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EMOTIONAL PREDICTORS OF SELF-CARE STRATEGIES IN PATIENTS WITH ASTHMA

by

KIM E. PARDINI-KIELY

THESIS

Submitted in partial satisfaction of the requirements for the degree of

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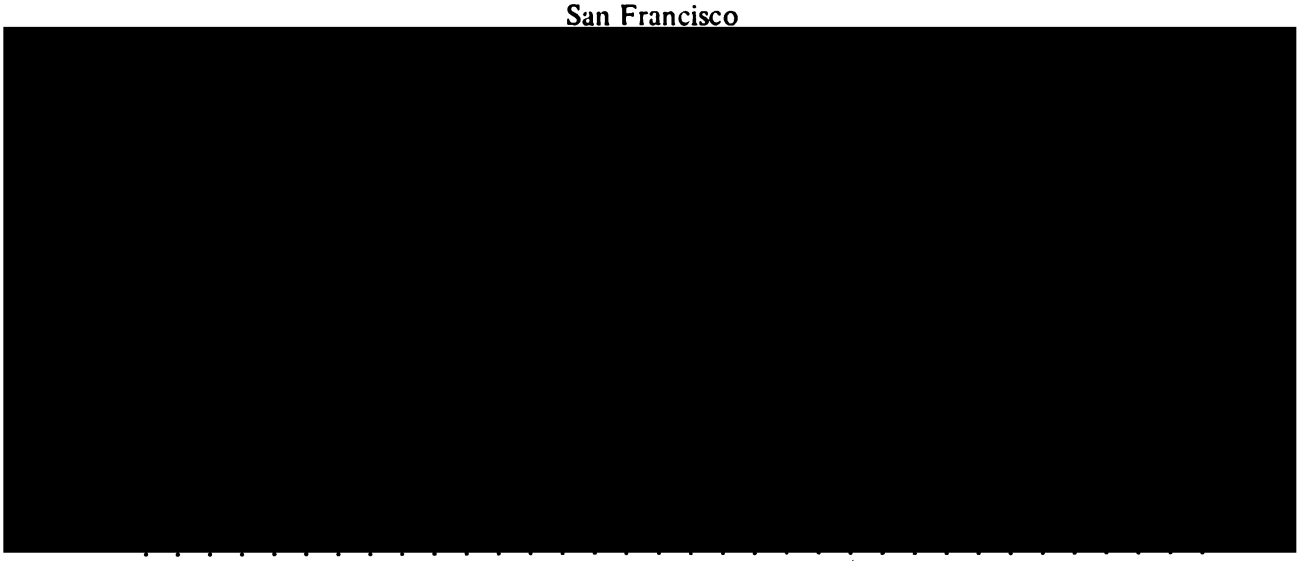

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The University of California, San Francisco

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Kim E. Pardini-Kiely

ABSTRACT

Emotions are known to influence asthma, coping responses and self-care. The concepts of self-care, emotions and coping are used to form a theoretical basis to study self-care strategies of adults with severe asthma. Coping styles and self-care strategies are developed by individuals in response to the stressful nature of asthma. Emotions associated with asthma affect the types of self-care strategies chosen by individuals to manage asthma. Self-care is learned behavior and represents attempts to provide continuous care in relation to health and illness.

The primary purpose of this study was to describe the self-care strategies used by adult asthmatics in managing or controlling episodes of asthma symptoms. The second purpose of this study was to determine the relationship of emotionally-triggered asthma and panic-fear symptomatology to types and frequency of self-care strategies.

Ten male and female participants completed the Asthma Trigger Index (ATI) and the Asthma Symptom Checklist (ASC) to determine history of emotional and nonemotional response

to asthma and symptoms associated with asthma attacks. The participants were interviewed and completed an episode-specific asthma self-care log, where participants recorded self-care strategies used to manage asthma symptoms and rated the efficacy of chosen strategies and severity of asthma symptoms. Self-care strategies were categorized as either problem-focused, emotion-focused or mixed strategies. Based on ASC scores, participants were grouped as having high, moderate, or low panic-fear symptomatology. The high panic-fear group rated their asthma symptoms as more severe ($p < 0.05$), and chose more problem-focused strategies. The low panic-fear group used more emotion-focused strategies. Eight participants responded to emotions with asthma symptoms. These emotional responders used more emotion-focused strategies and mixed strategies and the nonresponders used more problem-focused strategies. Prescribed medication was the most frequently used strategy by all groups. The interview produced reports of long-term generalized coping patterns and the log, which focused on critical episodes, encouraged the reporting of immediate short term strategies.

The finding that panic-fear symptomatology and history of emotionally-triggered asthma affected the type and frequency of self-care strategies emphasizes the importance of identifying personal triggers of asthma. Once this information is known individualized plans of care may be developed by health care providers.

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CHAPTER I

INTRODUCTION

Asthma has been defined by the American Lung Association (1982) as a disease characterized by intermittent episodes of reversible bronchospasm. While the precise cause is still unknown, asthma remains a common potentially serious illness affecting roughly 3-5% of the population (Weinberger, 1986). Among chronic disorders affecting children, asthma is one of the leading causes of morbidity and school absenteeism (Goldstein, Green & Parker, 1983). Many factors may initiate episodes of bronchospasm such as: emotions, immunologic factors, allergens, chemicals, mechanical causes, environmental agents, occupational hazards, exercise, and respiratory infections (Kalinger, 1985; Cohen, 1985; Busse, 1985; Scoggin, 1985; Mathison, Stevenson & Simon, 1985). Clearly asthma attacks may be triggered by a number of factors. It is similar to many other chronic illnesses in that it has a variety of social and psychological dimensions which may alter a person's life and ability to provide self-care. The hallmark of asthma is hyperreactivity of the airways. This is an exagerated response of airway smooth muscle in the airway wall to a wide variety of stimuli and results in contraction of bronchial smooth muscle and narrowing of the

airway (Weinberger, 1986). On autopsy, the pathological findings in asthma reveal marked overdistention of the lungs with occlusion of the airways by thick, tenacious mucous plugs. Microscopic examination shows: 1) hypertrophy of the smooth muscle layer, 2) thickening of the epithelial basement membrane, 3) enlargement of the mucus-secreting apparatus, with hypertrophy of mucous glands and an increased number of goblet cells, and 4) infiltrates of eosinophils within the bronchial wall (Weinberger, 1986). These changes all contribute to a decrease in airway diameter which increases airway resistance. This decrease in diameter and increase in resistance results in patients having difficulty with airflow during inspiration and expiration. Due to the change in pleural pressure, which is transmitted to intrathoracic airways, patients have more difficulty with expiration when positive pressure causes greater airway narrowing. The effects of this mechanism are readily seen on pulmonary function measurements such as: a decrease in forced expiratory volume in one second (FEV1), forced vital capacity (FRC), and maximal mid-expiratory flow rate (MMFR), and an increase in residual volume (RV), and functional residual capacity (FRC). During an acute exacerbation, the most common abnormality of arterial blood gases are a low Po2 with a low Pco2. This is due to a ventilation-perfusion mismatch. The common reoccuring clinical features of asthma are cough, dyspnea, wheezing, and chest tightness.

Treatment of asthma has classically included medications, (inhaled bronchodilators, xanthines, and corticosteroids), and avoidance of triggers. No one universal treatment has been found to work for everyone with asthma and many diverse therapeutic regimens have been used. The failures of prescribed medical regimens and the potent side-effects of medications have led many asthmatics to search for other types of treatments. Some of those alternative remedies include: self-hypnosis, warm showers, avoidance of triggers, pre-medication, meditation and psychotherapy. These alternative remedies have had mixed success. However, when combined with standard medical treatment they have provided relief from asthma symptoms. Because many of these self-treatments are unknown to the medical community and health care providers, it is important to investigate these behaviors and to learn from the experience of asthmatic patients which self-treatments are most effective.

Patients view their own state of health or illness from a perspective that is uniquely their own. The ability to manage and provide self-care depends on the extent of experiences and education that patients have received regarding self-care. Self-care of asthma is an important consideration in understanding the illness as a whole. It is a disease that requires complex self-care strategies in managing and preventing symptoms. By identifying how self-care behaviors affect the patient's state of health, health care providers can selectively intervene and educate

patients to improve self-care management. Research indicates that self-care is the commonest form of treatment, but what is known about these self-care strategies in patient's with asthma is minimal. Are there variables which influence the types of self-care strategies chosen or the ability to cope with symptoms of asthma?

Asthma is an illness which is often affected by and associated with emotions. It is important to understand how emotions affect asthma. Williams and Shim (1976) suggest that the impression is so strong that emotional factors are important that they conclude; studies should be designed to elucidate these factors and to develop effective therapeutic intervention. Dawson and Simon (1984) on the other hand, point out that emotions rarely represent the sole cause of symptoms and so it is important to identify a variety of individual causes. There appears to be an association between emotions, asthma, and coping responses. Research related to the impact of emotions on asthma is regarded as signficant for understanding asthma.

How do emotions influence asthma? The precise mechanisms are unknown, however, it is thought that emotional arousal initiates bronchoconstriction by triggering neural activity in the central nervous system. The parasympathetic efferent fibers in the vagus nerves are excitatory for eliciting contraction and tone of the airway smooth muscle. It also appears that the parasympathetic system mediates rapid changes in airway size caused by

inhalation or injection of irritiating materials (Janson-Bjerklie, Boushey, Carrieri & Lindsey; 1986). Boushey(1981) has proposed that emotions may affect the neural impulses arising in the central nervous system and could be responsible for some increase in activity in the parasympathetic efferent nerves supplying the airways. This increased activity may result in bronchoconstriction in subjects who have increased sensitivity of bronchial smooth muscle to the effects of parasympathetic stimulation.

Emotions can play an important part in the arousal of asthma symptoms. It is believed that measurement of the history of response to perceived emotions in patients with asthma is noteworthy and would help to identify personal triggers associated with asthma (Janson-Bjerklie, 1980). By assessing asthma triggers, therapeutic regimens may be tailored to individual needs. Other investigators (Kinsman,Dirks & Jones; 1980) believe that psychological and behavioral factors maintain and increase both perceived severity and the medical intractability of asthma. By identifying the subjective symptoms associated with asthma, the degree to which certain emotional factors (such as panic and fear) affects self-care and coping with asthma may be elucidated.

The episodic nature of asthma creates an element of unpredicatability. Because symptoms can not be foreseen or anticipated, the stressful nature of asthma is intensified. Thus in response to asthma symptoms, coping strategies are

developed to deal with the associated stress. The perceived stress associated with asthma is believed to influence coping behaviors (Kinsman, Dahlem, Spector & Staudenmayer, 1977). The patient with asthma then must develop a variety of self-care behaviors and adhere to prescribed medical regimens to cope with the stressful nature of chronic illness. Using Lazarus' stress and coping paradigm (1966) coping behaviors can be categorized into emotion-focused and problem-focused behaviors. Those behaviors aimed at coping with the emotional component of perceived stress are labled emotion-focused. Those behaviors which are aimed directly at alleviating the distress of stress are problem-focused. It is possible that those who perceive their asthma as having an emotional component might use specific types of behaviors in the self-care of their illness. We know emotions influence asthma but how those emotions affect a patient's ability to cope with the stress of illness is unknown.

The recent ANA Social Policy Statement (1980) emphasizes that nursing has leadership responsibilities in developing health resources and services which include a strong focus on individuals, families and other groups as basic self-help resources. Nursing is defined as the diagnosis and treatment of human responses to actual or potential health problems. Self-care is a human response and includes actions directed at health problems and the impact of illness on those self-care needs. Nursing's

contribution, in recognition of both societal and health care concerns, should include a plan for promoting self-care in chronic illnesses, such as asthma.

Purpose

The purpose of this study was to describe the self-care strategies used by adult asthmatics in managing or controlling episodes of asthma symptoms. A second purpose was to determine the relationship of emotionally-triggered asthma and panic-fear symptomatology to types and frequency of self-care strategies.

CHAPTER II

THEORETICAL FRAMEWORK AND REVIEW OF LITERATURE

Self-care

The growing strength of the self-care movement in America is evidenced by a revival of interest in personal health and healthy lifestyles. We have witnessed increases in physical activities and health education, such as: jogging, self-care classes, holistic and well-health clinics and self-help groups. The movement advocating self-care in chronic illness has progressed slowly. However, there are a growing number of self-care classes in diabetes, hypertension, stress reduction, and back pain management offered through community organizations. There is some confusion regarding the semantics of self-care terminology. For clarification, self-help is the basic premise and an attitude portrayed in common interest groups, such as Alcoholics Anonomous and Weight Watchers (Steiger & Lipson, 1985). Self-management is an individuals attempt to manage a particular situation or condition (Kogan & Betrus, 1984). Self-care, on the other hand, is defined as learned behaviors that purposely regulate human structural integrity, functioning, and human development (Orem, 1985).

The definition of self-care provided by Dorothea Orem (1985) will be used to examine the construct of self-care.

Self-care is defined as "the production of actions directed to self or to the environment in order to regulate one's functioning in the interest of one's life, integrated functioning, and well-being" (p. 31). Self-care is the continuous contribution people make to their own health and well-being. Orem's (1985) self-care theoretical framework for nursing consists of three related constructs: the theory of self-care, the theory of self-care deficits, and the theory that the product of nursing is a nursing system.

Orem's (1985) theory of self-care deficits is the central and organizing theme for her theory of nursing. Self-care deficit is defined as "health-related or health-derived limitations that render a person incapable of continuous self-care or dependent care or that results in ineffective or incomplete care" (p. 34). Dependent care is care of infants, children or dependent adults that are unable to care for themselves. Deficit is viewed as a relationship between what is required for self-care and what is available. People with health-related deficits who are incapable of self-care or dependent care can benefit from the art and science of nursing. The provider of self-care is referred to as the self-care agent. The provider of dependent care is referred to as the dependent care agent. When persons are unable to care for themselves, the health care provider (who in the context of nursing is the nurse), then becomes the self-care agent. Orem points out that before one is able to intervene in self-care one must identify what is required by the individual in terms of the

type of action needed to attain self-care. These are called the self-care requisites. It is paramount that the health care provider: 1) identify the self-care requisites of patients, 2) select or confirm methods through which each identified requisite can be met, and 3) identify the actions to be taken in meeting each specific self-care requisite. The self-care agent helps the individual to sustain life processes or wellness per se and to regulate and reduce disease and disability. The health care provider identifies what is called the "therapeutic self-care demand". The therapeutic self-care demand is the "totality of self-care actions to be performed by using valid methods and related sets of operations or actions" (p. 88). This demand is calculated by the self-care agent.

The theory of self-care (Orem, 1985) describes the relationship between "the deliberate self-care actions of mature and maturing members of social groups and their own development and functioning and their relationships with dependent family members to their functioning and development" (p. 36). Thus self-care behaviors are learned in a cultural, social, developmental, and environmental context which necessitates investigation for meeting specific known requisites.

The theory of nursing systems (Orem, 1985) explains that nursing systems are formed for therapeutic intervention in assisting and regulating self-care and self-care requisites. Nurses should use their "abilities to prescibe,

design, and provide nursing for legitimate patients by performing discrete actions and systems of actions" (p.38).

Self-care of illness depends to a great extent on the knowledge and skills patients possess, as well as autonomous self-healing capabilities dependent on available coping resources (Cohen & Lazarus, 1979; Orem, 1985; Levin, 1978).Several investigators have used Orem's theoretical framework to analyze self-care in cancer patients, self-care medication behaviors, as well as approaches to independent nursing practices (Dodd, 1983; 1984; Harper, 1984; Dickson & Lee-Villasenor, 1982). Patterns of self-care in cancer are beginning to be identified in longitudinal research studies (Dodd, 1982; 1983; 1984). In a two-part study Dodd looked at the self-care behaviors for side effects of chemotherapy in 48 patients with cancer and assessed nursing interventions for side effect management techniques. The first part of the study provided a description of self-care behaviors in cancer chemotherapy. Forty-eight participants completed the study. Each participant was asked to indicate on the Chemotherapy Knowledge Questionnaire, which is, in part, a list of 44 side effects, the side effects that they were experiencing as a result of their chemotherapy. The participants were then asked to fill out the Self-Care Behavior Questionnaire and for each side effect reported, the investigator asked the patient to indicate, on a 5-point scale, how severe the side effects were and what actions were taken to alleviate the side effects. On a second 5-point scale the

participants were asked how effective their actions were, and who were the sources of the information for their behaviors. The Self-Care Behavior Questionnaire is a self-report and was used to quantify responses. Content validity was established by two groups of experts who critiqued the questionnaire. The reliability of the questionnaire was established by the test-retest method with a control group ($r=0.21$). The patients reported an average of 7.69 side effects of chemotherapy with an average severity rating of 2.85. Most frequently reported were nausea and vomiting, loss of hair, taste and smell changes, and decreased appetite. An average of 3.13 side effects could be directly attributed to chemotherapy and 4.56 could not. Based on self report, patients initiated a mean of 0.81 self-care behaviors with an average effectiveness rating of 3.05. The most frequent behaviors included, taking a prescribed antiemetic and drinking a carbonated beverage for the nausea and vomiting. Eating favorite foods and eating when not hungry were the most frequent behaviors for the side effect of a decreased appetite. For loss of hair, the most frequent self-care action was wearing a wig or a hat. Some patients believed that chemotherapy side effects had to be endured. Many were reluctant to notify their physician and did not request drugs to manage their side effects. Most of the patients had a knowledge deficit regarding side effects and self-care behaviors. However, the longer the patients had received chemotherapy, the more self-care behaviors they

initiated. Patients cited themselves most frequently as the source of learning about self-care behaviors, next were their physicians, and lastly nurses. This study provides a basis for the understanding of some of the self-care behaviors exhibited by patients undergoing chemotherapy and direction for further research. One limitation of the study is that it relied on self-report and focused on specific behaviors for only one aspect of an illness. To expand our knowledge in this area, it would be important to collect data on the overall self-care behaviors in response to the management of a disease.

In a subsequent study Dodd (1984) explored preventive self-care actions for potential side effects of chemotherapy and self-care for experienced side effects of chemotherapy. A convenience sample of 30 patients receiving chemotherapy for breast cancer were studied. The patients were between the ages of 34 and 71, were receiving 2 to 6 chemotherapy agents, had been diagnosed 1 to 3 months ago, and had been undergoing chemotherapy for 1 to 26 days. Each participant was given the State-Trait Anxiety Inventory, the Multidimensional Health Locus of Control and questioned regarding their perception of the purpose for chemotherapy. These variables were measured at the initial interview and again six to eight weeks later. Patients recorded their self-care actions in a self-care behavior log which included: the potential side effects of the chemotherapy, what self-care activity they thought would help prevent the side effect from occuring, and the date that it took place.

They also reported in another section of the log: the experienced side effects of chemotherapy, on two 5-point scales, how severe and distressing the side effect was, what self-care behaviors they initiated to manage the side effect, on a third 5-point scale how effective these behaviors were and finally, their source of idea for the self-care behavior. The content validity and the reliablity of the Self-care Behavior log was established in a previous study (Dodd, 1983). Validity and reliability data of the State-Trait Anxiety Inventory and the Multidimensional Health Locus of Control were provided and are well known tools (Speilberger, Gorsuch & Luchene, 1970; Wallston, Wallston & Devellis, 1978) . The results of the study revealed that the most frequent side effects were nausea, loss of hair, vomiting and mouth sores. The average number of potential side effects that could develop from the chemotherapeutic drugs were 18.8. The average number of initiated self-care activities the patients reported was 0.9. The average Anxiety scores decreased significantly between interviews. There was a significant ($p=0.046$) negative relationship between the State Anxiety scores at the first interview and the self-care activity for experienced side effects. The Multidimensional Health Locus of Control scores remained unchanged between the interviews. The patients reported few preventive self-care behaviors. The patients recall of potential side effects was poor. It is clear from this study that more patient and family

education is needed and reinforcement of this information is essential. An increased anxiety score was associated with fewer preventative self-care behaviors for potential side effects. The author reported that, "the lack of significant association between the MHLC and preventative self-care activities was not surprising given the few self-care actions. The MHLC appears to lack sensitivity to the clinical setting," (p. 208). Overall the patients lacked knowledge and usage of preventive self-care behaviors. Based on this research it is evident that nurses need to provide additional information for patients undergoing chemotherapy.

In another study by Dodd (1984) patterns of self-care in cancer patients receiving radiation therapy were studied. The results of this study paralleled the overall pattern of self-care activity found in the earlier studies on chemotherapy self-care activities. Patients reported relatively few preventive self-care behaviors and again cited themselves most frequently as the source of information for self-care behaviors.

Dickson and Lee-Villasenor (1982) used a grounded theory approach to study self-care in 2 private nursing practices. A sample of 4 patients and a total of 10 visits were used to refine key definitions of terms related to Orem's self-care theory. The authors identified 4 categories of self-care and these are seen as "the elements of the self-care framework of nursing practice and can be identified as the essence of nursing in the self-care conceptual framework" (p. 35). The four categories were 1)

expression of need, 2) self-care agent, 3) self-care demand, and 4) self-care measures. Expression of need is the focus of nursing care and the patient's expression of a need allows the nurse to identify self-care assets. Self-care assets were defined as a pattern of self-care actions identified by the nurse as making a positive influence to a client's state of health. Self-care demand establishes priorities of self-care actions, it is the nursing diagnosis. The self-care measures are the actions that the provider takes to restore a person's self-care. The sample consisted of 4 middle-class American women between the ages of 25 and 45. The 4 clients had a total of 35 appointments, of which 10 were selected for analysis.The setting was the suite of offices of the investigators. Using content analysis of the appointments and the client/investigator interaction led the investigators to the classification of the 4 categories of care. This study helped to formulate definitions of key terms for the self-care conceptual framework and to further analyze the interaction of these categories of care. The four highly-educated female clients in this study may not be representative of the typical American client in a private practice. A more detailed study with a larger sample would be helpful in determining the usefulness of this particular theoretical design.

Other investigators have used the concept of self-care to study the actions people with illnesses take to

ameliorate or alleviate symptoms. It has been found that self-care is the primary source of treatment in response to illness and wellness (Dean, Holst & Wagner, 1983). The authors investigated self-care of common illnesses in Denmark. A sample of 1,462 were studied regarding the care of 3,100 illness episodes. Information was gathered from a self-administered mailed questionnaire. The participants were asked to describe the various types of self-care behaviors that they used in the treatment of common illnesses, such as, colds, lumbar pain, influenza, skin rash, chest pain and depression. Four types of behavioral responses were identified: non-medication self treatment, use of over-the-counter medications, physician consultation, and no action. They found that the general population used self-care actions as their major source of health care. Chest pain was the only condition that physicians were consulted for frequently. Most other conditions were self-evaluated and self-treated. If, based on further research, self-care is the primary source of treatment then further investigation of self-care activities in well-health groups and chronic illness is necessary.

Few studies and programs have focused on adult self-management and self-care of asthma. However, self-management training programs for children with asthma have recently received promotion and support by the National Heart, Lung and Blood Institute (NHLBI) and the National Institute of Allergy and Infectious Disease (NIAID). The goals of the programs are to encourage and facilitate the

self-management of asthma and include educational reading materials and learning aids aimed at children with asthma and their parents, teachers, and other health practitioners (Goldstein, Green & Parker, 1985). Two examples of well established programs are the Asthma Care Training (ACT) program developed at University of California, Los Angelos and an Asthma Self-Management Program developed at Columbia University. The goal of the ACT program is to reduce the number and severity of asthma attacks. The goal of the Columbia University Self-Management Program is to develop, implement and evaluate an educational program that emphasizes self-care skills. Two conferences were held in 1981 to examine current theory, research, and studies of the health behavior of children, to establish guidelines for future research into health behaviors, and to identify gaps in knowledge regarding health care practices (Bruhn, J. 1983). While research in self-care of asthma in children has increased, research of self-care in adults with asthma has progressed more slowly.

Hindi-Alexander (1985) states that self-management programs for adults with asthma, are an educational process that facilitates decision-making. "Decision-making is a conscious, rational process of weighing alternatives and developing a plan of action which maximizes advantages" (p. 100). Illness often interferes with decision-making and self-management programs should be aimed at skill acquisition for dealing with the problems that the

individual experiences. The Adult Asthma Self-Management Program (ASMP) is designed to take place after a diagnosis has been established. The author believes that the program is most effective if the patient has already: 1) sought care, 2) accepted the diagnosis, 3) tried the treatment, and 4) accepted the treatment before starting the program. Hindi-Alexander identifies three components of asthma self-management programs. They are as follows: 1) negotiating an acceptable regime, 2) identifying personal triggers of asthma and deciding whether to a) avoid, b) eliminate, or c) premedicate, and 3) recognizing the early warning symptoms of impending asthma exacerbation (p. 100). These program guidelines are designed to increase control over symptoms and therefore decrease such emotions as fear, anxiety, and helplessness. She believes that self-care programs should emphasize decision-making skills as well as knowledge acquisition. Reinforcing decision-making skills helps to establish a sense of control for the patient and is essential for building further self-management behavior.

Maiman, Green, Gibson and MacKenzie (1979) evaluated the effect of educational strategies on number of Emergency Room (ER) visits within specified periods of time. The study was based on the assumption that reduced ER visits meant patients had improved their self-care ability. The purpose of the study was to evaluate the efficacy of a series of educational and motivational interventions in reducing unnecessary visits to the emergency department by adult asthmatics. The authors used a sequential prospective

experimental design. The sample included 289 adult asthmatic patients between the ages of 18 and 65 years who presented to the ER in respiratory distress. At the initial ER visit, subjects were randomly assigned to an intervention or control group using a (3X2)X(2X2) randomized factorial design. The intervention consisted of a nurse-conducted teaching session tested on three levels and an educational booklet tested on two levels. The three levels of nurse intervention were: 1) an asthmatic nurse who identified herself as such to the subjects, 2) an asthmatic nurse who did not identify herself as having asthma, and 3) a nonasthmatic nurse. The teaching provided by these 3 types of nurses included information about prevention and control of asthma, compliance with medication regimens, and provided encouragement about coping with asthma. Subjects in all three intervention subgroups were then randomly assigned to either receive or not receive an educational booklet containing the same material taught by the nurses. Patients who arrived at the ER when study nurses were off-duty, comprised the control group. ER visits of all patints were monitored for 2 weeks following the initial visit. Then all subjects in the intervention groups were randomly assigned to receive or not receive an interview relating to health and asthma beliefs and were followed another 2 weeks for observation. Finally, all subjects in the intervention groups were randomly assigned to either receive or not receive a follow-up telephone call from a nurse inquiring

about patient's experiences and problems with subsequent asthma symptoms. The number of ER visits was monitored for an additional 6 months. Results analyzed by ANOVA, indicated that subjects taught by an asthmatic nurse, whether or not she identified herself as such, had a significant overall reduction in ER visits ($p<.05$). There was no significant effect found for the educational booklet nor any interaction effects between the nurse and book interventions. Subjects who were taught by nonasthmatic ER nurses had the highest percentage of return visits.

The results of this complicated study are difficult to interpret. The outcome measure consists only of the number of ER visits to the study institution. Subjects could well have visited other ER departments or private physician offices during the study period. No attempt was made to document or record these data. The effects of the follow-up interview and telephone calls are not reported nor is the ER visit rate for the control group known. Therefore the results only give information about the effects on ER return rate using an asthmatic nurse to teach asthmatic patients. Nothing is known about the self-care practices or knowledge of the patients who participated in this study. It is not known why patients did or did not return to that ER. Additionally, validity and reliability data are not reported for the educational booklet nor are inter-rater reliability estimates of educational sessions or follow-up interviews provided for the nurses.

In a study by Avery, March and Brook (1980) the

ability to take care of asthma and to alter behavior following changes in symptoms were examined in 157 adult asthmatics. Specifically, the authors assessed the quality of patient's medication and physician use behaviors. Quality was evaluated using criteria developed by a pulmonary physician who defined what were appropriate behaviors which he believed would decrease symptoms. The sample was selected from an epidemiologic respiratory disease community survey. There were 370 people with asthma who returned the survey, out of these, 157 met the study criteria. The sample was predominantly white, middle-class, high school educated and living in one of 3 southern California communities. The design was descriptive. One hundred twenty of the participants had a home interview and 37 had a telephone interview, both lasted one hour and were conducted by a physician or a medical student using a structured questionnaire with fixed format responses. The interview provided information regarding: basic medication use, basic physician utilization, and personal responses to asthma attacks. Medication and physician use behaviors were determined using hypothetical asthma attack situations and an asthma attack diary kept during a subsequent attack. The 157 participants were then grouped by disease severity based on days of asthma symptoms: Stage 1, 1-10 days of symptoms per year, Stage 2, 11-23 days, Stage 3, 24-83 days, Stage 4, 84-365 days. The participants were asked to keep a daily diary for 14 days beginning with an acute asthma episode

lasting more than 30 minutes. They were asked to record their medication use, daily symptoms, and physician contact. The answers were then judged to be either appropriate or inappropriate by the study physician using the criteria established by a pulmonary specialist. The criteria for defining appropriate behaviors were based on 3 types of asthma symptoms: 1) mild- sudden onset of some difficulty breathing and feels able to hurry but does not feel able to jog two blocks because of breathlessness, 2) moderate- sudden onset of quite a bit of difficulty breathing and because of breathlessness cannot hurry but can walk at usual pace, 3) severe- sudden onset of extreme difficulty breathing and because of breathlessness must stay in one place most of the time. Responses to asthma attacks and self-care behaviors were judged as appropriate based on: 1) starting time for medication- within 6 hours for a mild attack, within one hour for a moderate attack, and within 30 minutes for a severe attack, 2) bronchodilator pills or inhaler use for the first 24 hours of symptoms, and 3) physician contact for persistant asthma symptoms- within 2-7 days for a mild attack, within 24 hours for a moderate attack, and within 6 hours for a severe attack.

The results for both the hypothetical and actual situations in mild asthma attacks revealed that 27% did not start medications on time, 39% did not use appropriate medications, and 22% did not contact a physician appropriately. For a moderate attack 31% did not use start medications on time, 43% did not use appropriate

medications, and 25% did not contact a physician appropriately, and for a severe attack the results were: 13%, 25%, and 20% respectively. The investigators also examined the sample's behavior overall in response to all 3 criteria. In mild attacks, 51% met all three criteria, while 14% did not meet the criteria; in moderate attacks, 43% met all and 10% did not; in severe attacks, 60% met all of the criteria and 4% did not. In summary the authors found that many asthmatics can do something that could potentially make the asthma symptoms or attacks less severe, but that many did not. The investigators believed that the criteria of medication use, timing and physician contact were the most important indicators of the quality of self-care. While medication use, timing of both medication use and physician contact are important self-care actions, they do not constitute the entire picture of self-care in asthma. These 3 variables provide limited insight into the multiple skills that patients have developed based on experience. The study did not measure the efficacy of alternative self-care behaviors in alleviating symptoms. A much broader approach may provide us with the information needed to provide a well-rounded understanding of adult self-care in asthma.

Emotions

Emotions are believed to influence asthma. There are a variety of pathways which suggest how emotions influence asthma. These pathways have been studied from diverse perspectives including; suggestion, mother/child relationships, personality, physiological consequences of emotional arousal and interindividual differences measured by psychometric testing. Purcell (1975) summarized what he believed were the mediating mechanisms that influence the effect of emotion on asthma. He identified 5 pathways. First, autonomic activity associated with emotional arousal can initiate airway obstruction and that vagal stimulation produces rapid bronchospasm and secretion. Second, that emotional states are often associated with certain behavior states such as, crying, laughing, and coughing which can lead to bronchoconstriction by reflex mechanisms. Third, that emotions have been shown to influence hormonal output such as steriod production which may alter the course of asthma. Fourth, that the physiological responses of mucous secretions, bronchospasm, and vascular engorgement may through learning be increased in intensity and duration and inducing airway obstruction. Finally, that central nervous system processes may influence antigen-antibody immune reactions which produce changes associated with airway narrowing. Exactly how emotional arousal initiates bronchospasm remains unknown and may be a combination of factors.

Several investigators of the effects emotions play in

asthma have attempted to provoke subjects to emotional arousal and measure the effects on pulmonary function. Two authors Clarke (1970) and Dudley, Holmes, Martin, & Ripley (1964) attempted to induce emotional arousal through hypnosis. Clarke found that in some individuals psychological influences such as emotional arousal influenced the frequency and intensity of asthma attacks. He attempted to induce asthma attacks under hypnosis, by exposing the patient to suggested stress, such as: fear, anger, and coughing, and then to the suggestion of relaxation to demonstrate reversibility. All 3 subjects had been previously trained in self-hypnosis and to go into a hypnotic state at the authors command. All medications were stopped 9 hours prior to the experiment. FEV1 was measured while the subjects were awake, they were then hypnotized. Four ideas were suggested sequentially to each patient: 1) the patients were told they would have a severe bout of coughing for one minute, this bout would not give them asthma, frighten them or make then angry, 2) each patient would have a severe attack of asthma which did not make them cough, nor frighten or anger them and the attack lasted for 5 minutes, then it passed, 3) emotions of fear and anger were suggested to the patient and lasted 5 minutes, 4) fear, anger, cough, and asthma was then suggested to the patient and lasted for 5 minutes. FEV1 measurements were made immediately after each scenario and after they had been told that each of the suggested ideas

had passed. At the conclusion, the patients were told they would awake feeling relaxed, pleasant, and breathing easy. Final FEV1 measurements were taken after the patient was awakened. The results showed that the effect of cough on FEV1 was not significant, but FEV1 decreased significantly (19.8%) in response to suggestion of asthma. Fear and anger caused a considerable variation in FEV1 with a mean fall of 11.4%. Simultaneous suggestions of fear, anger, cough, and asthma were associated with a significant mean fall of 22.4%. Finally, there was a wide variation in FEV1 after the patient was awake. The author acknowledges the threat of FEV1 as an objective means of assessing severity of asthma to the internal validity of the study. Patients might have subconsiously or otherwise tended to produce the symptoms the authors wanted, which is a threat to external validity. His sample of three was small and a subsequent study with a larger sample would help to establish external validity.

Dudley and collegues (1964) used hypnosis to induce unpleasant emotional arousal. They recorded changes in alveolar ventilation, respiratory rate, oxygen consumption, and alveolar carbon dioxide concentration, which correlated with the suggestion of negative emotional states such as anger and depression. Mathe and Knapp (1969, 1971) studied the effects of emotional arousal and asthma. A sample of 6 patients with asthma and 6 normal subjects were subjected to a stressful situation in the form of a disturbing film and a math test given under negative criticism. The authors found that both asthmatic and normal subjects responded to the

stress by increased heart rate, blood pressure, plasma cortisol, and urinary norepinephrine levels but only the asthmatic subjects showed a significant decrease in airway conductance and respiratory rate.

Numerous studies have focused on the nature of the mother-child relationship. These studies have lent support for the premise that there is a connection between how a mother treats her child and the child's asthma. In a study by Kapotes (1977) it was suggested that removing a child with asthma from parental influences will reduce the frequency of asthmatic attacks. Thirty-nine severely asthmatic children were studied during hospitalization for asthma. The children underwent psychotherapy and were removed from the home. It was found that 77% demonstrated considerable improvement in their asthma, and 23% failed to improve. The effect of age was noted to be most significant, with the older child failing to improve. Seventy percent of the participants, upon returning to their homes, were noted to be less inhibited and freer in emotional response. It was suggested that the "parentectomy" and psychotherapy contributed to increased security, reduction of anxiety, and increased ego strength. Interviews with the mothers revealed that the majority were over-protective and this was associated with improvement in the frequency of the child's asthma symptoms. Disinterested mothers had children who failed to improve and tended to be more insecure and anxious. Information on the mothers was gathered through an

interview. It is difficult to interpret the findings of this study. Length of hospitalization ranged from 2 months to 14 months and number of psychotherapy hours ranged from 2 hours to 26 hours, it appears that a more homogenous group in regards to length of hospitalization and psychotherapy would reveal more valid results. Criteria for improvement in the children and conditions of discharge were not provided. The author provided details of post discharge reoccurance of asthma attacks, but failed to provide information of rate of asthma attacks while hospitalized. There might not have been any significant changes. It is unclear whether the effects of the "parentectomy" alone, a controlled environment, or if psychotherapy was responsible for any significant changes. A combination of the parentectomy and psychotherapy appeared to improve the relapse of attacks and subsequent hospitalizations. It is also likely that the younger subjects became older during their prolonged hospital stay and it is well known that child asthmatics improve as they become older. The "parentectomy" approach does not seem to be practical and may disrupt the family system.

Another approach to the study of emotions and asthma is directed at identifying certain traits and personality styles specific to the asthmatic population (French & Alexander, 1941; Purcell & Weiss, 1970; Creer, 1978; Cohen, 1977). A monograph by French and Alexander (1941) sparked research defining the "asthmatic personality". The authors theorized that asthma was due to a basic conflict in the

relationship with the mother and the asthmatic child and that a universal asthmatic personality existed. However, one single personality style has not been found to describe the personality of a patient with asthma. Many different terms have been used to describe the asthmatic patient, from oversensitive to aggressive, from immature to ego-centric, from passive to obsessive. This conflict in the literature leads one to the conclusion that a specific personality style does not exist. The majority of more recent investigations have focused on how patients with asthma differ from those patients without asthma in response to various psychometric instruments (Creer, 1979).

Kinsman and his collegues suggested that patients with asthma could be subdivided based on reported symptoms linked with an asthma attack. They found that airway obstruction produces a range or pattern of subjective symptomatology. The identified subjective symptomatology could help identify coping styles. Derived from multiple interviews, the Asthma Symptom Checklist was developed (Kinsman, Luparello, O'Banion & Spector, 1973). This is a 77 item checklist of subjective asthma assoicated symptoms. The symptoms are divided into 5 clusters: Panic-Fear, Fatigue, Irritability, Hyperventilation-Hypocapnia and Bronchoconstriction. The latter two clusters are described as somatic symptoms, Panic-Fear and Irritability are described as mood symptoms. Kinsman's work has led to the identification of a response style associated with panic-fear symptomatology and

personality. The identified subjective symptomatology has provided important information about the patient's emotional response to his asthma and coping styles in response to treatment regimens. For example, patients who report more panic-fear symptomatology are more likely to be prescribed steroids and to rate their asthma symptoms as more severe (Kinsman, Spector & Shucard, 1974). The authors clearly state that the subjective symptomatology and related coping behavior must be understood by the health care provider to establish a medical regimen for the patient that balances the risks of recommending potent drug regimens with the serious side effects associated with the drugs. It is important to note that studies indicate that there is not a relationship between severity of disease, as measured by pulmonary function tests and subjective symptoms (Kinsman, Dirks & Jones, 1980; Dirks, Jones & Kinsman, 1977; Dirks, Horton, Kinsman, Fross & Jones, 1978).

It has been suggested that the perpetuation and the exacerbation of chronic illness by psychological factors can be understood by examining the following: the behavioral characteristics of the patient, the quality of the patient's subjective symptoms, the patient's attitude towards the illness and it's treatment, and the patient's enduring personality (Jones, Kinsman, Dirks & Dahlen, 1979). The authors did a sequence of studies involving a group of 600 perennial asthmatics. Using the Asthma Symptom Checklist (ASC) the authors looked at the relationship between subjective symptomatology and the physician's judgement of

the severity of asthma, use of PRN medications, medical decisions during hospitalization, hyperreactivity of airways, MMPI scores, rates of rehospitalization, and discharge medication regimens. The results indicate that the panic-fear symptomatology as measured by the ASC can be used as a basis for characterizing response styles and the MMPI adds the dimension of personality. The authors found that, "a high panic-fear personality is not regarded as an emotional reaction to the illness, rather, it involves aspects of personality that may predispose the patient to react in certain ways in response to breathing difficulty. By measuring the affect of panic-fear at both extremes, the different roles of symptomatology and personality in the maintenance of asthma can be studied" (P. 1116).

In another study Kinsman, Dirks and Jones (1980) looked at the relationship of coping styles and panic-fear personality characteristics. Their work suggests that psychological assessment can provide information about the linkages which exist between the patient's personality and how the illness is viewed and experienced. The ASC which measures the panic-fear symptomatology related to an asthma attack has been found to provide information on how panic-fear personality influences the course of asthma and it's treatment. The specific aim of this study was to correlate the subjective symptoms with panic-fear personality and attitudes toward illness and it's treatment and to determine how general panic-fear personality dimensions affect

patient's experiences and view of their illness. The investigators used a descriptive design with a sample of 90 participants who were hospitalized for 1 to 6 months of intensive medical treatment for severe asthma. Subjects completed the Battery of Illness Behavior (BAIB). This test consists of three seperate psychometric instruments measuring three discrete levels of psychological funçtioning: the Minnesota Multiphasic Personality Inventory (MMPI), the Respiratory Illness Opinion Survey (RIOS), and the Asthma Symptom Checklist (ASC). The reliability and validity of the BAIB was established previously (Dirks & Kreischer, 1982; Dirks, Brown & Robinson, 1982; Dirks, Ruback, Feiguine & Covino, 1982). The MMPI measures general personality characteristics, it is a well established and widely used instrument. The RIOS measures various beliefs and attitudes patients have about their illness and treatment. It includes categories of optimism, negative staff regard, specific internal awareness, external control, and psychological stigma. The tool was used to assess attitudes toward asthma by low, moderate, and high panic-fear personality groups. The ASC assesses the intensity of a variety of affective, somatic and interpersonal subjective symptoms experienced during a typical asthma attack. The ASC has been tested repeatedly by the authors and correlated with the panic-fear index of the MMPI in a predictive manner for the prescription of steriods and length of hospitalization (Dirks, Kinsman, Jones, Spector, Davidson & Evan, 1977; Jones, Kinsman, Dirks

& Dahlem, 1979). The participants were divided into high, moderate and low panic-fear groups based on the MMPI panic-fear personality scale, low was one standard deviation below the normative mean, high was one standard deviation above the mean, and moderate was between the two extremes. The results showed that the panic-fear groups were well matched on age, personality and daily pulmonary function tests. The groups were shown to differ significantly ($p<.001$) on the MMPI. The high panic-fear group tended to be more depressed, suspicious, were more guarded, felt they were more of a burden to others, were alienated and socially introverted, had less ego resources, tended to be more likely to have a higher activity level, and were in general more dependent. The low panic-fear group tended to have the opposite qualities. The groups also differed significantly in regards to the RIOS; the high panic-fear group was more pessimistic about their ability to cope and felt more stigmatized and psychologically different than others due to their illness ($p= .001$). Again, the low panic-fear group were just the opposite and felt they had less external control ($p= .01$) and more internal control of their illness. The groups differed significantly ($p= .001$) in relation to panic-fear, irritability, hyperventilation-hypocapnia, worry, anger, and loneliness categories. The high panic-fear group noted more anxiety and stress and also reported more illness symptoms than did the low panic-fear group. Based on the reported results and the reliability and

validity of the tools it seems that there are various links between personality dimensions and attitudes and the ways that an illness is experienced and appraised. This suggests that the identification of a person's coping styles would help direct the type of medical interventions and the self-care education that is needed to effect change in the care of the patient with asthma.

Other investigators have used the ASC to evaluate a asthmatic's ability to cope with life stressors (Northup & Weiner, 1984; Plutchik, Williams, Jarrett, Karasu & Kane, 1978). In the study by Plutchik, et.al. (1978) objective measures of pulmonary functioning in asthma patients and physicians' rating of severity were compared with the subjective reports of patients. These various indices of subjective reports were related to moods, life problems, self-esteem, and personality traits. The sample consisted of 40 chronic asthmatics with a mean age of 44.4 years. At the onset of the study each participant completed a battery of psychological tests. Pulmonary functioning was measured by Peak Expiratory Flow Rate (PEFR). Physician's rating of disease severity was measured using the Drug Dependence Rating (DDR), which provided an over-all index of asthma severity in terms of the dependence of the patient on medication. Subjective measures of patient functioning was measured by the Asthma Symptom Checklist (ASC) , the Asthma Interference Scale (AIS), the Anxiety Scale, the Mood Scale, the Self-Esteem Scale (SES), the Emotions Profile Index (EPI), and the Problem Checklist. All Scales had internal

reliability as measured by alpha coefficient ranging from 0.75-0.95. The results revealed that the PERF did not correlate with the DDR and the ASC but it did correlate with the AIS. There was no relationship between the objective measure of lung functioning (PEFR) and any of the subjective measures of psychological functioning. The ASC correlated moderately well with almost all of the psychological scales. In summary, the authors found that PEFR is independent of the physician's rating of the degree of necessary medication, including steroids. They also found that the relationship between objective and subjective measures of asthma severity depends on the particular measure used; that is PEFR correlated with the interference scale but did not correlate with the ASC. And finally, there appeared to be a relation between measures of personality, self-esteem, life problems and present severity of asthma, but these were found only when the patient self-reported their symptoms (ASC) and not when it was measured by the physician or by the PEFR.

Northup and Weiner (1984) looked at the relationship between hospitalization, recent life change, ability to cope with asthma and asthma severity. The sample consisted of 51 patients, 25 of whom had been hospitalized in the past year, and 26 patients who had not been hospitalized in the past year. The patient's were at least 18 years of age. Severity of illness was rated as mild, moderate or severe based on use of steroids and history of intubation: mild- no

use of steroids, moderate- intermittent use of steroids for periods of less than three months, severe- constant use of steroids for the previous twelve months or more, or intermittent use with history of intubation. Each patient was interviewed concerning the perceived course of asthma and perceived precipitants of asthma attacks. Ability to cope was measured by the Asthma Symptom Checklist (ASC). The authors believed that high scores indicated poor coping with asthma due to excessive anxiety, and very low scores indicated poor coping due to excessive denial. Life change stress was measured using a modified schedule of recent experience. The authors standardized their interview technique by conducting several joint interviews. None of the patients were in respiratory distress during the interview. The investigators found no significant differences between the hospitalized and nonhospitalized groups with respect to age, sex, race, duration of illness and hospitalization. Of the sample, 35% were rated severe, 37% rated moderate, and 24% rated mild. The results showed a significant association ($p=0.0012$) between severity of illness and hospitalization. There was a significant relationship between hospitalization and higher ASC scores ($p=0.026$) and life change scale ($p=0.0002$). Life change was measured as asthma-dependent and asthma-independent. Asthma-dependent life changes included the affects of asthma in their lives and asthma independent were changes that occured which did not include the effects of asthma. Hospitalization correlated with asthma-dependent life change

(p=0.0001) but not with asthma-independent life change (p=.15). There was a significant correlation between the ASC scores and the life change scores (p=0.01). Severity of illness did not correlate with ASC scores or with asthma-independent life changes. When asked directly, 67% of the patients admitted that emotional factors precipitate or aggravated asthma attacks. In general, hospitalization correlated with severity of asthma, high ASC scores, and asthma-dependent life changes. This suggests that stressful life changes may exacerbate asthma and that in turn asthma may precipitate psychosocial changes and induce stressful life changes that affect severity of asthma. These adverse changes makes coping ability a prime determinant of illness outcome. The authors emphasize the need to evaluate coping ability in studying the impact of life events on asthma.

A person with asthma encounters various stressors that are both related and unrelated to their illness. They must develop adequate coping resources to deal effectively with their chronic illness. These coping resources are, more often than not, represented by self-care behaviors and serve to maintain the integrity of the individual. Kinsman, Dahlem, Spector and Staudenmayer (1977) emphasized that "the ASC panic-fear symptoms are related to coping styles which influence perceived severity and intractability in asthma. The specific coping behaviors associated with the panic-fear coping style in asthma remain to be explored systematically" (p.118). The stress and coping paradigm developed by

Lazarus (1980) will be used to examine the construct of coping for the purpose of identifying coping behaviors associated with subjective symptomatology in a patient's self-care of asthma.

Stress and Coping

The development of asthma symptoms and medical treatment for asthma can be potentially stressful events. To expand our understanding of how stress affects patients with asthma and more specifically how it affects patients ability to cope with asthma, the cognitive theory of stress and coping as developed by Lazarus (1980) will be examined. Cognitive factors play a key role in emotion and adaptation which inturn affect the impact of a stressful event and ultimately the choice of coping behaviors, and subjective, physiological and behavioral reactions (Cohen & Lazarus, 1979). Lazarus and his collegues (Lazarus, 1966; Lazarus, Averill & Opton, 1970) analyzed stress in terms of cognitive appraisal and coping. A distinguishing feature of a cognitive theory is that how people think about a stressful situation will determine how they will respond emotionally and how they choose to cope. Cognitive processes shape the coping response (Folkman, Schaefer & Lazarus, 1984). Lazarus and Folkman (1984) note a wide body of research which demonstrates that cognitive appraisal affects the level of the stress response to a variety of stressors and strongly influences the coping process and how a person reacts emotionally. The congitive theory of stress and coping is

characterized by being both relational and process oriented (Folkman, 1984). The relational characteristics of stress and coping implies that there is a relationship between the person and the environment. Lazarus and Folkman (1984) found that "psychological stress is a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (p.19). This relationship is transactional in nature and implies that both the environment and the person interact with one another like a two-way street. There are two processes which mediate this relationship, appraisal and coping. Lazarus and Folkman (1984) state that "appraisal is a cognitive process where an event is evaluated in relation to what is at stake and what coping resources are available and coping is defined as the cognitive and behavioral efforts made to master, tolerate, or reduce external and internal demands and conflicts" (p.223).

The process oriented characteristic of stress and coping is two-fold. First, the person and the environment are seen as a dynamic relationship that constantly changes, and secondly that both the person and the environment can affect one another. The process is interposed by appraisal and reappraisal.

In order to understand what methods people use for personal control over stress it is important to understand what cognitive appraisals one goes through in determining

the meaning of an event (Lazarus, 1980: Cohen & Lazarus, 1979). This cognitive appraisal is not solely psychological but rather a mind and body approach in determining the meaning of a situation, a gut feeling, an aura, if you will.

Lazarus (1980) has defined two major forms of cognitive appraisal. Primary appraisal is the process of evaluating the significance of a transaction for one's well-being. For example, the patient with asthma would judge whether a particular effect of asthma is irrelevant, benign-positive, or stressful. Irrelevant is a judgement that the situation has no significance for the individual's well-being (Folkman, 1984). Benign-positive appraisal indicates that the situation does not tax or exceed a person's coping resources and produces positively toned emotions, such as, joy, happiness, and contentment (Folkman, 1984; Lazarus, 1980). A stressful appraisal usually produces negative emotions and affects one's coping resources. Once the person appraises a situation as being stressful, he or she must decide if it is a condition that harms, threatens, or challenges.

These three primary cognitive appraisals represent appraisals of psychological stress and each affects how a person copes (Folkman, Schaefer & Lazarus, 1979). Harm represents damage already done, threat involves the potential for harm, and challenge offers a potential for significant gain under difficult odds (Folkman & Lazarus, 1984).

Based on a person's appraisal of their physical,

emotional, or psychological discomfort they will mobilize adaptational or coping processes in reaction to the situation. The person then plays an active part in shaping their experiences. Cognitive appraisal determines an individuals response in managing a stressful situation (Holroyd, Appel & Andrasik, 1983). Primary appraisal is shaped by a wide variety of personal situational factors, such as, belief systems, commitment, and past experiences. Lazarus (1980) states that, "primary appraisal determines the intensity and quality of an emotional response to any transaction" (p.45). Stress is believed to begin when primary appraisal takes place within the individual. Given that there are some situations that must be viewed a number of times, people have an opportunity for feedback and can potentially change the quality and intensity of an emotion or a situation. Lazarus (1980) has called this reappraisal and it accounts for swift changes in emotions. Patients with asthma utilize reappraisal when they decide just how bad their asthma is and at what point their symptoms warrant intervention and mobilization of coping resources.

Secondary appraisal involves the identification and evaluation of coping resources. Clarke (1984) based on Lazarus' stress and coping theory has defined coping as a response carried out by the individual and appraised as either satisfactorily or unsatisfactorily affecting the demand in a desired direction. An important point that has been emphasized is that it is the cognitive processes that

determine a person's perception of both the demand and coping. Secondary appraisal is a set of complex cognitive appraisals devoted to a key adaptational process, namely coping. What distinguishes coping from adaptation is mobilization of effort. Coping occurs when a stressful situation cannot be handled by one's routine and everyday adaptational responses to stress. White (1974) explains that adaptation is how well a person gets along routinely and coping is the process of meeting nonroutine demands. In patients with asthma, both adaptational and coping processes are used; routine processes are daily medications and non-routine processes are acute asthma exacerbations.

To evaluate the effectiveness of coping and specific coping mechanisms, Lazarus identified and categorized coping strategies as "problem-focused" and "emotion-focused" coping. Problem-focused coping refers to efforts directed at doing something constructive to alleviate the distress from conditions that harm, threaten, or challenge the individual (Folkman, 1984). Emotion-focused coping refers to the efforts an individual makes at regulating the emotion itself and the consequences of that emotion. The focus of this regulation may be at the behavior itself, the expression of emotion, physiological disturbances, subjective feelings of stress, or at any combination of these. People with serious illnesses appear to use a mixture of both emotion and problem-focused forms of coping. Most situations require some amount of problem-solving, decision-making, or direct action, as well as control over the

distressing emotions.

In a descriptive study by Carrieri, Janson-Bjerklie & Hudes (1986) on the sensations of pulmonary dyspnea, subjects reported the "need to curb their emotions in order to avoid triggering acute dyspnea" (p.9). Other variables that affected the sensation of dyspnea included altering activity and fatigue. It appears that one particular coping mechanism was not used exclusively. This further supports the claim that people with chronic illness use a variety of coping mechanisms. In another study by Folkman and Lazarus (1980) they also found that most people use both emotion-focused and problem-focused modes of coping in everyday stressful situations.

In a recent study by Carrieri and Janson-Bjerklie (1986) the strategies that patients use to manage the sensation of dyspnea were examined. The purpose of the study was to describe coping strategies for the management of dyspnea and to compare and contrast these strategies across the pulmonary disease groups of asthma, emphysema, restrictive diseases, and vascular diseases. The authors also determined whether coping strategies were from the patient's own experience or learned from others. Lastly, the authors described the relationship between the severity of dyspnea and the coping strategy used. The design of the study was descriptive and exploratory. A questionnaire and structured interview were used. Severity of dyspnea was measured by the Grade of Breathlessness Scale (GBS) and 2

visual analog scales (VAS). A convenience sample of 68 subjects was obtained: 27 had emphysema-bronchitis, 23 had asthma, 13 had restrictive disease, and 5 had vascular disease. The sample consisted of 39 males and 29 females between the ages of 22 and 82,they were high school educated and the majority were not employed with an average low income level.

Thirty-eight categories of strategies were developed from more than 80 strategies patients described for relieving their symptoms of dyspnea. The interviews were analyzed using Lazarus' problem and emotion-focused paradigm and were also divided into two temporal classifications, long term and immediate strategies. Immediate strategies were those patients used to diminish the acute episode of dyspnea, while long-term strategies were those that patients used to decrease the impact of dyspnea on their lifestyles. The results showed that the total number of coping strategies ranged from zero for two subjects to 23 strategies for two asthmatics. In general, asthmatics used more strategies than emphysema-bronchitics, vascular disease groups and restrictive disease groups. The authors attribute this finding to the fact that asthma is episodic and potentially reversible. Females tended to have more coping strategies than did males. Immediate stategies were classified into 4 problem-focused, 2 emotion-focused and one mixed category. The problem-focused categories were: position and motion, breathing strategies, physical distancing from aggravating factor, and self-selected

treatments. The emotion-focused categories were self-isolation and tension-reduction. The mixed category included seeking the support of others and use of diversional activities. Long-term strategies were divided into 5 problem-focused, 3 emotion-focused and one mixed category. The problem-focused categories were: activities of daily living, activity modification, health-directed behaviors, self-selected treatments, and protective behaviors. The emotion-focused strategies were: emphasizing the positive, emotional distancing, tension reduction, and social isolation. The mixed category included seeking social support.

The asthmatics, as a group, tended to be younger and had less severe dyspnea. They had developed and used the greatest number of strategies and also had used the more unique types of coping strategies. The authors state that "the reversible nature of the asthmatic attack most probably leads to a capacity to be able to forget and to not let the disease interfere with their lives" (p. 20). They also suggest that asthma as a group should be studied separately from other pulmonary disease groups due to the intermittency of their dyspnea. Dyspnea is one common symptom of asthma, there are others such as chest tightness and wheezing. In studying self-care behaviors and coping strategies for patients with asthma it is important to study the differing symptoms as a whole, therefore providing a more comprehensive picture of self-care in patients with asthma.

CHAPTER III

METHODOLOGY

Purpose

The purpose of this study was to describe the self-care strategies used by adult asthmatics in alleviating or controlling asthma symptoms. A second purpose was to determine if there was a relationship among emotionally-triggered asthma, panic-fear symptomatology and self-care strategies. The report of emotions triggering asthma was measured by the Asthma Trigger Index. The report of panic-fear symptomatology was measured by the Asthma Symptom Checklist. Qualitative data was gathered by pre and post interviews regarding self-care strategies. Self-care strategies used during the study period were collected by the self-care log and were asthma episode specific. Participants rated the severity of asthma symptoms for each recorded episode of asthma.

Defintions of Terms

Asthma Trigger Index (ATI): The Asthma Trigger Index is a questionnaire that records the specific triggers of a subject's asthma and allows for identification of those asthmatics who believe they respond to emotional stress with asthma symptoms. (Janson-Bjerklie, 1983).

Moderate to Severe Asthma: For the purpose of this study moderate to severe asthma is defined as those patients with physician-diagnosed asthma that have symptoms at least three times a week, take daily asthma medications, and use corticosteroids on a prn basis.

Self-care strategies: Knowledge and skills that one possesses to provide self-healing capabilities which include actions a participant takes to alleviate and/or cope with asthma symtoms.

Emotion-focused coping strategies: Efforts that an individual makes at regulating the emotions itself and the consequences of that emotion in relation to avoiding or coping with asthma symptoms.

Problem-focused coping strategies: Efforts that individuals take which are directed at doing something constructive to alleviate the distress from situations perceived as threatening, harmful or challenging an asthma related situation.

Asthma Symptom Checklist: The Asthma Symptom Checklist is a 50 item checklist of subjective asthma associated symptoms. Based on the frequency of symptoms they can be divided into key clusters and the degree of panic-fear symptomatology can be measured for each individual.

Coping: The cognitive and behavioral efforts that an individual make at mastering, tolerating or reducing external and internal demands and conflicts.

Efficacy: For the purpose of this study, efficacy is the rated effectiveness per use of a reported self-care

strategy. Participants rate the efficacy of a self-care strategy on a visual analog scale.

Design

This study used a prospective, combined longitudinal and cross-sectional descriptive design to identify the coping responses and self-care strategies used by patients with moderate to severe asthma.

Research Setting

Patients were recruited through the chest clinics of two major teaching hospital outpatient departments in San Francisco, the University of California at San Francisco Medical Center, and San Francisco General Hospital Medical Center.

Sample

A convenience sample of 18 subjects was recruited. Of these 18, 5 either refused to enter the study or did not meet the study criteria. Thirteen participants formally entered the study and 3 dropped out and were lost to follow-up. The final study sample consisted of 10 participants, 4 males and 6 females. All subjects had physician-diagnosed asthma and met the following criteria:

a) age, at least 18 years of age

b) absence of any other pulmonary or cardiovascular diseases affecting lung mechanics

c) absence of any other chronic illness

d) ability to speak, write and read English

e) voluntarily sign a consent to participate in the study

f) history of corticosteriod prescribed prn for asthma symptoms

g) history of asthma symptoms at least three times a week

h) taking daily asthma medications, such as inhalers or xanthines.

The above criteria for inclusion in the study served to control those intervening variables and provided for a more homogenous sample.

Subjects were required to be 18 years of age to avoid any problems with minor consent. Subjects were required to be free of any other pulmonary diseases or chronic illness which might affect pulmonary mechanics and perceptions of asthma symptoms, as well as, experiences with coping in chronic illness and self-care. The diagnosis of asthma was confirmed by the participant's medical record. Subjects were required to have moderate to severe asthma to ensure frequent experiences with asthma symptoms and exhibition of self-care strategies including the administration of daily medications. Ability to speak, write and read English was necessary to complete the ATI and ASC and the Self-care log. Lastly, voluntary informed consent was required to conform to the standards and ethics of research practice.

Instrumentation

Asthma Trigger Index (ATI): The ATI was used to measure the subjects' perception of asthmatic response to various known triggers of asthma including emotional arousal. On the questionnaire subjects circled triggers they believed are important inducers of asthma attacks and completed eight situation vignettes. Four of the eight vignettes presented emotional situation in interpersonal contexts; the other four situations were emotionally neutral and were not scored. The total score reflected the degree to which subjects believed emotions triggered their asthma. Subjects were also asked whether they believed they responded to emotional arousal with asthma symptoms. The responses to this question and their listing of the three most important triggers to their asthma were scored and analyzed separately. The total possible score is 15 points; the higher the score the more the subject perceived emotions triggered his or her asthma. In preparing the ATI, the author reviewed all triggers listed on the ATI and compared them with those cited in the literature; a panel of experts in caring for patients with asthma reviewed the Index to establish content validity. Test-retest reliability (r= .90) was established in a previous study (Janson-Bjerklie, Boushey, Carrieri & Lindsey; 1986) on emotion, suggestion and asthma.

Asthma Symptom Checklist (ASC): The ASC is a list of 50 symptoms. Subjects rated each symptom on a one (never experienced) to five (always) Likert Scale as to the

frequency with which this symptom applied to them during typical periods of breathing difficulty. The symptoms were grouped into 10 scales: Panic-Fear, Irritability, Fatigue, Hyperventilation-Hypocapnia, Airway Obstruction, Worry, Anger, Loneliness, and Rapid Breathing. Cronbach alpha coefficients for the scales ranged from 0.65 to 0.93 in a study by Janson-Bjerklie and Carrieri, (1986) and are similar to those published by Kinsman and collegues (1973; 1983). Participants were grouped into high, moderate and low panic-fear groups based on Z scores. The Z scores were calculated from raw symptom category means using the normative mean and standard deviation for each symptom category. Based on the scores participants were grouped as follows: high group (score $\geq$ 55), low group (score$\leq$ 45), and moderate group (between the two extremes). The panic-fear scale has been found to be related to coping styles which influence the perceived severity and intractability in asthma and leads to more intensive steroid regimens prescribed by physicians ($p< 0.02$) (Kinsman, Dahlem, Spector & Staudenmayer; 1977).

Asthma Self-Care Log (SCL): The SCL developed by this author is adapted from the Self-Care Behavior Log developed by Dodd (1984) and the Dyspnea Log developed by Carrieri and Janson-Bjerklie (1984) and is an episode specific log. The participant was asked to rate on 3 visual analog scales the degree to which they felt the following symptoms: shortness of breath, chest tightness and wheezing. These symptoms are

consistent with the commonest symptoms of asthma reported in the literature. They were then asked to report what they believed brought on their symptoms and then to describe what they did to help their breathing or to make their symptoms better. Beneath each self-care strategy they were asked to rate the effectiveness of their actions. They can record up to 4 strategies for each episode. The SCL is a self-report that allows the investigator to gather data and quantify responses (Dodd, 1982). The SCL has face validity. Experts in the fields of self-care and asthma reviewed the log and content validity was established.

Procedure

Participants were selected using the sample criteria. After the participants were contacted, they were told the purpose of the study and that the study would require two meetings, each approximately 30 minutes long. The study required filling out 3 questionnaires, a demographic survey, the ASC, and the ATI and a Asthma Self-Care Log for a period of two months. The participants were studied for a period of at least two months. Informed written consent of each participant was obtained which explicitly spelled out the procedure, risks, benefits and purpose of the study. The participants filled out the questionnaires and were given detailed instructions and a sample of how to fill out the SCL. Participants were told to fill out the log subsequent to asthma symptoms, thus the log was episode specific. The participants were contacted at least every other week

depending on telephone availability to encourage participation and to answer any questions or concerns regarding the study procedure. After two months the participants were given an exit interview, except for one participant who mailed the return questionnaire and was not available for an exit interview. The exit interview was conducted to elicite any further self-care and coping strategies, to clarify any log entries and to obtain any further history.

Data Analysis

The one-way ANOVA was the statistic used to evaluate the relationship among Panic-Fear groups (high, moderate, low) to asthma symptoms, and the number and frequencies of self-care strategies, and the Asthma Trigger Index. The Tukey-HSD procedure was the statistic used to determine where the statistically significant relationship was found. Chi-Square was the statistic used to crosstabulate the ATI and the Panic-Fear groups (high, moderate, low). Frequency means and efficacy means were calculated by computer for self-care strategies. Qualitative methods were employed to describe the interview findings.

Limitations

The most obvious limitation to this study is the small sample size. The lack of a statiscally significant

correlation among panic-fear symptomatology and emotionally-triggered asthma to the types and frequencies of self-care strategies is probably due to the small sample size. Three participants dropped out during the study and this might be related to the fact they were self-selected into the study and were not offered reimbursement for participation. Another limitation of the study is the use of self-report. Some of the participants recorded only a small number of episodes, this may be due to boredom with completing log entries, the reluctance of some to focus on their asthma symptoms, or the inability to differentiate between an episode of asthma symptoms and other physical or emotional conditions.

CHAPTER IV

RESULTS

The results of the study will be presented in 4 sections. First the nature of the sample is described and the scores of the Asthma Symptom Checklist (ASC) and the Asthma Trigger Index (ATI) are presented. Reported asthma episodes, precipitating factors or triggers for asthma symptoms, and asthma symptom means are given.

Self-care strategies are described by categories of problem-focused, emotion-focused, and mixed strategies. The results are presented in the following manner, first the types of strategies and the mean number of strategies that the participants recorded in the log are described. Frequency data are reported on the number of strategies in the participant's repetoire, these represent reported strategies by history only and were not reported as being used during the study period. Then mean frequency data for reported self-care strategies used now are reported by problem, emotion, and mixed categories. Finally mean efficacy data for the categories of self-care strategies are given. In the third section One-way ANOVA is presented for self-care strategies by the Panic-Fear ASC Z Scores. The Z scores are calculated from the raw symptom category means using the normative mean and standard deviation for each symptom category. The means for participant rated asthma

symptoms were analyzed by panic-fear groups. In the fourth section self-care strategies means are reported for those participants that believed asthma symptoms are triggered by emotions and those that did not believe emotions triggered their asthma. In the last section qualitative data are presented on the results of the pre and post-interview, regarding self-care strategies used in the participant's repetoire.

Description of Sample

The final sample consisted of 10 subjects. Participants were recruited over a six month period from July, 1985 to January, 1986 and followed for a mean of 13.5 asthma episodes. Subjects were studied for a period of 2 months. Selected descriptive data for the sample are illustrated in Table I. The ages of the participants ranged from 24 to 58 years, with a mean age of 45 years and a standard deviation of 12 years. There were 6 females and 4 males. Four of the participants were single, 4 were married and, 2 were divorced. Five participants were Caucasian, 3 were Hispanic and 2 were Middle-Eastern.

The length of time each participant had been diagnosed with asthma ranged from 3 to 52 years, with a mean of 24 years and a standard deviation of 20. Five of the participants had never smoked and of the remaining 5, two continued to smoke occasionally and 3 had quit smoking for an average of 13 years with a standard deviation of 12

years. Seven of the ten participants reported a family

TABLE 1

Description of Selected Demographic Variables of the Sample

Variable		Total (n=10)
SEX	Male	4
	Female	6
AGE	20-30	2
	31-40	2
	41-50	1
	51-60	5
MARITAL STATUS	Single	4
	Married	4
	Divorced	2
ETHNIC BACKGROUD	Caucasian	5
	Hispanic	3
	Middle-eastern	2
SMOKING HISTORY	Smokers	2
	Non-smokers	8
MEDICATIONS	Theophylline	10
	Bronchodilator	9
	Inhalers	10
	Steriods	7
	Steriods prn	10
FREQUENCY OF SYMPTOMS	Weekly	5
	Daily	5

history of asthma. All of the participants used prescribed bronchodilators and theophylline daily. None of the participants used over-the-counter medications in treating their asthma. Seven of the participants were on daily oral prednisone during the study period and the remaining 3 had used prednisone within the past six months. Two of the ten participants used inhaled corticosteroids and 3 of the ten used cromolyn sodium. Five of the participants reported

they had daily asthma symptoms and the other five reported weekly symptoms. All of the participants had been hospitalized for asthma. All of the particiapants had been skin tested as positive for allergens. Seven of the participants had hayfever and seasonal symptoms, while three did not. None of the participants had any other pulmonary, cardiac or other diseases.

Symptomatology

To determine the symptom characteristics of the sample the Asthma Symptom Checklist (ASC) was used to elicit scores on 10 symptom categories. The means and standard deviations for the ASC categories are presented in Table 2.

TABLE 2

Asthma Symptom Checklist Mean Z Scores
(N=10)

CATEGORY	MEAN (RANGE=30-70)	STANDARD DEVIATION
Panic-Fear	51	12
Irritability	49	10
Fatigue	48	10
Hyperventilation/ Hypocapnia	52	9
Airway Obstruction/ Dyspnea	50	13
Airway Obstruction/ Cough	48	8
Worry	51	11
Anger	49	10
Loneliness	53	10
Rapid Breathing	43	7

Using Z scores and the groupings developed by Kinsman

(1973), participants were separated into low, moderate,or high symptom groups. For the symptom category of Panic-fear the Z Scores ranged from 30 to 67, with a mean of 51 and a standard deviation of 12. Three participants fell into the low panic-fear symptom group, 3 in the moderate group, and 4 in the high panic-fear group. For the symptom category of Irritability, the scores ranged from 32 to 67, with a mean of 48 and a standard deviation of 10. There were three participants in the low irritability symptom group, 5 in the moderate group and 2 in the high group. The symptom checklist scores for Fatigue symptoms ranged from 31 to 62, with a mean of 47 and a standard deviation of 10. Four participants fell in the low fatigue symptom group, 3 in the moderate, and 3 in the high. Hyperventilation/Hypocapnia symptom scores ranged from 37 to 70, with a mean of 52 and a standard deviation of 9. Two of the participants scored low, 5 moderate, and 3 high. For the Airways Obstruction/Dyspnea symptoms, the scores ranged from 17 to 60, with a mean of 50 and a standard deviation of 13. Two of the participants scored low, 4 scored in the moderate group, and 4 scored in the high group. Airways Obstruction/Cough symptoms ranged from 30 to 58, with a mean of 48 and a standard deviation of 8. Two participants scored in the low group, 7 scored in the moderate group and only 1 scored high. The Asthma Symptom Checklist category of Worry scored from 29 to 66, with a mean of 51 and a standard deviation of 11. Three of the participants scored in the low group, 1 scored in the moderate group, and 6 scored in the high group. For the

category of Anger the scores ranged from 34 to 61, with a mean of 49 and a standard deviation of 10. Three participants scored low anger symptoms, 4 scored moderate, and 3 scored high. The symptom category of Loneliness scored from 36 to 70, with a mean of 53 and a standard deviation of 10. Three of the participants scored low, 2 scored moderate, and 5 scored high. The last category of Rapid Breathing scores ranged from 34 to 56, with a mean of 43 and a standard deviation of 7. Six of the participants scored low in this category, 3 scored moderate, and only 1 scored high.

Asthma Trigger Index Scores

To determine the degree to which the sample believed their asthma was triggered by emotions, the Asthma Trigger Index, with a possible total score of 15, was administered. The scores of the participants ranged from 0 to 10, with a mean of 6 and a standard deviation of 3. Each participant was asked in a forced-choice question if they believed that stress, anxiety or emotions brought on their asthma, 8 of the 10 participants answered yes and were labeled emotional responders and 2 answered no and were labeled nonresponders.

Reported Asthma Episodes

Episodes of asthma symptoms were recorded by each participant and ranged from 5 to 35 episodes during the study period, with a mean of 13.5. Severity of asthma symptoms were rated by each participant for each episode on

a 0 to 100 mm visual analog scale. The symptoms rated for each episode were shortness of breath, chest tightness, and wheezing. Shortness of breath ratings for each participant ranged from 1 to 66, with a mean of 40.01 and a standard deviation of 22.50. Chest tightness ranged from 3 to 73, with a mean of 42.63 and a standard deviation of 22.29. Wheezing ratings recorded by individual participants ranged from 16 to 67, with a mean of 41.63 and a standard deviation of 20.99.

Precipitating Factors for Asthma Symptoms

Each participant was asked to record what they believed brought on or triggered each episode of asthma symptoms. Physical conditions such as: colds, headaches, and flu, precipitated asthma symptoms, in 5 participants. Three participants recorded that mechanical behaviors such as cleaning house, and lifting heavy objects, precipitated their asthma symptoms. Eight participants believed that emotions or moods such as: anger, worry, or depression, brought on their symptoms. Eight participants recorded that tense situations such as: family arguments, job stress and crowded buses brought on asthma symptoms. Six participants recorded that symptoms were brought on by allergens such as: pollens, molds, and foods. Six believed that environmental conditions such as: fog, hot weather, cold weather, precipitated their asthma symptom. Last, 7 of the 10 participants recorded that physical activities such as

exercise precipitated asthma symptoms.

Self-care Strategies

Participants recorded self-care strategies for each episode of asthma symptoms, and rated the efficacy of each recorded strategy. During the initial interview participants recalled strategies that they used in the past to control asthma symtoms. From 2 to 21 strategies were available in the recalled repetoire. However, during the study period the mean number of strategies recorded in the Self-Care Log ranged from 1 to 13 with a mean of 4.8±3.9. The strategies recorded in the participants's logs were divided into emotion-focused, problem-focused and mixed categories based on Lazarus' stress and coping paradigm (1980) and are reported in Table 3.

TABLE 3

Number of Recorded Self-Care Strategies

NUMBER OF STRATEGIES	(N=10)	MEAN	S.D.
PROBLEM-FOCUSED STRATEGIES	10	2.4	1.4
Position-Motion	6	.9	.9
Breathing	5	.5	.5
Distancing	3	.3	.5
Self-Selected Treatments	10	1.9	1.1
EMOTION-FOCUSED STRATEGIES	8	2.0	1.6
Self-Isolation	2	.2	.4
Tension-Reduction	6	.9	.9
MIXED STRATEGIES	7	1.3	1.3
Social Support	4	.5	.7
Diversion	6	.7	.7

Mean Frequency and Efficacy Data on Self-care Strategies

Frequencies of self-care strategies were tabulated by how often these strategies were used during the period of the study per participant. Mean frequency data were obtained for recorded self-care strategies by problem-focused, emotion-focused, and mixed categories. Mean efficacy scores were tabulated from 100mm visual analog scales for each recorded self-care strategy and are reported in Table 4.

TABLE 4

Self-Care Strategy Frequency and Participant Rated Mean Efficacy

STRATEGY:	MEAN FREQUENCY/S.D.		MEAN EFFICACY/S.D.	
PROBLEM-FOCUSED				
Medications	16.3	10.8	67.7	19.9
Position-Motion	2.8	2.8	72.1	19.8
Hot/Cold Drinks	2.1	5.3	61.6	6.7
Breathing	1.8	2.8	52.4	10.5
Fresh Air	.5	1.6	52.6	17.8
Distancing	.3	.9		
EMOTION-FOCUSED				
Relaxation	3.3	4.9	68.3	20.1
Tension-Reduction	1.6	4.0	83.0	24.0
Hot Shower/Bath	.6	1.9	54.0	
Self-Isolation	.4	1.3	48.0	
MIXED STRATEGIES				
Social Support	1.8	3.4	57.7	33.7
Diversion/Distraction	1.4	2.0	50.4	31.3

Problem-focused Strategies

Recorded problem-focused strategies included: position-motion strategies, breathing strategies, distancing strategies, and self-selected treatments. The latter category includes the use of medications, hot and cold beverages, and fresh air. Frequency of medication use, as a strategy, ranged from 1 to 33 times per participant. This was the most frequently used strategy but was rated as

only moderately effective in relieving symptoms. This strategy was also chosen as the first strategy used by the sample from 0 to 32 times with a mean of 9.5 and a standard deviation of 9.7. Position-motion strategies were the second most frequently used strategy and had the second highest efficacy rating of all of the self-care strategies. Fresh air and distancing were the least frequently used strategies.

Emotion-focused Strategies

The types of emotion-focused strategies recorded were self-isolation, relaxation, and tension-reduction. Relaxation was the most frequently used emotion-focused strategy and was rated the third most effective strategy in alleviating or controlling asthma symptoms. As shown in Table 4, the second most frequently used emotion-focused strategy was tension-reduction and was rated overall as the most effective self-care strategy. Self-isolation was not frequently used and was the least effective strategy.

Mixed Strategies

The two mixed strategies recorded were the use of social support and diversional strategies. Diversional strategies included watching T.V. and reading a book. Both of the mixed strategies were used occasionally and were less effective than the more frequently used strategies.

Analysis of Asthma Symptoms and Strategies By Panic-Fear Groups

Asthma Symptoms

To analyze the relationship of panic-fear symptomatology to severity of asthma symptoms, a one-way ANOVA was used to determine differences among high, moderate, and low panic-fear groups for the symptoms of shortness of breath, chest tightness and wheezing. As shown in Table 5 the results indicate that there was a statistically significant difference among the panic-fear groups for shortness of breath, $F= 6.6$, $p= 0.02$. Further analysis using the Tukey-HSD procedure revealed that this significant difference was between the high ($\bar{x}= 58\pm8.5$) and the low ($\bar{x}= 16\pm17.3$) panic-fear groups. There was a statistically significant difference among the groups for the symptoms of chest tightness, $F= 6.6$, $p= 0.02$. The significant difference was between the high ($\bar{x}= 61\pm11.3$) and the low ($\bar{x}= 20\pm18.8$) panic-fear groups. There was no significant difference among the panic-fear groups on the symptoms of wheezing ($p= 0.4$).

TABLE 5

Mean Asthma Symptoms Severity Scores by Panic-Fear Groups

PANIC-FEAR GROUP	SOB*	CHEST TIGHTNESS	WHEEZE*
Low	16.3	20.1	30.2
Moderate	39.7	40.2	41.1
High	58.0	61.3	50.6

(* $p<0.05$)

Self-care Strategies

The three panic-fear groups were compared on self-care strategies by one-way ANOVA. Significance was preset at the 0.05 level. There was no significant difference in the frequency of reported self-care strategies among groups. Frequency data for self-care strategies by panic-fear group are shown in Table 6. The use of problem-focused, emotion-focused, and mixed strategies were evenly distributed between the high, moderate, and low panic-fear groups. The low panic-fear group had higher means for frequency of tension-reduction and relaxation strategies, but this finding was not significant. The low panic-fear group did not use any breathing strategies, while the moderate and high groups did. The high panic-fear group was the only group to use the strategies of isolation, fresh air, and hot baths or showers to alleviate or control asthma symptoms. This group also had the highest means for frequency of social support and hot and cold liquid strategy. The self-selected strategy was used equally by all panic-fear groups. Distancing as a self-care strategy was not used much by any group. All of the panic-fear groups used prescribed medications equally and frequently. The number of times medications were chosen as the first strategy used by the participants was equally divided between the high, moderate and low panic-fear groups and did not differ significantly. Both low and high panic-fear groups used position-motion and diversional strategies, with the low group using position-motion strategies more often and the

high panic-fear group using diversion more often. There were no significant differences among the panic-fear groups on the Asthma Trigger Index (ATI) scores, the mean for the low panic-fear group was 5.7, for the moderate group the mean was 5.7 and for the high group the mean was 7.

TABLE 6

Self-Care Strategy Frequency Means by Panic-Fear Groups

STRATEGY	MEAN FREQUENCY BY PANIC-FEAR GROUP (n=10)		
	LOW (n=3)	MODERATE (n=3)	HIGH (n=4)
# of strategies used now	6.0	2.3	5.8
# of strategies in repetoire	4.7	7.3	4.3
Position-Motion	5.0	0	3.3
Self-Selected Treatments	2.3	1.3	2.0
Breathing	0	3.7	1.8
Distancing	0	0	.8
Prescribed Medication	16.0	14.3	18.0
Isolation	0	0	1.0
Tension-Reduction	4.7	.3	.3
Social Support	.7	0	4.0
Diversion/Distraction	1.3	0	2.5
Fresh Air	0	0	1.3
Hot/Cold Liquids	1.0	0	4.5
Relaxation	8.0	0	2.3
Hot Shower/Bath	0	0	1.5

Cross tabulation of the panic-fear groups and the ATI forced-choice question regarding whether stress, anxiety or emotions brought on asthma symptoms by Chi-Square analysis did not reveal statistically significant differences. These differences are shown in Table 7.

TABLE 7

Chi-Square Analysis of Panic-Fear Groups and ATI Forced-Choice Question

ATI FORCE	LOW	MODERATE	HIGH	TOTAL
NO	1		1	2
YES	2	3	3	8
TOTAL	3	3	4	10

Self-care Strategy Means for Emotional Responders and Nonresponders

Means of self-care strategies for both the yes and no response to the ATI forced-choice question are reported in Table 8. There were 8 participants that reported that they believed that stress, anxiety, or emotions brought on asthma symptoms (emotional responders) and 2 reported no (nonresponders). Due to the small sample size of the no group, statistical differences could not be calculated. In comparing the two groups for mean frequencies of self-care strategies it was noted that prescribed medication was the most frequent strategy chosen by both groups; it was the first choice for the nonresponders for a mean frequency of 20 times, while for the emotional responders the mean frequency was 7. The mean number of strategies used by the responder group was 5.5 and for the nonresponder group the mean number of strategies was 2. The responder group recorded the use of many different strategies, while the

nonresponder group used only position-motion, breathing strategies, prescribed medications, and few relaxation

TABLE 8

Self-Care Strategy Frequency Means and Asthma Symptom Means as Compared to ATI Forced-Choice Question

STRATEGY	MEANS (n=10) YES (n=8)	NO (n=2)
# of strategies used now	5.5	2.0
# of strategies in repetoire	5.5	4.5
Prescribed Medications	14.7	23.0
Meds as 1st choice	7.0	19.7
Position-Motion	3.0	2.0
Self-Selected Treatments	1.9	2.0
Breathing	2.0	1.0
Distancing	.4	0
Isolation	.5	0
Tension-Reduction	2.0	0
Social Support	2.3	0
Diversional	1.8	0
Fresh Air	.6	0
Hot/Cold Liquids	2.6	0
Relaxation	4.0	.5
Hot Shower/Bath	.8	0
ASTHMA SYMPTOMS		
Shortness of Breath	40.98	36.15
Chest Tightness	41.93	45.45
Wheezing	47.15	19.55

strategies.

The mean symptom severity scores for shortness of breath, chest tightness, and wheezing group were notably different between the emotional responders and nonresponders and are reported in Table 8. The emotional responder group had mean scores for shortness of breath, chest tightness, and wheezing of 40.98, 41.93, and 47.15 respectively. For the nonresponder group the mean scores for shortness of breath, chest tightness, and wheezing were 36.15, 45.45, and 19.55 respectively.

Pre and Post Interview Data

In the pre and post interviews participants reported complex self-care routines they used in their activities of daily living, which were not recorded in their self-care logs. One participant reported that she used music therapy to maintain an atmosphere of calm in her house,

"I used to get very anxious and upset with my life and my family, I realized this affected my asthma, so I began to play tapes of calming, soothing music and this seemed to help my anxiety and also my asthma."

Other types of strategies that were not included in the log but were reported in the interview were the use of psychotherapy for self-analysis and the use of self-hypnosis. One participant who had recorded 5 episodes of asthma symptoms admitted that she had a week of frequent episodes of difficulty of breathing during the study period,

but attributed this to a cold and did not record this in her log. She admitted that the cold had made her asthma worse but felt her respiratory symptoms were attributed to her cold and not to her asthma. She reported that for the cold she used medications, deep breathing exercises, and meditation. Preventive behaviors were reported in the interviews and not recorded in the logs, such as: staying indoors to avoid cold weather, using herbs and teas to prevent symptoms, acupuncture, avoiding friends and family members at times of stress, and keeping in shape through exercise. Many of the self-care strategies had been incorportated into daily routines,

"yes, there are other things I do to help my asthma, I do daily breathing exercises, and I practice meditation to stay calm when my job is stressful."

One participant found that cold weather made his asthma worse and in response to the weather he reported,

"I told the doctors that I needed to increase my theophylline when it is foggy, they said I needed to just take my medicines as prescribed, they don't understand what makes my asthma worse, I do, I live with it everyday, so now I increase my medicines when it gets foggy, I wear mufflers around my neck, and I try to stay indoors so I stock up on groceries and invite friends over to visit me."

Summary

A statistically significant difference in asthma symptoms (shortness of breath, chest tightness) occurred between the high and low panic-fear groups. The high panic-fear group rated their asthma symptoms more severe than the low panic-fear group. There was no significant difference in reported self-care strategies between those who believed

that emotions triggered their asthma (emotional responders) and those who did not (nonresponders). There was no significant difference in the self-care strategies reported between the panic-fear groups. Although the sample size is small, there does not appear to be any relationship between the perception of emotionally triggered asthma and panic-fear symptomatology. A variety of self-care strategies were recorded and described by the participants, with prescribed medications as the most frequently used strategy and position-motion rated as the most effective strategy.

CHAPTER V

DISCUSSION

Self-Care

The first purpose of this study was to describe the self-care strategies used by adult asthmatics to alleviate or control asthma symptoms. According to Orem's theory of self-care (Orem, 1985), identification of the self-care requisites is essential for the development of a plan of care which will meet the patient's individual needs. All of the participants in this study had severe asthma and had developed diverse self-care strategies for managing asthma symptoms, from the use of music therapy to the use of medications. All of the participants initiated self-care behaviors before consulting their health care provider. Notably, all of the participants in this study had developed complex self-care strategies which included immediate, short-term responses to acute symptoms and also long-term patterns of coping which were integrated into daily routines. This finding is consistent with Carrieri and Janson-Bjerklie (1986), who studied the strategies that patients use to manage the sensation of dyspnea. It appears that both short-term and long-term strategies are used to cope with the symptoms of respiratory illness. The more complex strategies were revealed in the pre and post study

interviews rather than in the self-care logs, which participants used to record more immediate strategies. One explanation for this finding is that many of the strategies were unconsciously practiced as part of their everyday routine and this was revealed only through intensive questioning during the interviews. This finding supports the use of the interview in obtaining information regarding complex preventive self-care practices. One participant reported,

> " I don't depend on a single action. I think/feel/sense/see that the synergistic action of a group of actions is for me the important plus."

Another participant admitted in the interview to seeing a psychologist for the past five years and used self-hypnosis in dealing with the emotional component of asthma; this was not revealed in the log. Some participants have believed that certain behaviors are more socially acceptable than others and chose not to reveal them in a written log.

If patients are to utilize self-care as their primary form of care then it is important for health care providers to provide information and education regarding behaviors they can and should employ. Hindi-Alexander (1985) emphasized the need to provide an educational process which facilitates decision-making, the results of this study provided a description of the types of decisions adults with asthma make in managing their asthma.

Problem-focused self-care strategies

The most frequently used problem-focused strategy was the use of prescribed medication. This strategy was used equally by all three panic-fear groups. One participant recorded the use of an alupent inhaler as the only strategy for 35 episodes of asthma symptoms. While this strategy was the most frequently used, it was rated only moderately effective. Health care providers have traditionally taught their patients to follow prescribed medication regimens as the primary course of therapy (Weiss, Segal, Stein; 1985). When the use of prescibed medications is combined with other self-care strategies, the management of symptoms is greatly improved. The breathing strategy reportedly used by the participants was slow, deep breathing. Participants who did not use this strategy, may have felt that the acute onset of breathing difficulties was too severe for this type of breathing strategies to be effective. Position-motion strategies, such as: walking slowly, sitting down, lying down, bending over a chair, and resting, were rated the most effective of the problem-focused strategies. Carrieri and Janson-Bjerklie (1986) also reported that nearly all of the subjects studied used position-motion strategies in response to acute dyspnea. These strategies were often combined in a complex way in response to acute symptoms. Position-motion strategies were combined with relaxation and self-isolation strategies. Obviously, these approaches by people with asthma represent very complex responses to symptoms that involve a number of different strategies with varying

degrees of effectiveness.

Emotion-focused strategies

The emotion-focused strategies such as: relaxation, meditation, music therapy, biofeedback, Tai chi, Feldenkrais movements, hot baths, self-isolation and self-hypnosis, were used almost exclusively by those participants that believed their asthma was triggered by emotions. Therefore, they used techniques to control the emotional component associated with asthma. Most of the participants recorded the use of 1 to 3 emotion-focused strategies and tended to repeatedly use the more effective ones; this is also true of the problem-focused and mixed strategies. These emotion-focused strategies were given the highest efficacy ratings of all the strategies described, by the sample. Possibly, the individual who is able to control emotions such as anxiety, panic and fear, is more successful at controlling asthma symptoms that are exacerabated by emotions.

Mixed problem and emotion-focused strategies

The mixed strategies were always used in combination with other strategies and were never the first choice of the participants studied. It appears that these strategies were used to further calm the participant down once they managed to control the immediate asthma symptoms.

The particpants in this study reported an average of 5 self-care strategies during the study period. Dodd, in her

studies (1982, 1983, 1984) regarding the self-care activities for side-effects of radiation therapy and chemotherapy for cancer patients, reported an average of 1.2 self-care activities. This difference in the use of self-care strategies by cancer patients as compared with patients with asthma is probably due to the nature of the illness studied. Persons with asthma have had their symptoms for a number of years and therefore had more time to develop strategies. Self-care strategies appear to be illness specific and cannot be generalized across disease categories.

The Influence of Emotions

The second purpose of the study was to determine the relationship of emotionally-triggered asthma and panic-fear symptomatology to types and frequencies of self-care strategies. Through the analysis patterns emerged and the following conclusions could be drawn. There was a statistically significant ($p < 0.05$) relationship between panic-fear symptomatology and the participant's rating of the severity of their asthma symptoms. The findings in this study, that the high panic-fear group reported more severe asthma symptoms, is similar to the findings of Kinsman, Dirks and Jones (1980), and suggests that those who have more symptomatology associated with panic and fear are more likely to rate the intensity of symptoms higher. It is possible that the emotions associated with panic and fear may exacerbate asthma symptoms and therefore cause an actual

increase in bronchoconstriction. Alternatively, asthma symptoms may simply be perceived as more severe. Those in the low panic-fear group have been described as symptom disregarders and the high panic-fear group as vigilant responders (Kinsman, Dirks, & Jones, 1980).

Overall there were differences among the panic-fear groups in the type and frequency of use of self-care strategies. Those participants in the low panic-fear group used emotion-focused strategies more frequently than did the high panic-fear group. The Asthma Symptom Checklist panic-fear scores assess the intensity of a variety of affective, somatic and interpersonal states experienced during an acute asthma attack. These scores reflect a certain style of coping response to asthma attacks. Therefore, it appears that the low panic-fear group was able to control their symptoms with emotion-focused strategies and to use these strategies to concentrate on staying calm and relaxed, perhaps because they were less likely to panic in response to an asthma attack. Alternatively, the high panic-fear group were more likely to react to asthma with panic, fear and anxiety. Therefore, they may have been less able to use strategies aimed at alleviating the emotional component of their asthma symptoms and chose more pragmatic problem-focused strategies. Participants in the high panic-fear group used more self-selected treatments, such as breathing strategies, hot and cold liquids, fresh air, and distancing and also more mixed strategies, such as social

support and distraction. This group tended to depend on others more and at the same time were more likely to feel alienated, depressed, anxious and stressed. It is interesting to note that the moderate panic-fear group used the fewest number of strategies, compared to the other two groups, employing only prescribed medications, breathing strategies and, few tension-reduction strategies. This finding was not statistically significant in this small sample and requires further exploration.

The forced-choice question on the Asthma Trigger Index measures a patient's perception of whether their asthma is at times emotionally triggered. The two participants in the study sample who responded no to the question of whether they believed their asthma symptoms were emotionally triggered, were divided equally into the high and low panic-fear groups. This finding was not expected. However, the ASC measures subjective symptoms and response styles associated with an asthma attack, while the ATI measures a person's perception and history of response to emotions which trigger episodes of asthma. The distinction between the two is important because patients may perceive that emotions trigger their asthma but they may not respond to asthma with emotionally-laden symptoms. The assessment of both parameters is recommended.

This nonresponder group used fewer self-care strategies than did the emotional responder group. Since the nonresponder group contained only two subjects, further statistical analysis was not possible. Those who did not

perceive that emotions influenced their asthma, used more problem-focused strategies, such as: prescribed medication, position-motion strategies, and breathing strategies, which are more pragmatic approaches to the symptoms of difficulty of breathing. The perception that emotions did affect or cause asthma symptoms influenced the types of self-care behaviors used. However, the precise nature of this influence is unknown and requires further investigation.

Stress and Coping

It is difficult to distinguish between self-care and coping behaviors. It appears that the self-care strategies reported in this study reflect direct attempts of individuals to cope with the stress of illness and asthma symptoms. The two theories used in this study can be combined and are complimentary. Self-care deficits and self-care requisites are described as cognitive processes aimed at coping with the stress of illness and meeting the demands of activities of daily living. The day to day stress of asthma is appraised differently by individuals and depends on both the emotional and physical components of living with asthma. Therefore, those individuals who do not perceive emotions as influencing their asthma symptoms are more likely to use problem-focused strategies which meet their immediate physical needs. In concurrence with other studies using Lazarus' theory of stress and coping, most of the participants in this study used a combination of problem and

emotion-focused coping mechanisms (Carrieri, Janson-Bjerklie, Hudes, 1986; Carrieri & Janson-Bjerklie, 1986; Folkman & Lazarus, 1980).

Implications for Nursing Practice

Nurses frequently work with patients who have asthma in both inpatient and outpatient settings. By encouraging patients to describe what they actually do to manage their asthma, nurses can develop specific plans for advising and counseling patients about managing asthma symptoms at home. The results of the present study can be used as a framework for developing and implementing patient education programs for patients with asthma.

A second important implication for nursing practice is the relationship between asthma and emotions. As a routine part of history taking and assessment of the asthmatic patient, nurses should include a complete assessment of associated emotions and panic-fear symptomatology. Once it is known how a patient reacts to asthma, individuals can be taught to use more specifically focused strategies. The ATI can be used as an index of perceived asthmatic triggers and perceived emotionally triggered asthma. The ASC can be used as a tool to gather information regarding the subjective symptomatology associated with asthma. Because objective measures of pulmonary function do not correlate with subjective measures of asthma symptoms, it is important for the nurse to accept the patient's report of the perceived level of illness as an

indication of the severity of the disease. This assessment can be used to assist the patient in meeting their self-care requisites.

The theoretical models of coping and self-care can guide nurses in assessing, planning and implementing health care and provide a framework for continued research in asthma and self-care.

Implications for Further Study

Asthma remains a serious and common chronic illness. The amount of research in self-care of asthma is minimal and further research is warranted. A larger sample size is necessary to provide a more in-depth study of the kinds of self-care strategies used by adult asthmatics and the relationship of emotions, coping styles and personality to self-care. The group studied included severe asthmatics and this may have influenced the types of self-care strategies chosen. Groups of mild and moderate asthmatics may use different strategies and should be studied as well.

The method used to collect self-care data may influence the type of strategies reported. Interviews where patients are asked to recall effective approaches to symptom management are more likely to produce reports of long term strategies. Logs that focus on critical episodes encourage the reporting of immediate short term strategies. Future studies should chose the method that answers the specific question of interest.

While the Asthma Symptom Checklist (ASC) is a measure of asthma-associated symptomatology, a response style, it does not provide a global picture of coping with asthma. The authors of the ASC have developed the Battery of Asthma Illness Behavior (Dirks & Kreischer, 1982) that includes a more comprehensive assessment of response styles, and also includes an assessment of the personality characteristics and attitudes toward illness and treatment. Further investigation using this tool might provide a scientific base for predicting appropriate medical regimens for specific individuals.

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APPENDIX A

CONSENT FORMS

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

CONSENT TO BE A RESEARCH SUBJECT

1. Kim E. Pardini and Dr. Susan Janson-Bjerklie are doing a study to learn about how people take care of their asthma and what they believe causes their asthma.

2. If I agree to be in the study the following will occur:

   a) I will meet with Kim Pardini to fill out 3 questionnaires concerning my background and medical history, what causes my asthma and symptoms I experience with asthma. This should take approximately 30 minutes.

   b) I will be given the Asthma Self-Care Log. Each time I feel asthma symptoms I will write down what I feel, what I do to help my breathing and rate how well it worked. I will write in the log whenever I feel asthma symptoms wherever I am, for a period of 2 months.

   c) Kim Pardini will phone me once a week to see how I am doing and to answer my questions.

   d) Kim Pardini will meet with me in the clinic at least once. I will bring the log with me to clinic appointments to discuss the entries I have made.

3. Participation in this study may mean some added risk or discomfort. I may become bored or tired of writing in the log.

4. There will be no direct benefit to me from participating in this study. I may learn more about how I take care of my asthma and I may learn what causes my asthma symptoms.

5. I have talked with Kim Pardini about this study and have had my questions answered. If I have any other questions I may call her at 333-8697 or Dr. Janson-Bjerklie at 666-5282.

6. I have been offered a copy of this consent form and the Experimental Subject's Bill of Rights to keep.

7. Participation in research is voluntary. I may refuse to participate or may withdraw at any time without jeapordy to the treatment I will receive at the medical center. I just have to say so.

8. The information I give in the questionnaire is confidential and every precaution will be taken to safeguard the anonymity of those who participate as far as is possible under the law.

DATE_____SIGNATURE_____

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO
EXPERIMENTAL SUBJECTS BILL OF RIGHTS

The rights below are the rights of every person who is asked to be in a research study. As an experimental subject I have the following rights:

1) To be told what the study is trying to find out,

2) To be told what will happen to me and whether any of the procedures, drugs, or devices is different from what would be used in standard practice,

3) To be told about the frequent and/or important risks, side effects or discomforts of the things that will happen to me for research purposes,

4) To be told if I can expect any benefit from participating and, if so, what the benefit might be,

5) To be told the other choices I have and how they may be better or worse than being in the study,

6) To be allowed to ask any questions concerning the study both before agreeing to be involved and during the course of the study,

7) To be told what sort of medical treatment is available if any complications arise,

8) To refuse to participate at all or to change my mind about participation after the study is started. This decision will not affect my right to receive the care I would receive if I were not in the study,

9) To receive a copy of the signed and dated consent form,

10) To be free of pressure when considering whether I wish to agree to be in the study.

If I have other questions I should ask the researcher or the research assistant. In addition, I may contact the Committee on Human Research, which is concerned with protection of volunteers in research projects. I may reach the committee office by calling: (415) 666-1814 from 8:00 AM to 5:00 PM, Monday to Friday, or by writing to the Committee on Human Research, University of California, San Francisco, CA 94143.

APPENDIX B

DEMOGRAPHIC SURVEY

MEDICAL QUESTIONNAIRE ID#_____

Name:_____Today's Date:_____Date of Birth:_____

Address:_____Phone:_____(H)_____(W)

Please answer the following questions as accurately as possible. If you have any questions about the terms, please inquire.

1. Sex_____
2. Marital Status_____
3. Race_____
4. Years in School_____
5. Presently or at any time in the past have you had any of the following:

	YES	NO
a. Asthma	a.____	____
b. Allergy to animals, grasses, trees, molds dust. Specify:_____	b.____	____
c. Hay fever	c.____	____
d. Skin tests for allergy	d.____	____
e. Allergy shots	e.____	____
f. Wheezing	f.____	____
g. Seasonal symptoms of nasal congestion or itching burning eyes	g.____	____
h. Allergy to medications Specify:_____	h.____	____
i. Heart Disease	i.____	____
j. Bronchitis	j.____	____
k. Emphysema	k.____	____
l. Cold or flu during the last 4 weeks	l.____	____
m. Any other medical problems Specify:_____	m.____	____

6. Do you smoke?____If smoked in past, date stopped:____
   #____packs per day for____years.

7. Is there any history of asthma in your family?
   Mother____Father____Sister_____Brother____

8. Are you taking any of the following medications?
   Please fill in the name of the drug and dosage:
   Bronchodilators:_____
   Theophylline:_____
   Steroids:_____
   Antibiotics:_____
   Other:_____

9. If you have asthma:
   a. how often do you have asthma symptoms?_____
   b. when was the last time you experienced symptoms?_____
   c. how long have you had asthma?_____
   d. have you ever been hospitalized for asthma?_____

10. Have you ever attended any classes or workshops on taking care of your asthma?_____

APPENDIX C

ASTHMA TRIGGER INDEX (ATI)

ASTHMA TRIGGER INDEX (ATI)

These questions are designed to help determine what sorts of things bring on your asthma attacks. It is hoped that your answers may prove helpful to you and others with asthma in determining appropriate treatment. Your answers will be kept completely anonymous. Do not put your name on the paper.

1a. Please list all the things you can remember that you have noticed bring on your asthma.

b. Please review the additional list of asthma triggers and circle those which apply to you.

over-exertion
smoke
worry
exercise
weather changes: including change in season, dampness, heat or cold
anger
laughing
crying
colds or respiratory infections
dust
upset over daily problems
pollens
air pollution
fear or panic
foods
sadness
wool
alcohol
animal dander or hair
exhaust from automobiles
excitement (happy)
stress

2. Please list the three most important triggers of your asthma in order of importance.

1._____

2._____

3._____

3. Is there any specific thing that you can think about, look at, or hear, or place you might be that would be likely to bring on your asthma?

Imagine yourself in the following situations. Decide whether you would be likely to develop asthma or get wheezy in these situations and answer each one with yes or no.

4. Situation #1
You have gone out for a walk on a newly discovered path. The path suddenly turns close to a major roadway filled with cars. The exhaust is thick in the air. Would you be likely to get wheezy and feel short of breath in this situation?

YES____ NO____

5. Situation #2
You have just come home late from a particularly difficult day. You are met at the door by a member of your family who does not say hello but immediately starts yelling at you for being late. Would you be likely to get wheezy and feel short of breath in this situation?

YES____ NO____

6. Situation #3
You are walking slowly out of a major department store after browsing for a while. As you near the door a salesperson charges up to you and accuses you of stealing. Would you be likely to get wheezy and feel short of breath in this situation?

YES____ NO____

7. Situation #4
You are invited to an acquaintance's house for dinner. As you enter the house you discover your acquaintance has two indoor cats (or dogs). Would you be likely to get wheezy and feel short of breath in this situation?

YES____ NO____

8. Situation #5
You are hurrying home from the bus stop late at night and suddenly you hear someone approaching you. You feel a hand grip your arm. Would you be likely to get wheezy and feel short of breath in this situation?

YES____ NO____

9. Situation #6
You arrive at your bus stop later than usual after several delays in the morning commute traffic. Your bus is sitting at the bus stop, and after parking your car you run as fast as you can about 200 feet to the bus and just make it. Would you be likely to wheeze and feel chest tightness as you board the bus?

YES____ NO____

10. Situation #7
You have spent the last two hours cleaning the house or mowing the lawn. Would you be likely to wheeze and feel chest tightness and shortness of breath in this situation?

YES____ NO____

11. Situation #8
You are scheduled to take a test for a job you have wanted for a long time. As you take a seat for the exam the director tells you that your performance will determine whether or not you get the job. You begin to feel quite nervous. In this situation would you be likely to feel wheezy, chest tightness, or short of breath?

YES____ NO____

12. If you were forced to answer yes or no, would you say that:

Stress, anxiety, or strong emotions bring on your asthma?

YES____ NO____

Pollens, grass, or weeds bring on your asthma?

YES____ NO____

Exercise, over-exertion, or heavy lifting bring on your asthma?

YES____ NO____

APPENDIX D

ASTHMA SYMPTOM CHECKLIST (ASC)

NAME_____ DATE_____
AGE_____SEX_____ PATIENT NUMBER_____

The following is a list of things sometimes associated with breathing difficulty. For each item, please circle the number which indicates whether it Never (1), Almost Never (2), Sometimes (3), Almost Always (4), or Always (5) applies to your asthma. REMEMBER: Respond to each item of this list in regard to its ability to describe <u>how you feel during typical periods of breathing difficulty</u>.

	Never	Almost Never	Sometimes	Almost Always	Always
1.Cramps.....	1	2	3	4	5
2.Panting.....	1	2	3	4	5
3.Numb.....	1	2	3	4	5
4.Mucous Congestion.....	1	2	3	4	5
5.Cranky.....	1	2	3	4	5
6.Irritable.....	1	2	3	4	5
7.Hard to Breathe.....	1	2	3	4	5
8.Headache.....	1	2	3	4	5
9.Edgy.....	1	2	3	4	5
10.Frightened.....	1	2	3	4	5
11.Uncomfortable.....	1	2	3	4	5
12.Short of Breath.....	1	2	3	4	5
13.Chest Congestion.....	1	2	3	4	5
14.Afraid of being alone...	1	2	3	4	5
15.Afraid of dying.....	1	2	3	4	5
16.Frustrated with things..	1	2	3	4	5
17.Heart Pounding.....	1	2	3	4	5
18.Dizzy.....	1	2	3	4	5
19.Rapid Breathing.....	1	2	3	4	5
20.Worn Out.....	1	2	3	4	5
21.Panicky.....	1	2	3	4	5

22.Weak.....	1	2	3	4	5
23.Pins and needles feeling	1	2	3	4	5
24.Don't care about things.	1	2	3	4	5
25.Feel Isolated.....	1	2	3	4	5
26.Wheezy.....	1	2	3	4	5
27.Worried about the attack	1	2	3	4	5
28.Angry.....	1	2	3	4	5
29.Tingly in spots.....	1	2	3	4	5
30.Chest Tightening.....	1	2	3	4	5
31.Tired.....	1	2	3	4	5
32.Scared.....	1	2	3	4	5
33.Furious.....	1	2	3	4	5
34.Nervous.....	1	2	3	4	5
35.Fatigued.....	1	2	3	4	5
36.Feel Helpless.....	1	2	3	4	5
37.Chest Filling Up.....	1	2	3	4	5
38.Short Tempered.....	1	2	3	4	5
39.Lonely.....	1	2	3	4	5
40.Worried.....	1	2	3	4	5
41.Chest Pain.....	1	2	3	4	5
42.Exhausted.....	1	2	3	4	5
43.Mad at the World.....	1	2	3	4	5
44.Coughing.....	1	2	3	4	5
45.No Energy.....	1	2	3	4	5
46.Unhappy.....	1	2	3	4	5
47.Worried About Myself....	1	2	3	4	5
48.Concerned About Asthma..	1	2	3	4	5
49.Concerned in General....	1	2	3	4	5

APPENDIX E

ASTHMA SELF-CARE LOG

ID#_____ ASTHMA SELF-CARE LOG DATE_____

TIME_____

When you have an episode of asthma or believe your asthma is worse, fill in the following page. Place a mark on each line below to rate the degree to which you feel these symptoms.

Shortness of breath

0 100

Not at all Extremely

Chest tightness

0 100

Not at all Extremely

Wheezing

0 100

Not at all Extremely

What do you think brought these symptoms on?_____

_____

Describe what you did to help your breathing or make the symptoms better. Rate the effectiveness of each action taken.

1._____

0 100

Not Effective Completely Effective

2._____

0 100

Not Effective Completely Effective

3._____

0 100

Not Effective Completely Effective

4._____

0 100

Not Effective Completely Effective

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