987), competence (Pearlin et al., 1990), caregiving skill (Schumacher et al., 2000), and dependent-care agency are closed to each other, so based on this assumption, research studies pertaining to mastery, self-efficacy, competence, and caregiving skill in asthma management are included in the review.

Because the center of asthma management is at home, parent caregivers must be the active participants in the process of care rather than depend mostly on health-care professionals. Health care professionals function only as educators and facilitators. Supervision, support, and reinforcement are available only through regularly or sporadically scheduled appointments over varying periods of time, not on a daily basis. The effectiveness of care is depended upon the extent to which parent caregivers follow recommendations and engage in self-care (Connelly, 1993).

Most researchers interested in finding out how to increase caregiver management by giving asthma knowledge. Clark et al. (1986) conducted an intervention study to evaluate a health education program to improve family management of asthma. Three hundred and ten children with asthma and their 290 parents were randomly assigned to a program or control group. Program families participated in health education designed to resolve specific management problems and build self-confidence in the ability to manage asthma. Following education, program parents scored better on an asthma self-management index than parents in the control group (+1.57 versus -0.83, $p < 0.0001$). Program parents also scored better on two subindices of the self-management index: attack management (+0.87 vs. +0.42, $p < 0.05$) and preventive measures (+0.42 vs. -0.35, $p < 0.05$). In addition, program parents reported significantly more use of guidelines to determine appropriate levels of physical activity for children.

Moreover, in another intervention study of Clark et al (2004) about effects of a comprehensive school-based asthma program on symptoms and parent management. Eight hundred thirty-five children with asthma in grades 2 through 5 in 14 elementary schools in low-income neighborhoods and their parents were recruited to the study. The intervention entailed six components for children, their parents, classmates, and

school personnel to encourage and enable disease management. Parents completed telephone interviews and the schools provided data at baseline and 24 months after intervention. At follow-up, treatment children with persistent disease had significant declines in both daytime (14% fewer, $p < 0.0001$) and nighttime (14% fewer, $p < 0.0001$) symptoms. Among children with both mild intermittent and persistent disease, those in the treatment group had 17% fewer daytime symptoms ($p < 0.0001$) but 40% more nighttime symptoms. Parents of treatment children had higher scores (2.19 greater, $p = 0.02$) on an asthma management index. Researchers concluded that the program stimulated attention to nighttime symptoms by parents of children with mild intermittent disease. Overall, the intervention provided significant benefits, particularly for parents of children with persistent asthma. The results of these 2 studies revealed that to encourage asthmatic children and families to take care of themselves, adequate knowledge about asthma was required. However, if family lacks knowledge regarding asthma, their abilities to follow the treatment regimen will fail (Clark, 1986; 2004).

Several qualitative studies provided depth understanding of parent caregivers experience and how they manage in caring for children with asthma. Jerrett & Costello (1996) interviewed 30 families wherein at least one child, aged 2 to 13 years had asthma, revealed that coming to grips with the child's asthma and integrating its management into family life were primary issues for the parent caregivers. Parents in this study experienced similar concerns about their struggles, overwhelms, and burdensome from the very first period of diagnosis until they could find their own ways to gain control over management. Other two studies by MacDonald (1996) in 8 mothers of children with asthma aged 3-10 years and Santati et al. (2003) in 10 parent caregivers of 11 asthmatic children aged between 5-14 years revealed similar finding that having a child with asthma caused psychological and financial burden to parent and family. Lack of knowledge and support from health care providers and other members in the family would make parent more frustrate. By passing trial and error process, finally, the parent caregivers would follow only the recommendations that worked best for their children and fitted their family life, which sometime did not follow the medical regimens.

Although the literature had a substantial body of research outlining the relationship between asthma knowledge and management ability of caregiver, lack of consistent findings were reported because not all studies could reveal this relationship (Haby et al., 2002; Clark & Patridge, 2002; Martinez, 2003; Guevara, et al., 2003). Clark and Patridge (2002) reviewed that literature about barriers to effective patients' or caregivers' abilities to manage chronic diseases, data suggested that not all education and knowledge could help in enhancing caregivers' abilities. Even though knowledge about asthma is important to all patients and caregivers but their management abilities also depend on a range of external factors (e.g., the provision of effective professional care, environmental characteristic, social support, etc.) and equally complex range of internal factors (personality characteristics, stress, motives, past experiences, etc.). Starting from this base of internal characteristics, caregiver drawn information and assistance from external resources (health care professional, family members, social networks, etc.) tried out new behavior, and judged whether the actions they took or did not work to achieve their personal goal, which sometime opposed to clinical objectives.

In addition, in the study of Mansour et al. (2000) about barriers to asthma care in urban children: parent perspectives, which aimed to identify barriers that parents perceive and would affect their abilities to control or prevent their child's asthma symptoms. Seventy-nine children, aged between 5-12 years, who had asthma were identified through school-health record from the 4 elementary schools. Parents of the seventy-nine asthmatic children participated in focus groups to present individual comments about the barriers to their asthma management ability. Of the 1030 individual comments, 618 (60%) were codes as barriers. Of these, 43% were classified as patient or family factors such as lack of knowledge about asthma, asthma medications, and their use; 28% as environmental factors such as available support from school, financial burden, available support from friends and community; 18% as health care provider factors such quality of education from health care providers, lack of continuity, lack of trust, and relationship between health care provider and parent; 11% as health car system factors such as type of insurance. Kappa statistics for category ranged between 0.82 and 0.84 for each pair of independent raters, indicating excellent agreement for classification by category. The results from this study revealed

that even though lack of asthma knowledge was still the important barrier to management ability of parent caregiver but other factors such as environmental factors, lack of viability of support, their own personal and financial constraints, poor quality of educative and care from health care providers were also found to be another barriers from parental perspectives.

A number of qualitative studies helped defining barriers to the development of asthma management abilities of parent caregivers such as the studies of Horner (1992), Jerrett & Costello (1996), Mansour et al. (2000), Palmer (2001), Santati et al. (2003). They all found similar patterns of how parents defined the steps from the beginning until they gained their abilities or control their asthma management and they clearly noted that at first the parental experience was characterized by uncertainty, a lack of understanding of what was happening, and a feeling of being overwhelmed and burdened. Besides from lack of knowledge, information, and skills related to asthma management, parents required support from other family members, social networks (teachers at their children's school, co-workers, etc.), and health care professionals to help them deal with the increased demand. This process was a central activity for all of the parents; it involved a great deal of learning and caused gradual change in their ability and their perspective.

According to an integrated review of self-care research in Thailand (Hanucharunkul et al., 2000), results indicated that few studies had been conducted with dependent-care especially parent caregivers of pre-school asthmatic children. Srangnok (2000) studied maternal behavior and power of prediction among selected factors (maternal perception of asthma, social support, mother's age, mother's education, family income, and duration of illness) on maternal behaviors in caring of pre-school asthmatic children. Data was obtained from 180 mothers of pre-school asthmatic children. Stepwise multiple regression analysis was used to predict maternal behavior. The result revealed that age, education level, and perception of asthma could predict 23.2% of maternal behavior while social support, family income, and duration of illness could not.

Some differences found in the study of Yeanyong (1994) about the relationship among social support, selected factors (age, level of education of mothers, number of

family members, age of children, and duration of illness) and maternal management (in this study it defined as maternal adaptation) in 180 mothers in caring for asthmatic children. Researcher found that there was statistically positive relationship between social support and maternal adaptation ($r = 0.5349$, $p < .01$) while the other factors did not.

Sumranchaiyadham (1998) conducted a study about maternal perceived self-efficacy, maternal caregiving behaviors, and health outcome of 1-5 year-old asthmatic children. The purposes of the study were to describe maternal perceived self-efficacy, maternal caring behaviors and health outcomes of 1-5 year-old asthmatic children and study the relationship among these three variables. The purposive sample consisted of 80 mothers of 1-5 year-old asthmatic children. Bandura's self-efficacy theory was used as the conceptual framework in this study. Three dimensions of maternal perceived self-efficacy (preventing, caring, and managing), five dimensions of maternal behaviors (asthma triggers avoidance, follow up, asthma drug administer, attack prevention, and care when attack), and two dimensions of health outcomes (perceived symptom and disability in asthma) were measured. The results revealed that the total scores of maternal perceived self-efficacy, maternal caring behaviors and health outcomes were high. There were significant positive relationships between maternal perceived self-efficacy and maternal caring behavior ($r = 0.54$, $p < .001$) and significant positive relationships between maternal perceived self-efficacy and health outcomes ($r = 0.33$, $p < .01$). Researcher concluded that good maternal perceived self-efficacy would influence mothers to perform caring behaviors that lead to the desirable good health outcomes of the asthmatic children.

In Rattanawan's study (2001), the influences of maternal caregiving behaviors and basic conditioning factors on severity of asthma in children were studied. By using Orem's self-care theory as a conceptual framework, basic conditioning factors (age of children and mother, occupation of mother, maternal experience in caring, and asthma triggers) were hypothesized to have positive relationship with dependent-care agency (maternal caregiving behaviors), and health outcomes (severity of asthma). Four dimensions of maternal caregiving behavior (preventive, caring and management, health promotion, and seeking and accepting behaviors) were measured. One hundred

and sixty mothers of 1-5 year-old asthmatic children were recruited into the study. Data were analyzed by using Pearson's product-moment correlation coefficient and multiple regression analysis. The results of the study indicated that age of the children and asthma triggers were significantly correlated with all aspects of maternal behaviors (preventive, caring and management, health promotion, and seeking and accepting behaviors) ($r = 0.362-0.508$, $p < .01$), age of mother was significant correlated with three aspects of maternal behaviors excepted caring and management behavior ($r = 0.241-0.307$, $p < .01$) while maternal experience in caring was significant correlated with caring and management behavior ($r = 0.301$, $p < .01$) instead.

In summary, very few researches about asthma management abilities in parent caregivers of the asthmatic children were repeated. The factors which had been studied were limited among few factors and the findings were inconsistent. Even though asthma management abilities of parent caregivers were found to be depended mostly on knowledge about asthma but the findings were also indicated that not all education and knowledge could help in enhancing caregivers' abilities. Besides from internal factors of parent caregivers such as stress, motives, past experiences, etc., the management abilities were also found in the literatures to be depended on a range of external factors such as social support, provision of effective professional care, etc. Therefore, factors contributing to asthma management abilities of parent caregivers in Thai family should be explored.

Caregiver Burden

The term "caregiver burden" is one of the most commonly used variables in caregiving researches, both as predictor and outcome. The meaning of burden is further obscured by the tendency for some researchers to use the term interchangeably with "well being, stress, problems, and adverse effects" (Montgomery, Stull, & Borgatta, 1985). Based on this assumption, researches on well-being and stress are carefully reviewed together with research on caregiver burden in this study.

The concept of "caregiver burden" was first referenced in 1963. Beginning with the work of Grad & Sainsbury (1963), a number of investigators have examined the phenomena of caregiver burden through the cost of burden to the family of

mentally ill. They defined burden as any cost (negative consequences) to the family of which the patient is a member. In this context, burden is broadly viewed as a mediating force between the patient's impairments and the impacts that caregiving have on the lives of the caregivers and their families. Since that time, burden has become a commonly recognized phenomenon in the health care literature.

The caregiver burden concept was further modified by Hoenig & Hamilton (1967), as well as Platt & Hirsch (1981), who realized the importance of separating events, happenings, and activities as objective measures of burden from subjective measures of burden (feeling, attitudes, and emotions). Thus, these investigators were the first to dichotomize burden onto subjective and objective dimensions. More specifically, objective burden referred to the events and activities associated with negative caregiving experiences. Subjective burden referred to feelings aroused in caregivers as they fulfilled their caregiving functions (Hoenig & Hamilton, 1966).

Poulshock & Deimling (1984) proposed that the diversity of definitions and measurements of caregiving burden make it difficult to compare across studies. They conducted a study to clarify the concept of caregiving burden. They proposed model to explain that burden is a mediating force between the clients' impairment that has an impact on the caregiver. They have proposed that it is the subjective experience of caregivers that color or filter their report of effects. As such, the subjective aspect of burden must be included in the analysis of caregiving impact. From this perspective, their model is based on the assumption that the burdens caregivers experience are the result of their highly personal and individualized responses to specific caregiving contexts. The linkage between impairment and impact is centered on the subjective view of caregivers that certain tasks are performed and that the impairments are burdensome. That is, certain deviant behaviors on the part of clients are perceived by caregivers to be extremely stressed producing. For outcome measures, they have used the term caregiving impact as objective burden; including the impact caregiving has on family relationships, social relationship, health, and employment changes.

Plat (1985) pointed out that objective burden involves "disruption to family/household life that is potentially verifiable and observable." Objective burden differs from subjective burden, which depends entirely on caregivers sharing their

personal feelings. Similarly, Montgomery, Gonyea, & Hooyman (1985) have recognized the importance of the distinction between objective burden and subjective burden which contribute to the cost of caring. They have viewed concrete events, happenings, and activities resulting from caregiving as separate from the feelings, attitudes, and emotions expressed about the caregiving experience. From this perspective, they have defined objective burden as the extent disruptions or changes in various aspects of the caregivers' life and household, the extent to which their caregiving behaviors have changed such as the amount of time, energy, privacy, and the respondents' attitudes toward or emotional reactions to the caregiving experience such as feeling of pain, fear, nervousness, and strain.

Noh & Turner (1987) have defined objective burden as the difficulties and problems that patients may present with respect to their role performance, and disruption in family routines. On the other hand, they have referred to subjective burden as the extent to which family members perceived the patient's presence, behavior or dependency as constituting a source of worry or strain within the family.

However, Lawton et al. (1989) have disagreed with these conclusions. They have used Lazarus's stress model (Lazarus & Folkman, 1984) to clarify the concept of caregiver burden and elaborated that in Lazarus's conception, a potential stressor arouses the process of appraisal, during which the potential for threat is assessed (primary appraisal). This process is what defines the external situation as a stressor or nonstressor. The assessment of a person's capability for coping with threat is termed "secondary appraisal." Thus, they view caregiver burden as an example of an external demand or potential treat that has been appraised as stressor.

Lawton et al. (1989) have also listed another problematic feature which is a class of behaviors that represent the impacts or effects of caregiving consistent with Montgomery, Gonyea, & Hooyman (1985). They suggested that this set of behaviors is conditioned by the demand of caregiving such as lack of time for oneself, health problems, and limitations on one's social life as "objective burdens." They have contrasted this objective burden category with subjective burden or appraisal cited above and has continued to argue that the caregiving impact is a form of secondary appraisal. They have further proposed that rather than continuing to use the term

burden to refer all appraisals of caregiving stress, the term of caregiving appraisal should be used to refer to the largest category of burden that include all cognitive and affective appraisals and reappraisal of the potential of stressor as well as the efficacy of one's coping efforts. Since not all appraisals are interpreted as burdensome, the demand that one experiences in giving care does not in itself necessarily become a stressor. Whether such a demand is stressful is a matter of subjective appraisal. Therefore, they need to provide for forms of appraisal that reflect all degrees of subjective responses to the stressors. Unfortunately, Lawton et al. (1989) have focused only on subjective burden.

Burden in caregiving is defined as two components: demand and difficulty (Oberst et al., 1989; Obrest & Hughes, 1990; Oberst et al., 1991; and Carey et al., 1991). **Demand** refers to the extent to which a treatment plan or other activities in caring for the patient required time and energy. **Difficulty** refers to the difficulty and the bother of caregiving activities posed on caregivers. Similarly, this definition of burden indicates that demand in caring has the same meaning as objective burden and difficulty in caring is the same meaning as subjective burden. This notion of caregiver burden is consistent with those conceptualized by Klien (1989), and Montgomery, Gonyes, & Hooyman (1985).

Scott-Bear (1993) and Scott-Bear, Fisher, & Gregory (1995) have defined caregiver burden according to Orem's deliberate performance action concerning health and other persons as a two-dimensional phenomenon embracing the extent of disruption or change in various aspects of the caregiver's life and household (objective burden) which reflect concrete events, happenings, and activities of caregiving, and the caregiver attitudes towards, or emotional reaction to, the caregiving experience (subjective burden).

Moreover, Cain & Wicks (2000) determining the differences between subjective burden and objective burden based on work by Biegel et al. (1994) and Wicks et al. (1998). Subjective burden focuses on the perceived stress associated with providing care, whereas objective burden refers to disruptions in family life and the tasks and activities associated with providing care. Objective burden is tangible,

whereas subjective burden reflects the caregiver's perceptions about tangible changes that result from taking role of caretaker.

Thus, according to literature reviews, it can be concluded that caregiver burden is defined in two different ways. Firstly, caregiver burden is caregiver demand for caregiving activities and difficulty in giving care with the demand reflecting objective burden and the difficulty reflecting subjective burden. Secondly, caregiver burden is a disruption or impact on caregivers caused by giving care with an observable impact is objective burden and an invisible impact is subjective burden.

Few researchers have studied burden of caregivers in the home where families deal on a daily basis with caregiving issues for a chronically ill children. In caring for chronically ill children at home, not only do parents become responsible for physical caregiving, but they must become skilled in clinical assessment, clinical decision making, and coordinating care (Anderson & Elfert, 1989). The new trends in care delivery have challenged parents to find ways of coping with the multiple demands in their homes. However, there are some reports that parent caregivers who spend most of the time in taking care of their children may receive either negative or positive consequences.

Brust, Leonard, & Sielaff (1992) studied about time used in taking care of physical and/or mentally ill children, who needed special cares from 133 mothers. Mothers in this study needed to estimate time used in providing care for their children in each activity, which some of them were done everyday, every week or sometime once a month. These activities consisted of 3 essential cares for an ill child, which were: 1) indirect care such as cooking meal, managing all expenses related to the child's conditions, managing services and resources, etc.; 2) direct care such as giving child prescribes treatments, deciding if child needed to be seen by doctor, getting the child to cooperate with treatments, etc.; 3) vigilant care such as watching for the warning signs of the disease, managing behavioral problems of the child, providing emotional support, etc. The researchers found that mothers in their study spent almost 12 hours in doing all 3 activities by 6 hours 30 minutes was spent on vigilant activities, 3 hours 36 minutes was on direct child care, and 2 hours was on indirect care. Same findings were found in the studies of Smith (1986) and Ray & Ritchie

(1993) that mothers of chronically ill children perceived the extent to which a treatment plan or other activities in caring for their ill children required most of their time and energy.

Some researches found that parents of chronically ill children experienced stress concerning with high expenses related to children's care, giving emotional support to a couple or other children in the family, managing the house hold tasks beyond the routine responsibilities, etc. (Wegener & Aday, 1989; Ray & Ritchie, 1993; Fleming et al., 1994). All worries and perceived stress during their care for chronically ill children seemed to threat parents all the time, which would lead them to experience chronic sorrow then would affect their health and their abilities. This meant that parents would perceive difficulty in providing care for their children (Clubb, 1991).

Consistently to how caregiver burden is conceptualized in this study, followed the Orem (2001) definition of foundational capabilities and dispositions in Orem's theory of dependent-care, the concept of caregiver burden is defined as the set of significant orientative capabilities and dispositions. Orem indicated that in caregiving activities that provide to an ill child, the perception of burden associated with that care can be expected to have an effect on caregivers' health and abilities to manage their own selves that may affect their abilities to engage in dependent-care operations.

Beside the negative consequences from burdensome in providing care, some parent caregivers also experience the positive ones. McKeever (1981) reported that 5 out of 10 fathers in his study told that the relationships with their wives and other members in their families were better than before because of the supports that they gave to each others during the families' crisis. Similarity to the study of Taylor (1980) and Clements, Copeland, & Loftus (1990) that during the families' crisis, 63% of the couples would help and support each other in solving the crisis, agreeing to divide the child care, and giving emotional support to each other.

The following section presents researches on the relationship between caregiver burden and asthma management abilities.

Caregiver burden and asthma management abilities

Few studies reported the relationship between caregiver burden and management abilities (Townsend, et al., 1991; Schott-Baer, 1993; Krulik et al., 1999; Svavarsdottir, McCubbin, & Kane, 2000; Palmer, 2000; Palmer, 2001; Sanasuttipun, 2003; Phupibul, Wittayasoonporn, & Hanucharurnkul, 2000; Santati et al., 2003). The result of these studies revealed that the burden of chronic illness on the family caregivers was substantial. Children with chronically ill especially asthmatic children were more difficult to care than healthy children in many ways. Many parents stated that having a child with asthma was a significant psychological and physiological burden because they had to keep a vigilant watch over their children due to unpredictability of the disease and the complications of asthma managements.

In the study of Townsend, et al. (1991) about evaluation of the burden of illness for pediatric asthmatic patients and their parents, they systematically surveyed 100 patients with moderate asthma and parents to determine the impact of the disease on day-to-day life. They found that the perception of burden varied by viewpoint. The parents of these asthmatic children cited worry, concern, and burden about the disease and its care, the medications used to treat it, which lend affected to their abilities in providing care for their children.

Krulik et al. (1999) studied the relationship between parental stress and perceived maternal competence in mothers of young children with chronic illness: a cross-cultural study. The study was composed of mothers of young chronically ill children from four countries: Israel, Japan, Jordan, and the United States. The parenting stress in this study was identified as impacting on the mother's ability to cope and to function as competent caregiver to her child. One hundred and thirty mothers (30 from Israel, 38 from Japan, 33 from Jordan, and 34 from the United States) of chronically ill children were recruited. The results of this study provided evidence that across four different cultures, mothers of young children with chronic illness experienced more stress than those of healthy children. The pattern of stress varied by culture. Characteristics of the child were found to be a source of stress for their mothers, and some of these stress related significantly to mothers' ability (sense of competence) to make a decision about how effectively respond to the child

($r = 0.261-0.423$, $p = .01$). These findings indicated that stress in caregiving may have some effect on competency of caregiver in providing care.

In addition to psychological and physiological burdens, some parents mentioned a financial burden. On occasion, cost had prevented them from being able to purchase medications and changing their home environment, thus preventing them from being competent managers of their children's disease (Teague et al., 1993; Jones, 1996; Ory et al., 1999; Cain & Wicks, 2000).

In the study of Lara et al. (2002) about how to improve childhood asthma outcomes in the United States, the study revealed that the national experts committee in asthma management identified the financial burden as the greatest and important burden among low-income, minority, and other underserved populations and widely recognized as the national public health problem. Low-income and minority children are less likely to have the resources to adequately address the impact of illness, and are more likely to reside in the communities with environmental risk factors that may exacerbate asthma. They suggested that public policies need to pay attention to reduce the financial burden for these populations by providing support for medications and equipments needed, improved insurance coverage for uninsured children, and strengthening the public health infrastructure for funding of Asthma-Related Community and Health services.

Consistency with Orem's theory of dependent-care (2001), managing all universal, developmental, and health deviation dependent-care demands for asthmatic children will overwhelm parent caregivers and create a great number of physical, psychological, and financial burdens, which will lead to affect their health, well-being and especially also affect their management abilities.

In Thailand, Sanasuttipun (2000) conducted a study to examine parental perception of infant caregiving demands, adherence to medications and dependent-care agency in taking care of infants with congenital heart disease. A sample of 60 parents of infants with congenital heart disease was enrolled. The Care of My Child index was used to measure infants caregiving demands and item scale scored from 1 (little or none) to 5 (a great deal). Mothers in this study reported that providing

developmental support for the child (mean = 4.03, SD = 1.28) and feeding (mean = 3.71, SD = 1.16) were the most time-consuming caregiving tasks. Fathers reported that providing emotional support for the spouse/partner (mean = 3.57, SD = 1.10) and providing developmental support for the child (mean = 3.11, SD = 1.31) were the most time-consuming caregiving tasks. Mothers identified providing developmental support for the spouse/partner (mean = 2.38, SD = 1.29) and feeding (mean = 2.48, SD = 1.43) as the most difficult caregiving tasks. Fathers also indicated that providing emotional support for the spouse/partner (mean = 2.75, SD = 1.35) and feeding (mean = 2.59, SD = 1.55) were the most difficult caregiving tasks. For dependent-care agency, 43% of the parents missed giving 1-4 doses of digitalis medication and 31% missed giving 1-2 dose of diuretic medication over the past month. Researcher concluded that the high missing rate of giving medications in this study may be due to the high caregiving demands of the ill infants. Thus, burden on giving care for CHD infants influenced the caregiving abilities of the parents.

Another study about caregiver burden was done by Phupibul, Wittayasoporn, & Hanuchareonkul (2000) on chronically ill children. This study was done with 74 parents of chronically ill children with an aim to synthesize a causal model to predict caregiver burden in parents of chronically ill children based on Orem's General Theory of Nursing. This model described the causal relationship among the quality of supportive and educative nursing system, family resources, power component of dependent care agency, coping with caregiving and caregiver burden. The results revealed that parents perception of caregiving burden was moderately high ($\bar{X} = 40.58$, SD = 5.21) especially time consuming in providing care to the child was much more than caregiving difficulty in providing care ($\bar{X} = 47.93$, SD = 5.83, $X = 36.77$, SD = 8.06 respectively). Path analysis indicated that caregiving burden was directly negative affected by family resources, power component of dependent care agency, and coping with caregiving ($\beta = -0.13$, $\beta = -0.27$, $p < 0.05$; $\beta = -0.26$, $p < 0.05$ respectively) and was explained 30% of variance by those factors. The result indicated that parent caregivers of chronically ill children also perceived high burden in providing care for their children but resources within the family, coping strategies, and their power component could help lessen these burden.

A qualitative study of Santati et al. (2003) was conducted to examine parents' experiences in asthma attack prevention. In-depth interviews were done with 10 parents of 11 asthmatic children about how they take care of their asthmatic children. Struggling to take control was identified as the main theme in this study. Parents of these asthmatic children had to learn several and complicated procedures such as how to administer inhaled bronchodilator every 4 to 6 hours for wheezing, inhaled steroids for asthma prevention, chest physical rehabilitation for secretory drainage, breathing exercises, environmental control, monitoring and avoiding asthma triggers. Most parents had to manage all these cares alone. Less support was received from other members in the family. In addition to maintaining household activities and their office work, they also had to accommodate the added role of asthma managers. These combined duties caused lots of burdensome for most of the parents and in turn affected their capabilities to care for the children.

In summary, even though there are few researches reported on parent caregivers of the chronically ill children especially with asthmatic children but all of the reviewed literatures about caregiver burden indicate that most caregivers all experience some degrees of burden in providing care for the patients. The higher burden they perceive the higher affect on their management abilities in providing care. However, factors that help lessen caregiver burden are not well defined in the literatures so there is a need to study on why parent caregivers of these chronically ill children, especially asthmatic children could maintain their abilities inspite of burdensome and what factors will help them overcome this burdensome and enhancing their abilities to take proper care of their children.

The next section presents the exogenous variables in the proposed model and examines their relationships to the endogenous variables in the model: the mediating variable and outcome variable.

Exogenous Variables

Perceived social support, family hardiness, and quality of professional care are exogenous variables in the study model. Research on the relationships of each exogenous variable to the mediating variable: caregiver burden and to an outcome variable: asthma management abilities are presented in this section.

Perceived social support

Social support is one area of study that may enhance understanding of caregiving. According to Kahn & Antonucci (1980), social support is “interpersonal transactions that include one or more of the key elements: affect, affirmation, and aid” (p.267). Likewise, House (1981) describes aspects of social support as emotional, instrumental, informational, and appraisal support.

Emotional support is the most important category of support which one conveys to others in House’s (1981) point of view. Gottlieb (1978) has also reported in the same way as House (1981) that when supportive acts are described, emotion acts are the most prominent of all other types of support. Moss (1973) has noted that social support is a “subjective feeling” of belonging, of being accepted, of being loved, and of being needed. Cobb (1976) has further elaborated emotional characteristics of social support that it renders through communication that leads to the information that one: 1) is cared for and loved; 2) is esteemed and valued; and 3) belongs to a network of mutual obligation. Kahn & Antonucci (1980) and Norbeck, et al. (1981) have also referred emotional support component of social support to affective assistance of which composed of admiration, respect, and love.

Instrumental support involves the provision of tangible goods and service, or tangible aid (House, 1981; Tilden & Weinert, 1987). Although many theorists or scholars such as Barrera (1986) and Cutrona & Russell (1990) include caring and love in instrumental support, they describe that it is distinguishable from emotional support. They further elaborate that tangible aid is concrete assistance; such as financial assistance or performing duties of others.

Informational support has been defined by House (1981) as information provides to another during the time stress. Moreover, Wills (1985) defines informational support as a process through which other persons provide information, advice, and guidance. This type of support may operate mainly as a buffering process. Network members may provide valuable assistance when environmental stress exceeds the person’s knowledge and problem-solving ability. Tilden & Weinert (1987) have also noted that informational support is used during the problem-solving process.

Appraisal support involves the communication of information which is correlated with self-evaluation rather than problem solving (House, 1981). Kahn &

Antonucci (1980) define appraisal support as affirmation support, including expressions that assure the appropriateness of acts or statements made by another.

Social support may come from a variety of sources. People in caregivers' social network can be the sources of caregivers' social support. Rose (1997) has identified four caregivers' support resources: professional/system support, friend support, family/extended family support, and God or the social network of the church as resources of caregivers' support.

Caregivers viewed professional support as largely consist of a respectful attitude towards caregivers and an absence of it barriers to the caregivers' treatment of the patient. They expect information and advice from health care professional on how to cope, take care, and respond to the patient.

Family support is the most consistent available support the caregivers perceive. Tangible support is reported as it is provided by the family members. However, the caregiver's sense of support is related to evaluation of the family unit. Past conflicting views within family influence the caregiver's evaluations of availability of support.

Friend support is the support that caregivers get from non-family members, such as close friends and co-workers. Caregivers decide to share with this source of support after some time of reflection and careful selection of one individual. One informant explained his rational for not sharing with co-workers that "sometime it's just probing" so that he preferred carefully selected relatives or friends to share it with, as he said, "A very closed friend that you know you can trust not to spread around what you say." Emotional support is most valued when caregivers believe that the concern is genuine and that it is safe to ventilate feelings.

Some caregivers report the experience of spiritual support or God that involves a feeling of emotional strength derived from religious faith. They express a strong belief and trust in God as a resource of personal strength. However, other caregivers identify using spiritual support when making difficult decision about "letting go." In addition, the social network of the church is seen as a safe support.

In the study of Patterson et al. (1997) about social support in 182 families of young children with chronic conditions, they found that both mothers and fathers in their study reported that family members provided the most emotional and tangible

support, extended family members provided emotional and informational support while health care providers provided the most informational support.

According to the sources and functions of social support, it can be distinguished into two constructs: 1) the cognitive (perceived); and 2) the behavioral (received) constructs. Vaux (1992) and Turner (1981) have posited that the term social support should refer to perceived or experienced support, which has been most clearly described by Cobb (1976) which is composed entirely of information as mentioned above. Turner (1992) has also suggested that it is important to recognize that the effective measurement of perceived support provides the best means by which to estimate the relative significance of potentially modifiable social factors for health and well-being.

All of these findings demonstrated that even though caregivers perceive a variety of support types as informational, emotional, and tangible support from each source, the caregivers' perception of each source of support vary as they provided different degrees or quality of support. This issue may be caused by two factors. The first one is the availability of support provided by those resources or the convenience of resources to which caregivers can access. The second may be related to the degree of caregivers' trust in those kinds of resource persons. Therefore, the provision of caregivers' sources of social support should include a variety of sources to meet caregivers' various needs.

In this study, social support is conceptualized as a perception of parent caregiver about resource availability and adequacy in 3 areas, which are information, emotion, and tangible support from 4 sources: 1) family members; 2) siblings and relatives; 3) friends, co-workers, and neighbors; and 4) other providers in the community (monks, policemen, traditional doctors, etc.)

Social Support and Caregiver Burden

In caregiving phenomena, social support is an important factor for caregiver in all situations because in taking care of chronically illness patients frequently requires a greater economic and psychological sacrifice than most caregivers can provide. The challenges of home caregiving are compounded by the lack of resource allocation to support the home care of these chronically ill patients. Social support needs of

caregiver are significant for effective management of these economic and psychological burden and any related stress the caregivers may feel (Fink, 1995). Finding from a number of studies indicated negative relationship between caregivers' satisfaction with social support and burden of caregivers (Mailick, Holgen, & Walter, 1994; Biegel, et al., 1994; Garwick, 1998; Chang, Brecht, & Carter, 2001; Sullivan-Bolyai et al., 2002; 2003; Santati et al., 2003).

In the study of Chang, Brecht, & Carter (2001) which aimed to identify predictors of caregiver's burden, satisfaction, depression, and social support among caregivers of chronically ill patients. Eighty-one caregiver/care-recipient dyads from the community participated in the study. The results revealed that difficulty in arranging assistance from confidante or friends correlated significantly and positively with caregiver burden ($r = 0.38$; $p < .001$), depression ($r = 0.34$, $p < .01$) and negatively with caregiver's satisfaction ($r = -0.28$, $p < .05$). In short, the more the difficult in arranging social support from friends, the harder the burden of caregivers in this study.

Studies in other chronic illnesses yielded similar findings such as in the study of Sullivan-Bolyai et al. (2003). Twenty-eight mothers were interviewed to describe the day-to-day experiences in raising young children under 4 years of age with type 1 diabetes. Although mothers initially felt incompetent with the care they provided, with time, they became very skill. Most parents in these studies reported the importance of social support from families and community services that could reduce some of their tremendous stress and burden of responsibilities experienced after diagnosis of diabetes.

Biegel et al. (1994) used stress-coping-support framework to examine the predictors of caregiver burden in a sample of 103 family caregivers of persons with a chronic mental illness. It was found that half (50%) of caregivers indicated that they did not receive sufficient support from their family members, while 41% indicated that they did not receive enough support from professional agency. However, the multiple regression analysis revealed that family support had a significantly negative effect on caregiver burden ($\beta = -0.91$, $p < .05$). Agency support was almost statistically significant ($\beta = -0.16$, $p < .05$). These reflected that caregivers who felt they were not

getting enough support from family members or professional agency had higher level of caregiver burden.

Ray and Ritchie (1993) examined perceptions of coping with varying degrees of caregiving burden and factors that influence parents' experience with home caregiving in 29 parents of chronically ill at home. Lazarus and Folkman's stress and coping model (1984) was used as a conceptual framework in this study. Data were obtained using the Clinician's Overall Burden Index, the Coping Health Inventory for Parents, visual analogue scales, and home interviews with parents. Parents described many dimensions of caregiving burden. Increased caregiving burden was associated with greater stressfulness and the use of fewer helpful coping strategies. Three clusters of coping strategies, which were most helpful to parents, were: support from family members, maintain family strength, and getting the illness care tasks accomplished. Parents in this study mentioned how important of having or not having a supportive spouse, family, or friends. The findings in this study lend support that social support from family members could help parents cope with different level of the burden during taking care of chronically ill children.

For financial burden, Garwick (1998) studied about families' recommendations for improving services for children with chronic conditions. Parents in this study mentioned about financial burden or economic issue that involved in caring for a child. This kind of burden limits or prohibits the child from receiving particular treatments, medications, needed equipments, or participating in special programs such as asthma camp. The needs for support network from government as well as support group are so essential for parent caregivers especially the parent caregivers from lower and middle income groups in order to lessen burden from economic issue.

In many studies, support members are not necessary supportive. Some studies reported that family members might be more a source of burden than a source of support after onset of chronic illness (Anderson & Coyne, 1991; Coyne, Ellard, & Smith, 1990; Pagel, Erdly, & Becker, 1987). A similar result was found in the study of Garwick et al. (1998) about parents' perceptions of helpful vs. unhelpful types of support in managing the care of preadolescents with chronic conditions. Parents of 124 preadolescents with a variety of chronic conditions were interviewed. Result revealed

that while patterns of perceived support from family members, community members, and health care providers remained relatively stable over a 1-year period, report of unsupportive behaviors also found from health care providers. Parent caregiver reported that sometime these might increase burden for them more than no support.

Moreover, the study of Patterson et al. (1997) about supportive and non-supportive behaviors in families of children with chronic illness, which was done with 182 parents of young children with a variety of chronic health conditions concerning the amount of emotional, informational, and tangible social support they received from family, community, and service providers. Parents in this study reported that non-supportive behaviors from family members and health professional could hurt families. These behaviors are not always blatant and overt. Many times, subtle, covert actions from family members or even health care professionals cause parent caregiver the most sadness and distress, especially when they come from persons who are loved or who provide services to the family.

In summary, support systems of the caregiver can provide a buffer against the demands of caregiving by increasing the caregiver's belief that he or she is cared about. Assistance and support received by the caregiver are related to lower levels of burden. Various studies in the area of social support have provided the link between social support and caregiver burden.

Social Support and Asthma Management Abilities

According to Bandura (1997), support from social networks, as an environmental factor, can increase knowledge and strengthen personal efficacy to engage in health practices. The perception that others are willing to help could result in increase overall positive effects and elevating sense of self-esteem, stability, and control over environment, all of which contribute to a strong sense of competence.

Beauchesne (1997) conducted a study to examine the relationship between social support and the ability of mother to care for herself and her child with developmental disabilities. A descriptive correlational design was used and Orem self-care model was the conceptual framework used for this study. The subjects comprised 92 mothers of infants and children with developmental disabilities. Data were collected by using the Self-Care Agency Scale and Norbeck Social Support

Questionnaire. The results indicated a small but significant relationship between qualitative social support and self-care agency ($r = 0.19$, $p < .05$). Researcher concluded that social support is a significant factor to consider in the assessment of self-care agency of mothers to care for herself and her child with developmental disabilities.

For caregivers of asthmatic children, Horner, Surratt, & Smith (2002) conducted a study about the impact of asthma risk factors (gender, ethnicity, socioeconomic status, and asthma severity) on home management of 58 families of the asthmatic children who live in nonmetropolitan area. Aims of this study were to identify the asthma risk factors that existed in the families of school-age children and to explore how these risk factors influence family asthma management behaviors. Parent asthma management was measured with the Management Behavior Survey (MBS), which congruent with recommendations of current national guideline for home asthma management (avoiding trigger events, responding to symptoms, getting help as needed, and taking medicine for symptoms). The results revealed that biggest barrier to effective home asthma management for low income families in their study was lack of resources. Inadequate resources or supports brought a serious effect on how the family could access to care and on their ability to manage asthma both at home and at child's school. Even though effect of social support on asthma management was not studied directly but the result revealed that lack of tangible support could effect on family asthma management.

This finding was similar with the finding of Palmer (2001) about parent caregiver experience with asthma in school-age children. By using qualitative method, Palmer found that to become a vigilant caregiver, 10 parent caregivers in her study had to pass 3 phrases: diagnosis, conflicts or battling, and resolution. The most important strategies for the parent to becoming a vigilant was acquiring knowledge in management and dealing with the disease. Lack of support was the most frequently mentioned problem by caregivers that affect their management abilities. The source of poor support varied among subjects, but included the school teachers, other family members, the physician, and the health care system.

Srangnok (1999) examined the factors that influenced maternal behavior in caring of pre-school asthmatic children. One hundred and eighty mothers of pre-school asthmatic children were recruited to the study. The powers of prediction of maternal perception, social support, mother's age, mother's education, family income, and duration of illness on maternal behavior in caring of the asthmatic children were studied. Results revealed that significant predictors of maternal behaviors were; mother's educations, maternal perception of asthma, and mother's age, which predicted 23.3% of the variance of maternal behaviors while social support and other factors were not.

In summary, even though few studies in the area of social support have provided the link between social support and management abilities but the findings were also indicated that support systems and social networks of the caregiver, as an environmental factor, can increase knowledge and strengthen personal efficacy to engage in health practices. The perception that others are willing to help could result in increase overall positive effects and elevating sense of self-esteem, stability, and control over environment, all of which contribute to a strong sense of competence of the parent caregivers.

Summary

The majority of the literature has shown that social support has a positive relationship with management abilities, and negative relationship with burden. However, some studies about these relationships are still scarce and questionable in Thai literature but the empirical supports for these relationships are existed. As in the reviewed literatures and theoretically, it can be considered that caregivers with more supports (informational, emotional, tangible support) from other family members, friends, co-workers, and other member in the community effectively reduce the burden in caregiving and, in turn, help gaining their abilities to take care of their asthmatic children than others with no support.

Family Hardiness

The term "Family hardiness" was developed by McCubbin, McCubbin, & Thompson (1987) by adapting the concept of individual hardiness to family unit. It is

conceptualized as “the internal strengths and durability of the family unit, which characterized by a sense of control over the outcomes of life events and hardships, a view of change as beneficial and growth producing, and an active rather than passive orientation in adjusting to and managing stressful situations” (p.239).

Likewise, Failla & Jones (1991) also defined family hardiness as “family strengths and durability which serve to mitigate the demands placed on the family unit and its members” (p.42). Family hardiness is a factor that is believed to promote healthy family adaptation to chronic childhood conditions by functioning as a buffer or mediating factor in mitigating the family response to stressors (Failla & Jones, 1991).

The genesis of the concept of hardiness can be traced to Kobasa (1979a, 1979b), whose work is central to all hardiness researches. The proposition underlying Kobasa’s seminal reports was that people who experienced high levels of stress but remained healthy had a different personality structure than people who experienced high levels of stress and became ill.

Existential psychology is central to the theoretical underpinnings of hardiness (Kobasa, 1979a, 1979b, 1982b). Two major premises of existential theory are pertinent: (a) personality is actively constructed through a dynamic process, and (b) although life is stressful because it is always changing, people can turn stressful life event into opportunities for growth (Kobasa, 1982b).

Hardiness is a multilevel construct and may influence outcomes through altering one’s appraisal of a situation and increasing one’s use of coping strategies, which is transformational than regressive coping strategies. Transformational coping strategies are cognitive or behavioral strategies that alter stressful events, thereby reducing the amount of strain. Regressive coping strategies are cognitive or behavioral strategies that allow one to avoid the stressful events (Maddi & Kobasa, 1991; Maddi, 1999b). Regressive coping is thought to give only temporary relief from stress; whereas transformational coping is thought to be more effective for long-term coping.

The relationship of hardiness to use of transformational coping strategies is of particular interest. Based upon the theoretical and empirical study, Kobasa has postulated that the hardy personality bears transformational coping, which is an amalgam of cognition, emotion, and action aimed at not only survival but also the enrichment of life through development (Kobasa, 1979; Kobasa et al., 1981; 1982).

Kobasa et al. (1982) acknowledged other psychological processes, such as coping and social support, that may hinder resistance to stress, but suggested that the personality resource of hardiness may well have a direct effect on the individual's ability to cope or to use social support. Further more, Maddi and Kobasa (1984) found that high-hardy people tend to seek social support, which will help them in supporting transformational coping in times of stress while low-hardy people do not seek these support, and this increases their tendency to use regressive coping when stressed.

Although most of the hardiness research has focused on individual hardiness, research has been conducted to adapt the concept of individual hardiness to the family system (McCubbin et al., 1987). Moreover, in the study of Clark (2002) about effect of individual and family hardiness on caregiver depression and fatigue, result revealed the relationship between individual and family hardiness that the higher one's individual hardiness, the higher one's family hardiness.

When applied to the family, family hardiness is defined as the family's internal strengths and durability characterized by an ability to work together to solve problems and difficulties, a view of change as beneficial and growth producing rather than threatening, an active versus passive orientation in adjusting to and managing stressful situations, and a sense of control over the outcomes of life events and hardships (McCubbin et al., 1987).

In early research, hardiness as applied to the family was thought to have four interrelated components: the family's co-oriented commitment, challenge, control, and confidence in being able to handle problems (McCubbin et al., 1987). In more recent research, it has been found that the original three concepts used in personal hardiness research very adequately explain the concept of family hardiness and, in fact, are stronger psychometrically than four component approach, though both approaches have strong reliability and validity and should be applied depending on the focus of the individual researchers.

The following section presents research studies on family hardiness, which relates to caregiver burden, asthma management abilities, and social support.

Family hardiness and caregiver burden

There is a need to better understand the effect of family characteristics on caregiver outcomes because in most cases, family is the most important social structure and resource in which individuals reside and from which they received assistance when needed. Furthermore, identifying factors that explain why some caregivers who are extremely burdened but seem to cope fairly well is important in optimizing the family environment for effective care (Clark, 2002). Even though few studies were done in the area of family hardiness, but the relationship between hardiness within the family of caregiver and burdensome or stress that occurred during caregiving had been examined in previous studies.

Failla & Jones (1991) examined the association of family hardiness, stressors, and family functioning in 57 families of children with developmental disabilities. Even though caregiver burden did not measure directly in this study, stressor that occurred during giving care was measured instead. The results indicated a small and nonsignificant negative relationship between family hardiness and family stressors ($r = -0.05$).

Ray and Ritchie (1993) examined parents' perceptions of coping with varying degrees of caregiving burden and described factors that influence parents' experiences with home caregiving. Lazarus and Folkman's stress and coping model (1984) was used as a conceptual framework in this study. Data were obtained from 29 parents of chronically ill children using the Clinician's Overall Burden Index, the Coping Health Inventory for Parents, visual analogue scales, and home interviews with parents. Parents described many dimensions of caregiving burden. Increased caregiving burden was associated with greater stressfulness and the use of fewer helpful coping strategies. Three clusters of coping strategies, which were most helpful to parents, were: support from family members, maintain family strength, and getting the illness care tasks accomplished. The result indicated that family who showed resilience and commitment was more likely to employ problem-solving as a coping strategy than family without this characteristic. The findings in this study lend support that maintaining strong family hardiness could help parents cope with different level of the burden during taking care of chronically ill children.

Donnelly (1994) studied the relationship among family hardiness, family stressor, and family functioning in 27 parents of children with asthma. In this study, family stressors were defined as the stressors that placed on caregivers during their care such as financial burden, more works or responsibilities at work, etc. Correlation between the fairly high hardiness score and the very low stressor index was found but was not determined to be significant ($r = .068$, $p = .05$). The correlation between family hardiness and family stressor that was found nonsignificant in this study might be from the stressor index, which the researcher used in this study was not specific enough to detect stressor in caring the asthmatic children. Only general questions within family and at work were asked. No item was associated with the stressors from asthma care.

Henkel (1994) explored the relationship among selected demographics, family hardiness, burden, stress, appraisal, coping and well-being of family caregivers of functionally impaired homebound older adults. Data were collected in the home setting on 110 functionally impaired, cognitively intact adults and their primary caregivers. The results revealed that caregivers who scored low on the Family Hardiness Index (FHI) and found the caregiving situation as both difficult and burdensome, had statistically significant higher appraisal scores for general stressfulness ($r = -0.31$, $p = .001$) and threat ($r = -0.58$, $p = .001$). Henkel indicated that family hardiness was found to be an important resistant resource to the burden and stress of family caregiving.

Snowdon, Cameron, & Dunham (1995) studied coping resources in 50 families of children with disabilities at home. They found that hardiness as an internal resource of these parents was the important factor that helped them face with stressor or burdensome in caring the children and made them satisfied with their function even when social support was limited. They further defined that the experience of parenting a disabled child was an opportunity for growth and challenge in parent caregiver and family with high hardiness.

Svavarsdottir (1997) studied relationships among family demands; the sense of coherence (SOC), family hardiness, and family's well-being were examined. Seventy-six families of a 5 year old child or younger with asthma participated in the study. Caregiver burden was measured in term of family demands. The most family demands

experienced by families were related to three areas in family life: (a) intra-family strains; (b) finance and business strains; and (c) work and family strains. The results revealed that parents with higher SOC and higher family hardiness reported having higher well-being. The SOC and family hardiness explained 56% of the variance in mother's well-being; and family demands and explained 67% of the variance in father's well-being.

Clark (2002) studied the effects of individual and family hardiness on caregiver depression and fatigue in 67 caregivers of disabled older adult with high functional impairment. Even though caregiver burden was not studied directly in this study, researcher used caregiver depression and fatigue instead to represent the theoretical construct of strain and stress. The result revealed that a main effect [$F(2.59) = 8.08; p = .001$] on depression was found. Caregivers with low family hardiness had the highest depression scores while high family hardiness had the lowest depression level and it was differed significantly from the other groups. Family hardiness in this study was also found to be positively related to the overall transformation coping use of the caregivers ($r = 0.36, p = .004$). No significant effect was found on fatigue scores. Clark explained that the finding of higher family hardiness related to lower caregiver depression and higher over all transformational coping may be by caregivers with higher family hardiness possibly receive more assistance and then may view family members more positively when providing assistance.

A number of researches were done on individual hardiness. Concerning about the issue of whether family hardiness and individual hardiness could be related, Clark (2002) examined this relationship in the study about effect of individual and family hardiness on caregiver depression and fatigue. The study revealed that there was some correlation between individual hardiness and family hardiness ($r = 0.40, p < .001$). However, the correlation was low enough in magnitude to suggest a large amount of independent between the constructs. So in this study, literatures reviewed about family hardiness were also included.

Scott-Baer et al. (1993) and DiBartolo & Soeken (2003) also examined the relationship between hardiness and caregiver burden. By using a partial replication of a descriptive correlation from the previous study, Scott-Baer et al (1993) examined

relationship among dependent care, caregiver burden, hardiness, and self-care agency of 53 caregivers of cancer patient. The hardiness that they used in their study referred to individual hardiness not family hardiness. The result revealed that the inverse correlation between caregiver hardiness and caregiver burden was not supported in this study. Lack of support that revealed in this study might be from sampling problems so the possible connection between these two important concepts needed further explored.

DiBartolo & Soeken (2003) examined the relationship among hardiness, appraisal, and coping strategies in 72 community-dwelling spouse caregivers of persons with dementia. One out of four subscales in the primary appraisal scale that used in this study represented subjective burden (11 items). The others represented impact (6 items), satisfaction (5 items), and mastery (6 items). The hardiness that was used in this study also referred to individual hardiness not family hardiness. The result revealed that individual hardiness demonstrated significant relationships with appraisal ($r = 0.44$, $p < .001$) and coping methods [problem focused coping ($r = 0.32$, $p < .01$), emotional focused coping ($r = -0.35$, $p < .01$)]. These findings supported the hardiness theory, which posited that harder individuals were more likely to appraise caregiving more positively and tended to used problem-focused coping method to deal with burdensome in caregiving than emotion-focused coping. Hierarchical regression was also used to test the moderator effect of hardiness on caregiver appraisal. The result revealed that there was statistically significant increase (7.3%, $p < .001$) in the amount of explained variance in caregiver appraisal at the interaction step with other seven individual predictors (age, gender, education, ethnicity, duration of caregiving, quality of marital relationship, support group attendance) indicated that hardiness also functioned as a moderator to increase explain variance in caregiver appraisal in this sample beside from its direct relationship as mentioned above.

In summary, even though most of the studies on hardiness, especially those involved in caregivers, have been found some negative relationships between individual hardiness or family hardiness and stress that happen during giving care not caregiver burden. It would be premature to conclude that relationship between family hardiness and caregiver burden lack of clinical significant. Theoretically, as in Orem's theory (2001) and hardiness theory, it can be considered that caregivers with high

sense of family hardiness might perceive strengths within their family as a resource to deal with burdensome in caring. High hardy-family caregivers might be less likely to have tendency to perceive their caregiving as threatening or burdensome on the other hand perceive it as an opportunity for growth, challenge to deal with problems, and confident in their abilities to modify the burdensome tasks into more manageable.

Family hardiness and asthma management abilities

According to the relationship between family hardiness and illness management abilities or dependent-care agency, few studies on these relationships have been found. One final way that hardiness theoretically affects illness management is through health practices (Maddi & Kobasa, 1984). A number of studies reveal that families with low hardiness scores are described as vulnerable families (McCubbin, Thomson, & McCubbin, 1996; Leske, 2003).

Vulnerable families indicated that they cope with family problems by getting upset, and by demonstrating less understanding and acceptance of family difficulties. Additionally, vulnerable families feel they have less strength and less control over what happens to the family, which will lessen the abilities to manage difficulties within their family especially when they face with the crisis in health problems (Leske, 2003).

In opposite, families who are high in hardiness are thought to have sense of internal strength, be able to work together, be more creative and active in learning new things, and have some control over events in their environment. Higher levels of family hardiness have been associated with positive outcomes for caregivers (Carey et al., 1991), higher family functioning (Failla & Jones, 1991), higher resources available, and perceived higher abilities to work together to handle difficulty in caregiving (Clark & King, 2003).

Wiebe & McCallum (1986) tested this hypothesis by using path analysis to test a model of stress and illness that include the joint mediating effect of health practices and hardiness in 60 female and 26 male undergraduate students over a 2-month period. Hardiness index was completed at the beginning of the study. Stress, health practices, and illness index for the prior month were assessed at 1 and 2 months later. Path

analyses revealed that hardiness had a direct negative effect on illness as well as indirect positive effect through health practice.

Nagy & Nix (1989) studied the relations between preventive health behavior and hardiness in 211 college students. Multiple regression analysis indicated that hardiness is correlated with preventive health behavior. Similarity to the studies that were done by Ganellen and Blaney (1984) and Hull et al. (1987) that hardy persons were more likely to stay healthy because they perceived life changes as a stimulating, positive, and challenging through effective cognitive appraisal.

McCubbin (1989b) examined family hardiness from the perspective of both client and caregiver in 44 families who had an adult family member receiving complex home health care (intravenous therapy, chemotherapy, and respiratory therapy) at two points of time (4 weeks apart) and found that total system hardiness ($r = 0.45$; $p < .01$) and the subscales of co-oriented commitment ($r = 0.36$; $p < .05$) of family hardiness were significantly related to mastery of the home care regimen with no difference between client and caregiver.

In the study of Schott-Baer, Fisher, & Gregory (1995) about dependent-care, caregiver burden, hardiness, and self-care agency of caregivers. Relationship between hardiness and self-care agency was examined in 53 caregivers of cancer patients. The results revealed that the challenge/commitment and control subscales of the health-related hardiness were significantly correlated with self-care agency scores at 0.57 and 0.46, respectively. They explained that a caregiver who felt motivated to cope with health threat and viewed the associated changes as a growth experience has significantly higher level of self-care agency, specifically, knowledge about their health and feelings about self-care.

These findings lend support to the finding of Carey et al.'s study (1991) about appraisal and caregiving burden in family members caring for patients receiving chemotherapy that there was some positive correlation between hardiness and health practices among caregivers of the cancer patients and of McKinney (2000) that less hardy caregivers were at risk for self-care disturbances.

Schott-Baer et al. (1995) suggested that interventions aimed at increasing caregiver hardiness might be expected to empower self-care agency. Likewise, a caregiver with low levels of hardiness can be expected to have lower levels of self-

care agency. As a result of a reduced capability to achieve self-care, less hardy individuals should be more susceptible to stress-related illness with a potential secondary reduction in the quality of dependent-care agency.

Family hardiness and social support

The correlation between family hardiness and social support has been found in a number of studies. Fallia and Jones (1991) examined the family hardiness in 57 families of children with developmental disabilities. They found that hardiness acts as a resistance resource that minimizes the effects of stress and increases the families' use of social support. Loss of social support was linked to lower levels of family hardiness, whereas total functional social support (consisting of affect, aid, and affirmation) was related to higher level of family hardiness.

Gill & Harris (1991) studied hardiness and social support as predictors of psychological discomfort in 60 mothers of children with autism. The results revealed significant correlation between hardiness and perceived social support ($r = 0.67$, $p < .001$).

In the study of Olsen et al. (1999) about support, communication, and hardiness in families with disabilities children, the result indicated that perception of the helpfulness of family and social support were positively related to family hardiness. This finding reflects the contribution of social support on family's confidence in their capabilities to solve the problem or difficulty within family. Moreover, family with high level of hardiness trends to have relationships or seek support from various sources that will support transformational coping in times of stress than family with low level of hardiness. Therefore, the relationship between social support and family hardiness can be expected.

Similarly to the study of Weiss (2002) about mothers of typical children, children with autism, and children with mental retardation, researcher assessed the effects of social support and hardiness on the level of stress in mothers of these children. One hundred and twenty mothers (40 mothers of autism children, 40 mothers of mental retardation children, and 40 mothers of typically developing children) participated in this study. Regression analyses were conducted to determine the best predictors of the dependent measures. Both hardiness and social support were

predictive of successful adaptation. The significant relationship between hardiness and social support was found ($r = 0.27$, $p = .001$). The finding indicated that women who expressed hardy beliefs and attitudes also perceived support as available.

In the study about family caregivers of stroke survivors and person with dementia, Clark & King (2003) compared family caregivers of both groups with similar levels of caregiving responsibilities. Relationship between family hardiness and caregiver outcome were examined. The result indicated that family hardiness was significantly related to willingness to seek help from family members for caregivers of stroke survivors ($r = -0.47$, $p < .05$) and caregivers of individuals with dementia ($r = -0.66$, $p = .001$). Researchers explained that one of the ways family hardiness might exert its effect was that caregivers with hardy families might be more willing to seek help from family members. Caregivers with a hardy family might have higher expectations of help, a positive response to asking help, and more assistance offered by family members to cope with stressful situation. Hardy families might visit more frequently and provided more emotional and tangible support.

Even though few studies have been found these correlation but it can be postulated from these empirical findings that caregivers in high-hardy family tend to seek social support as their resources to help them coping with stressful events while caregivers in low-hardy family do not.

Summary

As in the reviewed literatures and theoretically, it can be considered that family hardiness is viewed as a family system resource that facilitates balance when family unit is adapting to stressful life experience by making some major systemic changes in how family functions or operates on a daily basis. Literatures provided some evidence that family hardiness has a positive relationship with management abilities, negative relationship with burden, and positive correlation with social support.

Quality of professional care

The term “quality of professional care” or “quality of care” has been found to be an important indicator to evaluate various dimensions in health outcomes and also an important source of benefits for patient and family. The importance of quality of care is unquestioned; it is the right of all patients and their families and the

responsibility of all health care providers. It is the foundation of social contract between provider and patient.

Innumerable definitions of quality care exist, although most are confusing and all are limited in scope. Donabedian (1980) believes that no one universal definition is sufficient, where as Lynn & Moore (1997) purpose that any definition considers the multiple viewpoints of the parties involved. And even though many providers and consumers have difficulty articulating the meaning of quality of care, all are able to discern when quality of care is absent.

The concept of “quality of care” or in this study “quality of professional care” is a complex concept that exists, to varying degrees, in all clinical situations. As such, Donabedian (1980) defined the degree of quality of care as “the extent to which the care provided is expected to achieve the most favorable balance of risks and benefits” (p.p.5) and divides quality of care into two domains: the technical and the interpersonal.

The technical care (science of care) refers to the application of professional knowledge through the use of a skill, treatment, or intervention that benefits a patient’s health, while minimizing risks. The interpersonal care (art of care) refers to the management of the social and psychological interaction between patient and provider (Donabedian, 1980).

Similarly to the desired characteristics of nurse that match patients’ perception with quality of care by Orem (2001), which were social (e.g. has a repertoire of social skills, including communication skills, sufficient for effecting and maintaining contacts with individuals and multiple persons), interpersonal (e.g. is well informed about the psychosocial dimensions of human functioning), and professional-technologic (e.g. has mastery of valid and reliable techniques for nursing diagnosis and prescription) (pp.290). Orem viewed these characteristics when present in life situations as evidence of nurses’ capabilities in delivering quality of care to the patients.

In the studies of Lynn & Moore (1997) about patients’ perception of care received and Radwin & Alster (1999) about cancer patients’ viewed on what made nursing care excellent and how this excellent care made a difference on them, both

studies revealed that the elements of excellent nursing care were rooted in the nurses themselves, not in technical tasks of care. The examples of excellent nursing care were: the nurses were knowledgeable, attentive and caring; able to establish rapport with patients; provided individualized care; engaged patients as partners in the planning, implementing, and evaluate of care; and provided continuity and coordination of care. These elements were perceived to produce two broad outcomes: (1) increased sense of well-being and (2) helped patients to develop effective coping strategies that enhanced fortitude or patient's strength for bearing the effects of treatments as well as the symptoms of the disease itself.

In addition, in the study of Garwick et al. (1998) about families' recommendations for improving services for children with chronic conditions, 63 families from 3 different ethnocultural background (African American, Hispanic, European American) were interviewed to identify recommendations for improving the care of children with chronic conditions. The majority of recommendations focused on improving the accessibility and availability for health care services such as increasing time for advice in each appointment, developing centralized information and referral networks for family and health professional, avoiding fragmented care by coordinated all services, established service and programs that fit to child and family's needs by assess family strengths and resources then design services that are flexible and family oriented. Similarly to the qualitative study of Van Riper (1999) about maternal perceptions of family-provider relationships in family of children with Down syndrome, the result revealed that the family perception about health care service would be positive if their relationship with health care providers was positive and family-centered.

Quality of care has been studied extensively over the past three decades. Nonetheless, evaluation of quality of care has been largely restricted to the use of tradition measures, such as negative event (nosocomial or iatrogenic rates, fall, medication errors), estimate length of stay, surveys of patient satisfaction, and etc. Although the existence of an unexpected or untoward occurrence may indicate poor quality of care, it also may represent an unpreventable, but explainable, progression in the patient's illness trajectory. Lynn & Moore (1997) contend that these indicators are

not sufficient for measuring and denote little about quality of care. In addition, patient satisfaction also has not been found to be associated consistently with factors thought to affect the quality of care. Rather than focusing on patient's satisfaction, which requires a comparison between what is expected and what happens, patient's perception of quality of care seem to be the best indicators to measure because it focuses on whether patients perceive their needs as met. And because most general health care practice is patient driven and patient centered, patients' perceptions of quality of care can contribute to their evaluation of quality of care by determining the values that they place on that care. At an invitational conference, health service researchers, nurse scientists, and others proposed that the "patient's perception of being care well" would be more promising indicator of quality of care than patient satisfaction (Mitchell, Heinrich, Moritz, & Hinshaw, 1977).

Perceptions that patients and family have about the health care they receive are becoming increasingly important in this era. The patients' perceptions, or in this study caregivers' perceptions of care, are important indicators of health care quality, according to expert panels of the American Academy of Nursing (Mitchell, Heinrich, Moritz, & Hinshaw, 1997) and the Institute of Medicine (IOM) (Committee on Quality of Health Care in America, IOM, 2001).

Quality of professional care in this study has been conceptualized within Orem's theory of dependent-care (Orem, 2001) as a basic conditioning factor by defines as a health care system factors that will enhance parent caregivers' abilities to engage in dependent-care. In this study, the parent caregiver's subjective perception of the characteristics of care that they have got from health care providers in four components (responsiveness, individualization, coordination, and proficiency) are used to define the quality of professional care.

The following section presents research on the relationship among quality of professional care, asthma management abilities, and caregiver burden.

Quality of professional care and asthma management abilities

Because the focus in the health care system is changing from an emphasis on decreasing hospitalization for children to emphasizing more community-based family-center care so quality of professional care is an important factor for the successful

home management for parent caregivers and their family (Svavarsdottir, McCubbin, & Kane, 2000). The relationship between quality of professional care and management abilities of parent caregivers of chronically ill patients has been found in the literature (Larsen, 1992; Halfon & Newcheck, 1993; Finkelstein et al., 1995; Newacheck et al., 1996; Kattan et al., 1997; Levinson et al., 1997; Svavarsdottir, McCubbin, & Kane, 2000; Mansour et al., 2000; Partridge & Hills, 2000; Christakis et al., 2001; Christakis et al., 2002; Wittaya-sooporn, 1996; Krishnasamy, 1996; Garwick et al., 1998; Radwin & Alster, 1999; Radwin, 2000; Lara et al., 2002). Even though most of the studies are not specific for the asthmatic children but most of the results revealed that patients with high satisfaction with cares or services are more likely to comply with medical regimens (Wartman, 1983), participate in their treatment (Bartlett, Grayson, Barker, & Levine, 1984) and return or continue to use the medical services (Ware, Wright, & Synder, 1975).

In the study of Fosbinder (1994) about patient perceptions of nursing care, nurse-patient interactions were examined to identify elements of interpersonal competence among nurses from the perspective of patients. Forty Orthopedic patients and 12 nurses participated in the qualitative study. Open-ended questions were utilized in 85 audio-taped semi-structured interviews. The result revealed that the interpersonal competence of nurse (e.g. informing, explaining, instructing, teaching, being friend, etc.) was the primary focus from the patients' perspective in this study, not what task nurse was doing. Patients reported confidence and trust with nurse who gave high quality of care and viewed all the instructions that nurse explained and taught as their resources to help them learnt how to perform an appropriate management and care. Even though this study was done with the adult patients not with parent caregivers of chronically ill children but the finding revealed some positive relationship between quality of nursing care and management abilities of the patients who received quality of care.

Wittaya-Sooporn (1996) conducted a research in parents of chronically ill children with an aim to describe the causal relationship among the quality of supportive and educative nursing system, family resources, power component of dependent care agency, coping with caregiving and caregiving burden based on the Orem's General Nursing Theory. Seventy-four parents were included in this study.

Path analysis indicated that quality of supportive and educative nursing system had a direct positive effect on family resource ($\beta = 0.26$, $p < .05$) and explained 6.6% of variances and had a direct positive effect on power component of dependent-care agency ($\beta = 0.16$, $p < .001$) and explained 22% of variances. The findings supported the theoretical statements that quality of supportive and educative nursing care had some positive influence on resources within the family and at the same time had some positive influence on power component of parent caregivers in taking care of their chronically ill children.

Krishnasamy (1996) studied about social support and the patient with cancer, who claimed that nurses, as well as friends and family, can provide support, which is one of the strongest potential resources people have in managing with the disease. Moreover, enough time available in each visit and continuity of care, with repeated nurse-patient encounter will enhance parent caregivers' abilities in giving care to their dependent by affording nurses time to demonstrate professional knowledge and caring behaviors, communicate and provide clear information or even demonstrate some treatment procedures to parent caregivers (Garwick et al., 1988; Radwin & Alster, 1999; Lynn-McHale & Deatrick, 2000; Christakis et al., 2002).

Moreover, the relationship between health care provider factors and management abilities were mentioned by parents of the asthmatic children in the study of parent perspective about barriers to asthma care in urban children of Mansour et al. (2000). Forty parents of 5-12 years old asthmatic children who live in urban areas with high rates of asthma hospitalizations participated in the focus groups. By using a standardized questionnaire, parent's comments were analyzed to identify barriers and 3 independent raters' coded parents' comments to assess reliability of interpretation. Results revealed that beside from family characteristics (43%) and environmental factors (28%) that identified by parents as barriers to asthma management, health care provider (18%) and health care system (11%) were another major barriers that parents perceived. All factors associated with health care providers and health care system concerned with quality of care such as education regarding asthma care and medication use were not given in understandable manner (6.8%), lack of continuity of

provider (2.3%), poor relationship between health care provider and parent (2.3%), lack of trust (2.3%), etc.

In the qualitative study of Horner (1992, 1995) about the potential risk factors associated with childhood asthma mortality, in addition to age, sex, race, socio-economic status, and occurrence of a previous life threatening asthma episode that parents indicated as the potential risk factors to management abilities, they also included the variability of access to health care, inadequacies in medical managements, good and effective family-clinician relationship in providing knowledge, information, and support from health care providers. Mothers or caregivers in this study needed to have a good understanding of asthma- its triggers, treatments, and preventive strategies-in order to become successful home-care managers.

Similarity to the studies of Larsen (1992), Christakis et al. (2001) and Christakis et al. (2002) about barriers or risk factors which associated to asthma management in children, the results indicated that barriers to effective asthma management abilities of caregivers were frequently due to poor education, and inadequate supervision of care. Health care provider characteristics such as a lack of continuity, collaboration, availability, numbers, and limited hours of operation might also contribute to poorer health outcomes for children. Other potential risk factors were inadequate communication, poor organization, and the variability of access to health care. Some of these risk factors are amenable to reduction through good family-clinician partnerships.

All published national and international guidelines for managing asthma also recommend that good relationship and communication between health care providers and parents within each clinical visit is so essential for a satisfactory outcome (Partridge & Hills, 2000). Reduction of communication will keep parents from being complete manager of their children's disease. Moreover, the process and tone of a consultation may be more important than what was said (Levinson et al, 1997). Across studies, the findings showed that quality of professional care influenced asthma management abilities of parent caregivers in taking care of their asthmatic children.

Quality of professional care and caregiver burden

Few studies have been found to explore the relationship between quality of care from health care professional and caregiver burden even though professional information support has been found to have some affect on caregivers' level of burden. Reinhard (1994) found that practical advice from professionals significantly reduced caregiver burden by increasing the caregivers' sense of personal control.

Only qualitative study that aimed to explore the parents' perception about caring of chronically ill children (including asthma) did mention about this relationship. In the qualitative study of Mansour (2000) about parent perspectives of barriers to asthma care, parent in this study voiced concern about their own quality of life and psychological burden that placed on them by having a child with asthma because they had to keep a vigilant watch over their children because of the unpredictability of the disease. Parents often felt that health care providers underestimated their fears and needs about having a child with breathing disorder. This often motivated parents to feel more burdens.

Since George & Gwyther (1986) have posited that caregiver burden and well-being are closely related so the relationship between quality of care and well-being are included in the reviewed literature. Van Riper (1999) studied relationships between well-being and maternal family-provider from the perceptions in families of children with Down syndrome. The results indicated that when mothers believed their family's relationship with health care providers was positive and family-centered, and when they felt more satisfied with care received, high levels of individual and family well-being were reported.

Additional, in the qualitative study of Radwin (2000) which aimed to analyze theoretically oncology patients' perceptions of the attributes and outcomes of quality of nursing care, researcher found that the outcome of quality of nursing care that patients in this study perceived included increase fortitude and a sense of well-being.

In summary, existing studies of the relationship between quality of professional care and caregiver burden are very few. Unfortunately, most of the study focused on the relationship between quality of care and well-being of caregivers not burden but some negative relationships between these two factors have been found in

a number of qualitative studies. Therefore, quality of professional care has been found to positively associate with management abilities of parent caregivers in taking care of chronically ill children or asthmatic children in this study.

Summary

The literature review has indicated that in the phenomena of parent caregiving provided for the asthmatic children, caregivers have been found to experience both extra demand on time and energy and more pressure to take proper care of their children. All asthma managements and cares challenge parent caregivers and require them to make permanent sacrifices. Even though a number of studies reported that the factors of burdensome are strongly negative correlated with management abilities of parent caregivers but a number of studies also reported the benefits from other factors such as social support, family strength, and quality of care from health care providers could help reducing this burdensome and on the other hand enhancing parent caregivers' abilities to take proper care of their children. Nevertheless, the number of studies concerning with factors contribute to asthma management abilities are still small especially in Thai literature but it is possible to postulate that social support, family hardiness, and quality of professional care are positively correlated with the management abilities. This chapter has presented researches on the relationships among variables which believe to help reducing the burdensome and enhancing asthma management abilities of parent caregivers of the pre-school asthmatic children as in the proposed model.

CHAPTER III

METHODOLOGY

This chapter describes the research designs and methods that will be used to conduct the study. It includes descriptions of the research design, population and sampling, procedures for data collection, instrumentations and measurements, methods for data analysis, and protection of human subjects.

Research Design

A correlational, cross-sectional research design was used to test the model of asthma management abilities in parent caregivers in this study. According to the fact that a correlational design is appropriate when an experimental design is not feasible, allows the researcher to explore relationships among variables as they naturally occur without any manipulation, and allows the researcher to collect a large amount of data in an economic way. However, this method is limited in its ability to explain causal relationships between variables due to lack of manipulation or control of the independent variable (Polit & Hungler, 1995).

Population and Sampling

The target populations in this study were parent caregivers of the pre-school asthmatic children. The samples were both mothers and fathers who were primary caregivers of the asthmatic children aged less than 6 years who came to visit Chest and Allergy clinic at three hospitals within metropolitan area, which represented University hospital, Government hospital, and hospital under Bangkok Metropolitan Administration.

Samples

The inclusion criteria to select studied samples were as followed.

Parent caregiver:

1. Father and/or mother who were primary caregiver of at least one child aged less than 6 years with a confirmed diagnosis of asthma by Pediatricians.

2. Had experiences in asthma management at least 3 months.
3. Had no any serious health problems.
4. Being able to communicate and understand Thai language.

Asthmatic Children:

The asthmatic child under caregiver responsibility might have neither any other chronic illnesses nor mental disabilities than asthma.

Sampling

Due to availability to access, one hospital under each hospital settings (University hospital, Government hospital, and hospital under Bangkok Metropolitan Administration) was selected purposively. Potential participants were also identified purposively by interviewed each parent caregiver of the pre-school asthmatic children. Parent caregiver who met the inclusion criteria was recruited

To calculate sample size, two methods had been used to identify which one would give the greatest amount of sample size. By using the method as suggested by Cohen (1988), sample sizes which determined in multiple regression and correlation analysis for Structural Equation Modeling (SEM) under LISREL 8.52 program were used first. The formula for calculating was as followed (Cohen, 1988: 445).

$$N = \frac{\lambda}{f^2}$$

N = the sample size

λ = the non-centrality parameter which was tabled over the most useful range for typical MRC applications

$$f^2 = \text{effect size index} = \frac{R^2_{Y.B}}{1 - R^2_{Y.B}} = 0.20 \text{ (for small effect size)} \quad (\text{Cohen, 1988: 419})$$

Correspond to this method, the researcher used the λ value of F-test from λ table, which determined by the parameter of a, u, v, and desire power as follow (Cohen, 1988: 448-449)

a = significance criterion, for this study the significant level of .05 was used.

u = degree of freedom of the numerator of the F ratio which was simultaneously

the number of independent variables, for this study = 13

v = degree of freedom of the denominator of the F ratio which equated to 120.

Desire power of test = .80

According to the assigned parameter, they yield λ value of 18.8 when opened λ table. Then calculated for sample size which was

$$\begin{aligned} N &= 18.8 / 0.20 \\ &= 94 \end{aligned}$$

Even though the calculated sample size was 94 cases, it was suggested that on Structural Equation Modeling (SEM), small sample size which was equaled to or less than 100 would increase the probability of rejecting a true model (type I-error) (Munro, 2001) so the sample size of 94 cases was inadequate to test the proposed model in this study.

In this case, another method for calculation sample size was needed. Hair et al. (1998) suggested that the absolute minimum sample size must be at least greater than the number of covariance or correlation in the input data matrix. However, more typical was a minimum ratio of at least 5 respondents per each estimated parameter or a ratio of 10 respondents per parameter considered as the most appropriate. There were 22 free parameters in this hypothesized model, i.e. 7 structural paths, 2 covariance, 8 measurement paths associate with exogenous variables, and 5 measurement paths associated with endogenous variables; therefore, a sample of at least 220 respondents was required. Over sampling of approximately 20% was performed to assure an adequate sample size, so a sample of 264 parent caregivers of pre-school asthmatic children would be recruited.

Instrumentations

Six instruments were used in this study. They were; (1) Personal information questionnaire; (2) The Social Support Questionnaire (SSQ); (3) Family Hardiness Index; (4) The Care of My Child with Asthma Scale; (5) The Caregivers' Perceptions of the Quality of Professional Care Scale (CPQPCS); (6) The Asthma Management Abilities Scale.

Since Family Hardiness Index and The Care of My Child with Asthma Scale have never been used in Thailand, thus, translation procedure from English into Thai version and back translation were made in this study.

Translation Process

The process of translation and back translation of the research instruments was guided by Cull, Sprangers, Bjordal, & Aaronson's (1998) specifications. The symmetrical approach to translation was used to obtain construct equivalence, rather than verbatim equivalence, between the original and translated language (Jones, 1987; Jones & Kay, 1992). Translation procedures consisted of 2 steps:

1. Forward translation (English to Thai)
2. Back translation (Thai to English)

Forward translation (English to Thai)

The processes for forward translation were presented in the following section.

1. Selected appropriate instruments, which were Family Hardiness Index by McCubbin, McCubbin, & Thompson (1987) and The Care of My Child Scale by McCubbin & Svavarsdottir (1996) and asked for permissions from the owners.
2. Researcher translated questionnaire from English to Thai by using words that were easy to understand, relevant with Thai culture, and maintain equivalent concepts and meaning with the original version in English.
3. The panel of six experts (three pediatricians, two clinical nurse specialists in respiratory care, and one faculty member in pediatric nursing) reviewed each item for clarity, correctness, and fit with the concept and definition. Inter-rater agreement was evaluated by asking the experts to rate the items as they fitted to the concept label and definition. The rating scale was arranged on a Likert scale of 1 to 4 (1 = not relevant, 2 = somewhat relevant, 3 = quite relevant, 4 = very relevant). Only the items that received a rating of 3 or 4 and met the

proportion of experts to establish content validity were accepted (Lynn, 1986).

4. Researcher collected all those corrected items from the panel of experts, selected only the appropriate items that were easy to read and understand then resulted in a single provisional forward translation (which might offer alternative wording for some items).
5. The panel of three experts (three nurse instructors who graduated Doctoral Degree in Nursing and had experiences in instrument's translation) were asked to evaluate the quality of forward translation in 3 categories; conceptual equivalence, clarity of the items, and colloquial language. The rating scale was arranged on a Likert scale of 1 to 5 (1 = very inappropriate - need correction; 2 = inappropriate and need correction; 3 = somewhat appropriate and need correction; 4 = quite appropriate; 5 = very appropriate). Only the items that received a rating of 4 or 5 were accepted. The items that received a rating of 3 and under needed correction followed by the experts' suggestions.
6. Researcher collected all those corrected items from the panel of three experts again then resulted in a single provisional forward translation and presented to advisors.

Back translation (Thai to English)

The processes for backward translation were as followed.

1. One translator who was native Thai speaker with a high level of fluency in English translated the questionnaires from the provisional Thai version back into English without any reference and tried as much as he/she could to keep the same meaning as in Thai version.
2. The English translated version was compared with the original questionnaire by asking the panel of three experts (two native English speakers and one physician with a high level of fluency in English) to rate the items as they fitted to the concept with each other. The rating scale was arranged on a Likert scale of 1 to 4 (1 = not relevant;

2 = somewhat relevant; 3 = quite relevant; 4 = very relevant). The items that received a rating of 2 and under needed correction followed by the experts' suggestions.

3. Researcher reported all suggestions from the panel of three experts to advisors and resolved if there were some problems.
4. Where the agreements were reached, the questionnaire might then be tested.

The Personal Information Questionnaire

The Personal Information Questionnaire comprised of two parts. Part one was about personal information of parent caregiver concerning with gender, age, religious, marital status, education, employment, income, relationship with the patient, number of children under caregiver's responsibility. Part two was information about the asthmatic children, which included; gender, age, times since diagnosis, severity of illness, number of asthma attacks during the past 3 months, number of admissions to the hospital related to asthma during the past 3 months, and daily medications used (see Appendix C).

The Asthma Management Abilities Scale

The Asthma Management Abilities Scale, the 54-item scale with four-point Likert-type response format, was modified from the Mother's Behavior in Taking Care of Asthma Child Scale developed by Rattanawarn (2001) in order to measure parent caregivers' abilities in asthma managements.

The original version of The Mother's Behavior in Taking Care of Asthma Child Scale of Rattanawarn (2001) had 55 items, which covered all care demand for asthmatic children in 4 categories: 1) preventive behaviors (19 items); 2) caring and managing behaviors (12 items); 3) health promoting behaviors (15 items); and 4) seeking and accepting behaviors (9 items). Rattanawan developed this scale by gathered 21 items from the Maternal Behaviors in Caring for Pre-School Asthmatic Children Questionnaire of Srangnok (2000) and 14 items from Maternal Caring Behaviors in Asthmatic Children Aged 1-5 year of Sumranchaiyadham (1998). Another 20 items were added by the recommendations from panel of experts in respiratory care in order to cover all care demands for asthmatic children.

In this study, the Asthma Management Abilities Scale was modified to measure the abilities of parent caregivers in asthma management for the asthmatic children in 4 categories: 1) prevention of asthma attack; 2) treatment and care when an attack occurs; 3) promote normal growth and development of the asthmatic child; 4) seeking information and accepting asthma (see Appendix C).

Prevention of asthma attack items, which represented the abilities of parent caregivers in managing all cares needed to prevent asthma exacerbation such as controlled environment, avoided all asthma triggers, administered preventive medications, and monitored side effects of those medications, were modified from preventive behaviors items. One out of 19 items was taken out in this study because of the redundancy between item No.1 and 9 about taking care of the child while the weather was changed. The total numbers of 18 items were remained.

Care and management when an attack occur items, which represented the abilities of parent caregivers in taking care and managing all care needed when their children had asthma attack, were modified from caring and managing behaviors items. The original 12 items in this subscale were still remained.

Promotion of normal growth and development of the asthmatic child items, which represented the abilities of parent caregivers in promoting normal growth and development of asthmatic children to lead normal life and activities as possible accordance with their age group, were modified from health promoting behaviors items. The original 15 items in this subscale were still remained.

Seeking information and accepting asthma items, which represented the abilities of parent caregivers in seeking information that was essential to take care of the asthmatic children and abilities to accept asthma as part in children's life, were modified from seeking and accepting behaviors items. The original 9 items in this subscale were still remained.

To measure the asthma management abilities of parent caregivers, respondents were asked to state how often they could perform each designated management on a 4-point scale ranging from 0 = none; 1 = sometime; 2 = most of the time; and 3 = every time. One rating score was added to the scale, which was 99 = this event did not happen to represent the event that parent caregiver had never experienced while taking care of the child before. The total scores ranged from 0-162. Higher asthma

management abilities scores reflected higher abilities of parent caregivers in providing asthma care for their children.

Psychometric properties of the Asthma Management Abilities Scale

Content validity of the Mother's Behavior in Taking Care of Asthma Child Scale (Rattanawarn, 2001) was reviewed by five experts: two allergists, one pediatric nurse educator, and two clinical nurse specialists in pediatric respiratory care. Reliability was tested with 30 mothers of pre-school asthmatic children. Coefficient alpha of the whole instrument was 0.92, 0.82 for the preventive behaviors subscale, 0.77 for caring and managing behaviors subscale, 0.84 for the health promotion behaviors subscale, 0.71 for the seeking and accepting subscale and the total score tested of the instrument after data collection with 160 mothers was 0.86.

In this study, content validity of the Asthma Management Abilities Scale was assessed by a panel of six experts: three pediatricians; two clinical nurse specialists in respiratory care; and one faculty member in pediatric nursing to confirm the representativeness of the domain. Inter-rater agreement was evaluated by asking the experts to rate the items as they fitted the concept label and definition. The rating scale was arranged on a Likert scale of 1 to 4 (1 = not relevant; 2 = somewhat relevant; 3 = quite relevant; 4 = very relevant). Only the items that received a rating of 3 or 4 and met the proportion of experts to establish content validity were accepted.

The rating score given by six experts were used to calculate a content validity index (CVI). To determine the number of expert needed, Lynn (1986) suggested that among the panel of six experts, five out of six were needed to meet the proportion of the expert (0.83). This proportion of endorsement was determined by dividing the judged content valid items by total items (Waltz, Strickland, & Lenz, 1991). In this study, the CVI of The Asthma Management Abilities Scale was 1.00 (55/55).

Reliability was tested with 30 parent caregivers of the asthmatic children. The result revealed that Cronbach's alpha coefficient of the Asthma Management Abilities Scale of the whole instrument was 0.92, 0.85 for the preventive behaviors subscale, 0.79 for treatment and caring behaviors subscale, 0.85 for the health promotion behaviors subscale, and 0.82 for the seeking and accepting subscale (see Appendix D, Table D.1).

All of the coefficient alphas were accepted for internal consistency. By using guidelines set forth by Nunnally (1978), many researchers consider an alpha coefficient of at least 0.70 to be adequate for an instrument in early stages of development and 0.80 to be adequate for a more developed instrument. Very high alpha coefficients are difficult to obtain in test development and may be indicative of redundancy among items. This can be readily assessed by examination of the inter-item correlation matrix. When inter-item correlations are consistently above 0.70 redundancies may be a problem (Nunnally, 1978; Munro, 2001; Ferketich, 1990).

An assessment of the possibility of item redundancy of each subscale was also conducted through the examination of the inter-item correlation matrix. The results yielded the range of correlation among items from -0.79 to 0.93, indicating high evidence of redundancy. By considering the content of each item in Thai version, there was no redundancy of the meaning between items such as item 2 and 11 in attack prevention subscale, which had a very high inter-item correlation (0.93). The detail of item 2 was as followed “I take care of my child to avoid the asthma triggers such as dust, smoke, food, etc.” and item 11 “ I clean all child’s bed sheet by soaking in hot water at 60°C at least 30 minutes before washing.” So no correction was needed.

The Care of My Child with Asthma Scale

The Care of My Child with Asthma Scale (McCubbin & Svavarsdottir, 1996), a 24-item scale with a Likert-type response format, was used to measure the extent of time and amount of effort or difficulty associated with the care of a child with asthma. This instrument was a modification of the Caregiving Burden Scale (Oberst, 1988) and the Care of My Child Scale (McCubbin, Oberst, & Smith, 1990) in order to use specifically with parent caregiver of the asthmatic child.

The original version of the Caregiving Burden Scale was developed by Oberst et al. (1989). It consisted of 10 frequency reported caregiving tasks: medical/nursing treatment, personal care, assistance with mobility, emotional support, monitoring and reporting symptom, provision of transportation, managing illness-related finance/paper work, additional household task, structuring activity, and managing behavioral problem.

In the year 1990, Oberst, et al. modified the original version of Caregiving Burden Scale from 10 caregiving tasks into 13 caregiving tasks---5 Health Deviation Caregiving Burden and 8 Universal Caregiving Burden tasks, which derived from the literature and validated with cancer clinician and patients receiving cancer treatment. They also separated the scale into 2 dimensions: 1) time spent on caregiving (demand); 2) amount of difficulty associated with each of the 13 frequently-reported caregiving tasks. However, they applied the modified version of the Caregiving Burden Scale to use with cancer patients instead of caregivers and named the scale as the Self Care Burden Scale.

Also in the year 1990, McCubbin, Oberst, & Smith modified the Caregiving Burden Scale to use specific with children population in order to measure demands of caregivers in general child's care and named the scale as The Care of My Child. The Care of My Child also included two scales: the time scale and the difficulty scale. In 17-item self-report instrument, each parent caregiver was asked to respond in order to describe both the amount of time and difficulty associated with each caregiving task such as feeding, bathing or dressing, providing emotional support for the child, and observing symptoms of the ill child. No factor analysis was made for this instrument.

McCubbin and Svavarsdottir (1996) modified the Care of My Child with Asthma Scale from 17-item scale of the original the Care of My Child in order to use specific with asthma population. They added another 7 items to cover all care demands for the asthmatic child to be total of 24 items.

In this self-report, 24-item instrument included two scales: the time scale and the difficulty scale. Each parent caregiver was asked to respond to both scale on a 5-point scale ranging from 1 = little or none; 2 = a small amount; 3 = a moderate amount; 4 = quite a lot; 5 = a great deal in order to describe both the amount of time and difficulty associated with asthma caring tasks. Examples of the question were "Watching for early warning signs of asthma" and "Giving nebulizer treatments as needed for increased asthma symptoms".

A burden score (time x difficulty) for each item was obtained by multiplying the extent of time by the amount of difficulty scores and then calculated the square root of the product to return the score to the original metric, which ranged from 24-120. Higher scores reflected higher levels of caregiving burden of parent caregiver.

Psychometric properties of the Care of My Child with Asthma Scale

The Care of My Child with Asthma Scale was first used by Svavarsdottir, McCubbin and Kane in their research in Well-Being of Parents of Young Children in Asthma (Svavarsdottir, McCubbin, & Kane, 2000). Content validity was reviewed by two clinical nurse specialists and seven parents of children with moderate to severe asthma. Alpha reliability of the instrument had been done with 76 families (75 mothers and 62 fathers) of young children (infant to 6 years) with asthma. Cronbach's alpha was reported to 0.92 for the mother and 0.89 for the fathers.

Since there was no study in Thailand had ever used The Care of My Child with Asthma Scale, translation procedure from English into Thai version and back translation were made followed by the guideline of translation as previous mentioned (p.67-69). Some revisions had been done followed by the experts' suggestions to meet the conceptual equivalence, clarity of the items, and colloquial language. The quality of forward translation was evaluated and well accepted by the panel of the experts. The final version in English and the original questionnaire were proved to be fitted with each other at the end of translation process.

Psychometric property of the Care of My Child Scale was tested with the 30 parent caregivers of the asthmatic children. The result revealed that Cronbach's alpha coefficient of the Care of My Child Scale of the whole instrument was .96, .94 for Demand Subscale, and .94 for Difficulty Subscale. All of the coefficient alphas were high and acceptable for internal consistency (see Appendix D, Table D.2).

Through an examination of inter-item correlation matrix, the results yielded the range of correlation among items from -0.075 to 0.85, indicating some evidence of redundancy. However, when considering the content of each item in Thai version, there was no redundancy of the meaning between the items.

The Social Support Questionnaire (SSQ)

The Social Support Questionnaire (SSQ), the 7-item scale with a five-points Likert-type response format, was developed by Pipatananond (2001) to measure provision of supports: information, emotion, and tangible support that caregivers got

from: 1) family members; 2) siblings and relatives; 3) friends, co-workers, and neighbors; 4) other providers in the community.

The Social Support Questionnaire of Pipattananond (2001) was modified from the Social Support Questionnaire of Hanucharunkul (1988), which was the first translated version of SSQ in Thai language. Pipattananond (2001) used this Thai SSQ version in the study of 566 caregivers of schizophrenic patients. Because the study focused on care performed for others instead of care for their own self, the items were further modified to fit perceived social support of caregivers of the schizophrenic patients.

Caregivers were asked to rate 5 groups of their resource persons who were: 1) family which included spouses, parents, and children; 2) siblings and relatives; 3) friends and co-worker, and neighbors; 4) health care providers; and 5) other providers in the community on how much (0 = not at all to 4 = a great deal) each group of these persons helped them in 7 different items. The first item intentionally measured an informational support. The following four items measured domain of emotional support, and the domain of tangible support was measured by the last two questions (Appendix C).

In this study, Social Support Questionnaire (SSQ) was used as one factor, which reflected all 3 sub-concepts: informational, emotional, and tangible support. Respondents were asked to state the provision of supports that they got from 4 groups of resource persons who were: 1) family members; 2) siblings and relatives; 3) friends, co-workers, and neighbors; and 4) other providers in the community on a 5-point scale ranging from 0 = not at all; 1 = a little; 2 = moderately; 3 = quite a bit; and 4 = a great deal. One of the resource groups was taken out from the original questionnaire of Pipattananond (2001), which was a group of health care providers because researcher measured some of these concepts in Quality of professional care. The total scores ranged from 0-112. Higher SSQ scores reflected higher levels of perceived social support.

Psychometric properties of the Social Support Questionnaire (SSQ)

The internal consistency of SSQ was assessed by Pipattananond (2001) among 30 primary caregivers of schizophrenic patients. Cronbach's alpha coefficient of the

four-item emotional dimension was 0.93, the two-item of tangible support was 0.88 and the total seven items was 0.98. The Cronbach's alpha coefficient of the informational support was not reported.

In the 566 studied samples of the same study, Pipatananond (2001) tested construct validity for this instrument by using factor analysis procedure. An outcome analysis revealed that the seven items were clustered into only one factor. Cronbach's alpha coefficient of the total seven items was 0.96. For the emotional and the tangible items, it was 0.94 and 0.91 respectively but for the informational support was not reported.

In this study, reliability of the Social Support Questionnaire (SSQ) was tested with 30 parent caregivers of the asthmatic children. The result revealed that Cronbach's alpha coefficient of the whole SSQ was 0.95, which was high and acceptable for internal consistency (see Appendix D, Table D.3).

Through an examination of inter-item correlation matrix, the results yielded the range of correlation among items of the whole scale from -0.005 to 0.83. It indicated that there were some redundancies between items. Pipattananond (2002) also found the same results in her study. The correlation among items in Pipattananond's study (2002) ranged from 0.69 to 0.93. The researcher concluded that even though the results showed redundancy between items but the total domains comprised of only seven items. By considering the content of each item in Thai version, there was no redundancy of the meaning between items.

In this study, even though the inter-items correlation was a little bit high (0.83), some modifications would be done to clarify the wording in each item such as item No.3 and 4: "How much have...boosted your spirits when you feel low during your giving care to the child." And "how much have...made you feel they care about you during your giving care to this child."

Family Hardiness Index

The Family Hardiness Index (FHI), 20-item scale with a Likert-type response format, was developed by McCubbin, McCubbin, & Thompson (1987) to measure the characteristics of hardiness as a stress resistance and adaptation resources within family of parent caregivers of the asthmatic children.

The construction of the Family Hardiness Index was guided by the concept of individual hardiness developed from the discipline of existential psychology by Kobasa (1979). The Family Hardiness Index was developed to adapt the concept of individual hardiness to the family by specifically refers to the internal strengths and durability of the family unit. Items in FHI were also constructed to fit the three components based on theoretical definitions of control, commitment, and challenge.

Family hardiness, in the context of the research done by the Family Stress, Coping and Health Project of McCubbin, McCubbin, & Thompson in 1987, focused upon the family's patterned approach to life's hardships and its typical pattern of appraising the impact of life events and changes on family functioning. In early research hardiness as applied to the family was thought to have four interrelated components: co-oriented commitment, confidence, challenge, and control.

In more recent research, it has been found that the original three concepts used in personal research very adequately explain the concept of family hardiness. In fact, they have stronger psychometrically than the four component approach. Though, both approaches have a strong reliability and validity and should be applied depending on the focus of the individual researcher.

In this study, the Family Hardiness Index (FHI) was used to determine the hardiness within the family of parent caregivers based on theoretical definitions of control, commitment, and challenge. FHI consisted of 20 items: Commitment 8 items; Challenge 6 items; and Control 6 items (see Appendix C).

Commitment items measured the family's sense of internal strengths, dependability and ability to work together. Challenge items measured the family's efforts to be innovative, active, to experience new things and to learn. Control items measured the family's sense of being in control of family life rather than being shaped by outside events and circumstances.

Respondents were asked to state what degree that each statement described about their families. All items were scored on 4-point scale from: 0 = false; 1 = mostly false; 2 = mostly true; and 3 = true. Subscale score were obtained by summing the number checked by the respondent. Scoring was reversed for negatively worded items, which were item No. 1, 2, 3, 8, 10, 14, 16, 19, and 20. The total scores ranged from 0-60. Higher FHI scores, reflected higher levels of family hardiness.

Psychometric properties of Family Hardiness Index (FHI)

In the original work of McCubbin et al., (1987), the overall internal reliability for FHI was 0.82 (Cronbach's alpha). For each of the subscales, the internal reliability were 0.81, 0.80, and 0.65 (Cronbach's alpha) respectively and the test-retest reliability for the FHI was 0.86.

The FHI was used in a number of studies. The alpha coefficient for the total instrument was quite consistent among these studies with scores ranged from 0.79-0.89 (McCubbin, & Thompson, 1989; Carey, Oberst, McCubbin, & Hughes, 1991; Oberst, Hughes, Chang & McCubbin, 1991; Failla, & Jones, 1991; Jennings, & Staggers, 1994; Donnelly, 1994; Fink, 1995; Clark, 2002). Cronbach's alpha was reported for subscales only in one study (Failla & Jones, 1991). The ranged of 0.49 to 0.77 reported by Failla and Jones was notably lower than the range attributed to the original work (0.73-0.86) by McCubbin et al. (1987). The coefficient alpha for the challenge subscale was only 0.49 (Failla & Jones, 1991).

Since there was no study in Thailand had ever been used the Family Hardiness Index, translation procedure from English into Thai version and back translation were made followed by the guideline of translation as previous mentioned (p.67-69). Some revisions had been done followed by the experts' suggestions to meet the conceptual equivalence, clarity of the items, and colloquial language. The quality of forward translation was evaluated and well accepted by the panel of the experts. The final version in English and the original questionnaires were proved to be fitted with each other at the end of translation process. Reliability of the Family Hardiness Scale that uses in this study would be tested with the studied samples.

The Caregivers' Perceptions of the Quality of Professional Care Scale

The Caregivers' Perceptions of the Quality of Professional Care Scale (CPQPCS), the 18-item scale with six-point Likert-type response format, was modified from the Oncology Patients' Perceptions of the Quality of Nursing Care Scale (OPPQNCS) by Radwin et al. (2003). CPQPCS was used to measure the parent caregiver's subjective perception about the characteristic of care that they have got from health care providers in four components: 1) responsiveness; 2) individualization; 3) coordination; and 4) proficiency.

Development of the OPPQNCS subscales and items by Radwin (2000) were constructed from conceptual definitions of eight dimensions of the attributes of high-quality nursing care, theoretical descriptions, and verbatim data from a grounded theory study. Radwin interviewed patients with cancer about their perceptions of nursing care both in the hospitals and in the clinics. Eight subscales in QPPQNCS consisted of professional knowledge, continuity, attentiveness, coordination, partnership, individualization, rapport, and caring. One hundred and twelve initial items were developed but then, 59 items were left after an expert panel's reviewed for content validity.

The OPPQNCS was developed and tested again in the year 2003 by Radwin et al. The final scale included 40 items in four subscales: responsiveness (22 items) defined as the degree to which the nurse demonstrated that he or she was able to meet patient needs in a caring and attentive manner; individualization (10 items) defined as the degree to which the nurse personalized care according to the patient's feelings, preferences, and desired level of involvement in care; coordination (3 items) defined as the degree to which the nurse promoted communication among other nurses and the patients; and proficiency (5 items) defined as the degree to which the nurse provided knowledgeable and skillful nursing care.

A short form of OPPQNCS was created at the end of this study in order to offer an alternative for researchers who concerned about respondent burden, especially when patients were asked to complete a battery of scales. Items in each of the four subscales were removed as long as the underlying four-component structure as found in the 40-item scale was maintained. An 18-item short form resulted. Correlations among subscales ranged from 0.689 - 0.805. Coefficient alpha of the total 18-item short form was 0.97, 0.95 for the responsiveness subscale, 0.93 for the individualization subscale, 0.87 for the coordination subscale, and 0.95 for the proficiency subscale.

In conclusion, the current short form of OPPQNCS contained 18 items in four subscales: responsiveness subscale (5 items), individualization subscale (5 items), coordination subscale (3 items), and proficiency subscale (5 items) which was tested to have the same conceptual and psychometric properties as the long one.

In this study, the Caregivers' Perceptions of the Quality of Professional Care Scale (CPQPCS) was modified from OPPQNCS to determine the caregiver's perception of quality of care that they have got from health care providers. CPQPCS still consisted of 18 items in 4 subscales: responsiveness (5 items); individualization (5 items); coordination (3 items); and proficiency (5 items) (see Appendix C).

Responsiveness items were defined as the degree to which health care providers demonstrated that he or she was able to meet caregivers' needs in a caring and attentive manner. Individualization items were defined as the degree to which the health care providers personalized care according to the caregivers' feeling, preferences, and desired level of involvement in care. Coordination items were defined as the degree to which the health care providers promoted communication among other providers and the caregivers.

Respondents were asked to state the characteristic of care that they had got from health care providers on a 6-point scale ranging from: 1 = never; 2 = almost never; 3 = sometime; 4 = often; 5 = almost every time; and 6 = every time. The total scores ranged from 18-108. Higher CPQPCS scores reflected higher quality of professional care perceived by parent caregivers.

Psychometric properties of the Caregivers' Perceptions of the Quality of Professional Care Scale

Since CPQPCS was the modification of the Oncology Patients' Perceptions of the Quality of Nursing Care Scale (OPPQNCS) by Radwin et al. (2003), the content validity of the new instrument was reassessed. The panel of six experts; three pediatricians, two clinical nurse specialists in respiratory care and one faculty member in pediatric nursing reviewed items specific to establish content validity. Content Validity Index of the CPQPCS was 0.94 (17/18), which was high and acceptable. Some revisions had been made followed by the suggestions of the panel of experts for clearer understanding.

Reliability of the Caregivers' Perceptions of the Quality of Professional Care Scale was tested with 30 parent caregivers of the asthmatic children. Coefficient alpha of the total 18-item was 0.90, 0.83 for the responsiveness subscale, 0.86 for the

individualization subscale, 0.76 for the coordination subscale, and 0.70 for the proficiency subscale (see Appendix D, Table D.4). All of the coefficient alphas were acceptable for internal consistency. Even though, coefficient alpha of coordination and proficiency subscale were rather low but it should be noted that this instrument was a newly modified version from the Oncology Patients' Perceptions of the Quality of Nursing Care Scale (OPPQNCS) by Radwin et al. (2003). This instrument needs reassess and further develops to fit with caregivers' perceptions about quality of professional care in the future.

Through an examination of inter-item correlation matrix, the results yielded the range of correlation among items from 0.37 to 0.70, indicating no evidence of redundancy between items.

Reliability Test for the Studied Instruments

Reliability coefficients of the five studied instruments were tested again with 253 parent caregivers of the pre-school asthmatic children (see Table 3.1). All of the reliability coefficients ranged from acceptable to high. Perceived Social Support Questionnaire, the Caregivers' Perceptions of the Quality of Professional Care Scale, and the Care of My Child with asthma Scale had high reliability coefficients, which were 0.90, 0.94, and 0.93, respectively. Family Hardiness Index had an acceptable reliability coefficient (.80), even though some of its subscale had low reliability (reliability coefficient for control subscale = 0.59).

For asthma management abilities scale, since most of parent caregivers did not respond to all of the questions so only mean of each subscale could be used to calculate the reliability coefficient. As a result, only the reliability coefficient of the whole scale could be calculated. It was equal to 0.83, which indicated moderate reliability (see Table 3.1).

Table 3.1 Reliability Coefficients of the Instruments Used in the study (n = 253)

Scale	Number of Items	Alpha Coefficient
Perceived Social Support Questionnaire Information/ Emotion/ Tangible Support	28	0.94
Family Hardiness Index	20	0.80
Control	6	0.59
Commitment	8	0.75
Challenge	6	0.72
The Caregivers' Perceptions of the Quality of Professional Care Scale	18	0.90
Responsiveness	5	0.83
Individual	5	0.85
Coordinator	3	0.65
Proficiency	5	0.81
The Care of My Child with asthma Scale	24	0.93
Time	24	0.90
Difficulty	24	0.94
Asthma Management Abilities Scale	4	0.83
Prevent/ Treatment/ Promotion/ Seeking Information		

Protection of Rights of Human Subjects

This study was conducted following the Helsinki's Declaration in 3 major aspects of protection of human subjects. Prior to data collection, approval was obtained from the Human Research Review Committee of the Faculty of Graduate study, Mahidol University and three selected hospitals. The purposes of the present study and procedures of data collection was described to the administrators of the hospitals or departments, head of out-patient department, head of Pulmonary or Allergy Clinics at the studied setting to obtain authorization and cooperation.

Potential subjects was approached and asked if they were willing to participate in the study. Before informed consent was signed, the overall purposes, protocols of the study, and time required to complete questionnaires would be informed. Confidentiality and also inconvenience that might cause was explained to participants to assure that they could refuse to answer any question, and withdraw from the study

any time they felt discomfort. They also were assured that their decision to discontinue participation would not affect their relationship and service they would get from health care professionals. No invasive procedure was employed in this study.

Procedures for Data Collection

Upon approval of the dissertation proposal by Human Right Research Board Committee of Faculty of Graduate Studies, Mahidol University, and other three hospitals, the data collection was initiated as follows:

1. Data was collected by researcher at Out-Patient Department of 3 selected hospitals.
2. Interviewed with parent caregiver of each child was made in order to identify the potential participant by using inclusion criteria.
3. Only parent caregivers who met the inclusion criteria and willing to participate in the study were recruited.
4. Potential parent caregiver was individually approached.
5. Prior to data collection, the investigator informed participants about the objectives and protocols of the study. Potential risks and inconvenience, which might occur, were explained and assured that they could refuse to answer any question or withdraw from the study any time they felt discomfort.
6. Those who accepted to participate in the study was ask to sign a consent form in order to guarantee both protection of confidentiality and the freedom to withdraw from participation at any time (see Appendix A).
7. After the informed consent was achieved, parent caregivers were asked to answer six questionnaires in order, followed by the variable in the proposed model: The Personal Information Questionnaire; The Social Support Questionnaire; Family Hardiness Index; The Caregivers' Perceptions of the Quality of Professional Care Scale; The Care of My Child with Asthma Scale; The Asthma Management Abilities Scale, which was last about 1 hour.

8. After parent caregivers finished answering all questionnaires, the completeness of each questionnaire was examined for the final step.

Procedures for data analysis

Data analysis included the application of descriptive and inferential statistic and statistic that used to explain relationship among variables. The procedures for data analysis were as followed.

Preliminary analysis

1. The accuracy of data entry was examined through an inspection of range of score, frequency, mean, and standard deviation.
2. Descriptions of the variables including frequency and measurement of central tendencies were used to examine normality of the study variables and to describe the demographic characteristics of the sample.
3. Inferential statistics were used to determine both reliability and validity of the research instruments.
4. Assumption testing and the correlation matrix of variables were analyzed by using SPSS/PC program.

Principle analysis

The variables in a causal relationship model to predict asthma management abilities of parent caregivers were examined by using the Linear Structural Modeling (LISREL) statistical package. Two research questions proposed in this study were answered as follows.

1. What are the relationships among basic conditioning factors (perceived social support, family hardiness and quality of professional care) and dependent-care agencies (caregiver burden) as they relate to the asthma management abilities of parent caregivers of pre-school asthmatic children?

For this question, Pearson's r (Pearson product-moment correlation) procedure was used to analyze the bivariate relationship among perceived social support, quality of professional care, caregiver hardiness, caregiver burden, and asthma management abilities of parent caregivers of pre-school asthmatic children.

2. How do basic conditioning factors (perceived social support, family hardiness, and quality of professional care) and dependent-care agencies (caregiver burden) influence asthma management abilities of parent caregivers of pre-school asthmatic children?

To answer this research questions, a cross-sectional hypothesized model of perceived social support, family hardiness, and quality of professional care and caregiver burden was analyzed by using the LISREL 8.52 program. For parameter estimation, path coefficients were estimated through multiple regression equations and structural effects through total effect (direct + indirect effects).

Structural equation model was developed by testing two models simultaneously: a measurement model and theoretical model. Numbers of data analysis for testing 6 research hypotheses in this study were provided.

The Structural Equation Model Assessment (SEM)

The SEM, the full model, comprised two submodels: 1) a measurement model: and 2) a structural model or theoretical model. Thus, once the hypothesized full model was specified, its submodels must be tested for both the measurement and structural model separately.

1. The Measurement Model Assessment

The measurement model was a model of how theoretical constructs were measured. The confirm factor analysis (CFA) procedure was employed to test the validation of scales for the measurement of specific construct. With this statistical method, the measurement model fit was firstly used to examine the indicators for each construct. Secondly, the parameter estimate was employed to examine the relationship between each parameter. Loading factor with *t*-value represented the parameter estimate. Each of variable *t*-value divided by its Standard Error (SE) must exceed the critical value ± 1.96 , ± 2.576 , and ± 3.291 for the .05, .01, and .001 significant levels, respectively. Lastly, the square multiple relations (R^2) of observed variables were used to verify the model fit. The R^2 served as reliability indicator of the extent to which

each adequately measured its respective underlying construct (Byrne, 1998, p. 104), which value ranged from 0 to 1.00.

2. The Theoretical Model Assessment and Modification

The theoretical model was a model of the hypothesized relationships between the theoretical constructs. To test a theoretical model, the full model was tested for adequacy, first. Second, the modification for best fit and parsimony was performed and last the hypotheses testing were employed.

In this study, hypothesized model of asthma management abilities of parent caregivers of pre-school asthmatic children was tested. Two steps of assessment were performed as follows.

Step One: Hypothesized Model Assessment

In this step, a structural equation modeling (SEM) under LISREL 8.53 program was employed. The core parameters of concern in SEM were the regression coefficient, and the variance covariance of the independent variables.

Step Two: Model Modification

Modification indices were used in this process. They provided indications of misspecification in terms of correlate measurement error. The modification of the model composed of two methods: adding paths or parameters with the large modification index that could be interpreted substantively, and eliminating parameters with small t-value or non-significant path from the model. The large modification index was associated with whether the error was correlated or allowed to be free in the Theta-Delta matrix which represented the expected drop in over all chi-square value.

Four goodness-of-fit indices were used as indicators in this study, which were Chi-square test (χ^2), Goodness of fit index (GFI), Adjusted Goodness of Fit Index (AGFI), and Root Mean Square Residual (RMSEA). The detail of each indicator was as followed.

The Chi-square (χ^2)

The chi-square test is the only statistically based measure for goodness-of-fit available in SEM. A model with poor fit is indicated when the chi-square is large. In

order to determine fit, the chi-square value should be compared with its associated degree of freedom. Chi-square relative with degree of freedom (χ^2/df) less than 3 is also accepted for alternative indicator of goodness-of-fit. Non-significant chi-square values indicate that the actual and predicted input matrices are not statistical different.

The Goodness of Fit Index (GFI)

The GFI compares the squares residuals from prediction with the actual data. It represents the overall degree of fit ranging from 0 (poor fit) to 1 (perfect fit). According to Hair and colleagues (1998), higher values of GFI indicate better fit, but no absolute threshold levels for acceptability has been established. However, values of 0.90 or above usually indicate good model fit.

The Adjusted Goodness of Fit Index (AGFI)

The AGFI is an extension of the GFI, which adjusted by the ratio of degree of freedom of the proposed model to null model. An acceptance level is a value equal or greater than 0.90.

The Root Mean Squared Residual (RMSEA)

The RMSEA is the measurement that attempts to correct the tendency of the chi-square statistic to reject any specific model with a sufficiency large sample. It is the discrepancy per degree of freedom. Several results from empirical testing support RMSEA as the best suited to use in a confirmatory model strategy with large samples. Acceptable values are under 0.08 (Hair et al., 1998).

Summary

In this chapter, the research methodology: design, the population and sample, the procedures for data collection, the human right protection, the instruments used, the process and results of the pilot study, and the data analysis procedures, were presented.

A correlational, cross sectional research design was used in this study to examine the relationship of the selected basic conditioning factors (perceived social support, family hardiness, quality of professional care) and dependent-care agency (caregiver burden) as they related to asthma management abilities of parent caregivers

of the asthmatic children. In addition, a model of factors contributing to asthma management abilities of parent caregivers of pre-school asthmatic children, which were perceived social support, quality of professional care, caregiver hardiness, and caregiver burden, was tested for the direct and indirect effects by the LISREL 8.52 statistical program. Two hundred and sixty four parent caregivers of the pre-school asthmatic children from three hospitals were planned to recruit by simple random sampling into the study.

An instrumentation test was done with parent caregivers of the pre-school asthmatic children to examine the research instruments for clarity, readability, appropriate language, and reliability. The results of the instrumentation test were also discussed in this chapter.

CHAPTER IV

RESULTS

The research results are presented in four sections. Demographic characteristics of both caregivers and asthmatic children are firstly presented. Next, descriptive characteristics of the study variables are displayed. Then, preliminary analysis results are described. Lastly, the research hypothesis testing, the hypothesized model testing, and the modified model generating results are presented.

Demographic Characteristics of the Parent Caregivers

A sample of 253 parent caregivers of the pre-school asthmatic children who came to visit Chest and Allergy Clinics at three hospitals within Bangkok metropolitan area was recruited. The demographic characteristics were summarized in Table 4.1.

The age of parent caregivers ranged from 23 to 57 years, with a mean of 35.41 (SD = 5.72). Among these individuals, 84.6%, (n = 214) were female and 15.4% (n = 39) were male. The majority of sample (89.3%, n = 226) were Buddhists and were married (96.4%, n = 244).

For education level, half of the parent caregivers attained primary and secondary school (49.8%, n = 126), while another 36% (n = 91) completed degree level. Slightly more than half of caregivers worked in the field unassociated with health care (58.5%, n = 148), while 36% (n = 91) were unemployed. More than one-thirds of caregivers had family income in the range of 10,000-25,000 baht/month (42.3%, n = 107) and less than 10,000 Baht/month (33.2%, n = 84).

With regard to the caregivers' relationship, almost all of the caregivers were father or mother of the asthmatic children (97.2%, n = 246). The numbers of children under their responsibility (include asthmatic children) ranged from 1 to 6 persons (mean = 1.71, mode = 1) with the mean experiences in taking care of the asthmatic child = 3.4 years (SD = 1.95, mode = 4). Almost all parent caregivers received advices about asthma care from physician (84.6%, n = 214).

Table 4.1 Demographic Characteristics of Studied Samples (n = 253)

Characteristics of studied samples	n	%
Age (Year) Mean = 35.41, SD = 5.72, Mode = 36	253	
Gender		
Male	39	15.4
Female	214	84.6
Religion		
Buddhist	226	89.3
Islam	25	9.9
Catholic	2	0.8
Marital Status		
Single	3	1.2
Married	244	96.4
Separated, Divorced, Widowed	6	2.4
Education		
Primary	64	25.3
Secondary & High School	62	24.5
Certificated	36	14.2
Degree	91	36.0
Diploma	1	
Bachelor	82	
Master	6	
Doctoral	2	
Occupation		
Unemployed	91	36.0
Work associate with health care business	14	5.5
Nurse	14	
Work not associate with health care business	148	58.5
Government employee		
Private enterprise		
Income (Baht/month)		
< 10,000	84	33.2
10,000 - 25,000	107	42.3
25,001 - 40,000	44	17.4
40,001 - 55,000	9	3.6
> 55,001	9	3.6
Relationship with asthmatic children		
Father / mother	246	97.2
Relatives	7	2.8
Number of Children under caregivers' responsibility (include asthmatic children) Mean = 1.71, SD = .79, Mode = 1		
Experience in taking care of asthmatic children (Year) Mean = 3.49, SD = 1.95, Mode = 4		
Sources of Information		
Physician	214	84.6
Nurse	1	0.4
Both physician and nurse	38	15.0

Demographic Characteristics of the Asthmatic Children

Demographic characteristics of the asthmatic children were presented in Table 4.2. The age of asthmatic children ranged from 9 months to 7 and a half years, with a mean of 4.82 (SD = 1.61, mode = 5.00). Among these individual, nearly two-thirds of these children were male (62.5%, n = 158). The mean age at first diagnosed as asthma was round 1 year and 9 months (mean = 1.73, SD = 1.20, mode = 1).

Considered to the numbers of asthma triggers of each child, it was found that the mean average of asthma triggers were 3.11 with range of 1-8. The numbers of asthma attack and admission during the past 3 months ranged from 0-10 times and 0-7 times, with a mean of 1.28 and .63, respectively. The mean numbers of asthma drug used among these children were 1.68 (SD = 0.86, mode = 1, range 0-4).

Table 4.2 Demographic Characteristics of Asthmatic Children (n = 253)

Characteristics of studied samples	n	%
Age (Year) Mean = 4.82, SD = 1.61, Mode = 5.00	253	
Gender		
Male	158	62.5
Female	95	37.5
Age at first diagnosis (Year) Mean = 1.73, SD = 1.20, Mode = 1.00, Range = 0.75 – 7.5	253	
No. of attacks during the past 3 months (Time) Mean = 1.28, SD = 1.84, Mode = 0, Range = 0-10		
No. of admissions during the past 3 months (Time) Mean = 0.63, SD = 1.07, Mode = 0, Range = 0-7		
No. of triggers Mean = 3.11, SD = 1.65, Mode = 2, Range = 1-8		
No. of drugs used Mean = 1.68, SD = .86, Mode = 1, Range = 0-4		

Descriptive Statistics of Major Variables

Major variables in this study included family hardiness, quality of professional care, perceived social support, caregiver burden, and asthma management abilities. Descriptive statistics were presented in the following section. Mean, standard

deviation, range, skewness, and kurtosis were shown in Table 4.3 to describe the distribution of the study variables.

Perceived Social Support

The score of perceived social support ranged from 6-108 with a mean of 53.67 (SD = 16.99). The skewness coefficient of perceived social support appeared to be closed to zero (0.10), indicating that the distribution of social support score was fairly symmetric (see Table 4.4). Thus, parent caregivers in this study perceived themselves as having moderate social support. In regarding kurtosis, Jacobsen (1997) noted that if value, produced by dividing the kurtosis statistic by the standard error, is not beyond ± 1.96 , the distribution has a normal peakedness curve. In this study, the kurtosis value of perceived social support was also closed to zero ($0.05/0.3 = 0.16$), indicating that its distribution was within normal curve.

Table 4.3 Sources of Social Support (n= 253)

Sources of Social Support	Mean	SD	Possible range	Actual range
Families	19.77	5.48	0-28	0-28
Siblings & Relatives	17.03	6.35	0-28	1-28
Friends & Co-workers	11.65	5.50	0-28	0-28
Others	5.21	5.35	0-28	0-27

Of the social support sources (Table 4.3), family members was perceived as the most leading source of support, while support from siblings & relatives; friends, co-workers & neighbors; and other members in the community were followed, respectively.

Family Hardiness

The score of family hardiness ranged from 25-58 with a mean of 45.85 (SD = 6.75). The skewness coefficient of family hardiness index was highly negative (-0.661). According to Jacobsen (1997), skewness values above 0.2 or below -0.2 indicate severe skewness. In this study, highly negative skewness values of family hardiness indicating that most parent caregivers had high family hardiness. However,

the kurtosis value of family hardness was slightly peaked but insignificant ($0.42/0.30 = 1.4$), indicating that even though the peakedness was slightly high but was within normal distribution (see Table 4.4).

Quality of Professional Care

The score of quality of professional care ranged from 40-108 with a mean of 81.98 (SD = 15.14). The skewness coefficient of quality of professional care was highly negative (-0.49), indicating that most parent caregivers perceived high quality of professional care. However, the kurtosis value of quality of professional care was slightly flatted but insignificant ($-0.45/0.30 = -1.5$), indicating that its peakedness was within normal curve (see Table 4.4).

Caregiver Burden

The score of caregiver burden scale ranged from 28.56-96 with a mean of 63.65 (SD = 12.43). The skewness coefficient of caregiver burden score was slightly negative (-0.18), indicating that most parent caregivers perceived their caregiving as moderate burden but kurtosis value was closed to zero ($0.11/0.30 = 0.37$), indicating that its distribution was within normal peakedness curve (see Table 4.4).

Asthma Management Abilities

Since most parent caregivers in this study responded to some items in asthma management abilities questionnaires as they had never experienced these events while taking care of the children before, so these non-responded items had to be deleted out from calculation. Sum of the actual scores that presented in Table 4.4 was at the lowest possible than if all of them responded to those items. The score of asthma management abilities scale ranged from 63-150 with a mean of 109.57 (SD = 19.03). The skewness coefficient of asthma management abilities score was slightly negative (-0.19), indicating that even though most parent caregivers responded to some of asthma management abilities items but moderate to high level of management abilities was detected. The kurtosis value was slightly flatted but insignificant ($-0.41/0.30 = 1.37$), indicating that its peakedness was within normal curve.

Table 4.4 Mean, Standard Deviation, Ranges, Skewness, and Kurtosis of Major Variables

Variables	Possible Range	Actual Range	Mean	SD	Skewness	Kurtosis	Meaning (Based on mean & skewness)
Social Support Information / Emotion / Tangible Support	0-112	6-108	53.66	16.99	0.10	0.05	Moderate perceived social support
Family Hardiness Control	0-60 0-18	25-58 1-8	45.85 12.44	6.75 3.09	-0.66 -0.74	0.42 0.50	High family hardiness
Commitment	0-24	8-24	20.43	2.89	-0.95	1.00	
Challenge	0-18	4-18	12.99	2.73	-.028	0.16	
Quality of Professional Care Responsiveness	18-108 5-30	40-108 8-30	81.98 22.36	15.14 4.08	-0.45 -0.45	0.30 -0.52	High quality of professional care
Individual Coordinator	5-30	7-30	23.20	5.17	-0.75	-0.03	
Proficiency	3-18	3-18	11.12	4.17	-0.13	-0.89	
Caregiver Burden Demand	24-120 24-120	28.56-96 32-115	63.65 77.47	12.43 14.79	-0.18 -0.08	0.11 0.20	Moderate burden
Difficulty	24-120	25-106	60.13	16.52	-0.03	-0.42	
Asthma Management Ability Prevention	0-162 0-54	63-150 14-51	109.5 32.61	19.03 7.34	-0.19 -0.22	-0.41 -0.27	High asthma management abilities
Treatment	0-36	5-36	24.62	6.79	-0.46	-0.30	
Promotion	0-45	15-45	32.76	6.69	-0.37	-0.52	
Seeking	0-27	8-27	19.57	3.90	-0.06	-0.45	

Preliminary Analysis

The Structural Equation Model (SEM) shares three assumptions with the other multivariate methods. Before further analysis, general assumptions were tested in order to ensure the assumptions were not violated. The results of the assumption testing included: normality, linearity, and multicollinearity test were presented in the following section.

Normality Testing

The results of normality testing of each indicator of the latent variables were accepted (see Table 4.4). By considering the skewness (no more than ± 1.00) and kurtosis value (kurtosis divided by standard error no more than ± 1.96), the results found the skewness coefficients ranged from -0.99 to 0.10 and the kurtosis values were within normal curve ranged from -1.73 to 1.73 excepted 2 sub-scales (Commitment scale of Family Hardiness and Coordinator scale of Quality of Professional Care scale), which were rather high (-2.97 and 3.33). Regarding to West, Finch, & Curran (1995), if the skewness and kurtosis values of measured variables are “highly nonnormal” (e.g., skewness = 3, kurtosis = 21), the standard errors of parameter estimates are underestimated, the output would be untrustworthy. However, the kurtosis values of the two sub-scales were not “highly nonnormal”

Linearity Testing

The assumption of linearity test was met. The relationships among the study variables were investigated through a bivariate scatter plot procedure under the SPSS 13.0 program. By examining the scatter plot between variables, there was no evidence of non-linearity between pairs of variables.

Multicollinearity Testing

The results indicated no evidence of multicollinearity because the correlation coefficients among predictive variables were between -0.04 to 0.73, which was lower than 0.85 (Munro, 2001) (see Appendix E, Table E.1). Based on two indices of Tolerance and Variance Inflation Factors (VIF), the results showed Tolerance value ranged from 0.80 to 0.97 which was above 0.10 and VIF ranged from 1.03 to 1.24 which were below 5.3 (see Appendix E, Table E.2). Thus, the assumption of multicollinearity testing was accepted.

Principal Analyses

Analysis of research questions

The following section presented data analysis procedures and findings for each research question and hypothesis. The significant level was initially set at the alpha of 0.05. The results of the 2 research questions were presented in the following section.

Research question 1: What are the relationships among basic conditioning factors (perceived social support, family hardiness, and quality of professional care) and dependent-care agencies (caregiver burden) as they relate to the asthma management abilities of parent caregivers of pre-school asthmatic children?

By using Pearson's Correlation coefficient, the results showed moderate and significant positive relationships between selected basic conditioning factors: perceived social support, family hardiness, and quality of professional care with asthma management abilities in parent caregivers of pre-school asthmatic children in this study. The small to moderate significant positive relationships among perceived social support, family hardiness, and quality of professional care were also found. For caregiver burden, only significant negative relationships between this variable with perceived social support and asthma management abilities were found (see Table 4.5).

Table 4.5 Correlation Matrix of Study Variables (n = 253)

Variable	PSS	FH	QPC	CB	AMA
PSS	1.00				
FH	0.23**	1.00			
QPC	0.41**	0.20**	1.00		
CB	-0.15*	-0.12	-0.08	1.00	
AMA	0.32**	0.38**	0.38**	-0.36**	1.00

Note: PSS = Perceived Social Support, FH = Family Hardiness, QPC = Quality of Professional Care, CB = Caregiver Burden, AMA = the Asthma Management Ability.

* $p < .05$ (2-tailed), ** $p < .01$ (2-tailed)

Research question 2: How do basic conditioning factors (perceived social support, family hardiness, and quality of professional care) and dependent-care agencies (caregiver burden) influence asthma management abilities of parent caregivers of pre-school asthmatic children?

The analysis procedure to answer this question was performed by using a Structural Equation Modeling program (SEM). In SEM, two submodels: measurement model and structural or theoretical model are needed to test separately.

1. The Measurement Model Assessment

The Measurement Model Fit

In this study, three measurement models of three major variables: family hardiness, quality of professional care, and asthma management abilities were evaluated. The results from measurement model fit testing showed that the Goodness of Fit Measure of three measurement models, which were family hardiness, quality of professional care, and asthma management abilities fell into the good model fit. The results revealed that the entire three models had nonsignificant Chi-square ($p = 0.5801, 0.4072, 0.9108$), χ^2/df were not exceed 3, and the resting three goodness-of-fit indexes were in good level (GFI = 0.99 to 1.00, AGFI = 0.95 to 1.00, RMSEA = 0.000 to 0.074) (see Table 4.6).

Table 4.6 The Measurement Model Goodness of Fit Index (n =253)

Variables	Chi-square (df)	P-value	GFI	AGFI	RMSEA
Family Hardiness	0.31 (1)	0.5801	1.00	1.00	0.000
Quality of Professional Care	1.80 (2)	0.4072	1.00	0.98	0.000
Asthma Management Abilities	4.79 (2)	0.9108	0.99	0.95	0.074

Note: GFI = Goodness of Fit Index, AGFI = Adjusted Goodness of Fit Index.

RMSEA = Root Mean Square Error of Approximation

For parameter estimation, the results showed that all of the loading factors with t -values exceeded the critical value of = 1.96 at the significant level of .05, indicating valid relationships among observed variables and their construct. For reliability indicator testing, the R^2 for most variables ranged from 0.33 to 1.00, which could indicate as acceptable. The R^2 for Challenge variable was rather low (0.20), which indicated there was not quite well served as measure of family hardiness (see Table 4.7)

Table 4.7 The Measurement Model Construct Measure (n = 253)

Parameter	Loading# (t-value)	SE	Factor Score	R ²
Family Hardiness				
Control	1.00 (-)	-	0.88	1.00
Commitment	1.00*** (8.11)	0.08	0.89	1.00
Challenge	0.45*** (2.93)	0.12	-0.35	0.20
Quality of Professional Care				
Responsiveness	0.80 (-)	-	0.20	0.64
Individual	0.91*** (13.72)	0.08	0.48	0.82
Coordinator	0.58*** (9.1)	0.08	0.08	0.33
Proficiency	0.64*** (10.25)	0.08	0.10	0.41
Asthma Management Abilities Scale				
Prevention	0.66 (-)	-	0.11	0.44
Treatment	0.64 (-)	-	0.09	0.41
Promotion	0.86*** (10.84)	0.12	0.34	0.73
Seek	0.75*** (10.66)	0.11	0.18	0.56

Note: # Standardized Solution Shown *** p< .001.

In summary, the results indicated the acceptable level for all measurement models fitted indexes for the family hardiness, quality of professional care, and asthma management abilities scale.

2. The Theoretical Model Assessment and Modification

Step one: Hypothesized Model Assessment

The hypothesized model consisted of three exogenous variables: perceived social support, family hardiness, and quality of professional care and two endogenous variables: caregiver burden and asthma management abilities. The three process of model evaluation and assessment of fit were focused on the adequacy of: (1) parameter estimates; (2) measures of over all fit of the model: and (3) residual, standard residual, and modification indices.

According to parameter estimates, the non-zero fixed values or 1 were assigned to all the first indicator of each latent variable which called as reference variable. In this study, the non-zero fixed values or 1 were assigned to information/tangible/emotion support variable of perceived social support, control variable of family hardiness, responsiveness variable of quality of professional care,

time & difficulty variable of caregiver burden, and preventive variable of asthma management abilities.

The result showed that most path coefficients of free parameters in the hypothesized model were significant at statistic value of .05 and had the right direction according to the theory (see Appendix H, Table H.1, Figure 4.1). There was an evidence of misspecified parameters among major variables. The four path coefficients were nonsignificant, which were the path from perceived social support to asthma management abilities ($\gamma = 0.11, p > .05$), perceived social support to caregiver burden ($\gamma = -0.13, p > .05$), family hardiness to caregiver burden ($\gamma = -0.08, p > .05$), and quality of professional care to caregiver burden ($\gamma = 0.00, p > .05$).

Examining the square multiple correlation (R^2) for each observed variable, most of the R^2 were acceptable (0.35-0.79), indicated that there were quite well served as measured of the latent variables (see Appendix H, Table H.1). The R^2 for control variable was still rather low (0.28), which indicated as poor observed variable of family hardiness. The model accounted for and explained 3% ($R^2 = 0.03$) of variance in caregiver burden and 44% ($R^2 = 0.44$) in asthma management abilities.

Concerning to measures of over all fit of the model, the significant chi-square was shown ($p\text{-value} = 0.0000$) and AGFI (0.88) was not in the acceptable range (see Table 4.8). There was evidence of misspecification parameters, particularly large negative and positive standardized residual, which in this study were -3.95 and 3.93. In principle, the normal value of the standardized residual was not exceeded than ± 2.58 (Pedhazur & Schmelkin, 1991, pp. 665).

In summary, the results indicated the asthma management abilities model did not fit the sample data, as reflected by some misspecified parameter and poor goodness of fit index. Therefore, the original model should be modified to achieve the best-fitted in the next step.

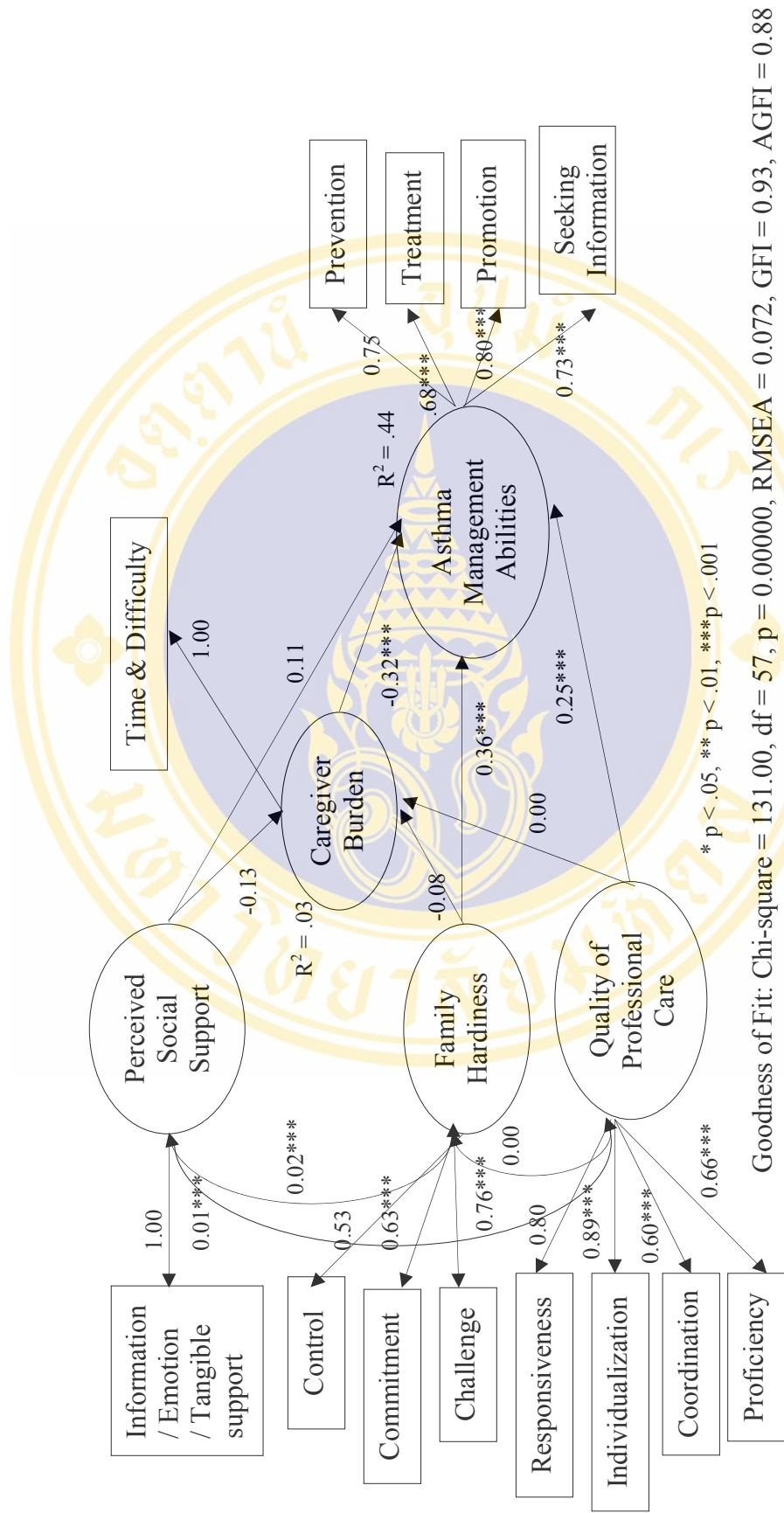


Figure 4.1 A Hypothesized Model of Asthma Management Abilities of Parent Caregivers

Step Two: Model Modification

In this step, modification indices (MI) together with theoretical reasoning were employed to guide the modifying process of the model. Each path or parameter which standardized residual was large and modification indices (MI) that exceed 5 were interpreted substantively. By adding parameter, the results showed that the largest modification index was associated with whether the error was correlated or was allowed to be free in the Theta-Delta, Theta-Epsilon, and Theta-Delta-Epsilon matrix. Accordingly in this study, there were 15 parameters freeing performed.

Path coefficient is another index that must be employed as an indicator of model modification. Even though statistic prospective proposes that nonsignificant parameter should be deleted from the model but the substantive theoretical interest must be considered (Byrne, 1998: 104; Schumacker & Lomax 1996: 106). If a parameter is not significant but of sufficient substantive interest, then the parameter should probably remain in the model.

In this analysis, even 4 nonsignificant parameters exit in the hypothesized model, only one parameter was finally removed, which was the parameter from family hardness to caregiver burden. After deleting one parameter and adding free parameters as suggested by the statistical program, the parameter from social support to caregiver burden turned significant ($\gamma = -0.16$, $p < .05$) (see Appendix H, Table H.2 and Figure 4.2).

As modifying processes continued, much improves to all goodness of fit indexes were found. Modifications were continued until the standardized residuals showed no evidence of misspecification parameters. The smallest and largest standardized residual were within normal level (-1.94 and 2.51). The modified model was fitted well with the data (Figure 4.2). The chi-square and degree of freedom ratio ($29.02/43 = 0.67$), p-value (0.9491), GFI (0.98), AGFI (0.96), and RMSEA (0.000) were at the acceptable levels (see Table 4.8).

The result showed that almost all path coefficients of free parameters in the modified model were significant at statistic level of .05 and had the right direction. The path coefficients of the other two nonsignificant parameters, which were perceived social support to asthma management abilities and quality of professional care to caregiver burden, were equal to 0.04 and 0.01 with t-value of 0.58

and 0.19 respectively, indicating that perceived social support did have some influence on asthma management abilities and quality of professional care did have some influence on caregiver burden but the relationships were not at significant level (see Appendix H, Table H.2, and Figure 4.2).

Table 4.8 Statistical Fitted Index Values of Hypothesized and Modified Models

Test Statistics	Hypothesized Model	Modified Model
Chi-square (χ^2)	131.00 (df = 57, p = 0.00000)	29.02 (df = 43, p = 0.94914)
GFI	0.93	0.98
AGFI	0.88	0.96
RMSEA	0.072	0.000
R ²	.44	.55

Note: GFI = Goodness of Fit Index, AGFI = Adjusted Goodness of Fit Index, RMSEA = Root Mean Square Error of Approximation

Examining the square multiple correlation (R^2) for each observed variable, most of the R^2 were acceptable (0.37 to 0.69), indicated that there were quite well served as measured of the latent variables (see Appendix H, Table H.2). The R^2 for control variable was still rather low (0.30). The modified model accounted for and explained 2% of variance in caregiver burden and 55% ($R^2 = 0.55$) in asthma management abilities (see Table 4.8).

In conclusion, all the goodness of fit indexes of the modified asthma management abilities model was better fitted to empirical data than hypothesized model.

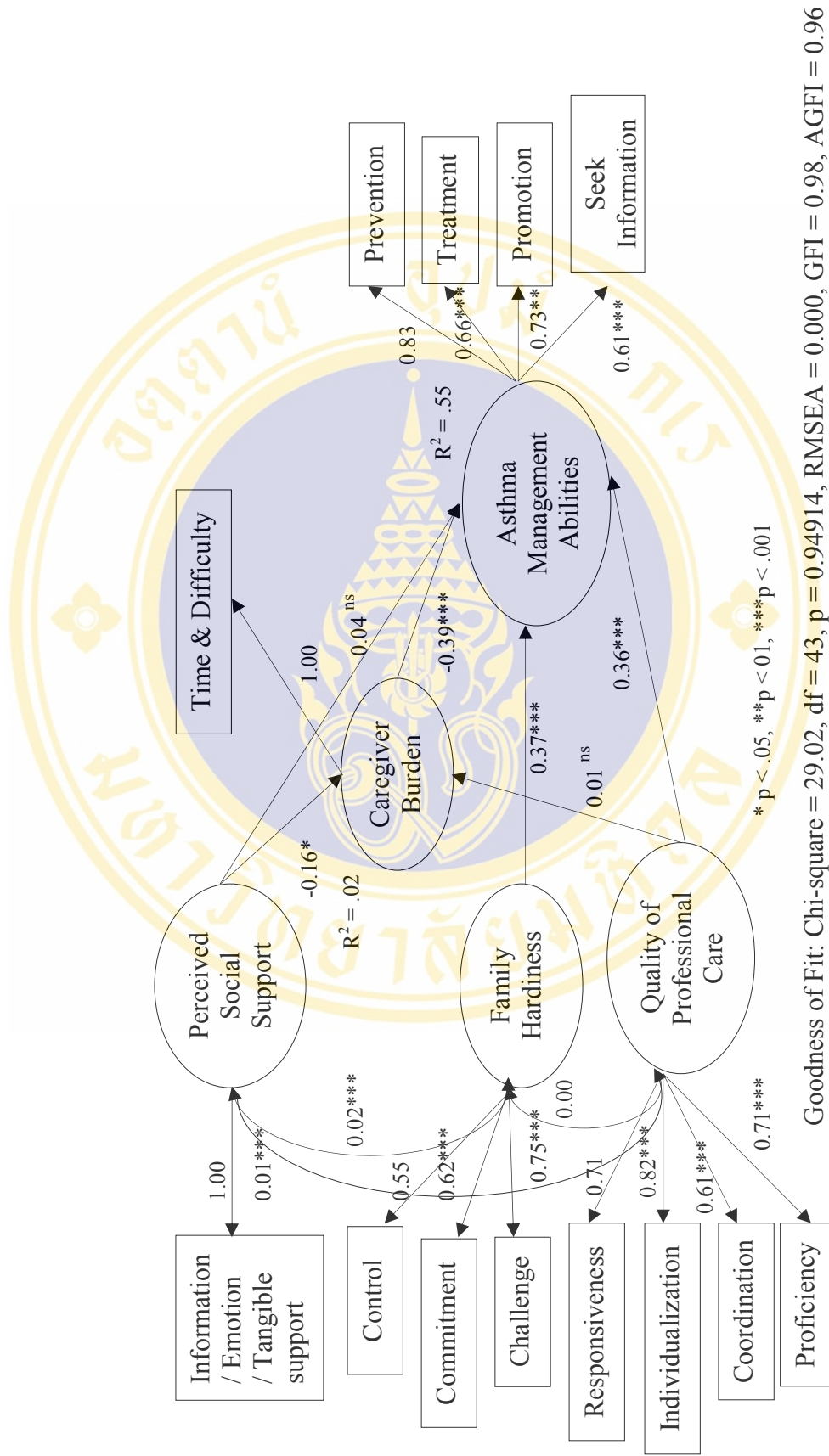


Figure 4.2 A Modified Model of Asthma Management Abilities of Parent Caregivers

Hypothesis Testing

By analyzing the influence effects of all variables in the hypothesized model; six research hypotheses in this study were answered. The influence effects of all variable in the model consisted of 3 components: direct, indirect, and total effect. Results of all influence effects on each variable were summarized in Table 4.9.

Table 4.9 Direct, Indirect, and Total Effects of Influenced variables on Affected Variables in the Asthma Management Abilities Causal Model

Causal Variables	Affected Variables	Caregiver Burden			Asthma Management Abilities		
		TE	IE	DE	TE	IE	DE
Modified Model:	Chi-Square (χ^2) = 29.02, df = 43, p = 0.95, GFI = 0.98, AGFI = 0.96, RMSEA = 0.000						
Perceived Social Support		-0.16*	-	-0.16*	0.10	0.06*	0.04
Family Hardiness		-	-	-	0.37***	-	0.37***
Quality of Professional Care		0.01	-	0.01	0.36***	-0.01	0.37***
Caregiver Burden		-	-	-	-0.39***	-	-0.39***
Structural Equation Fit		R ² = 0.02			R ² = 0.55		

Note: TE = Total Effect, IE = Indirect Effect, DE = Direct Effect * p < .05, *** p < .001
 γ -value represents effect between exogenous to endogenous variable
 β -value represents effect between endogenous variable to endogenous variable

Hypothesis 1: Perceived social support has a direct negative effect on caregiver burden, direct positive effect on asthma management abilities, as well as indirect influences on asthma management abilities through caregiver burden.

The statistical analysis showed that perceived social support had a significance direct negative effect on caregiver burden ($\gamma = -0.16$, $p < .05$). Even though the direct effect of perceived social support on asthma management abilities was found ($\gamma = 0.04$, $p > .05$) but not significance. In reverse, the significance indirect influence

on asthma management abilities was detected through caregiver burden ($\gamma = 0.06$, $p < .05$). As a result hypothesis one was partially support.

Hypothesis 2: Family hardiness has a direct negative effect on caregiver burden, direct positive effect on asthma management abilities as well as indirect influences on asthma management abilities through caregiver burden.

The analysis outcome illustrated that family hardiness only had a direct significance positive effect on asthma management abilities ($\gamma = 0.37$, $p < .001$). Thus, hypothesis two was partially supported.

Hypothesis 3: Quality of professional care has a direct negative effect on caregiver burden, direct positive effect on asthma management abilities, as well as indirect influences on asthma management abilities through caregiver burden.

Results of the analysis indicated that quality of professional care only had a direct significant positive effect on asthma management abilities ($\gamma = 0.37$, $p < .001$) while direct positive effect on caregiver burden ($\gamma = 0.01$, $p > .05$) as well as indirect influence on asthma management abilities ($\gamma = -0.01$, $p > .05$) were found but not significant. Therefore, hypothesis three was partially supported.

Hypothesis 4: Caregiver burden has a direct negative effect on asthma management abilities.

The statistical results revealed that caregiver burden has a direct negative effect on asthma management abilities ($\beta = -0.39$, $p < .001$). The forth hypothesis, therefore, was supported.

Hypothesis 5: Perceived social support and family hardiness are positive correlated with each other.

The analysis results detected a significance but weak positive correlation between perceived social support and family hardiness ($r = 0.02$, $p < .001$). It, therefore, supported the fifth hypothesis.

Hypothesis 6: Family hardiness and quality of professional care are positive correlated with each other.

The analysis results indicated that family hardiness and quality of professional care were not correlated with each other. Accordingly, the sixth hypothesis was not supported.

Summary

A sample of 253 parent caregivers of the pre-school asthmatic children from three hospitals within Bangkok Metropolitan area was recruited to this study. The demographic characteristics of both parent caregivers and asthmatic children were reported. Descriptive statistics of the study variables were also presented. Preliminary analysis was conducted under the SPSS 13.0 statistical program to test the statistical assumptions which were all accepted. Confirmatory analysis was employed to test the measurement model of family hardiness, quality of professional care, and asthma management abilities. All these three measurement models were fitted with the data. The LISREL 8.52 statistical program was used to test and modify the study model. The hypothesized model of asthma management abilities was not fitted well with the empirical data so some modifications had been made. One parameter, which was the parameter from family hardiness to caregiver burden, was deleted and several parameters were set free to measure as suggested by the LISREL statistical program. The modifications had been made until the standardized residuals showed no evidence of misspecification parameters. The final modified model was proved to have a good fit with the data and explained 2% of variance in caregiver burden and 55% in asthma management abilities. Finally, two research questions were answered and the hypotheses testing were employed. The results revealed that the research hypotheses were partially supported in this study.

CHAPTER V

DISCUSSION

In this chapter, the interpretation and discussion of the data are presented. Characteristics of the study sample and five major variables: perceived social support, family hardiness, quality of professional care, caregiver burden, and asthma management abilities are firstly discussed. Then, the hypothesis testing will follow. The discussions of methodological issues and contribution to nursing theory and knowledge development are also provided.

Demographic Characteristics of Parent Caregivers

The results revealed that most parent caregivers for the asthmatic children in this study (84.6%) were mother. It is quite similar to the previous studies about parent caregivers of chronically ill children (Ray & Ritchie, 1993; Hatton, et al., 1995; Wittaya-sooporn, 1996; Palmer, 2001) that in every family, mother plays a major role in taking care of an ill child. It is because mother is assigned and confided by society to have a major responsibility to take care all members in the family. And it is mother, herself, who realize that to take care of the sick members especially children are all her responsibilities.

However, now a day, the value about maternal's role is changed. Beside from routine house's works, most mothers have to work outside home to help families earn more money. As in this study found that only 36% of parent caregivers were unemployed and working as a housewives. In this matter, fathers have to adapt their roles to meet needs in families by helping mothers to take care of the sick children so the results showed that another 15.4% of the parent caregivers were father.

The age of parent caregivers ranged from 23 to 57 years, with mean of 35.41 years, which was in adulthood and working age period. Those in this age group do have good judgments and can made good decisions. This is in accordance with Orem's (2001) that age of mother is related to the level of development and life experiences. This will made a difference in perception of problems, understanding, contemplation, and decision making in choosing how to provide care (Orem's, 2001).

Parent caregivers in this study had moderate to high socio-economic status and had some years experience in giving care. More than one-third of the parent caregivers (42.3%) had moderate family incomes (10,000 to 25,000 baht/month), while another 24.6% earn high family incomes (> 25,000 to 55,000 baht/month). Half of them (50.2%) completed certificate and degree level (more than 15 years study periods), while another 24.5% attained secondary and high-school level (9 to 12 years study periods), indicating moderate to high educational level. They also experienced some years in taking care of asthmatic children (mean = 3.49, mode = 4). All of which could help them enhance their abilities to give care, abilities to access to the numbers of pharmaceutical agents and devices, and viability to access to health care service.

Demographic Characteristics of Asthmatic Children

The asthmatic children in this study were all pre-school children age between 8 months to 7 and a half years with mean of 4.82 (SD = 1.61). The mean age at first diagnosis as asthma was 1.73 (SD = 1.20), indicating very young of age that had asthma symptoms. Nearly two-thirds of these children (62.5%) were male (male-to-female ratio = 1.6:1). This finding was congruent with the prevalence of asthma among children in the United State that asthma is more common in male than female (male-to-female ratio = 1.4:1) (Canny & Lavison, 1994).

The mean numbers of asthma triggers were 3.11 (mode = 2). Most of them were associated with the numbers of asthma attacks during the past 3 months, which its mean were equal to 1.28 (mode = 0). The more numbers of asthma triggers the child had, the more frequent asthma attacks the child experienced.

The mean numbers of admission during the past 3 months were rather low (0.63, mode = 0) compared with numbers of asthma attacked (attack-to-admission ratio = 2:1). This finding was similar to the study of Vangveeravong (1998) that the percentage of admissions began to decline when the aerosolized beta-2 agonists were introduced in the hospital and declined further when increased used of aerosolized therapy and prophylactic drug at home. In this study also found that the mean numbers of regular drugs that children used everyday was 1.68 (mode = 1).

Characteristic of Five Major Variables

The following section is the discussion about characteristics of five major variables used in this study. The properties and distributions of these variables are also included as followed.

Perceived Social Support

Parent caregivers of pre-school asthmatic children in this study reported moderate level of perceived social support (Mean = 53.67, SD = 16.99) with the possible ranged from 0 to 112 (see Table 4.4). They perceived that the most useful source of support came from family members while the second source of support came from siblings and relatives. The another two sources, which were support from friends, co-workers & neighbors, and other providers in community, were perceived as less support, respectively (see Table 4.3).

True to fundamental support system function, family is admired to be the first and frequently the foremost source of support (Caplan, 1974; Smilkstien, et al., 1982). It is no doubt and revealed in the findings of most studies (Pilisuk & parks, 1983; McCubbin & Patterson, 1983; McCubbin & McCubbin, 1989; Wittaya-sooporn, 1996; Patterson, et al., 1997; Garwick, et al., 1998; Pipatananond, 2001) that when family has a crisis, resources within family should be at great help and use first. If these supports are not enough, then family need to seek supports from the other sources.

According to the second important source of support, parent caregivers were still relied on supports from siblings and relatives especially for low income families. Most parent caregivers reported that they gave support to their siblings and relatives and at the same time received some from them. Assistances included continued and intermittent financial support, took care for their children and house, and provided transportation for follow up visits or in the emergency situations.

Even though supports from friends, co-workers, and neighbors were reported by most parents as less support but some of them still mentioned as another source of support that help much while they leave from work or home to hospital for follow up visits. Friends and co-workers could help parent caregivers with their office works, teacher at child's school with symptoms monitoring and child care, while neighbors helped took care of their home, another children, and the old people.

All of the findings lend support to the concept about resources of support within family by McCubbin and colleagues (McCubbin & Patterson, 1983; McCubbin & McCubbin, 1989) that resource within family is the most important source of support and will be used first. If these supports are not enough, then family needs to seek supports from the other sources such as from friends, co-workers, and other networks. Helping parent caregivers to effectively manage the resources associated with their cares would reflect in enhancing their abilities to take care their children.

Family Hardiness

Parent caregivers rated their family hardiness at high score level (Mean = 45.85, SD = 6.75) with possible ranged of 0 to 60 (see Table 4.4). All of the three scales (control, commitment, and challenge) were responded as high, reflected high internal strengths and durability within family unit.

According to the detail of each subscale, the highest mean score in the control subscale was associated with life was controllable by themselves not by destiny (item No.10, 19, and 20). In commitment subscale, the highest mean score was associated with cooperation among members in the family to solve the problems (item No.9 and 11). For challenge subscale, being active and learning new things had the highest mean score (item No.17) (see Appendix G, Table G.2).

It is similar to the finding of Donnelly (1994) whose study concerning about parents of children (age under 5 years) with asthma. The characteristics of parent caregivers in Donnelly's study were quite similar to this study (18% of parent caregivers were mothers, mean age was 32.9, more than half of parent attended college or high school level with rather high socio-economic status). The result showed that group mean family hardiness was also high (mean = 47.44), so as in the study of non-clinical families of McCubbin et al. (1986). They also found high mean of family hardiness (47.39). The similar finding of high family hardiness was explained by McCubbin et al. (1987) that families of children ages 1 to 5 years would reflect development tasks and needs for the pre-school and/or school age stage of the family life cycle. With the same development stage, the hardiness level in each family was found to be highest.

Quality of Professional Care

Parent caregivers rated high scores in quality of professional care (Mean = 81.98, SD = 15.14) with possible ranged of 18 to 108 (see Table 4.4). All of the four scales, which reflected the characteristics of care from healthcare professional (responsiveness, individualization, coordination, and proficiency), were responded as high, reflecting high satisfaction with all dimensions of care they received. Moreover, 19% of the samples described the quality of care that they received as excellent while another 60.9% described as good.

One possible explanation for the high satisfaction was that most parent caregivers in this study (84.6%) reported they had got the advices from physicians while another 15% got from both physicians and nurses. It should be noted that all data collecting in this study was done in Allergy and Pulmonary clinic so both physicians and nurses who gave advices were all specialist and skillful in asthma care (Pulmonologist, Allergist, and clinical nurse specialist in respiratory care).

Considering to the detail, 64.0% of parent caregivers reported that they were arranged to have a follow up visit with the same physician or nurse regularly from often to every time. More than 80% reported that physician or nurse took time to answer their questions, encouraged them to actively participate in their child's care, discussed child's care option with them, and gave them accurate information from often to every time they visited. Moreover, parent caregivers in this study might had some levels of relationship with physicians and nurses because they had an average year of experience in taking care for more than 3 years (mean = 3.49, mode = 4).

In this case, it is similar to the findings from previous studies. The results showed that the elements of high satisfaction with care for the parent caregivers of children with special health problems were frequently due to the viability of access to special clinic, good relationship between providers and caregivers, enough time available in each visit with repeated provider-patient encounter, engaged caregivers as partner in planning care, provided information, continuity of care, and coordination of the providers (Larsen, 1992; Jerrette & Costello, 1996; Radwin & Alster, 1999; Lynn-McHale & Deatruck, 2000; Mansour et al., 2000; Christakis et al., 2001; and Christakis

et al., 2002; Santati et al., 2003). All of these elements were perceived to help parent caregivers in taking care of their children.

Caregiver Burden

Parent caregivers reported moderate level of caregiver burden (Mean = 63.65, SD = 12.43) with the possible ranged from 24 to 120 (see Table 4.4). The moderate level of caregiver burden found was consistent with the findings in other Thai caregiver samples (Gasemgitvatana, 1994; Wittaya-sooporn, 1996; Pipattananond, 2001) as well as in American samples (Oberst et al., 1989; Carey et al., 1991; Svavarsdottir & McCubbin, 1996).

Time or demand scale (Mean = 77.47, SD = 14.79) was rated higher compared with difficulty scale (Mean = 60.13, SD = 16.52). The three most time-consuming caregiving tasks were all associated with preventive and asthma attack managements (taking care when child has an asthma attack, watching for the progressive symptoms for asthma, watching for warning symptoms signaling onset of asthma) while the three most difficult caregiving tasks were associated with day-to-day management (managing discipline and correcting behavioral problems; managing the increase house hold tasks beyond the routine responsibilities; and coordinating, preparing, managing services and resources).

Possible explanation for higher scores of time-consuming than difficulty, could be related to the experiences of parent caregivers in managing the chronic conditions. Parent caregivers in this study had an average year of experience in taking care for more than 3 years (mean = 3.49, mode = 4). With this passage of time, parents could relate that they knew what they were doing. They discovered the special features of their own situation as they acquired the necessary skills to manage. Most caregiving tasks did not perceived as difficult. But because many tasks needed to be done each day and each task needed some specific of time to do as in treatment regimen so they needed much time to finish. Most parent caregivers felt as if they could handle and take control of all the care tasks. This experiential learning was an important part in the process to take control of their child's asthma (Jerrette & Costello, 1996; Palmer, 2001; Santati et al., 2003).

In reverse, the most difficult tasks were associated with day-to-day management. These could be related to the fact that, in most family, no other family

members helped parent caregiver (mostly mother) in doing asthma care. They left all the responsibilities to the caregiver such as managing environments, giving oral and/or inhaled medications, going for a follow up visit, etc. The other family members thought caregiver was the only one who knew best about the child's conditions and was the only one who could do these technical-dependent and complicated asthma care tasks. Managing children's illness as well as maintaining their normal growth and development, household tasks, and office works caused some management difficulties to parent caregivers.

It was similar to the findings of Burst et al., (1992); Ray & Ritchie (1993); Wittaya-sooporn (1996); and Svavarsdottir & McCubbin (1996) that father and mother perceived the extent of time in performing care higher than the amount of effort or difficulty that caused them. Similar discussions were presumed in these studies that managing the added roles might cause some difficulties to father and mother. Encouraged other family members to help releasing some routine house works, friends and co-workers to better understanding with their problems, teachers at school to help monitoring the child's conditions, and health care providers to give essential advices in acceptable manner would lessen parent caregivers' stress and burden, strengthen their coping abilities and, in turn, help the children and families well being (Svavarsdottir & McCubbin, 1996).

Asthma Management Abilities

Parent caregivers reported rather high in asthma management abilities (Mean = 109.57, SD = 19.03) with the possible ranged from 0 to 162 (see Table 4.4). The mean score for preventive subscale was 32.61 (possible ranged from 0 to 54), treatment subscale was 24.62 (possible ranged from 0 to 36), promotion subscale was 32.76 (possible ranged from 0 to 45), and for seeking subscale was 19.57 (possible ranged from 0 to 27), which were all high, indicating that parent caregivers in this study had high abilities in asthma management.

It was similar to the previous findings in the studies about caregiving behaviors of mothers of the Thai asthmatic children (Ratanawan, 2001; Aksiritairat, 2000; Srangnok, 2000; and Sumranchaiyadham, 1998) that caregivers in their studies all scored high in caregiving behaviors. Like in this study, most parent caregivers were in

adulthood and working-age period, had moderate to high socio-economic status, moderate to high educational level and also had some years experience in giving care. Parent caregivers in this study perceived high satisfactions with the care they received from health care providers, whom were all specialist and skillful in asthma care. All of which could help parent caregivers enhance their abilities to manage asthma care for their children.

According to the detail of each subscale, the highest mean score in the preventive subscale was associated with regular follow up visit (item No.16), indicating that parent caregivers considered regular visit with physician as the most important preventive strategy that would prevent their children from exacerbation (see Appendix G, Table G.1). The next two highest mean scores were associated with preventive abilities from respiratory tract infection which was predicted to be often in this group of children (item No. 9 and 1).

For treatment subscale, parent caregivers scored rather high in all items and on the other hand few of them scored none or “0” in each item (see Appendix G, Table G.1), indicating that parent caregivers spent much of their attentions on the treatment part. The three highest mean score were associated with immediate visit to the hospital when the child had severe attack, and followed to all treatment regimens concerning about medications and follow up visit (item No.11, 2, and 12), indicating seeking help from the most skillful and reliable persons and strictly followed to their advices were among the most priority that parent caregivers concerned when their child had asthma attack.

Concerning to the promotion subscale, the three highest mean scores were associated with daily care to their children (item No.4, 6, and 13), so as the lowest mean score (item No.2). Moreover, in seeking & acceptance subscale, the three highest mean score were associated with maintain continuous care with treatment regimens (item No.6, 8, and 5) (see Appendix G, Table G.1).

All of the findings indicated that parent caregivers in this study placed most priority of their abilities on maintaining continuous visits with their physicians and strictly followed to their treatment regimens in all three dimensions (preventive, treatment, and seeking information). It was similar to the previous finding from Andrew & Nielson’s study (1988) that in taking care for the sick children with special

need, continuous attention with health care providers was the most essential thing parent caregivers needed.

Model of asthma management abilities and caregiver burden

This section presents the path coefficients between selected basic conditioning factors and asthma management abilities as well as caregiver burden. The discussion order will follow the study model in which variables are schematically portrayed from the left to the right. The presentation patterns are also consistent with the sequence of the six research hypotheses proposed.

For path coefficients determination, the guideline proposed by Kline (1998:149) that standardized path coefficient with absolute values less than 0.10 might indicate a “small” effect, values around 0.30 for a “medium” effect and 0.50 or more for “large” effect. By using this guideline, perceived social support had a small negative effect (-0.16) on caregiver burden. Family hardiness and quality of professional care had medium positive effect (0.37, 0.36, respectively) while caregiver burden had a medium negative effect (-0.39) on asthma management abilities.

Perceived Social Support

Even though parent caregivers in this study reported moderate level of perceived social support but the results revealed that perceived social support had a weak but significant direct negative effect ($\gamma = -0.16, p < .05$) on caregiver burden.

Basically, parent caregivers who perceive that others will provide resources when need, could increase their overall self confidence, stability, and controlling over environment (Cohen, Underwood & Gottlieb, 2000). Assistance and support receive by the parent caregiver could lower levels of physiological, psychological and financial burden from giving care. Various studies in this area lend support about the linkage between social support and caregiver burden (Mailick, Holgen & Walter, 1994; Biegel, et al., 1994; Wittaya-sooporn, 1996; Garwick, 1998; Chang, Brecht & Carter, 2001; Sullivan-Bolyai et al., 2002; 2003; Santati et al., 2003).

In this study, only a small negative effect was revealed. It may be because in asthma care more complicated and technical-dependent tasks need to be done. No one could help parent caregivers, or in this case mother, with these tasks except father in some family. Even though they perceive that they have variety sources of support but

to do asthma care for their children, they all have to do by themselves. Most caregiving tasks do not perceived as difficult by parent caregivers but take them large amount of time. At the same time, the most difficult tasks are associated with day-to-day management, which would lessen if they have someone helped with these non technical-dependent tasks.

This finding was similar to the finding in Chafetz & Barnes's study (1989) that despite the support group and the formal services provided by variety sources of support, caregivers reported that they still experienced a sense of aloneness. They emphasized that their ultimate individual responsibilities and the need to function depended on their own selves. They further indicated that turning to family did not always guarantee support. The family network could disappoint as well.

Perceived social support had a weak and non-significant direct positive effect ($\gamma = 0.02$, $p > .05$) and a weak but significant indirect positive effect ($\gamma = 0.02$, $p < .05$) on asthma management abilities through caregiver burden, indicating that caregiver burden is a mediator between social support and asthma management abilities.

It is interesting to consider why social support has no influence on management abilities in this study, while other studies about chronically ill children such as in the studies of Wittaya-sooporn (1996); Patumwan (1991), they all find some relationships between family resources and power capabilities of parent caregivers to care for their children.

Moreover, in the studies about management of complicated and life threatening disease likes asthma (Mansour et al., 2000; Horner, Surratt, & Smith, 2002; Palmer, 2001; Jerrette & Costello, 1996; Santati et al., 2003), the results from these studies also revealed that the biggest barrier to effective asthma management and access to care for family was lack of resources. The sources of poor support varied among subjects, but included other family members, friends, the school teachers, the physician, and the health care system. It should be noted that all of these studies revealed direct relationship between social support and management abilities, which was the end result. No study has ever explored if social support work through any other mediating factors such as caregiver burden before.

One possible explanation is that other members in the family, friends, co-workers, and other members in the community (in this study support from health

care providers is excluded) could not help parent caregivers much in doing the technical-dependent tasks in asthma care. These sources of support only help lessen some burdens (emotional & tangible support) which in turn help increase some of parent caregivers' abilities in doing asthma care. These will lend support to the above reason that managing children's illness as well as maintaining their normal growth and development, household tasks, and office works causes some management difficulties to parent caregivers. If parent caregivers have someone helped them with the non-technical dependent tasks, their burdens would lessen and in turn would affect their abilities in asthma management.

Family Hardiness

Parent caregivers in this study rated their family hardiness at high score level but no relationship was found between family hardiness and caregiver burden. However, a moderate significant direct positive effect ($\gamma = 0.37$, $p < .001$) of family hardiness on asthma management abilities was revealed.

According to Maddi & Kobasa (1984), hardiness is a multilevel construct and may influence outcomes through altering one's appraisal of a situation and increasing one's use of coping strategies, which is transformational than regressive coping strategies. Moreover, transformational coping strategies are cognitive or behavioral strategies that alter stressful events, while regressive coping strategies are cognitive or behavioral strategies that allow one to avoid the stressful events.

One best explanation for not detecting the effect of family hardiness on caregiver burden is parent caregivers in this study appraise that burdens in taking care of their asthmatic children are rather complicated to cope and manage. The best way parent caregivers could cope with these complicated situations when time passes is, turn to handle and take control over all of the care tasks and seek supports from various sources to help them meet this goal.

This presumption could be supported by Clark & King (2003) that one of the ways family hardiness may exert its effect is that caregivers with hardy families may be more willing to seek help from others. With their strong family hardiness, parent caregivers in this study could manage their care by develop their own strategies that help them increase their abilities to take good care of their children by seeking help

from resourceful persons. To support this remark, medium effect of quality of professional care on management abilities ($\gamma = 0.36$, $p < .001$) are detected.

In the reviewed literature, few studies were done in the area of family hardiness. Some of these studies found to support the relationship between family hardiness and burden or stress from giving care (Ray & Ritchie, 1993; Henkel, 1994; Snowdon, Cameron & Dunham, 1995; Huang, 1996; Svavarsdottir, 1997; Clark, 2002; DiBartolo & Soeken, 2003) while some could not detect this relationship (Failla & Jones, 1991; Donnelly, 1994; Scott-Baer et al., 1994). Family stress or caregiver stress was used instead of burden in most of the studies and the instruments used were not specific enough to measure burden in some studies so the results might or might not reveal the actual relation between them.

Like in the study of Donnelly (1994) about the relationship among family hardiness; family stressor; and family functioning in parents of children with asthma, family stressors were defined as the burdens that placed on caregivers during their care. Correlation between the fairly high hardiness score and the very low stressor index was found but was not determined to be significant ($r = 0.068$, $p = .05$). The stressor index, which the researcher used in this study, was not specific enough to detect stressor in caring the asthmatic children. Only general questions within family and office work were asked. No item was associated with the stressors from asthma care.

However, it would be premature to conclude that relationship between family hardiness and caregiver burden lacks of clinical significant. More researches need to be performed in order to find out whether family hardiness could reduce caregiver burden directly or work together with social support and whether family hardiness could increase management abilities of caregivers by reduce caregiver burden or work directly on caregivers' abilities.

Quality of Professional Care

The results revealed that quality of professional care had a weak non-significant direct positive effect ($\gamma = 0.01$, $p > .05$) on caregiver burden but had a medium and significant direct positive effect ($\gamma = 0.36$, $p < .001$) on asthma management abilities.

Educative and supportive from health care providers, as an environmental factor, can increase knowledge and strengthen personal efficacy of caregivers to engage in health care practices (Bandura, 1997). It is no doubt that the relationship between quality of professional care and management abilities of caregivers has been found in most of the literature (Larsen, 1992; Halfon & Newcheck, 1993; Finkelstein et al., 1995; Newacheck et al., 1996; Kattan et al., 1997; Levinson et al., 1997; Svavarsdottir et al., 2000; Mansour et al., 2000; Partridge & Hills, 2000; Christakis et al., 2001; Christakis et al., 2002; DixonWittaya-sooporn, 1996; Krishnasamy, 1996; Garwick et al., 1998; Radwin & Alster, 1999; Radwin, 2000; Lara et al., 2002) so as in this study.

Because asthma is a life threatening disease, parent caregivers in this study place most priority of their abilities on treatment regimen by trying to maintaining continuous visits with their physicians and strictly follow to the treatment regimens. Most of asthma cares are technical-dependent and need close advices from health care providers. Educative and supportive from health care providers is perceived as the most important support that parent caregivers need in this situation.

Moreover, Gibson (1995) and Wittaya-sooporn (1996) magnified that quality of care that parent caregivers received from health care provider was an important factor that had an effect on the development of their power capabilities to take good care of their children. The more quality of care parent caregivers receives, the more abilities they could perform. All of these lend support to the finding that quality of professional care has a direct medium positive effect on asthma management abilities in this study.

In reverse, a weak and non-significant positive effect of quality of professional care on caregiver burden was found. It may be because information and advices from health care providers are more technical in nature and from limit of time in each visit so they are not holistic enough to decrease burdens from giving care, which are known as time consuming and difficult to manage.

Contrasted to the finding in Wittaya-sooporn's study (1996), quality of educative and supportive care from nurse could predict 28% in coping with caregiving in parent caregivers and coping of parent caregivers was significantly reduced the burdensome from caregiving care in this study ($\beta = -.26$ $p < 0.05$). It should be noted

that educative and supportive cares from nurse in Wittaya-sooporn's study were focused not only on technical management but also on emotional management for children, parent caregivers, and other members in the family as well as attitude and relationship within family, which were more covered the needs of parent caregivers. All of which might help enhance coping abilities of parent caregivers and in turn helped reducing the burden from giving care.

Few studies were found to explore the relationship between quality of health care professional and caregiver burden. One finding came from the study of Mansour (2000) that parents often felt that health care providers sometime underestimated their fears and needs about having a child with breathing disorder like asthma. This often motivated parents to feel more burdens.

Effect of Caregiver Burden on Asthma Management Abilities

As expected by the model, there was a significant negative direct effect of caregiver burden on asthma management abilities ($\gamma = -0.39$, $p < .001$) and its affect was at medium level in this study.

Few prior studies had reported the relationship between caregiver burden and management abilities but the burden of chronic illness on the family caregivers was still substantial. Many parent caregivers stated that having a child with asthma was a significant psychological and physiological burden because they had to keep a vigilant watch over their children due to unpredictability of the disease and the complications of asthma managements (Townsend et al., 1991; Svavarsdottir, McCubbin, & Kane, 2000; Palmer, 2001; Santati et al., 2003). Children with chronically ill especially asthmatic children were more difficult to care than healthy children in various ways.

Moreover, some parent caregivers also experienced financial burden, especially in low income family. Actually, cost had prevented them from being able to purchase medications and changing their home environment, thus preventing them from being competent managers of their children's disease (Teague et al., 1993; Jones, 1996; Ory et al., 1999; Cain & Wicks, 2000; Lara et al., 2002).

Consistency with Orem's theory of dependent-care (Orem, 2001), managing all universal, developmental, and health deviation dependent-care demands for asthmatic children will cause some physical, psychological, and financial burdens, which will

lead to affect their health, well-being and especially also affect their management abilities.

Even though, there are few researches report the negative influence of caregiver burden on management abilities but this influence still exists in the reviewed literatures, so as in this study. The parent caregivers perceived that all asthma managements caused burdensome to them and they have to spend most of their time on doing these managements. As a result, significant medium negative direct effect of caregiver burden on management abilities was found.

One possible explanation for the reason why parent caregivers in this study could maintain their abilities inspite of burdensome because they have some other essential factors that help them overcome this burdensome. Beside from some personal factors (socio-economic status, education level, and experience in providing care) that parent caregivers have at moderate level; the affection, obligation, and linkage between parent caregivers and children motivate parent caregivers to effectively enter to the process of building their power capabilities to take good care of their children (Gibson, 1995).

The results also revealed medium effects of quality of professional care and hardiness within their family on their management abilities. All of which could help them find their own way to handle and take control over all the care tasks, which finally, enhance their abilities to give care to their asthmatic children.

Contribution to Nursing Science

The results of hypothesis testing was considered as a middle-range theory to explain and predict the causal relationship among factors those contributed to asthma management abilities of parent caregivers in taking care of their asthmatic children. Furthermore, these will guide future studies to expand theory to a level of control or guide practice by conducting experimental research design. Basic knowledge about factors contributing to asthma management abilities will guide developing the intervention programs to enhance parent caregivers' abilities and reducing factors those impede the development and maintenance of these management abilities of parent caregivers in the future.

Moreover, it would help expanding theory of asthma management abilities of parent caregivers. Results from this study give some theoretical statements those could be used to guide further studies in order to expand theory of asthma management abilities of parent caregivers to be more clearly and acceptable. Replication of this model in different samples of parent caregivers of asthmatic children as well as to the caregivers of other difference groups or populations would be more useful.

In addition, evidence from this research helped clarifying and strengthening the proposition in Orem's theory of dependent-care regarding the relationships of basic conditioning factors and dependent-care agency. The findings extended the theoretical basis of Orem's theory of dependent-care by using empirical data. The final model showed that the four proposed predictor variables accounted for 55% of variance in asthma management abilities.

Methodological Aspects

The methodological aspects related to the study findings will focus on the instrument issues, data collection procedures, and data analysis procedures. The detail in each topic was presented in the following section.

Instrument Aspects

Since three instruments in this study were used for the first time; one newly developed (Quality of Professional Care Scale) and two newly translated instruments (Family Hardiness Index and The Care of My Child with Asthma Scale), so translation procedures from English into Thai version and back translation had been made. Even though the translated versions in Thai were modified several times to be as informal and easy to understand as possible, but it was quite difficult to translate identical meanings in the Western to fit with Thai culture.

The reliability of some subscales in some instruments were rather low such as Control subscale (Cronbach's $\alpha = 0.59$) in Family Hardiness Index and Co-ordination subscale (Cronbach's $\alpha = 0.65$) in Quality of Professional Care Scale although the reliability of the whole instrument was acceptable (see Table 4.4). Further modifications in the future researches are needed.

For Asthma Management Abilities Scale, since this instrument was developed from Master theses' work so the completed statistically test had never been employed.

Criteria to judge the level of abilities of caregivers needed to be re-arranged and factor analysis needed to be achieved in larger sample sizes in order to categorize the characteristics of this variable. Even though the reliability coefficient of Asthma Management Abilities Scale in this study was in an acceptable range (0.83) but further modifications would substantially increase the reliability of this instrument to use in the future studies in asthma management.

Data Collecting Procedures

Although the sample sizes in this study was adequate to meet the requirement for testing the model (the ratio of 10 persons per 1 estimated parameter) and regarded as medium sample size but it is relatively small compared with the population of parent caregivers of the pre-school asthmatic children in Thai population. Moreover, since the data collecting procedure was done in the large hospitals within Bangkok Metropolitan area, which all had specialists in asthma care, and recruited the sample populations by convenient sampling technique so generalization of the study results should be made cautiously.

Data Analysis Procedures

Path analysis in this study was based on structural equation modeling (SEM) techniques. Although SEM has the capability to estimate and to test relationships among variables with a more comprehensive and flexible approach than do the standard approaches (correlation, multiple regression, and ANOVA) but SEM in and of itself cannot be used to imply causation. Mueller (1996) noted that the causal relationships among studied variables cannot be inferred from the result because an experimental design was not used and the study was cross-sectional; therefore, it has limited ability to infer causality.

At best, SEM may answer the question of whether the hypothesized model is consistent with the data (Bollen, 1989). When determining causation is the goal, a longitudinal design is required because the time sequence provides more validity for the questions regarding changes, developmental processes, and causation (Pedhazur & Schmelkin, 1991). Moreover, the study model is recursive, with unidirectional flow; thus, its explanatory power is limited because variables in social and behavioral sciences often interact with one another.

It should be noted, in fact, more than one model could fit the data (Bollen, 1989; Steven, 1996). In each step of testing, it requires taking both theoretical and empirical considerations into account. Theoretical guidance should be considered every time when selecting one model over another (Steven, 1996). In this study, all the fit indices of the final modified model indicate that the model fits the data well; however, it does not mean that it is the only finalized but only just the best explanation model.

Summary

In this chapter, discussions of the research findings are presented. Demographic characteristics, both of the caregivers and asthmatic children, the major variables, the research hypotheses are discussed. Finally, contributions to nursing science and methodological aspects are also presented.

CHAPTER VI

CONCLUSION

In this chapter, the summary of the sample characteristics, instruments, and research findings are presented. Then, the implication and recommendation of the finding will be discussed.

Summary of the Findings

Orem's theory of dependent-care was used as a conceptual framework in this cross-sectional descriptive study to examine the causal relationships among the selected basic conditioning factors (perceived social support, family hardiness, quality of professional care) and agencies of parent caregivers (caregiver burden) as they relate to asthma management abilities to take care of the pre-school asthmatic children.

Sample Characteristics

Two hundred and fifty three parent caregivers of the pre-school asthmatic children from three hospitals within Bangkok Metropolitan area participated in this study during March to June, 2005. Most parent caregivers (84.6%) were mother with ages ranged from 23 to 57 years (mean = 35.41 years). Half of them (50.2%) completed certificate and degree level (more than 15 years study periods). More than one-third of the parent caregivers (42.3%) had moderate family incomes (10,000 to 25,000 baht/month). The numbers of children under their responsibility (include asthmatic children) ranged from 1 to 6 persons (mean = 1.71, mode = 1). The mean experience of parent caregivers in taking care of the asthmatic child was equal to 3.4 years. Almost all the advices about asthma care were received from physician (84.6%).

Regarding to characteristic of the asthmatic children, nearly two-thirds of the children were male (62.5%, n = 158) with ages ranged from 0.75 to 7.5 years (mean = 4.82). The mean age at first diagnosed as asthma was 1.73 (mode = 1) and the mean average of asthma triggers was equal to 3.11 (mode = 2). The mean numbers of

asthma attack and admission during the past 3 months were equal to 1.28 and 0.63, respectively and the mean number of asthma drug used among these children was 1.68 (mode = 1).

Instruments

The instruments used in this study consisted of (1) Personal information questionnaire; (2) The Social Support Questionnaire (SSQ) developed by Pipatananond (2001); (3) Family Hardiness Index (FHI) developed by McCubbin, McCubbin, & Thompson (1987); (4) The Care of My Child with Asthma Scale developed by McCubbin & Svavarsdottir (1996); (5) The Caregivers' Perceptions of the Quality of Professional Care Scale (CPQPCS) modified from the Oncology Patients' Perceptions of the Quality of Nursing Care Scale (OPPQNCS) developed by Radwin et al. (2003); (6) The Asthma Management Abilities Scale modified from the Mother's Behavior in Taking Care of Asthma Child Scale by Rattanawarn (2001).

Since Family Hardiness Index and The Care of My Child with Asthma Scale have never been used in Thailand, thus, translation procedure from English into Thai version and back translation were made in this study.

The content validity of the Asthma Management Abilities Scale and the Caregivers' Perceptions of the Quality of Professional Care Scale were assessed by a panel of six experts. Some modifications had been made followed by the expert's advices. Reliabilities of all the instruments were tested first with 30 parent caregivers of the asthmatic children, which all were acceptable.

Item analysis, confirmatory factor analyses of each instrument were examined under the SPSS 13.0 and LISREL 8.52 statistical packages with the 253 study samples. Cronbach's alpha of the Social Support Questionnaire (SSQ), Family Hardiness Index (FHI), the Care of My Child with Asthma Scale, the Caregivers' Perceptions of the Quality of Professional Care Scale (CPQPCS), and the Asthma Management Abilities Scale were 0.94, 0.80, 0.90, 0.93, and 0.83, respectively.

Research Findings

The LISREL 8.52 was employed to test and modify the model. Selected multiple fit indexes were used to assess the model fit. The final modified model was proved to have a good fit with the data. The chi-square and degree of freedom ratio

(29.02/43 = 0.67), p-value (0.9491), GFI (0.98), AGFI (0.96), and RMSEA (0.000) were at the acceptable levels and the final model could explain 2% of variance in caregiver burden and 55% in asthma management abilities of parent caregivers in this study.

The results revealed that the research hypotheses were partially supported. It was found that perceived social support had some direct negative effect on caregiver burden and some indirect positive effect on asthma management abilities through caregiver burden at significant level, while direct effect on asthma management abilities were detected but not significant.

Family hardiness only had a medium direct positive effect on asthma management abilities at significant level while direct negative effect on caregiver burden as well as indirect influence on asthma management abilities was not found.

Quality of professional care had a medium direct significant positive effect on asthma management abilities while direct positive effect on caregiver burden as well as indirect influence on asthma management abilities were found but not significant.

Caregiver burden had a medium direct negative effect on asthma management abilities as hypothesized, indicating that parent caregivers, who perceived fewer burdens in giving care, could maintain their abilities in asthma management.

The analysis results also detected a significance but weak positive correlation between perceived social support and family hardiness, and perceived social support and quality of professional care, while the correlation between family hardiness and quality of professional care was not found in this study.

Conclusion

Even though the factor of the burden still had some influence on management abilities of parent caregivers, the quality of professional care as well as family hardiness were two other good predictors and worked directly to influence asthma management abilities in this study. These findings support the role of health care professional and hardiness among family members in increasing dependent-care agency of parent caregivers to take good care of the pre-school asthmatic children.

Implications and Recommendations

Implication to Nursing Practice

Results from this study indicated that in taking care of chronically ill children with special needs such as asthmatic children, burden from giving care still had some influence on management abilities of parent caregivers. Even though few factors were found to help reducing these burdens, the results also indicated that quality of care provided by health care professional and hardiness within family were two other important factors that could directly affect parent caregivers' management abilities.

According to this reason, there is a need for nurse, as one in health care profession, to take part in providing care to parent caregivers of the asthmatic children. By developing the organizing system in each health care center that allow properly trained nurse cooperates with physician in giving educative and supportive program that extend well beyond medical care to the realm of behavioral, the strengthen in each family, and the way of their living. All of which would enhance parent caregivers to find their own ways to take control over their managements.

Moreover, in taking care of the chronically ill children with special needs such as asthmatic children, burdens form giving care are still caused some problems to every parent caregivers. To lessen their burdens, parent caregivers need support from various sources: family members; siblings, friends & co-workers, etc. To help parent caregiver or mother manage her care, one another family member or father is encouraged to take turn and share the responsibility as a primary caregiver as well as encourage other family members to help in managing other house works than leave all responsibilities only to mother.

Increase quality of professional care, hardiness within family, and abilities to manage asthma care can yield not only healthier children but hope to reduce care burden of parent caregivers, improve family functioning, workplace productivity, and overall family well-being.

Implication for Methodological and Future Research

Since this study was deductive derived from Orem's theory of dependent care, which was a grand theory and this study was a cross-sectional design so it might not good enough to capture the evolving of independent variables that could influence

dependent variables as reflected in this study that the whole model could explain only 2% in caregiver burden. This finding should bring some presumption into consideration that whether caregiver burden or management abilities should be the outcome variable in this study. Thus, longitudinal study and model comparison whether caregiver burden or management ability is an outcome variable is needed to conduct to further explain a more in-depth understanding.

Another study to explore only the influence of quality of nursing care on caregiver burden and asthma management abilities in health care centers that have clinical nurse specialist in respiratory care should also be carried out in order to find the relationship among these variables. This approach is not merely conducted to find the solution of this phenomena but it also serve as a goal to initiate the organizing system that allow properly train nurse to cooperate with other health professions to take holistic care of the chronically ill children with special needs likes asthma in the future.

Concerning the instrument used, The Caregivers' Perceptions of the Quality of Professional Care Scale (CPQPCS), The Care of My Child with Asthma Scale, Family Hardiness Index are firstly used in this study, further testing of each instrument to ensure their reliability across groups is needed to be confirmed.

The Asthma Management Abilities Scale is also needed to be re-arranged and factor analysis is needed to be achieved in larger sample sizes in order to categorize the characteristics of this variable. This re-arranged scale might be useful to measure management abilities of parent caregivers in the research that associate with asthma care in the future.

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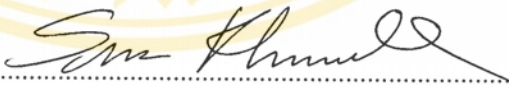
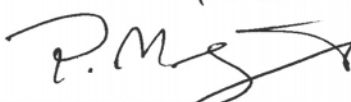
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APPENDIX A

Documentary Proof of Ethical Clearance

	
No. <u>55/2005</u>	
Documentary Proof of Ethical Clearance The Committee on Human Rights Related to Human Experimentation Mahidol University, Bangkok	
Title of Project.	Asthma Management Abilities Causal Model. An Empirical Test among Parent Caregivers of the Pre-school Asthmatic Children (Thesis for Ph.D.)
Principle Investigator.	Mrs. Sermsri Santati
Name of Institution.	Faculty of Medicine Ramathibodi Hospital
Approved by the Committee on Human Rights Related to Human Experimentation	
Signature of Chairman.	 (Professor Dr. Srisin Khusmith)
Signature of Head of the Institute.	 (Professor Dr. Pornchai Matangkasombut)
Date of Approval.	<u>20 MAY 2005</u>



คณะแพทยศาสตร์ โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล

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Tel. (662) 354-7275, 201-1296 Fax (662) 354-7233

**Documentary Proof of Ethical Clearance Committee on Human Rights
Related to Researches Involving Human Subjects
Faculty of Medicine, Ramathibodi Hospital, Mahidol University**

No. 0475/2005

Title of Project	Asthma Management Abilities Causal Model: An Empirical Test Among Parent Caregivers of the Pre-School Asthmatic Children
Protocol Number	ID 03-48-23
Principal Investigator	Mrs. Serm Sri Santati
Official Address	Department of Nursing Faculty of Medicine, Ramathibodi Hospital Mahidol University

The aforementioned project has been reviewed and approved by Committee on Human Rights Related to Researches Involving Human Subjects, based on the Declaration of Helsinki.

Signature of Chairman

Committee on Human Rights Related to
Researches Involving Human Subjects


Prof. Krisada Ratana-olarn, M.D., FRCST, FICS.

Signature of Dean


Prof. Rajata Rajatanavin, M.D., F.A.C.E.

Date of Approval

April 20, 2005



No. W-73

Ethics Committee

For

Researches Involving Human Subjects, the Bangkok Metropolitan Administration

Title of Project : Asthma Management Abilities Causal Model :
An Empirical Test Among Parent Caregivers
of the Pre-school Asthmatic Children

Registered Number : 0050.48

Principal Investigator : Mrs. Sermsri Santati

Name of Institution : Mahidol University

The aforementioned project has been reviewed and approved by Ethics
Committee for Researches Involving Human Subjects, based on the Declaration of
Helsinki.

Chairman

(Mr. Pitinan Natrujirote)

Deputy Permanent Secretary for BMA

DATE OF APPROVAL - 6 MAY 2005



บันทึกข้อความ

ส่วนราชการ คณะกรรมการพิจารณาการศึกษาวิจัยในมนุษย์ ของสถาบันสุขภาพเด็กแห่งชาติมหาราชินี

ที่ สธ 0319/ 11189 วันที่ 21 มีนาคม 2548

เรื่อง แจ้งผลการพิจารณาโครงการวิจัย

เรียน แพทย์หญิงมุกดา หวังวิรุณวงศ์

ตามที่ท่านได้เสนอโครงการศึกษาวิจัยเพื่อรับการพิจารณาจากคณะกรรมการพิจารณาการศึกษาวิจัยในมนุษย์ ของสถาบันสุขภาพเด็กแห่งชาติมหาราชินี เรื่อง รูปแบบจำลองการวิเคราะห์เชิงสาเหตุของความสามารถในการดูแลโรคหอบหืด : การทดสอบเชิงประจักษ์ในผู้ปกครองผู้ดูแลเด็กก่อนวัยเรียนโรคหอบหืด (Asthma Management Abilities Causal Model : An Empirical Test among Parent Caregivers of the Pre-school Asthmatic Children) นั้น

บัดนี้ คณะกรรมการพิจารณาการศึกษาวิจัยในมนุษย์ ของสถาบันสุขภาพเด็กแห่งชาติมหาราชินีได้พิจารณาแล้วเห็นควรอนุญาตให้ทำการศึกษาวิจัยได้ โดยขอให้พิจารณาใบ Consent form ว่าลงนามโดยผู้ปกครอง ซึ่งสถาบันสุขภาพเด็กแห่งชาติมหาราชินีไม่ต้องรับผิดชอบค่าใช้จ่ายใดๆ ทั้งสิ้นในการศึกษาครั้งนี้ และเมื่อเสร็จสิ้นโปรดมอบผลการวิจัยฉบับสมบูรณ์ให้แก่สถาบันสุขภาพเด็กแห่งชาติมหาราชินี จำนวน 2 ชุด โดยส่งที่ สำนักงานกลุ่มวิจัยและพัฒนา ชั้น 12 อาคารสถาบันสุขภาพเด็กแห่งชาติมหาราชินี เพื่อประโยชน์ในการศึกษาวิจัยในโอกาสต่อไป

จึงเรียนมาเพื่อทราบและแจ้งผู้เกี่ยวข้องทราบต่อไปด้วย จักขอบคุณ

(นางสุรณี เรืองสุวรรณ)

ประธานคณะกรรมการพิจารณาการศึกษาวิจัยในมนุษย์
ของสถาบันสุขภาพเด็กแห่งชาติมหาราชินี

Participation's Right Protection Form

เอกสารชี้แจงข้อมูล / คำแนะนำแก่ผู้เข้าร่วมการวิจัย (Patient / Participant Information Sheet)

ชื่อโครงการ รูปแบบจำลองการวิเคราะห์เชิงสาเหตุของความสามารถในการดูแลโรคหอบหืด: การทดสอบเชิงประจักษ์ในผู้ปกครองผู้ดูแลเด็กก่อนวัยเรียนโรคหอบหืด

ชื่อผู้วิจัย นางเสริมศรี สันตติ
นักศึกษาระดับปริญญาตรีบัณฑิตทางการพยาบาล (หลักสูตรนานาชาติ)
โรงเรียนพยาบาลรามาธิบดี คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล

สถานที่วิจัย แผนกตรวจผู้ป่วยนอก แผนกการพยาบาลกุมารเวชศาสตร์
คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี

บุคคลและวิธีการติดต่อเมื่อมีเหตุฉุกเฉินหรือความผิดปกติที่เกี่ยวกับการวิจัย
หน่วยโรคระบบหายใจเด็ก แผนกการพยาบาลกุมารฯ คณะแพทยศาสตร์โรงพยาบาล
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ผู้สนับสนุนการวิจัย หลักสูตรปริญญาตรีบัณฑิตทางการพยาบาล
โรงเรียนพยาบาลรามาธิบดี คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล

ความเป็นมาของโครงการ

เนื่องจากดิฉัน นางสาวเสริมศรี สันตติ ซึ่งขณะนี้อยู่ในระหว่างการลาศึกษาต่อในระดับปริญญาเอกทางการพยาบาลคณะแพทยศาสตร์โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล กำลังทำการศึกษาวิจัยเกี่ยวกับปัจจัยที่มีผลต่อความสามารถของผู้ปกครองผู้ดูแลเด็กโรคหอบหืด ว่ามีปัจจัยอะไรบ้างที่ทำให้ผู้ปกครองเหล่านี้สามารถให้การดูแลเด็กป่วยโรคหอบหืดได้อย่างมีประสิทธิภาพ ถึงแม้จะประสบกับภาวะเครียดจากภาระต่าง ๆ ทั้งจากงานบ้านที่ต้องรับผิดชอบ และงานที่ทำงานที่ต้องทำเป็นประจำ นอกเหนือจากการที่ต้องดูแลเด็กที่ป่วยตามแผนการรักษาของแพทย์

วัตถุประสงค์

เพื่อศึกษาหาข้อมูลเกี่ยวกับปัจจัยที่ส่งผลต่อความสามารถในการดูแลเด็กป่วยโรคหอบหืดของผู้ปกครอง

รายละเอียดที่จะปฏิบัติต่อผู้เข้าร่วมการวิจัย

ขอความร่วมมือผู้ร่วมการวิจัยตอบแบบสอบถาม ซึ่งจะเกี่ยวข้องกับปัจจัยที่มีผลต่อความสามารถของท่านในฐานะผู้ดูแลในการจัดการอาการหอบหืดของเด็กป่วยในความดูแล แบบสอบถามประกอบด้วยข้อคำถามจำนวน 6 ชุด ประกอบด้วย 1) ข้อมูลเบื้องต้นของท่านและเด็กป่วยในความดูแล 2) ข้อมูลความเข้มแข็งในการมองโลกของท่านทางด้านสุขภาพ 3) ข้อมูลเกี่ยวกับความช่วยเหลือหรือความสนับสนุนที่ท่านได้รับจากบุคคลต่าง ๆ ในการดูแลเด็กป่วย 4) ข้อมูลเกี่ยวกับคุณภาพการให้บริการของเจ้าหน้าที่ในทีมสุขภาพ 5) ข้อมูลเกี่ยวกับภาระของท่านในการจัดการอาการหอบหืด 6) ข้อมูลเกี่ยวกับความสามารถของท่านในการจัดการอาการหอบหืดให้กับเด็กป่วย โดยจะใช้เวลาในการตอบประมาณ 1 ชั่วโมง

ประโยชน์และผลข้างเคียงที่จะเกิดกับผู้เข้าร่วมการวิจัย

ข้อมูลจากผู้ร่วมการวิจัยและผู้ปกครองท่านอื่น ๆ ตอบจะนำไปใช้เป็นประโยชน์ในการปรับปรุงระบบการจัดการและการบริการด้านการรักษาพยาบาล เพื่อเพิ่มความสามารถของผู้ปกครองในการจัดการอาการหอบหืดแก่เด็กในความดูแลได้อย่างมีประสิทธิภาพมากขึ้นในอนาคต

การเก็บข้อมูลเป็นความลับ

ข้อมูลทั้งหมดที่ได้จะเก็บเป็นความลับ โดยจะรายงานผลการศึกษาในภาพรวมของผู้เข้าร่วมการวิจัยเท่านั้น ทั้งนี้การเปิดเผยข้อมูลเกี่ยวกับตัวผู้เข้าร่วมการวิจัยต่อหน่วยงานต่าง ๆ ที่เกี่ยวข้อง จะกระทำได้เฉพาะกรณีที่ทำเป็นด้วยเหตุผลทางวิชาการเท่านั้น ถ้าหากมีข้อสงสัยใด ๆ สามารถถามผู้วิจัยได้ตลอดเวลา หรือหากผู้ร่วมการวิจัยไม่สะดวกใจในการตอบคำถาม ก็สามารถยุติการตอบแบบสอบถามได้ตลอดเวลาโดยจะไม่มีผลกระทบใด ๆ ต่อตัวผู้ร่วมการวิจัยและเด็กที่อยู่ในความดูแล รวมถึงประสิทธิภาพในการให้การดูแลรักษาเด็กป่วยทั้งสิ้น

หนังสือยินยอมโดยได้รับการบอกกล่าวและเต็มใจ (Informed Consent form)

การวิจัยเรื่อง รูปแบบจำลองการวิเคราะห์เชิงสาเหตุของความสามารถในการดูแลโรคหอบหืด: การทดสอบเชิงประจักษ์ในผู้ปกครองผู้ดูแลเด็กก่อนวัยเรียนโรคหอบหืด

วันให้คำยินยอม วันที่ เดือน พ.ศ.

ก่อนที่จะลงนามในใบยินยอมให้ทำการวิจัยนี้ ข้าพเจ้าได้ทราบรายละเอียดของโครงการวิจัยจากผู้วิจัย วัตถุประสงค์ วิธีการวิจัย ตลอดจนประโยชน์ และข้อเสียที่จะเกิดขึ้นต่อข้าพเจ้าจากผู้วิจัยแล้วอย่างชัดเจน

ผู้วิจัยรับรองว่าจะตอบคำถามต่าง ๆ ที่ข้าพเจ้าสงสัยด้วยความเต็มใจ ไม่ปิดบังซ่อนเร้น จนข้าพเจ้าพอใจ

ข้าพเจ้ามีสิทธิที่จะบอกเลิกการเข้าร่วมโครงการวิจัยนี้เมื่อไรก็ได้ โดยไม่มีผลกระทบต่อการรักษาพยาบาลที่ข้าพเจ้าพึงได้รับ

ผู้วิจัยรับรองว่าจะเก็บข้อมูลเฉพาะเกี่ยวกับตัวข้าพเจ้าเป็นความลับและจะเปิดเผยได้เฉพาะในรูปแบบที่เป็นสรุปผลการวิจัย การเปิดเผยข้อมูลเกี่ยวกับตัวข้าพเจ้าต่อหน่วยงานต่าง ๆ ที่เกี่ยวข้องกระทำได้เฉพาะกรณีที่ทำเป็นด้วยเหตุผลทางวิชาการเท่านั้น

ผู้วิจัยรับรองว่าหากมีข้อมูลเพิ่มเติมที่ส่งผลกระทบต่อการศึกษา ข้าพเจ้าจะได้รับการแจ้งให้ทราบโดยไม่ปิดบัง ซ่อนเร้น

ข้าพเจ้าได้อ่านข้อความข้างต้นแล้ว มีความเข้าใจดีทุกประการ และได้ลงนามในใบยินยอมนี้ด้วยความเต็มใจ

ลงชื่อ (ผู้เข้าร่วมการวิจัย)

..... (พยาน)

..... (พยาน)

วันที่.....

APPENDIX B

List of content validity experts

(รายชื่อผู้ทรงคุณวุฒิในการตรวจสอบความตรงตามเนื้อหา)

List of content validity experts for the Health Related Hardiness Scale, the Social Support Questionnaire, the Perceived Quality of Professional Care, the Care of my Child Scale, and Asthma Management Abilities Questionnaire

1. Mukda Vangveeravong, M.D.
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3. Suwat Benjapholpitak, M.D.
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4. Mrs. Thitida Chaisupamonkolap, RN., MS (Physiology).
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List of content validity experts (CONT.)

6. Renu Pookboonmee, RN., DNS.

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9. Vanida Sansuttipun, RN., PhD.

Assistant Professor, Department of Pediatric Nursing,
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10. Mr. Eric Curkendall

Staff, Graduate Study, Mahidol University

11. Mr. Paul Gerard Murphy

Pre-College Program Instructor,
International College, Mahidol University

12. Mrs. Angkhana Bode

University of North Carolina at Chaple Hill, USA.

APPENDIX C

Instruments

แบบบันทึกข้อมูลทั่วไปของผู้ดูแลและเด็กป่วยโรคหืด

คำชี้แจงในการตอบแบบสอบถาม

กรุณาทำเครื่องหมาย ☒ หรือกรอกข้อมูลลงในช่องว่างที่กำหนดในแต่ละข้อคำถามต่อไปนี้ให้สมบูรณ์

ตอนที่ 1 ข้อมูลทั่วไปของผู้ดูแล

1. ปัจจุบันท่านมีอายุ ปี
2. เพศ ☐ หญิง ☐ ชาย
3. นับถือศาสนา ☐ พุทธ ☐ คริสต์
☐ อิสลาม ☐ อื่น ๆ ระบุ.....
4. สถานะภาพการสมรส ☐ สมรส อยู่ด้วยกัน ☐ สมรส ไม่อยู่ด้วยกัน
☐ หย่า ☐ หม้าย
☐ โสด ☐ อื่น ๆ ระบุ.....
5. ระดับการศึกษา
☐ ประถมศึกษา (ป. 1-6) ระบุ.....
☐ มัธยมศึกษา (ม. 1-6) ระบุ.....
☐ ประกาศนียบัตรวิชาชีพ (ปวช., ปวส.) ระบุ.....
☐ ระดับปริญญา (อนุปริญญา, ตรี, โท, เอก) ระบุ.....
6. ปัจจุบันท่านประกอบอาชีพ
☐ แม่บ้าน/พ่อบ้าน
☐ ประกอบอาชีพที่เกี่ยวข้องกับด้านสุขภาพ ระบุ.....
☐ ประกอบอาชีพที่ไม่เกี่ยวข้องกับด้านสุขภาพ ระบุ.....
7. รายได้รวมของครอบครัวต่อเดือน
☐ ต่ำกว่า 10,000 บาท ☐ 10,000 - 25,000 บาท
☐ 25,001 - 40,000 บาท ☐ 40,001 - 55,000 บาท
☐ สูงกว่า 55,001 บาท
8. ท่านมีเด็กที่อยู่ในความดูแลรวม..... คน (รวมเด็กโรคหืด)
9. ท่านมีประสบการณ์ในการดูแลเด็กโรคหืดเป็นเวลารวม.....ปี.....เดือน
10. ผู้ที่ให้คำแนะนำในการดูแลเด็กส่วนใหญ่ คือ
☐ แพทย์ ☐ พยาบาล ☐ อื่น ๆ ระบุ.....

ตอนที่ 2 ข้อมูลทั่วไปของเด็กโรคหืด

1. ปัจจุบันเด็กในความดูแลของท่านมีอายุ ปี
2. เพศ ☐ หญิง ☐ ชาย
3. เด็กได้รับการวินิจฉัยว่าเป็นโรคหืดตั้งแต่อายุ.....ปี.....เดือน
4. จำนวนครั้งที่เด็กมีอาการหอบในรอบ 3 เดือนที่ผ่านมา ครั้ง
5. จำนวนครั้งที่เด็กมีอาการหอบและต้องเข้ารับการรักษาในโรงพยาบาลในรอบ 3 เดือนที่ผ่านมา ครั้ง
6. เด็กจะมีอาการหอบเมื่อสัมผัสกับสิ่งต่อไปนี้ (ตอบได้มากกว่า 1 ข้อ)

☐ การติดเชื้อในระบบทางเดินหายใจ	☐ ละอองเกสรดอกไม้
☐ การเปลี่ยนแปลงของอากาศ	☐ ขาบางชนิด
☐ การออกกำลังกาย	☐ อารมณ์ที่เปลี่ยนแปลง
☐ ควันต่าง ๆ	☐ อาหาร ระบุ.....
☐ ฝุ่น	☐ ขนสัตว์
☐ อื่น ๆ ระบุ.....	
7. ขณะนี้เด็กได้รับยา (ตอบได้มากกว่า 1 ข้อ)

☐ ยาขยายหลอดลมชนิดรับประทาน	จำนวน.....เม็ด หรือ ช้อน/วัน
☐ ยาขยายหลอดลมชนิดพ่น	จำนวน.....ครั้ง / วัน
☐ ยาป้องกันอาการหอบชนิดรับประทาน	จำนวน.....เม็ด หรือ ช้อน/วัน
☐ ยาป้องกันอาการหอบชนิดพ่น	จำนวน.....ครั้ง / วัน

แบบวัดความเข้มแข็งของครอบครัวในการมองโลก

คำชี้แจงในการตอบแบบสอบถาม

แบบสอบถามชุดนี้มีวัตถุประสงค์เพื่อวัดวิธีที่ครอบครัวของท่านมองเหตุการณ์ต่าง ๆ ที่เกิดขึ้นภายในครอบครัว โดยให้ท่านพิจารณาข้อความในแต่ละข้อว่า อธิบายเกี่ยวกับครอบครัวของท่านถูกต้องมากน้อยเพียงใด แล้วทำเครื่องหมาย ✓ ในช่องคำตอบที่ตรงกับลักษณะภายในครอบครัวของท่านมากที่สุดเพียงข้อเดียว กรุณาตอบคำถามทุกข้อ (รวมทั้งหมด 20 ข้อ)

ในครอบครัวของเรา.....	ผิด	ผิดเกือบทั้งหมด	ถูกเกือบทั้งหมด	ถูก
1. ปัญหาที่เกิดขึ้นเป็นผลมาจากความผิดพลาดที่เราทำ				
2. มันไม่ฉลาดเลยที่วางแผนล่วงหน้าและตั้งความหวังไว้เพราะถึงอย่างไรทุกสิ่งทุกอย่างก็เปลี่ยนแปลงไม่ได้				
3. ไม่ว่าเราพยายามหรือทำงานหนักเพียงใด งานและความพยายามของเราไม่ได้รับความชื่นชม				
4. ในระยะยาว สิ่งไม่ดีที่เกิดขึ้นกับเราจะถูกทำให้สมดุลด้วยความดีที่เกิดขึ้น				
5. เราารู้สึกเข้มแข็ง แม้ในขณะที่เราต้องเผชิญหน้ากับปัญหาที่รุนแรง				
6. หลายครั้งที่แม้จะประสบความสำเร็จในชีวิต ฉันมั่นใจว่าทุกอย่างจะลุล่วงไปได้				
7. เราไม่จำเป็นต้องมีความเห็นตรงกันทุกเรื่อง แต่เราสามารถวางใจกันและกันได้ว่า พวกเราจะอยู่เคียงข้างกันในเวลาที่ต้องการ				
8. เราารู้สึกว่า เราไม่สามารถจะอยู่รอดได้ ถ้ามีปัญหาอื่นมากระทบเราอีก				
9. เราเชื่อว่าสิ่งต่าง ๆ จะลุล่วงไปได้ด้วยดี ถ้าครอบครัวเราร่วมมือกันทุกคน				
10. ชีวิตนี้น่าเบื่อและไม่มีความหมาย				
11. ไม่ว่าอะไรก็ตาม เราช่วยกันต่อสู้และช่วยเหลือซึ่งกันและกัน				
12. เมื่อครอบครัวของเราวางแผนทำกิจกรรมใด ๆ เราพยายามลองทำสิ่งใหม่ ๆ และน่าตื่นเต้น				
13. เราปรับปรุงปัญหา ความทุกข์และความกลัวของกันและกัน				
14. เรามีแนวโน้มที่จะทำในสิ่งเดิม ๆ ซ้ำแล้วซ้ำเล่า...มันน่าเบื่อ				
15. เราพยายามส่งเสริมกันและกันให้ลองสิ่งใหม่ ๆ และประสบการณ์ใหม่ ๆ				
16. การอยู่บ้านดีกว่าการออกไปข้างนอกและทำกิจกรรมกับคนอื่น				
17. การกระตือรือร้นและเรียนรู้สิ่งใหม่ ๆ เป็นสิ่งที่น่าส่งเสริม				
18. เราแก้ปัญหาาร่วมกัน				
19. สิ่งที่ทำให้เราหมดความสุขส่วนใหญ่เกิดขึ้นจากโชคไม่ดี				
20. เราารู้สึกว่าความบังเอิญหรือโชคชะตาเป็นตัวกำหนดชีวิตของเรา				

แบบสอบถามคุณภาพการดูแลของบุคลากรทางการแพทย์ที่ให้กับผู้ป่วยเด็ก
คำชี้แจงในการตอบแบบสอบถาม

แบบสอบถามชุดนี้มีวัตถุประสงค์เพื่อสอบถามคุณภาพการดูแลของบุคลากรทางการแพทย์ที่ให้กับท่านในช่วงเวลาที่ผ่าน มาเกี่ยวกับความรู้ การช่วยเหลือด้านต่าง ๆ ที่เกี่ยวข้องกับการดูแลเด็กที่ท่านให้การดูแลอยู่ โดยให้ท่านพิจารณาคุณลักษณะของการ ดูแลที่ท่านได้รับในแต่ละข้อว่า ตรงกับความเป็นจริงอย่างไร และทำเครื่องหมาย ✓ ลงในช่องคำตอบ กรุณาตอบคำถามทุกข้อ (รวม ทั้งหมด 19 ข้อ)

การเลือกคำตอบมีเกณฑ์ดังนี้

ไม่เคยเลย	หมายถึง	บุคลากรทางการแพทย์ไม่เคยช่วยเหลือด้านนี้เลยเวลามาตรวจรักษาแต่ละครั้ง
เกือบไม่เคยเลย	หมายถึง	บุคลากรทางการแพทย์เคยให้ความช่วยเหลือแต่น้อยมาก
บางครั้ง	หมายถึง	บุคลากรทางการแพทย์เคยให้ความช่วยเหลือเป็นบางครั้ง
บ่อยครั้ง	หมายถึง	บุคลากรทางการแพทย์เคยช่วยเหลือด้านนี้หลายครั้งเวลามาตรวจรักษา
เกือบทุกครั้ง	หมายถึง	บุคลากรทางการแพทย์ให้ความช่วยเหลือเกือบทุกครั้งเวลามาตรวจรักษา
ทุกครั้ง	หมายถึง	บุคลากรทางการแพทย์ให้ความช่วยเหลือทุกครั้งเวลามาตรวจรักษา

ข้อความ	คุณลักษณะการดูแล					
	ไม่เคยเลย	เกือบไม่ เคยเลย	บางครั้ง	บ่อยครั้ง	เกือบทุก ครั้ง	ทุกครั้ง
1. แพทย์/พยาบาลใช้เวลาในการตอบ คำถามของฉัน						
2. แพทย์/พยาบาลสอบถามจนแน่ใจว่าฉัน ได้ในเรื่องที่ต้องการ						
3. แพทย์/พยาบาลปลอบโยนฉันเมื่อฉัน ต้องการ						
4. แพทย์/พยาบาลห่วงใยฉันและเด็กอย่าง จริงใจ						
5. แพทย์/พยาบาลเคารพในศักดิ์ศรีของฉัน						
6. แพทย์/พยาบาลให้ข้อมูลเกี่ยวกับความ เจ็บป่วยของเด็กกับฉัน						
7. แพทย์/พยาบาลรู้ว่าฉันได้ผ่านเหตุการณ์ อะไรมาแล้วบ้าง						
8. แพทย์/พยาบาลพูดคุยถึงทางเลือกใน การดูแลรักษาเด็กกับฉัน						
9. เมื่อมีปัญหาเกิดขึ้นแพทย์/พยาบาลรู้ว่า จะช่วยฉันและเด็กอย่างไร						
10. แพทย์/พยาบาลกระตุ้นให้ฉันมีส่วนร่วม ในการดูแลเด็ก						

ข้อความ	คุณลักษณะการดูแล					
	ไม่เคยเลย	เกือบไม่ เคยเลย	บางครั้ง	บ่อยครั้ง	เกือบทุก ครั้ง	ทุกครั้ง
11. แพทย์/พยาบาลเจ้าของไข้บอกฉันว่า แพทย์/พยาบาลคนใดที่จะมาดูแลเด็ก แทนเมื่อพวกเขาไม่อยู่						
12. แพทย์/พยาบาลจัดให้เด็กอยู่ในความ ดูแลของแพทย์/พยาบาลคนเดิมเสมอ						
13. แพทย์/พยาบาลบอกฉันว่าแพทย์/ พยาบาลคนใดที่มีหน้าที่รับผิดชอบ โดยตรงในการดูแลเด็ก						
14. แพทย์/พยาบาลให้ความรู้เกี่ยวกับการ ดูแลเด็กอย่างถูกต้อง						
15. แพทย์/พยาบาลรู้วิธีดูแลเด็กป่วยคนอื่น ที่มีปัญหาเหมือนเด็กในความดูแลของ ฉันอย่างไร						
16. แพทย์/พยาบาลมีความสามารถในการ ดูแลเด็ก						
17. แพทย์/พยาบาลรู้ว่าเขากำลังทำอะไรอยู่						
18. แพทย์/พยาบาลรู้ว่าจะช่วยเหลือเด็กได้ อย่างไร						

19. โดยทั่วไป คุณสามารถอธิบายถึงคุณภาพในการดูแลที่คุณได้รับจากแพทย์/พยาบาลอย่างไร

☐ ดีมาก ☐ ดี ☐ ปานกลาง ☐ ไม่ค่อยดี ☐ ไม่ดีเลย

แบบสอบถามแรงสนับสนุนทางสังคม

คำชี้แจงในการตอบแบบสอบถาม

แบบสอบถามชุดนี้มีวัตถุประสงค์เพื่อสอบถามปริมาณความช่วยเหลือหรือการสนับสนุนที่ท่านได้รับจากกลุ่มบุคคลต่าง ๆ 4 กลุ่ม ได้แก่ 1) กลุ่มบุคคลในครอบครัว 2) กลุ่มพี่น้องและญาติ 3) กลุ่มเพื่อนและร่วมงาน และ 4) กลุ่มบุคคลในชุมชน ว่าเป็นความช่วยเหลือหรือให้การสนับสนุนท่านเกี่ยวกับการดูแลเด็กมากน้อยเพียงใด โดยให้ท่านพิจารณาข้อความในแต่ละข้อว่า ท่านได้รับความช่วยเหลือจากบุคคลเหล่านี้ในเรื่องนั้น ๆ มากน้อยเพียงใด แล้วทำเครื่องหมาย ☒ ลงในช่องคำตอบที่ตรงกับปริมาณความช่วยเหลือจริงเพียงข้อเดียว กรุณาตอบคำถามทุกข้อ (รวมทั้งหมด 28 ข้อ) ระดับความช่วยเหลือมี 5 ระดับ คือ

มากที่สุด ก่อนข้างมาก ปานกลาง เล็กน้อย ไม่ได้เลย

ข้อความ	ระดับการปฏิบัติ				
	ไม่ได้เลย	เล็กน้อย	ปานกลาง	ก่อนข้างมาก	มากที่สุด
1. ท่านได้รับข้อมูล คำแนะนำ และการชี้แนะแนวทางที่เป็นประโยชน์จากคู่สมรส บิดา มารดา และบุตรของท่านมากน้อยเพียงใดในระหว่างการดูแลเด็ก					
2. ท่านเชื่อมั่นในความช่วยเหลือที่ได้รับจากคู่สมรส บิดา มารดา และบุตรของท่านมากน้อยเพียงใดในระหว่างการดูแลเด็ก					
3. ในระหว่างการดูแลเด็ก คู่สมรส บิดา มารดา และบุตรของท่านได้ปลอบใจและให้กำลังใจแก่ท่านมากน้อยเพียงใด					
4. ท่านได้รับความห่วงใยจากคู่สมรส บิดา มารดา และบุตรของท่านมากน้อยเพียงใดในระหว่างการดูแลเด็ก					
5. ท่านสามารถไว้วางใจ สามารถบอกความลับ ความคับข้องใจแก่คู่สมรส บิดา มารดา และบุตรของท่านมากน้อยเพียงใดในระหว่างการดูแลเด็ก					
6. ถ้าท่านต้องการความช่วยเหลือทางการเงินหรือต้องการความช่วยเหลือในการพาเด็กไปส่งโรงพยาบาล หรือต้องการความช่วยเหลือเร่งด่วนท่านสามารถขอความช่วยเหลือดังกล่าวจากคู่สมรส บิดา มารดา และบุตรของท่านมากน้อยเพียงใด					
7. ในกิจกรรมการดูแลเด็ก คู่สมรส บิดา มารดา และบุตรของท่าน ได้ช่วยเหลือท่านมากน้อยเพียงใด					

แบบสอบถามภาระของผู้ดูแลในการดูแลเด็กโรคหืด
คำชี้แจงในการตอบแบบสอบถาม

แบบสอบถามชุดนี้มีวัตถุประสงค์เพื่อสอบถามภาระของท่านเกี่ยวกับการดูแลเด็กโรคหืดใน 2 ประเด็น คือ เวลาที่ใช้ในการทำกิจกรรมการดูแลและความยากลำบากในการทำกิจกรรมนั้น ๆ โดยให้ท่านพิจารณากิจกรรมในแต่ละข้อว่า ท่านต้องใช้ “ปริมาณเวลา” หรือต้องปฏิบัติด้วย “ความยากลำบาก” เพียงใด เนื่องจากกิจกรรมบางอย่างท่านอาจต้องใช้เวลามากในการปฏิบัติ แต่เป็นกิจกรรมที่ไม่ทำความยากลำบากให้กับท่านเลย ในขณะที่อีกกิจกรรมบางอย่างท่านอาจใช้เวลาไม่มากแต่ต้องทำด้วยความยากลำบากเป็นต้น โดยทำเครื่องหมาย ✓ ลงในช่องคำตอบที่ตรงกับปริมาณเวลาที่ใช้และความยากลำบากในการปฏิบัติกิจกรรมนั้น ตามความเป็นจริง และกรุณาตอบคำถามทุกข้อ (รวมทั้งหมด 24 ข้อ)

	ปริมาณเวลาที่ใช้					ความยากลำบาก				
	มากที่สุด	มาก	ปานกลาง	น้อย	น้อยมาก หรือ ไม่ใช้เลย	มากที่สุด	มาก	ปานกลาง	น้อย	น้อยมาก หรือ ไม่ลำบากเลย
1. การให้ยาพ่นแก้ไอการหอบ (แบบฟอยละอองหรือแบบสเปรย์) สมัเสมอตามเวลาที่แพทย์สั่ง										
2. การดูแลเด็กให้ร่วมมือในการพ่นยา (แบบฟอยละอองหรือแบบสเปรย์)										
3. การเฝ้าสังเกตอาการเตือนว่าเด็กจะเริ่มหอบ (เช่น น้ำมูกไหล เหนื่อยมากขึ้น ความอยากอาหารลดลง คันทอ หน้าแดง เป็นต้น)										
4. การเฝ้าสังเกตว่าเด็กมีอาการหอบเกิดขึ้นแล้ว (เช่น ไอ หายใจมีเสียงหวีด หายใจถี่ แน่นหน้าอก เป็นต้น)										
5. การให้ยาขยายหลอดลม (ยาพ่นแบบฟอยละอองหรือแบบสเปรย์หรือยากิน) ตามความจำเป็น เมื่ออาการหอบกำเริบ										
6. การดูแลช่วยเหลือเมื่อเด็กมีอาการหอบ (ให้การดูแลตามแผนการรักษา ให้ยา คัดสินใจพาเด็กไปพบแพทย์ หากอาการไม่ดี เป็นต้น)										

	ปริมาณเวลาที่ใช้					ความยากลำบาก				
	มากที่สุด	มาก	ปานกลาง	น้อย	น้อยมาก หรือไม่ใช้เลย	มากที่สุด	มาก	ปานกลาง	น้อย	น้อยมาก หรือไม่ลำบากเลย
7. การบริหารจัดการเกี่ยวกับงานที่ทำนอกบ้านหรือการพาเด็กไปโรงเรียน พร้อม ๆ กับการจัดการในการดูแลเด็กโรคหืด (เช่น อาจต้องลงงานหรือลาโรงเรียนเพื่อให้ยาพ่น หรือหาคนอื่นที่มีความสามารถในการพ่นยามาช่วย)										
8. การตกลงแบ่งหน้าที่การดูแลเด็กกับคู่สมรส เมื่อเด็กมีอาการหอบ										
9. การสังเกตและรายงานอาการและความเปลี่ยนแปลงของอาการให้แพทย์หรือพยาบาล										
10. การส่งเสริมพัฒนาการของเด็ก (สอนเรื่องการจับถ้ำย การแต่งตัวด้วยตนเอง)										
11. การฝึกระเบียบวินัยและการแก้ไขพฤติกรรมที่เป็นปัญหา (เช่น ร้องไห้ งอแง หงุดหงิด นอนยาก เป็นต้น)										
12. การจัดการกับพฤติกรรมที่เป็นปัญหา (เช่น พฤติกรรมก้าวร้าว เข้ากับเด็กคนอื่นยาก เป็นต้น) ซึ่งเป็นผลข้างเคียงจากการใช้รักษาอาการหืดบางชนิด										
13. การตื่นตอนกลางคืนเพื่อดูแลเด็ก										
14. การดูแลตนเอง เมื่อมีอาการอ่อนล้าจากการดูแลเด็ก										
15. การหาคนมาช่วยดูแลเด็กในเวลากลางวัน										
16. การแจ้งข้อมูลเกี่ยวกับอาการหอบของเด็กให้สถานเลี้ยงเด็กกลางวัน พี่เลี้ยง หรือ คุณครู ทราบ										

	ปริมาณเวลาที่ใช้					ความยากลำบาก				
	มากที่สุด	มาก	ปานกลาง	น้อย	น้อยมาก หรือไม่ใช้เลย	มากที่สุด	มาก	ปานกลาง	น้อย	น้อยมาก หรือไม่ลำบากเลย
17. การช่วยปลอบโยนจิตใจแก่เด็ก										
18. การช่วยปลอบโยนจิตใจแก่เด็กคนอื่น ๆ ในครอบครัว										
19. การช่วยปลอบโยนจิตใจแก่ผู้สมรส										
20. การวางแผนจัดกิจกรรมต่าง ๆ (ในแต่ละวัน)										
21. การวางแผนจัดกิจกรรมต่าง ๆ สำหรับสมาชิกในครอบครัว (เช่น การพักผ่อนหย่อนใจ การรับประทานอาหาร การพักผ่อนนอนหลับ กิจกรรมสำหรับเด็ก เป็นต้น)										
22. การประสานงาน การเตรียมการ การจัดหาบริการและแหล่งประโยชน์ต่าง ๆ (เช่น การจัดตารางเวลาเพื่อมาตรวจตามนัด การเดินทางไปกลับ โรงพยาบาล การจัดหาอุปกรณ์ต่าง ๆ การหาบริษัท หรือ แหล่งที่ให้บริการตรวจซ่อมอุปกรณ์)										
23. การจัดการงานบ้านที่เพิ่มขึ้น นอกเหนือจากงานที่ต้องรับผิดชอบเป็นประจำในการทำกับข้าว ซักผ้า เลื้อยผ้า (เช่น การทำความสะอาดและดูแลอุปกรณ์ที่ใช้กับเด็กป่วย การทำอาหาร เฉพาะโรคสำหรับเด็ก)										
24. การจัดการเรื่องค่าใช้จ่ายต่าง ๆ การเก็บใบเสร็จค่ารักษา การกรอกแบบฟอร์มในการเบิกจ่ายต่าง ๆ ที่เกี่ยวข้องกับการดูแล										

แบบสอบถามความสามารถของผู้ดูแลในการดูแลเด็กโรคหืด

คำชี้แจงในการตอบแบบสอบถาม

แบบสอบถามชุดนี้มีวัตถุประสงค์เพื่อสอบถามความสามารถของท่านในการดูแลเด็กโรคหืด โดยให้ท่านพิจารณาข้อความในแต่ละข้อว่า ท่านสามารถปฏิบัติกิจกรรมนั้นได้บ่อยครั้งเพียงใด หากท่านปฏิบัติกิจกรรมในข้อดังกล่าวได้ทุกครั้งที่มีเหตุการณ์นั้นเกิดขึ้น แสดงว่าท่านมีความสามารถในการดูแลเด็กโรคหืดอยู่ในเกณฑ์ดี เมื่อท่านพิจารณาแล้ว ให้ทำเครื่องหมาย ✓ ลงในช่องคำตอบที่ตรงกับการปฏิบัติจริงของท่านมากที่สุดเพียงข้อเดียว กรุณาตอบคำถามทุกข้อ (รวมทั้งหมด 54 ข้อ) การเลือกคำตอบมีเกณฑ์ดังนี้

ปฏิบัติไม่ได้	หมายถึง	ท่านปฏิบัติกิจกรรมตรงกับข้อความที่ให้ไว้ไม่ได้
ปฏิบัติได้บางครั้ง	หมายถึง	ท่านปฏิบัติกิจกรรมตรงกับข้อความที่ให้ไว้ได้เป็นบางครั้ง
ปฏิบัติได้เกือบทุกครั้ง	หมายถึง	ท่านปฏิบัติกิจกรรมตรงกับข้อความที่ให้ไว้ได้เกือบทุกครั้ง
ปฏิบัติได้ทุกครั้ง	หมายถึง	ท่านปฏิบัติกิจกรรมตรงกับข้อความที่ให้ไว้ได้ทุกครั้ง
ไม่มีเหตุการณ์นี้เกิดขึ้น	หมายถึง	ท่านไม่เคยปฏิบัติกิจกรรมนั้นเนื่องจากไม่มีเหตุการณ์ในข้อนั้นเกิดขึ้นเลย

ด้านที่ 1 กิจกรรมในด้านการป้องกันการเกิดอาการหอบ และผลข้างเคียงจากการใช้ยาป้องกันอาการหอบ

ข้อความ	ระดับการปฏิบัติ				
	ปฏิบัติไม่ได้	ปฏิบัติได้เป็นบางครั้ง	ปฏิบัติได้เกือบทุกครั้ง	ปฏิบัติได้ทุกครั้ง	ไม่มีเหตุการณ์นี้เกิดขึ้น
1. ฉันดูแลให้เด็กสวมเสื้อผ้าอบอุ่นเมื่ออากาศเย็น ฝนตก หรือเมื่ออยู่ในสถานที่ที่มีอากาศเปลี่ยนแปลงอย่างรวดเร็ว					
2. ฉันดูแลให้เด็กหลีกเลี่ยงสิ่งของที่กระตุ้นให้เกิดอาการหอบ เช่น ฝุ่น ควัน อากาศเย็น อาหารที่แพ้ เป็นต้น					
3. ฉันดูแลให้เด็กได้ออกกำลังกายตามปกติ ไม่หักโหมเกินไป					
4. ฉันดูแลให้เด็กได้ออกกำลังกายอย่างน้อยอาทิตย์ละ 2-3 ครั้ง					
5. ถ้าเด็กมีประวัติเคยหอบหลังการออกกำลังกาย ฉันดูแลให้เขาได้รับยาขยายหลอดลมก่อนออกกำลังกาย 10-15 นาที					
6. ฉันดูแลไม่ให้เด็กเล่นลูกบอลหรือใกล้ชิดกับคนที่สูบบุหรี่ มีไข้ ไอ จาม					
7. ฉันดูแลไม่ให้เด็กเล่นลูกบอลหรือใกล้ชิดกับคนที่สูบบุหรี่ มีไข้ ไอ จาม					
8. ฉันดูแลไม่ให้เด็กเล่นลูกบอลกับสัตว์เลี้ยงที่มีขน เช่น สุนัข แมว นก เป็นต้น					

ข้อความ	ระดับการปฏิบัติ				
	ปฏิบัติ ไม่ได้	ปฏิบัติได้เป็น บางครั้ง	ปฏิบัติได้ เกือบทุก ครั้ง	ปฏิบัติได้ ทุกครั้ง	ไม่มี เหตุการณ์นี้ เกิดขึ้น
9. ฉันดูแลไม่ให้เด็กเล่นคลุกคลีกับสัตว์เลี้ยง ที่มีขน เช่น สุนัข แมว นก เป็นต้น					
10. ฉันหลีกเลี่ยงการใช้เครื่องนอนที่ทำจาก นุ่น หรือใช้เสื้อผ้าและของเล่นที่เก็บฝุ่น					
11. หลังจากอาบน้ำ สระผม ฉันดูแลให้เด็กได้ เช็ดตัวและเช็ดผมให้แห้งทันที พร้อมกับ สวมเสื้อผ้าให้อบอุ่น					
12. ฉันดูแลทำความสะอาดเครื่องนอนของ เด็กทุกสัปดาห์ โดยการนำออกตากแดด ปิดฝุ่น หรือซักทำความสะอาด					
13. ฉันทำความสะอาดเครื่องนอนของเด็กโดย การแช่ในน้ำร้อนที่มีอุณหภูมิสูงกว่า 60 องศาเซลเซียสอย่างน้อย 30 นาที ก่อน นำไปซักตามปกติ					
14. ฉันดูแลทำความสะอาดบ้านและห้องนอน ของเด็กโดยใช้ผ้าชุบน้ำเช็ดหรือใช้ เครื่องดูดฝุ่นแทนการปิดฝุ่น					
15. ฉันดูแลให้เด็กหลีกเลี่ยงไม่ไปบริเวณที่มี ควันหรือกลิ่นต่าง ๆ เช่น ควันไฟ ควันยา กันยุง สเปรย์ฉีดยุง สีทาบ้าน เป็นต้น					
16. ฉันดูแลไม่ให้เด็กอยู่ใกล้คนที่สูบบุหรี่					
17. ฉันหลีกเลี่ยงที่จะพาเด็กไปในที่ที่มีคน หนาแน่น เช่น โรงภาพยนตร์ ห้างสรรพสินค้า ตลาด เป็นต้น					
18. ฉันดูแลให้เด็กได้มาตรวจตามนัดถึงแม้จะ ไม่มีอาการหอบ					
19. ฉันสังเกตอาการข้างเคียงที่อาจจะเกิดขึ้น หลังจากที่เด็กได้ยาขยายหลอดลม ได้แก่ ใจสั่น คลื่นไส้ อาเจียน กระวนกระวาย					
20. เมื่อเด็กมีอาการเปลี่ยนแปลง เช่น หงุดหงิด ร้องไห้ ฉันสามารถควบคุมหรือ จัดการกับอารมณ์ที่เปลี่ยนแปลงได้อย่าง เหมาะสม เช่น ปลอบโยน เบี่ยงเบนความ สนใจ เป็นต้น					

ด้านที่ 2 กิจกรรมด้านการจัดการและการดูแลเมื่อเด็กมีอาการหอบ

ข้อความ	ระดับการปฏิบัติ				
	ปฏิบัติไม่ได้	ปฏิบัติได้เป็นบางครั้ง	ปฏิบัติได้เกือบทุกครั้ง	ปฏิบัติได้ทุกครั้ง	ไม่มีเหตุการณ์นี้เกิดขึ้น
1. เมื่อเด็กมีอาการเตือนก่อนหอบ เช่น ไอติด ๆ กัน หายใจเร็ว แน่นหน้าอก ถัดดูแลให้เด็กได้รับประทานยาหรือพ่นยาขยายหลอดลมทันทีตามแผนการรักษาของแพทย์					
2. ถัดดูแลให้เด็กได้รับยาที่ใช้ป้องกันหรือรักษาอาการหอบได้อย่างถูกต้อง ทั้งชนิดวิธี ขนาด และระยะเวลาตามแผนการรักษาของแพทย์					
3. เมื่อเด็กมีอาการหอบ ถัดให้เขาหยุดกิจกรรมทั้งหมดขณะนั้น และหายใจเข้าออกช้า ๆ					
4. เมื่อเด็กมีอาการหอบ ถัดสามารถจัดทำให้เขาได้อย่างเหมาะสมเพื่อหายใจได้สะดวก เช่น นอนศีรษะสูง หรืออุ้มพาดไหล่					
5. เมื่อเด็กมีอาการหอบ ถัดดูแลให้เขาดื่มน้ำอุ่นและหลีกเลี่ยงการดื่มน้ำหรือของที่ยื่น เช่น ขนมน้ำแข็ง หรือไอศกรีม					
6. เมื่อเด็กมีอาการหอบ หลังจากให้ยาขยายหลอดลมชนิดรับประทานที่แพทย์สั่งแล้ว อาการหอบไม่ทุเลาลงภายใน 1 ชั่วโมง ถัดจะพาเด็กมาพบแพทย์ทันที					
7. เมื่อเด็กมีอาการหอบ ถัดจะพ่นยาขยายหลอดลมให้ตามแพทย์สั่ง โดยพ่นให้ไม่เกิน 2 ครั้ง แต่ละครั้งห่างกัน 15 นาที					
8. หลังจากพ่นยาครั้งที่ 2 หากอาการหอบยังไม่ทุเลาลง ถัดจะพาเด็กมาพบแพทย์ทันที					
9. ถัดจะประเมินอาการของเด็กหลังจากให้ยาทุกครั้ง					
10. ถัดจะนำเด็กมาพบแพทย์ หากพบว่าหลังจากได้รับยาแล้วเด็กมีอาการแทรกซ้อนต่างๆ เช่น มือสั่น กระวนกระวาย คลื่นไส้ เสียเหงื่อ หรือมีไข้ขาวในคอ					

ข้อความ	ระดับการปฏิบัติ				
	ปฏิบัติไม่ได้	ปฏิบัติได้เป็นบางครั้ง	ปฏิบัติได้เกือบทุกครั้ง	ปฏิบัติได้ทุกครั้ง	ไม่มีเหตุการณ์นี้เกิดขึ้น
11. ฉันรีบนำเด็กมาพบแพทย์ทันทีที่พบว่าเด็กมีอาการหอบรุนแรง หายใจลำบาก หน้าอกบวมเขียว					
12. ฉันพาเด็กไปพบแพทย์ตามนัดทุกครั้งหลังจากมีเด็กอาการหอบเฉียบพลันและเข้ารับการรักษาในโรงพยาบาล					

ด้านที่ 3 กิจกรรมด้านการส่งเสริมสุขภาพของเด็กโรคหืด เพื่อให้เด็กมีการพัฒนาการตามปกติและเหมาะสมตามอายุ

ข้อความ	ระดับการปฏิบัติ				
	ปฏิบัติไม่ได้	ปฏิบัติได้เป็นบางครั้ง	ปฏิบัติได้เกือบทุกครั้ง	ปฏิบัติได้ทุกครั้ง	ไม่มีเหตุการณ์นี้เกิดขึ้น
1. ฉันดูแลให้เด็กได้รับประทานอาหารครบทั้ง 5 หมู่ ได้แก่เนื้อสัตว์ ไข่ นม ผัก และผลไม้					
2. ฉันดูแลให้เด็กได้รับน้ำหรือน้ำผลไม้วันละ 4-5 แก้ว					
3. ฉันดูแลให้เด็กได้รับนมสดหรือนมถั่วเหลืองวันละ 2 แก้ว					
4. ฉันดูแลให้เด็กได้อาบน้ำทำความสะอาดร่างกายอย่างน้อยวันละ 1 ครั้ง					
5. ฉันดูแลให้เด็กได้แปรงฟันวันละ 2 ครั้งในตอนเช้า และก่อนนอน					
6. ฉันดูแลให้เด็กได้นอนหลับกลางคืนอย่างน้อยวันละ 8 ชั่วโมง					
7. ฉันส่งเสริมให้เด็กทำกิจกรรมต่าง ๆ ได้ด้วยตนเองและเหมาะสมกับอายุ					
8. ฉันให้เด็กเล่นของเล่นที่ช่วยส่งเสริมพัฒนาการของเด็กอย่างเหมาะสมกับอายุ ความสามารถ และโรคหืดของเด็ก					
9. ฉันเปิดโอกาสให้เด็กได้เล่นกับเด็กวัยเดียวกัน					

ข้อความ	ระดับการปฏิบัติ				
	ปฏิบัติไม่ได้	ปฏิบัติได้เป็นบางครั้ง	ปฏิบัติได้เกือบทุกครั้ง	ปฏิบัติได้ทุกครั้ง	ไม่มีเหตุการณ์นี้เกิดขึ้น
10. ฉันส่งเสริมพัฒนาการด้านภาษาให้เด็ก เช่น เล่นิทาน ฟังการออกเสียงที่ถูกต้อง ฟังเรียกชื่อคนและสิ่งของต่าง ๆ เป็นต้น					
11. ฉันฝึกให้เด็กได้ใช้กล้ามเนื้อมัดใหญ่และมัดเล็ก เช่น หัดจับช้อน วาดภาพ ถีบจักรยาน เป็นต้น					
12. ฉันอธิบายเหตุผลให้เด็กฟังเสมอ เมื่อฉันว่ากล่าวตักเตือนหรือทำโทษเด็ก					
13. ฉันชมเชยเด็กเสมอเมื่อเขาทำในสิ่งที่ถูกต้องหรือทำสิ่งที่ดี					
14. ฉันฝึกให้เด็กขับถ่ายเป็นเวลาทุกวัน					
15. ฉันติดตามการเจริญเติบโตของเด็กอย่างสม่ำเสมอ เพื่อนำมาเปรียบเทียบกับเกณฑ์ปกติ ทุกครั้งที่มาตรวจตามนัด					

ด้านที่ 4 กิจกรรมด้านการแสวงหาความรู้ และการยอมรับว่าโรคหอบหืดเป็นส่วนหนึ่งในชีวิตของเด็ก

ข้อความ	ระดับการปฏิบัติ				
	ปฏิบัติไม่ได้	ปฏิบัติได้เป็นบางครั้ง	ปฏิบัติได้เกือบทุกครั้ง	ปฏิบัติได้ทุกครั้ง	ไม่มีเหตุการณ์นี้เกิดขึ้น
1. ฉันพยายามหาความรู้เรื่องการดูแลเด็กโรคหืดจากหนังสือ เอกสาร รวมทั้งจากสื่อต่าง ๆ เช่น วิทยู ทวีวี หรือบุคคลอื่น ๆ					
2. ฉันหาความรู้เกี่ยวกับการเจริญเติบโตและการพัฒนาการของเด็กตามวัย					
3. ฉันแสวงหาความช่วยเหลือจากบุคคลที่เชื่อถือได้ เมื่อฉันมีปัญหาในการดูแลเด็กป่วยโรคหืด เช่น แพทย์ พยาบาล เจ้าหน้าที่สาธารณสุขอื่น ๆ					
4. ฉันหาความรู้เกี่ยวกับการสังเกตอาการผิดปกติและสิ่งที่เด็กแพ้					
5. ถึงแม้ว่าโรคหืดเป็นโรคเรื้อรังที่ต้องใช้เวลารักษานาน แต่ฉันก็พยายามหาทางป้องกันเพื่อไม่ให้เด็กเกิดอาการหอบ					

ข้อความ	ระดับการปฏิบัติ				
	ปฏิบัติ ไม่ได้	ปฏิบัติได้เป็น บางครั้ง	ปฏิบัติได้ เกือบทุก ครั้ง	ปฏิบัติได้ ทุกครั้ง	ไม่มี เหตุการณ์นี้ เกิดขึ้น
6. ฉันดูแลให้เด็กได้รับการรักษาอย่างต่อเนื่อง					
7. ฉันปล่อยให้เด็กเล่นหรือทำกิจกรรมต่าง ๆ ได้ ถึงแม้จะรู้ว่าบางครั้งเขาอาจเหนื่อยกว่าเด็กปกติ					
8. เมื่อได้รับคำแนะนำจากแพทย์หรือพยาบาล ฉันสามารถนำไปปฏิบัติได้อย่างถูกต้อง					
9. เมื่อเด็กเกิดอาการหอบ ฉันสามารถควบคุมอารมณ์ของตนเองและจัดการกับอาการหอบของเด็กได้อย่างเหมาะสม					

APPENDIX D

INSTRUMENT TESTING

Table D.1 Descriptive statistics and Reliability of the Asthma Management Abilities Scale (n = 30)

Domain	No. of Items	Possible Range	Actual Range	Mean	SD	Cronbach's Alpha
The Asthma Abilities Scale	54	0-162	34-149	114.33	18.05	0.92
• Attack Prevention	18	0-54	7-53	38.33	7.33	0.85
	12	0-36	9-30	25.62	4.56	0.79
• Treatment	15	0-45	10-45	33.59	6.80	0.85
• Promote Normal Growth and Development	9	0-27	8-24	17.86	4.14	0.82
• Seek Information						

Table D.2 Descriptive statistics and Reliability of the Care of My Child Scale (n = 30)

Domain	No. of Items	Possible Range	Actual Range	Mean	SD	Cronbach Alpha
The Care of My Child with Asthma Scale	24	24-120	28-94	68.16	15.20	0.96
• Demand Subscale	24	24-120	26-120	73.83	17.24	0.94
• Difficulty Subscale	24	24-120	24-116	65.17	16.68	0.94

Table D.3 Descriptive statistics and Reliability of the Social Support Questionnaire
(n = 30)

Domain	No. of Items	Possible Range	Actual Range	Mean	SD	Cronbach Alpha
Information / Emotion / Tangible Support	28	0-112	2-101	49.47	19.93	0.95

Table D.4 Descriptive statistics and Reliability of the Caregivers' Perceptions of the Quality of Professional Care Scale (n = 30)

Domain	No. of Items	Possible Range	Actual Range	Mean	SD	Cronbach's Alpha
The Quality of Professional Care Scale	18	18-108	38-108	82.8	13.93	0.90
• Responsiveness	5	5-30	9-30	22.97	4.66	0.83
	5	5-30	12-30	23.83	4.76	0.86
• Individual	3	3-18	3-18	10.47	4.3	0.76
• Coordination	5	5-30	14-30	25.53	3.30	0.70
• Proficiency						

APPENDIX E

Assumption Testing: Multicollinearity Testing

Table E.1 Correlation Matrix of All Study Variables (n = 253)

	SSP	CONT	COMM	CHAL	RESP	INDI	COOR	PROF	BURD	PREV	TREAT	PRO SEEK
SSP	1											
CONT	.036	1										
COMM	.261**	.307**	1									
CHAL	.246**	.432**	.467**	1								
RESP	.289**	.122	.164**	.127*	1							
INDI	.341**	.011	.157*	.123	.730**	1						
COOR	.397**	.046	.123	.219**	.442**	.521**	1					
PROF	.294**	.125*	.221**	.105	.507**	.573**	.412**	1				
BURD	-.153*	-.060	-.184**	-.036	-.042	-.032	-.031	-.180**	1			
PREV	.320**	.257**	.343**	.377**	.293**	.238**	.240**	.315**	-.247**	1		
TREAT	.223**	.170**	.223**	.237**	.173**	.255**	.156*	.360**	-.311**	.559**	1	
PROSEEK	.284**	.206**	.279**	.231**	.239**	.244**	.268**	.368**	-.344**	.601**	.552**	1
Mean	1.9165	2.0731	2.5534	2.1647	4.4719	4.6403	3.7075	5.0593	2.6523	1.9189	2.3884	2.1878
SD	.60677	.51502	.36169	.4551	.99700	1.03500	1.38987	.87094	.51792	.41835	.43191	.40270

Note: PSS = Perceived Social Support, CONT = Control, COMM = Commitment, CHAL = Challenge, RESP = Responsiveness, INDI = Individual, COOR = Coordinator, PROF = Proficiency, BURD = Burden, PREV = Preventive, TREAT = Treatment, PROSEEK = Promotion & Seeking

APPENDIX F

Covariance Matrix of All Study Variables

Table F.1 Covariance Matrix of All Study Variables (n = 253)

Variable	Burd	Prevt	Treat	ProS	PSS	Cont	Com	Chal	Resp	Indiv	Coor	Prof
Burd	.268											
Prevt	-.053	.175										
Treat	-.070	.101	.187									
ProSeek	-.072	.101	.096	.162								
PSS	-.048	.081	.059	.069	.368							
Cont	-.016	.055	.038	.043	.011	.265						
Comm	-.035	.052	.035	.041	.057	.057	.131					
Chal	-.008	.072	.047	.042	.068	.101	.077	.207				
Resp	-.022	.122	.074	.096	.175	.063	.059	.057	.994			
Indiv	-.017	.103	.114	.102	.214	.006	.059	.058	.754	1.071		
Coor	-.022	.140	.093	.150	.335	.033	.062	.139	.612	.749	1.932	
Prof	-.081	.115	.135	.129	.155	.056	.070	.042	.440	.517	.499	.759
Mean	2.65	1.92	2.39	2.19	1.92	2.07	2.55	2.16	4.47	4.64	3.70	5.06
SD	.52	.42	.43	.40	.61	.51	.36	.45	1.00	1.03	1.39	.87

APPENDIX G

Descriptive Statistics of Major Variables

Table G.1 Descriptive Statistics of Asthma Management Abilities Score, Arranged from the Highest Mean to the Lowest Mean (n = 253)

Item	Mean	Level of Practice					No situatio n n (%)
		None n (%)	Some time n (%)	Most of the time n (%)	Every time n (%)		
Preventive Subscale							
16. I take my child to the hospital for a follow up....	2.81	-	3 (1.2)	43 (17.0)	207 (81.8)	-	
9. After each showering and shampooing	2.53	1 (0.4)	21 (8.3)	73 (28.9)	158 (62.5)	-	
1. I let my child wearing a warm cloth when the	2.49	3 (1.2)	19 (7.5)	83 (32.8)	148 (58.5)	-	
17. I observe side effects of bronchodilator	2.20	8 (3.2)	40 (15.8)	53 (20.9)	95 (37.5)	57 (22.5)	
13. I keep my child away from smoke or strong ...	2.07	1 (0.4)	68 (26.9)	95 (37.5)	88 (34.8)	1 (0.4)	
7. I keep my child away from furry animals.....	2.04	4 (1.6)	72 (28.5)	73 (28.9)	89 (35.2)	15 (5.9)	
12. I clean my house and child's bedroom by	2.02	11 (4.3)	61 (24.1)	94 (37.2)	87 (34.4)	-	
8. I avoid using bedsheet which made from kapok....	2.01	17 (6.7)	62 (24.5)	74 (29.2)	99 (39.1)	1 (0.4)	
14. I keep my child away from smoker.	2.01	7 (2.8)	76 (30.0)	67 (26.5)	93 (36.8)	10 (4.0)	
10. I wash my child's bedsheet every week by.....	1.99	6 (2.4)	78 (30.8)	81 (32.0)	88 (34.8)	-	
18. I can control my child temper appropriately....	1.98	1 (0.4)	73 (28.9)	103 (40.7)	69 (27.3)	7 (2.8)	
2. I keep my child away from any triggers.....	1.89	1 (0.4)	73 (28.9)	131 (51.8)	48 (19.0)	-	
3. I take care of my child to have a normal exercise...	1.81	6 (2.4)	88 (34.8)	108 (42.7)	51 (20.2)	-	
4. I let my child having some exercise 2-3 times/wk.	1.64	21 (8.3)	107 (42.3)	68 (26.9)	57 (22.5)	-	
5. If my child has a history of exercise induced	1.60	7 (2.8)	43 (17.0)	23 (9.1)	20 (7.9)	160 (63.2)	
6. I keep my child away from playing with sick kids..	1.57	11 (4.30)	121 (47.8)	78 (30.8)	37 (14.6)	6 (2.4)	
15. I avoid bringing my child to crowded places	1.32	28 (11.1)	136 (53.8)	70 (27.7)	19 (7.50)	-	
11. Soaking bedsheet in hot water	0.47	157 (62.1)	76 (30.0)	18 (7.1)	2 (0.8)	-	
Treatment Subscale							
11. I take my child to see doctor as soon as he/she ...	2.85	-	5 (2.0)	19 (7.5)	171 (67.6)	58 (22.9)	
12. I take care of my child to have right medications.	2.83	-	7 (2.8)	24 (9.5)	193 (76.3)	29 (11.5)	
2. I take my child to meet doctor as appointed	2.62	-	12 (4.7)	72 (28.5)	169 (66.8)	-	
1. When my child has warning sign of asthma attack.	2.59	-	16 (6.3)	70 (27.7)	161 (63.6)	6 (2.4)	
10. I will take my child to see doctor as soon as I	2.55	-	16 (6.3)	23 (9.1)	82 (32.4)	132 (52.2)	
8. After giving the 2 nd dose of inhale bronchodilat...	2.53	4 (1.6)	20 (7.9)	41 (16.2)	131 (51.8)	57 (22.5)	
6. When my child has asthma attack, after giving	2.33	6 (2.4)	33 (13.0)	57 (22.5)	113 (44.7)	44 (17.4)	
7. When my child has asthma attack, I will give my...	2.32	1 (4)	32 (12.6)	67 (26.5)	98 (38.7)	55 921.7)	
9. I evaluate my child's symptoms every time after ...	2.30	2 (0.8)	45 (17.8)	78 (30.8)	125 (49.4)	3 (1.2)	

Item	Mean	Level of Practice					No situation n n (%)
		None n (%)	Some time n (%)	Most of the time n (%)	Every time n (%)		
<i>Treatment Subscale (cont.)</i>							
5. When my child has asthma attack, I let him/her ...	2.17	-	62 (24.5)	79 (31.2)	104 (41.1)	8 (3.2)	
4. When my child has asthma attack, I appropriate	1.90	8 (3.2)	74 (29.2)	84 (33.2)	66 (26.1)	21 (8.3)	
3. When my child has asthma attack, I let him stop....	1.89	9 (3.6)	74 (29.2)	83 (32.8)	67 (26.5)	20 (7.9)	
<i>Promotion Subscale</i>							
4. I take care of my child to have shower at least 1 ...	2.85	-	5 (2.0)	28 (11.1)	220 (87.0)	-	
6. I take care of my child to sleep at least 8 hours	2.53	1 (0.4)	29 (11.5)	57 (22.5)	166 (65.6)	-	
13. I always give my child some praises when he/she	2.50	-	21 (8.3)	84 (33.2)	148 (58.5)	-	
5. I take care of my child to brush his/her teeth 2	2.44	3 (1.2)	32 (12.6)	69 (27.3)	148 (58.5)	1 (0.4)	
9. I let my child play with other kids at the same age.	2.42	1 (0.4)	25 (9.9)	93 (36.8)	134 (53.0)	-	
7. I facilitate my child to do all activities by himself..	2.38	2 (0.8)	30 (11.9)	90 (35.6)	131 (51.8)	-	
12. I always explain my child why I punish him/her.	2.28	2 (0.8)	42 (16.6)	93 (36.8)	116 (45.8)	-	
11. I train my child to use fine and coarse muscle.....	2.27	1 (0.4)	51 (20.2)	79 (31.2)	122 (48.2)	-	
10. I promote language development by telling him/..	2.13	2 (0.8)	67 (26.5)	80 (31.6)	103 (40.7)	1 (0.4)	
15. I follow my child growth and development	2.11	6 (2.4)	64 (25.3)	80 (31.6)	103 (40.7)	-	
3. I take care of my child to have at least 2 glasses of	2.02	10 (4.0)	73 (28.9)	69 (27.3)	98 (38.7)	3 (1.2)	
8. I let my child play with toys which will help	1.92	6 (2.4)	77 (30.4)	100 (39.5)	70 (27.7)	-	
1. I take care of my child to have useful meal.....	1.82	8 (3.2)	87 (34.4)	100 (39.5)	58 (22.9)	-	
14. I train my child to go	1.64	26 (10.3)	89 (35.2)	87 (34.4)	51 (20.2)	-	
2. I take care of my child to have at least 4-5 glasses	1.48	29 (11.5)	117 (46.2)	64 (25.3)	43 (17.0)	-	
<i>Seeking Subscale</i>							
6. I make sure that my child will have a continuous...	2.81	-	4 (1.6)	39 (15.4)	210 (83.0)	-	
5. After I receive some advices from physician or.....	2.44	-	17 (6.7)	106 (41.9)	129 (51.0)	-	
8. Even though asthma is a chronic illness and need..	2.44	-	18 (7.1)	105 (41.5)	130 (51.4)	-	
9. When my child has asthma attack I can control	2.42	4 (1.6)	20 (7.9)	93 (36.8)	134 (53.0)	-	
3. I seek support from reliable person when I have....	2.07	4 (1.6)	60 (23.7)	101 (39.9)	86 (34.0)	2 (0.8)	
4. I seek information about how to observe	1.99	5 (2.0)	66 (26.1)	108 (42.7)	74 (29.2)	-	
7. I let my child play or have some activities even ...	1.89	5 (2.0)	78 (30.8)	105 (41.5)	60 (23.7)	5 (2.0)	
2. I seek information about growth and development.	1.83	2 (0.8)	93 (36.8)	105 (41.5)	53 (20.9)	-	
1. I try to find information about how to take care	1.75	4 (1.6)	102 (40.3)	99 (39.1)	48 (19.0)	-	

Table G.2 Descriptive Statistics of Family Hardiness score, Arranged from the Highest Mean to the Lowest Mean (n = 253)

Item	Mean	False n (%)	Mostly False n (%)	Mostly True n (%)	True n (%)
Control Subscale					
10. Life seems dull and meaningless	2.74	77.5	18.6	4.0	-
19. Most of the unhappy things that happen are due to bad luck	2.11	42.7	32.8	17.0	7.5
20. We realized our lives are controlled by accidents and luck	2.10	40.7	34.8	18.2	6.3
2. It is not wise to plan ahead and hope because things do not turn out anyway	1.92	35.2	33.2	19.8	11.9
3. Our work and efforts are not appreciated no matter how hard we try and work	1.88	30	37.9	22.1	9.9
1. Trouble results from mistakes we make	1.70	25.7	28.5	36.0	9.9
Commitment Subscale					
9. We believe that things will work out for the better if we work together as a family	2.80	1.2	0.4	15.8	82.6
11. We strive together and help each other no matter what	2.73	-	3.0	24.5	74.3
18. We work together to solve problems	2.60	0.8	4.0	29.2	66.0
6. Many time I feel I can trust that even in difficult times things will work out	2.57	0.8	2.0	36.8	60.5
8. We do not feel we can survive if another problem hits us	2.57	67.6	22.9	8.7	0.8
7. While we don't always agree, we can count on each other to stand by us in times of need	2.55	1.2	2.0	37.9	58.9
5. We have a sense of being strong even when we face big problems	2.37	1.2	5.5	48.6	44.7
4. In the long run, the bad things that happen to us are balanced by the good things that happen	2.24	2.8	7.9	52.2	37.2
Challenge Subscale					
17. Being active and learning new things are encouraged	2.84	-	1.6	12.6	85.8
13. We listen to each others' problems, hurt, and fears	2.48	0.8	5.5	38.3	55.3
14. We tend to do the same things over and over....	2.06	4.0	19.0	44.7	32.4
15. We seem to encourage each other to try new things	2.05	1.6	13.4	63.6	21.3
12. When family plans activities we try new and exciting	1.98	4.3	13.8	61.3	20.6
16. It is better to stay at home than go out and do things	1.58	18.2	31.6	40.3	9.9

APPENDIX H

Path Coefficients and Parameter Estimates of the Model

Table H.1 Path Coefficients, Standard Errors, and t-Values of Parameter Estimates of the Hypothesized Model (n = 253)

Path Diagram	Path Coefficients #	SE	t-value	R ²
LAMDA-Y	1.00	-	-	1.00
Burden → Time & difficulty	0.75	-	-	0.56
Asthma Management → Prevention	0.68	0.08	10.13	0.47
Asthma Management → Treatment	0.80	0.12	11.71	0.64
Asthma Man... → Promotion	0.73	0.11	10.77	0.53
Asthma Man... → Seek				
LAMDA-X				
Social Support → Information/...	1.00	-	-	1.00
Family Hardiness → Control	0.53	-	-	0.28
Family Hardiness → Commitment	0.63	0.09	6.21	0.39
Family Hardiness → Challenge	0.76	0.18	6.27	0.58
Quality of Care → Responsiveness	0.80	-	-	0.64
Quality of Care → Individual	0.89	0.86	13.83	0.79
Quality of Care → Coordinator	0.60	1.52	9.43	0.35
Quality of Care → Proficiency	0.66	0.59	10.52	0.43
GAMMA				
Social Support → Burden	-0.13	0.05	-1.79	
Family Hardiness → Burden	-0.08	0.15	-1.05	
Quality of Care → Burden	0.00	0.25	0.06	
Social Support → Asthma Man...	0.11	0.02	1.60	
Family Hardiness → Asthma Man.	0.36	0.07	4.16	
Quality of Care → Asthma Man...	0.25	0.10	3.46	
BETA				
Burden → Asthma Management	-0.32	0.03	-5.27	
PHI				
Social Support ↔ Family Hardiness	0.02	0.00	3.57	
Family Hardiness ↔ Quality of ...	0.00	0.00	2.68	
Social Support ↔ Quality of ...	0.01	0.00	5.44	

Note: # Standardized coefficient shown

$t > \pm 1.96 = p < .05$, $t > \pm 2.58 = p < .01$, $t > \pm 3.291 = p < .001$

Table H.2 Path Coefficients, Standard Errors, and t-Values of Parameter Estimates of the Modified Model (n = 253)

Path Diagram	Path Coefficients #	SE	t-value	R ²
LAMDA-Y	1.00	-	-	1.00
Burden → Time & difficulty	0.83	-	-	0.69
Asthma Management → Prevention	0.66	0.07	9.87	0.44
Asthma Management → Treatment	0.73	0.11	10.47	0.53
Asthma Man... → Promote	0.61	0.11	8.58	0.37
Asthma Man... → Seek				
LAMDA-X				
Social Support → Information/...	1.00	-	-	1.00
Family Hardiness → Control	0.55	-	-	0.30
Family Hardiness → Commitment	0.62	0.09	6.39	0.39
Family Hardiness → Challenge	0.75	0.16	6.53	0.56
Quality of Care → Responsiveness	0.71	-	-	0.50
Quality of Care → Individual	0.82	0.93	13.27	0.68
Quality of Care → Coordinator	0.61	2.18	7.74	0.38
Quality of Care → Proficiency	0.71	0.91	8.37	0.50
GAMMA				
Social Support → Burden	-0.16	0.05	-2.39	
Family Hardiness → Burden	-	-	-	
Quality of Care → Burden	0.01	0.29	0.19	
Social Support → Asthma Man...	0.04	0.02	0.58	
Family Hardiness → Asthma Man.	0.37	0.08	4.00	
Quality of Care → Asthma Man...	0.36	0.15	4.41	
BETA				
Burden → Asthma Management	-0.39	0.03	-5.68	
PHI				
Social Support ↔ Family Hardiness	0.02	0.00	4.29	
Family Hardiness ↔ Quality of ...	0.00	0.00	2.90	
Social Support ↔ Quality of ...	0.01	0.00	5.27	

Note: # Standardized coefficient shown

 $t > \pm 1.96 = p < .05$, $t > \pm 2.58 = p < .01$, $t > \pm 3.291 = p < .001$

BIOGRAPHY

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