Examination of Therapeutic Alliance and Dependent-Care Agency in the Context of Complementary and Alternative Therapy Utilization by Mothers for Their Children with Asthma

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EXAMINATION OF THERAPEUTIC ALLIANCE
AND DEPENDENT-CARE AGENCY IN THE
CONTEXT OF COMPLEMENTARY AND
ALTERNATIVE THERAPY UTILIZATION BY
MOTHERS FOR THEIR CHILDREN WITH ASTHMA

BY
MARY C. VANDERWAL

A THESIS

Submitted to Grand Valley State University
In partial fulfillment of the requirement for the degree of

MASTER OF SCIENCE IN NURSING
2002

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ABSTRACT

EXAMINATION OF THERAPEUTIC ALLIANCE AND DEPENDENT-CARE AGENCY IN THE CONTEXT OF COMPLEMENTARY AND ALTERNATIVE THERAPY UTILIZATION BY MOTHERS FOR THEIR CHILDREN WITH ASTHMA

By

Mary C. VanderWal

Complementary and alternative therapies (CAT) are being used by increasing numbers of individuals as both self-care and dependent-care strategies. Nursing leadership is needed to provide guidance and support to individuals using CAT. Nurse-client relationships that center on therapeutic alliance may be a vehicle for supporting appropriate use of CAT as self-care and dependent care modalities. Eighty-seven mothers whose asthmatic children were involved in a 6-month glyconutritional supplementation trial were surveyed to evaluate their perceptions of therapeutic alliance using the Kim Alliance Scale (KAS). Greater than 90% of the sample perceived therapeutic alliance most of the time in relationship with the research nurse. Therapeutic alliance scores were then correlated with “measure of change” scores to determine relationships between these two variables. There was no statistically significant relationship between variables.
Acknowledgements

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CHAPTER ONE

INTRODUCTION

An interesting phenomenon is taking place within this country. Individuals are stepping outside the boundaries of allopathic medicine and incorporating complementary and alternative therapies (CAT) into their health regimens. These individuals are demonstrating autonomous health behaviors (AHB). The concept, AHB, refers to actions taken by an individual for the purpose of improving health or well being and are frequently initiated without the direction or supervision of a licensed health care practitioner. These actions are taken to support one's own or one's dependents' health. Autonomous health behaviors encompass a large collection of therapeutic modalities and practices. These behaviors include both conventional wellness practices such as walking or exercise regimens and CAT such as using nutritional or herbal supplements or practicing yoga. The Journal of the American Medical Association (JAMA) devoted an entire issue to trends in alternative medicine and CAT usage. Eisenberg et al. (1998) reported that nearly half of all Americans use some form of CAT, spending billions of dollars annually on these practices. Jonas (1998) in his editorial acknowledged that while there are limited clinical trials lending support to various CAT, there is "promise for advancing knowledge about disease and healing that resides at the interface of these practices" (p. 1616).

Individuals are turning to CAT frequently to "help manage or prevent the onset of chronic disease, improve cognitive function, boost overall general well being, and
increase longevity” (Ness, Sherman, & Pan, 1999, p. 33). Two separate surveys of greater than 1500 adults found that use of CAT by adults is primarily targeted at chronic conditions. (Eisenberg et al., 1998) Blair (1996) points out “the dominant system of healthcare, though effective for infectious disease and trauma, is ill equipped to deal with complex, multifaceted chronic conditions” (p. 1). The majority of CAT are intended as complementary to and are used in concert with standard therapies (Braun, Halcon, & Bearinger, 2000). Astin (1998) reported that the majority of CAT users did not identify dissatisfaction with conventional medicine as the reason for incorporating CAT. Rather, what was revealed from 1035 surveys was that CAT were more congruent with their life orientation. CAT providers have been recognized as providing more understanding, time, and self-care methods for individuals to manage their chronic conditions (Jonas, 1998). When individuals use CAT, they are doing more than selecting a product or service; they are in fact making a statement about their need for input and control of their health care needs (Skiba-King, 2001). A need to be in control of one’s own health care and a desire to be more involved in self-care are frequently cited as reasons for use of CAT (Braun et al., 2000; Ness et al., 1999; Spigelblatt, Laine-Ammara, Pless, & Guyver, 1994; Weeks, 1998).

Similar to the trends in adults, children in this country are also developing more chronic health conditions. Diabetes, asthma and numerous autoimmune conditions are becoming more prevalent in children and young people (Vessey, 1999). In the area of chronic illness in children, asthma comes to the forefront. Asthma diagnoses in children increased 68% from 1980 to 1996 in this country, and management frequently involves daily use of multiple medications and therapies. (Medical Letter on the CDC & FDA,
2002) American families are also incorporating CAT into the care of their children. Spigelblatt et al. (1994) reported that the use of CAT by children is rising in concert with CAT use by their adult caregivers. They surveyed 2,055 parents from a pediatric outpatient department of an urban university hospital about the types of health care their children received. Eleven percent of surveyed parents reported previous CAT use by their children. CAT used by children are primarily directed at respiratory conditions; disorders involving the ears, nose, and throat; musculoskeletal complaints, skin disorders; gastrointestinal disturbances; and allergies (Spigelblatt et al., 1994). According to Braun et al. (2000), CAT use by adolescents has become so commonplace that it warrants separate investigations to elucidate numbers and motivations, and to guide the development of age specific health promotion strategies.

A recent clinical trial investigating the benefit of glyconutritional supplementation in children with asthma queried participants' mothers about previous use of CAT for their children. Less than 5% had used CAT in the past but approximately 38% indicated that they were interested in utilizing CAT (Pippenger, VanderWal, Millard, & Kurlandsky, manuscript in preparation). The mothers who expressed interest in CAT had refrained from usage due to unspecified apprehensions.

In spite of the increasing interest in CAT, there remains significant apprehension among health care providers and the general public towards utilizing CAT for health promotion and disease management. The apprehension surrounding CAT may be due in part to vagueness as to what the term complementary alternative therapies entails. Misinformation, lack of familiarity with specific CAT, and a scarcity of published trials supporting the benefits of CAT may also contribute to apprehensions and non-acceptance
of CAT by many who practice conventional medicine. A perceived lack of empowerment
to take ownership of one’s own health decisions may help to explain the public’s
apprehension regarding use of CAT. Conventional wellness practices are readily accepted
by health care practitioners and the public as self-care modalities, however, CAT are met
with more controversy.

Given a picture of increasing chronic disease in children and adults and the interest of
individuals to improve their quality of life through the use of CAT, health practitioners
need to become more familiar with CAT. Nursing professionals, with their focus on
health promotion, need to develop familiarity with CAT in order to provide education and
supportive leadership to those clients who wish to incorporate them as self-care
strategies.

One nursing theorist, Dorothea Orem (1995), describes a role of nursing as educating
and supporting the individual toward self-care. The notion of self-care incorporates both
care activities on behalf of one’s self and care directed toward one’s dependents.
Although Orem’s self-care theory was not linked to the CAT movement there are
similarities in thought and approach. The ultimate goal of self-care according to Levin
(1978) is “empowerment of the lay person to take control of his or her own
health” (p.170). Utilizing CAT provides one suitable form of self-care toward health
promotion and disease management.

Core philosophies of nursing, such as holism and patient centeredness, are well
aligned with CAT. Frisch (2001) in explaining this link stated:
“Likely, it is because nursing is an (sic) holistic discipline that nurses have demonstrated great enthusiasm for the techniques and modalities associated with the field of complementary and alternative care as these techniques assist nurses to address the physical, mental, emotional, and spiritual dimensions of care” (p. 3).

In a survey of 708 holistic nurses, the majority defined their practice by the use of alternative/complementary modalities (Frisch, 2001). Nursing has demonstrated its focus on patient-centeredness through developing and implementing individualized plans of care.

These theoretical and philosophical underpinnings, in addition to current involvement with CAT in practice, establish nursing as a discipline well equipped to provide leadership in recognition and utilization of CAT as acceptable self-care modalities. It would be in the best interest of the public and the health-care community if nursing leadership were exercised to provide education and support regarding the proper utilization of CAT as self-care strategies.

What are the processes that nurses in relationship with clients could use to be most effective in supporting the clients’ appropriate use of CAT as autonomous health behaviors (AHB)?

The purposes of this study are:

(a) To explore the characteristics of the nurse-client relationship, in the context of a research study evaluating a CAT, and (b) to determine whether there is a link between characteristics of the nurse/client relationship and openness toward utilizing CAT as dependent care measures.
CHAPTER 2
THEORETICAL FRAMEWORK AND LITERATURE REVIEW

Theoretical Framework

*Orem's Concepts*

Dorothea Orem's Self Care Deficit Nursing Theory (SCDNT) is useful as a theoretical framework through which to evaluate the conceptualization of autonomous health behaviors that incorporate CAT. Orem (1995) views individuals as having the potential for learning and developing themselves. Her grand theory is based on the premise that individuals are self-care agents and as such are capable of acquiring and implementing measures to maintain or improve their health. Nursing measures are only required in the absence of one's ability to provide care for self, in which event there would be a self-care deficit (SCDF). Orem's conceptualization of health encompasses primary, secondary and tertiary prevention and embraces more than absence of disease or infirmity.

In defining self-care (SC) Orem (1995) states: "Self care is the practice of activities that individuals initiate and perform on their own behalf in maintaining life, health, and well-being" (p. 104). Orem (1995) describes the concept of self-care agency (SCA) as:

"The complex acquired capability to meet one's continuing requirements for care of self that regulates life processes, maintains or promotes integrity of human..."
structure and functioning and human development, and promotes well-being” (p. 212).

Self-care deficit is defined by Orem (1995) as “a relationship of inadequacy between self-care agency, ... and self-care demand” (p. 50). The role of nursing, through Orem’s perspective, is aimed at identifying self-care deficits and assisting the individual to regain or develop self-care agency.

Orem (1995) conceptualizes nursing systems as,

“discreet, deliberately, performed, and related actions of nurses as their activated nursing agency is directed by them to diagnose and regulate the exercise or development of self-care agency of their patients and to diagnose and meet patients’ therapeutic self-care deficits” (p. 51).

Orem (1995) describes nursing systems as encompassing those activities designed by the nurse to address a SCDF. She has developed three distinct nursing systems: one that is wholly compensatory, or compensating for a near complete lack of SCA on the part of the individual; one that is partly compensatory, that is offering assistance in limited areas; and one that is supportive-educative which seeks to educate and support the individual in their acquisition of SCA. Orem acknowledges that individuals who are capable of performing self-care need only a supportive-educative nursing system to enhance their SCA (Orem, 2001) (see Figure 1).
Self-care → Self-care
Deficit → Agency

Nursing System
- Wholly compensatory
- Partly compensatory
- Supportive-educative

Figure 1. Depiction of Orem's model
Since the inception of her SCDNT in 1965, Orem and colleagues have continuously revised the model through application and testing. The care needs of infants and children were identified in the 70s and led to the inclusion of the conceptualization of dependent-care into her theory (Orem, 2001). Dependent-care is defined as “continuing health-related personal regulatory and developmental care provided by responsible adults for infants and children or persons with disabling conditions” (Orem, 1995, p. 9).

Taylor, Renpenning, Geden, Neuman, and Hart (2001) have focused on the needs of children and other dependent individuals by proposing a theory of dependent-care within the framework of Orem’s SCDNT. Expanded concepts in their theory include dependent-care (DC) agent, dependent care deficit (DCDF), and dependent-care agency (DCA). DC agent is defined by Orem (1995) as, “A maturing adolescent or adult who accepts and fulfills the responsibility to know and meet the therapeutic self-care demand of relevant others who are socially dependent on them to regulate the development or exercise of the person’s SCA” (p. 457). Dependent care agency is defined by Taylor et al. (2001) as, “the complex, acquired ability of mature or maturing persons to know and meet some or all of the self-care requisites of persons who have health-derived or health-associated limitation of self-care agency, which places them in socially dependent relationships for care” (p. 40). Dependent-care deficit is “a statement of relationship between the DC demand and the powers and capabilities of the DC agent to meet the DC demand when the DC demand exceeds the DCA. The theory of dependent care has outlined the operation of a dependent-care system (DCS), which incorporates the actions of DC agents in assessing the therapeutic self-care demands (TSCD) and SCA for those in their care while at the same time identifying their own self-care demands, SCA, and DCA. Dual roles exist for
dependent-care providers who simultaneously function as both self-care agents and dependent-care agents. The adequate provision of dependent-care is related to both the SCA and DCA of the dependent-care agent. Nursing care according to Taylor et al. (2001) needs to be focused at the DCS, not just at the dependent-care recipient. The needs and abilities of the DC agent need to be assessed and addressed and the DC agent needs to be supported in their acquisition of DCA. "When the DCA is not qualitatively or quantitatively adequate to meet the therapeutic self-care demands of the dependent, a nursing system may be indicated" (p. 45), (see Figure 2).
Figure 2. Dependent Care Unit as depicted by Taylor and colleagues

SCA = self-care agency; SCDF = self-care deficit; DCD = dependent-care demand; DCA = dependent-care agency; DCS = dependent-care system; TSCD = therapeutic self-care demand; DCDF = dependent-care deficit

Concepts from the theories of Orem and Taylor et al. that are applicable to this investigation include: self-care, dependent care, self-care agency, dependent-care agency, and supportive-educative nursing systems.

Individuals engaged in AHB including CAT are in essence demonstrating their SCA; they are participating in activities initiated and performed on their own behalf to maintain or improve life, health, and well-being. Utilizing CAT for chronic disease management in children would be an expression of DCA. Lack of knowledge, skills or perceived inability to implement various therapies would be viewed as a DCDF. Nursing systems that provide education in regards to specific CAT and support for implementing such therapies could impact an individual’s SCA and DCA in utilizing CAT.

Grol (2001) relates the potential for better outcomes and better adherence to treatment recommendations that are formulated when patients are involved and given greater control over health care decisions. Since it has been identified that most individuals involved in utilizing CAT have a need for input and control over their health care decisions (Skiba-King, 2001), supportive-educative nursing systems that promote CAT use must acknowledge a need for power sharing and focus on relationship characteristics between provider and client.

Additional Concepts

Empowerment

Empowerment is a term that has various connotations. Labonte (1994) points out that the word empowerment can be perceived as both transitive and intransitive. As a transitive verb empower connotes bestowing power on someone else. This is the typical...
historical connotation of empowerment, where one individual transfers power or
authority to another to perform a task or function (The Random House Dictionary, 1967).
As an intransitive verb however, empower connotes gaining or assuming power. This
connotation appears more often in contemporary literature focusing on empowerment.
D'Alessandro and Dosa (2001) define empowerment as “the enhanced ability of patients
to actively understand and influence their health status” (p. 1131). Ellis-Stoll and
Popkess-Vawter (1998) define it as “a process between a nurse and client designed to
assist the client to develop proactive healthy behaviors” (p. 62). This definition embodies
both the transitive and intransitive connotations with a resultant image of power sharing.
Throughout the nursing literature the common themes associated with the concept of
empowerment are a balance of power, a process of acquisition, an associated increase in
knowledge and skills, with an outcome of increased self-efficacy and control for the
individual or group (Chew, 2001; Himmelman, 2001; Ellis-Stoll & Popkess-Vawter,
1998; Caporael-Katz, 1983; D’Alessandro & Dosa, 2001). Health care practitioners who
seek to promote self-care strategies that incorporate CAT should strive for relationships
with clients that encourage empowerment.

Mutuality

A key finding in two separate research studies on empowering relationships
identified that mutuality, as demonstrated by mutual respect and mutual decision-making,
was antecedent to empowerment (Bartle, Couchonnal, Canda, & Staker, 2002; Falk-
Rafael, 2001).

Jerzak (2001) defines mutuality as “a process for change and growth in relationship
with another” (p. 5). Henson and Moloney (1997) in their concept analysis of mutuality
speak of give and take, belonging equally to, collaboration, and common consent as being defining characteristics of mutuality.

*Therapeutic Alliance*

In the psychiatric literature, the construct therapeutic alliance is used with similar connotations to mutuality. Johnson, Wright, and Ketring (2002) depict three constructs involved in the therapeutic alliance. Their first construct of bond development incorporates the attributes of trust, respect, and caring. The other 2 constructs involved are the assignment of tasks and the agreement on goals.

Kim, Boren, and Solem (2001) expanded the conceptualization of therapeutic alliance to include four constructs: collaboration, communication, integration, and empowerment. They define therapeutic alliance as “a dynamic interactional process in which patient and provider collaborate to carry out mutually negotiated goals in a shared partnership” (p. 315). Kim et al. (2001) developed the Kim Alliance Scale (KAS) to assess clients’ perceptions of the therapeutic alliance between themselves and their caregivers. The dimensions of the instrument are the four identified constructs. Collaboration is defined as “the process of identifying, sharing, and reaching the agreed goals of health through the negotiation between provider and patient (p. 317). Communication projects a “nonjudgmental attitude, acceptance, and empathy” which “enhances bonding with the patient” (p. 317). Such communication encourages an environment where “rapport, trust, and mutual respect develop between provider and patient” (p. 317). Integration involves a process of equalizing social power. As a result of patient-provider integration, “the patient attains expert power over the disease” (p. 317) and the provider increases knowledge about the patient’s experience. Empowerment involves “power sharing and
mutual decision making between provider and patient" (p.317), resulting in the patient becoming more responsible for his or her own self care agency and more involved in making health care choices.

Application of Concepts

Key concepts from Orem's model (dependent-care agency, dependent-care deficit, and supportive-educative nursing systems) were combined with the additional concept of therapeutic alliance as a framework for this study. Therapeutic alliance was evaluated as a defining characteristic of the nurse-client interaction in a supportive-educative nursing system (see Figure 3).
Lack of Readiness to utilize CAT
Dependent-care deficit

Therapeutic Alliance
Supportive-educative nursing system

Openness to incorporating CAT
Dependent-care agency

Figure 3. Model for current study depicting the hypothesized influence of therapeutic alliance on the development of dependent-care agency in utilizing CAT.
Review of the Literature

Self-care

Self-care is a prominent focus in health care currently as stated in Healthy People 2000 language, "personal responsibility ... and enlightened behavior truly is [sic] the key to good health" (p. 6). The medical model approach to health care frequently does not encourage personal responsibility or involvement in decision making towards health promotion (Anderson, 1995; Hammond, Bandak, & Williams, 1999; Carporaelp-Katz, 1983). McDermott (1993) conducted a study that established self-care agency as being inversely related to learned helplessness. Learned helplessness was defined for this study as "a cognitively learned failure response by which a person exposed to uncontrollable, aversive events perceives there is no relationship between personal response and the outcome of the event". This descriptive correlational study involved 309 full time working volunteers, ages 21-60; 151 men and 158 women. The individuals were predominantly white, married, and low to middle income earners with a minimum of a high school education. Participants completed surveys developed from the 53-item Perception of Self-Care Agency Questionnaire (PS-CA) and the 20 item Learned Helplessness Scale (LHS). In this study the alpha coefficient was .95 for PS-CA and .92 for LHS. Participants scored high on the PS-CA and low on the LHS. Scatter plot projections showed relationships to be linear and negatively related and a Pearson correlation value of -.57 further supported the hypothesis that there is an inverse relationship between PS-CA and LH.

While this study demonstrated negative correlation between the two variables, the sample was a fairly homogeneous group. It would be of value to repeat this study in other
populations. It would be interesting to know if a similar study would demonstrate that people who test out high on the LHS generate low scores on the PS-CA. This study has implications for health professionals seeking to promote self-care. As stated by the author, “active participation in learning requires the individual to believe in his or her personal ability to control and successfully carry out or direct tasks that will help in attaining positive health goals” (Mc Dermott, 1993, p. 36).

Different strategies have been evaluated for increasing self-care in children with chronic diseases. Lieberman (2001) conducted a trial involving children with chronic pulmonary disease to assess the benefit of interactive computer games in increasing self-care. Using a pretest-posttest design, she surveyed 50 children ages 6-16 with asthma before and after playing “Bronkie the Bronkiasaurus”, an interactive video that teaches asthma self-management. Immediate and one month repeat scoring showed significant improvements in asthma knowledge, self efficacy for self-care management and openness in discussing asthma with others. A follow-up study to compare the effect of the interactive video game versus an educational asthma videotape on self care directed at children was conducted using 14 asthma patients ages 8-13 who were randomly assigned to watch the video or play the video game for 30 minutes. Both groups tested similarly on asthma knowledge after the interventions, however the interactive video game group scored significantly higher than the other group on self-efficacy measures.

These small pilots demonstrated that interaction and involvement with the learning media have potential for impacting self-care. This supports the importance of individuals being involved in active acquisition of knowledge and further supports the notion that active participation in learning is predictive of openness to acquiring new skills and
increased self-care agency.

*Empowerment*

Falk-Rafael (2001) conducted a two part qualitative exploratory study with 24 public health nurses. Phase one sought to identify nurses’ conceptualization of empowerment, strategies they identified as empowering, and the outcomes of empowering strategies that they had observed in their practice. This portion of the study was conducted utilizing focus groups of 5-9 nurses that met 3 times, for 2 hours each. The focus groups were structured to collect information to identify characteristics of promotional strategies for and outcomes of empowerment. Phase two addressed the question, “How do clients experience nursing practice that nurses identify as empowering?” This phase consisted of a purposive sampling of the clients, whom nurses participating in phase one identified as being empowered through their practice. Six individuals agreed to participate and be interviewed by the researcher. Flip charts were used to collect and categorize information collected in the round robin. Data sets for analysis were composed of flip chart records and field notes of the researcher.

The results of this study supported the conceptualization of empowerment found throughout the nursing literature (Chew, 2001; Himmelman, 2001; Ellis-Stoll & Popkess-Vawter, 1998; Caporael-Katz, 1983; D’Alessandro & Dosa, 2001). The 24 public health nurses in Falk-Rafael’s (2001) study identified empowerment as a process of growth that resulted in self-actualization of one’s potential and occurred as a result of a nurturing nurse-client relationship. They identified the need for active participation on the part of the client for empowerment to take place and also related the importance of increased
skills and knowledge in the clients as precursors to the client making and attaining health goals.

The nurses in this study identified several empowering strategies but the basis of all of the strategies was a relationship of mutuality based on trust and mutual respect. Specific strategies they described as assisting clients toward empowerment included advocating for clients until they are able to advocate for themselves, providing information and helping clients develop needed skills, and supporting and providing positive reinforcement to clients for new knowledge and skill acquisition.

Positive client outcomes relating to empowerment strategies were also reported by the nurses in this study. They related that empowered clients were better able to advocate for themselves, sought out needed knowledge and support more often, and were more goal oriented and purposeful. Empowered clients in their estimation took more responsibility for their health and in turn were more empowering to others. Falk-Rafael (2001) related that the empowered clients who participated in interviews bore out the nurses’ observations. Clients related increased confidence, improved self-esteem, positive changes in health related behaviors and a sense of owning responsibility for their health status. Clients reported that they not only took on a more active role with their health care provider but also started taking more initiative themselves in setting personal and health related goals. They identified the relationship with their nurse as being the impetus for the positive changes in their lives.

This study provides qualitative data to support the importance of nurse-client relationships and empowerment toward health related goals. Also the nurses identified strategies that could be used in developing supportive-educative nursing systems to
promote empowerment in individuals. The information gleaned from this qualitative study warrants further investigation. Future testing of these strategies would be beneficial.

Anderson, Funnel, Butler, Arnold, Fitzgerald, and Fester (1995) undertook a study to evaluate the outcomes of empowerment education programs on diabetes management. The three research questions, asked in light of participation in an empowerment program, were a) Would the participants demonstrate increased self-efficacy as related to their diabetes management? b) Would the participants demonstrate attitudinal changes toward their diabetes? c) Would the participants demonstrate declines in their blood glucose levels as reflected by their HbA1C values? This study was a randomized controlled trial involving 64 diabetics; primarily insulin dependent, middle aged, women who participated in 6 weekly 2-hour empowerment-training sessions. Seventy-seven percent of participants had some college education and 84% had participated in a diabetic education program previously. In addition, participants completed 21 worksheets that measured self-efficacy (using 8 subscales) and attitudes about living with diabetes (using 3 subscales), on 5-point Likert scales. The self-efficacy subscales were focused on content included in the patient empowerment program and measured the participants perceived ability to 1) identify areas of satisfaction and dissatisfaction related to living with diabetes; 2) identify and achieve personally meaningful goals; 3) apply a systematic problem-solving process to the elimination of barriers to their goals; 4) cope with the emotional aspects of living with diabetes; 5) stress management; 6) attain appropriate social support; 7) be self-motivated; and 8) make cost/benefit decisions about making behavior changes related to living with diabetes.
Attitudes regarding their diabetes were measured using subscales taken from both the Diabetes Attitude Scale (DAS) and the Diabetes Care Profile (DCP). Hemoglobin A1C monitoring was done pre-study, 6 weeks into the study, and at 12 week follow up. Eighteen of the 64 were assigned to a waiting list (control group) for the first 6-week period and then crossed over to the intervention group for an additional 6 weeks.

The results supported all three hypothesized outcomes. The intervention group had significantly higher ratings on 4 of the 8 self efficacy subscales, with P values of: <0.001 for setting goals; 0.05 for managing stress; 0.002 for obtaining support; and 0.02 for making decisions. They also showed improvements on their attitudinal scores in regards to the impact of diabetes on their quality of life (P=0.03), decreases in negative attitudes towards living with diabetes (P=0.01), and demonstrated significantly larger reductions in their Hg A1C values (P=0.05). The control group, when crossed over, experienced similar outcomes.

The results of this study are impressive: however, due to the fact that the sample was comprised mainly of educated women with demonstrated high degrees of autonomy, it may not generalize well to other populations. No ethnic indexing was given to assist in determining the appropriate application of results in different cultures and settings. The patient participants in this study scored high on a patient autonomy subscale of the DAS (4.14 on a scale of 1-5) before being enrolled in this trial, which may indicate that empowerment programs are more successful in individuals with high levels of autonomy. The authors concluded that the empowerment program had met its goal of improving psychosocial self-efficacy in a diabetic population. At the conclusion of the study participants were surveyed in regards to behavior changes they had made or anticipated.
making as a result of being involved in the program. Ninety-five percent of the participants reported behavior changes in diet, blood glucose monitoring, and/or exercise; and 80% reported that the empowerment program was very helpful. This study supports the positive outcomes in relation to diabetes self-care and health promotion that can be realized through patient empowerment programs.

**Mutuality**

Although empowerment is identified in the literature as an outcome of relationships of mutuality (Bartle et al., 2002; Falk-Rafael, 2001), there is a paucity of studies in the literature to validate the relationship of mutuality to patient outcomes. Jersak (2001) described in detail a nurse/client relationship of mutuality through a case study. This case study detailed the relationship she, as a public health nurse, experienced while mentoring an adolescent while both participated in a student facilitated summit on nonacademic challenges that teenagers face in school. The relationship evolved over the 8 weeks of mentoring in preparation for the teenager’s facilitating a breakout session on teen sexuality at the summit. Jerzak related the defining characteristics of mutuality that emerged including trust, respect, and reciprocity. She perceived the relationship that ensued as “pleasurable and energizing” for herself and “self-illuminating” for the adolescent. The adolescent reported an increased sense of self-worth; verbalized that she felt “totally changed”; and stated that her decisions and actions in the future in regards to her sexual activity in relationships would be very different than in the past. Jerzak concluded that mutuality in the relationship was necessary to produce the changes that occurred and that information alone would not have brought about these changes.

Although Jersak identified defining characteristics of mutuality that emerged during this
case study, she never justified her concept of mutuality by a literature review, did not acknowledge how she collected her observations, and did not report having any one else evaluate her findings.

In order to gain a better understanding of the nurse patient relationship, Ramos (1992) conducted a qualitative study involving 15 nurses from various in-patient clinical settings to explore their perceived experiences in regards to the nurse patient relationship. Each participant was interviewed twice. The investigator’s goal was to obtain 30 detailed descriptions of participant-identified significant nurse patient relationships. Content analysis was used to interpret transcripts of interviews with field notes of the investigator. In analyzing the interview material she identified three levels of relationship that had been described by the nurses. Level 1 involved a minimum of nurse patient interaction related as task oriented nursing where the nurse was providing only care that had been “prescribed” by a health care practitioner. Level 2 involved more connectedness to the patient but was described as a unilateral connection with the nurse retaining control of the events. The level 3 relationships, which were arrived at after moving through levels 1 and 2 with their patients, were described as reciprocal and mutual. These descriptions depicted a “mutual investment in the relationship” (p. 503) which required some of the nurse’s energy, but which was also very energizing to them. Nurses described level 3 interactions as very positive and identified them as the “very cornerstone of nursing care” (p. 504).

Ramos’ (1992) study was a well-conducted qualitative analysis. The conclusions support Henson and Maloney’s (1997) conceptualization of mutuality that involves
reciprocity. Through mutual relationships nurses, too, gain a greater sense of satisfaction.

**Therapeutic Alliance**

Kim et al (2001) conducted a qualitative investigation into the perceptions of clients of the quality of therapeutic alliance. These investigators sought to incorporate into a measurement tool the dimension of empowerment that had been "underrepresented" in earlier therapeutic alliance tools. They used a triangulation process to bring together deductive literature review with inductive qualitative observations that served to support the development of a conceptualization and subsequent instrument development. Input was solicited from 5 master's prepared nurses and 1 physician regarding their impressions of therapeutic alliance. They were each asked to write out words or phrases that they associated with the term therapeutic alliance. These responses were compared with attributes identified in the literature review. A conceptualization was developed based on 4 dimensions of alliance that were identified in the responses, namely, collaboration, communication, integration, and empowerment. A panel of eleven post master's level nurses was asked to contribute potential "items" for tool development. From an initial 110 items 48 were chosen for the original Kim Alliance Scale (KAS) and were tested for reliability. Sixty-eight nurses who were also self-identified as "patients" in the previous 2 years were asked to complete the KAS as well as a previous alliance tool, the Agnew Relationship Measure (ARM) and the Multidimensional Health Locus of Control (MHLC). The participants were asked to focus on the quality of encounters with a specific provider. The responses on the KAS were compared with responses on the other tools to evaluate for convergent validity and divergent validity. Preliminary psychometric properties of the KAS were evaluated using construct validation and
reliability procedures while analyzing the data in SPSS. Factorial validity was evaluated resulting in a narrowing of items to 30. Reliability testing was completed using Cronbach’s alpha procedure and resulted in a total score of .94 with separate dimensions ranging from .71 to .87. The four dimensions of the tool were evaluated using Pearson correlation procedures to determine relationships among the dimensions. A high level of positive correlation was identified between the dimensions leading the researchers to conclude that the dimensions should not be evaluated independently. A limitation of this analysis was the small sample size and homogeneity of participants. The authors acknowledged a need for further testing with this tool but concluded the KAS could be very useful for evaluating therapeutic alliance not only in nurse-client relationships but in other disciplines as well. The dimension of empowerment, which the researchers sought to incorporate into the tool, was supported as an appropriate dimension of therapeutic alliance on initial testing.

Summary

Although limited research has been done on each of the constructs identified in the current study, no research has been done that links therapeutic alliance and dependent-care agency. Orem (2001) has developed and extensively tested the construct of self-care agency. She speaks of “power components”; however these refer to power within the individual to act, i.e. “ability to consistently perform self-care operations” (p. 265). Dependent-care agency as defined for the current study embodies more than functional ability to care for one’s dependent. It includes perceived power to negotiate in the health care system as well as knowledge, skills and confidence to direct dependent-care decisions regarding CAT usage for health promotion and disease management.
Frequently in the nursing literature, patient empowerment is attributed to a nurse/client relationship of mutuality, however this association has little empirical support. Kim et al. (2001) have come the closest in linking the two constructs in the research setting by including empowerment as one of the qualities included in their tool for evaluating therapeutic alliance. Orem (2001) discusses the need to view individuals in the “mutual-personal model” (p. 420) and identifies that relationships are central. She discusses the importance of “nurse-patient interactions”, by which she means “reciprocal action or influence” (p. 102), in supporting the development of self-care and dependent-care. She describes interactions as pivotal to the nurse-patient relationship and goes as far as to imply that a lack of relationship results in a lack of nursing care. She states:

"an absence of nurse-patient relationships and the absence of an effective system of nurse-patient interaction" presume an “inability of nurses to engage in nursing diagnosis, to prescribe the patient’s therapeutic self-care demand, to identify her abilities as well as limitations for knowing and meeting the components of her therapeutic self-care demand, or regulate her engagement in self care in accord with health state factors” (p. 107-108).

However, Orem does not elaborate on the defining qualities of the nurse/client relationship and does not include it as a separate variable to consider in promoting self-care agency. Literature is lacking that supports a relationship between self-care agency or dependent-care agency and nurse-client relationships focused on therapeutic alliance. There is, therefore, little concrete support for the notion that utilizing CAT appropriately as dependent-care measures could be related to nurse-client relationships. There are also
no known published studies that support nursings' role in promoting CAT as self-care modalities.

Autonomous health behaviors incorporating CAT are utilized by individuals as self-care and dependent-care strategies for health promotion and disease management. There is adequate literature supporting the benefits of numerous CAT. A perceived sense of autonomy would seem to be involved in individuals who are stepping outside the bounds of allopathic medicine to embrace CAT. Health care providers and nurses in particular can support clients’ development of AHB that incorporate CAT for health promotion and disease management. Relationships that are characterized by therapeutic alliance would seem advantageous in this regard.

This study was undertaken to evaluate whether mothers of asthmatic children involved in a six-month glyconutritional supplement trial perceived the defining characteristics of therapeutic alliance in relationship with the nurse coordinator and whether this relationship correlated with a change in openness to consider utilization of a CAT (in this case a nutritional supplement) in the future.

Research Questions

Research questions to be addressed in this study in the context of the nurse-client relationship are:

1) Did mothers of children with asthma involved in a nutritional supplementation trial perceive the characteristics of therapeutic alliance in relationship with the research nurse?
2) Were dimensions of therapeutic alliance as experienced by mothers of children with asthma involved in a nutritional supplement trial related to the development of openness to use CAT as dependent care strategies?

Conceptual Definitions

Therapeutic Alliance

This study focuses on the relationship between the research nurse and dependent care agent. Therefore, the definition of therapeutic alliance for this study will be: a relational process in which a nurse and dependent care provider interact during a recent study investigating use of glyconutritional supplements. This process includes dimensions of collaboration, communication, integration, and empowerment as defined by Kim et al. (2001). The operational definition of therapeutic alliance is the score on the Kim Alliance Scale (KAS).

Dependent-care Agency

For the purpose of this study DCA will be defined as the complex, acquired ability of mothers of children with asthma to know and meet their dependent-care demands. Dependent-care agency as defined for the current study includes perceived power to negotiate in the health care system as well as knowledge, skills and confidence to direct dependent-care decisions regarding CAT usage for health promotion and disease management. Dependent-care agency will be measured by change in openness to use of CAT from pre to post involvement in a glyconutrient asthma trial.
CHAPTER 3

METHODS

Design

This study was a descriptive, correlational study focused on the relationship established between a research nurse and mothers of children with asthma, during participation in a 6-month trial evaluating the benefits of nutritional supplementation in their children. The current study was adjunctive to this 6 month double blind placebo controlled pilot study undertaken to establish whether or not the addition of glyconutritional and phytonutritional supplementation to the treatment plan of asthmatic children decreased the incidence of asthma symptoms and improved quality of life. The glyconutritional supplement consists of eight monosaccharides that are known to be involved in the development of glycoproteins on the cell surface and in modulation of immune function. The phytonutritional supplement consists of 12 high antioxidant fruits and vegetables. These supplements currently are considered CAT as they are not listed as necessary nutrients in medical textbooks and there are no established recommended daily intakes (RDI's) published. Asthma was chosen as a disease entity with which to evaluate this CAT modality as it is a chronic illness requiring multiple medications, treatments and follow-up visits resulting in decreased quality of life and large health care dollar expenditures.

Sample and Setting

Mothers of asthmatic children from 2 pediatric pulmonology practices in an urban midwest setting were surveyed at the initial screening of the glyconutrient asthma study
as to their prior utilization of CAT for their children with asthma. Less than 5% of mothers surveyed had used a CAT in the past; however, 38% indicated that they were "interested but apprehensive". One hundred children ages 7-17 with mild to moderate asthma were enrolled in the study and were randomly assigned to one of three supplement groups or to a placebo group. Eighty-seven children completed all requirements of the six months supplement study. The sample for the current study consisted of those mothers whose asthmatic children completed the 6-month glyconutritional supplement trial and who chose to participate in the current study. Completion of the 6-month trial was chosen as a qualifier for admittance into this study to allow for equalization of the relationship duration between the research nurse and mothers of asthmatic children. Eighty-five of the mothers were Caucasian, one was Hispanic and one was African-American. Seventy-one surveys out of the original 87 mailed were returned which represented an 86% response rate. Sixty-eight (78%) of the mailed surveys were returned completed, 2 (2.3%) were returned blank, and 1 was returned undelivered due to change of address. The convenience sample consisted of those 68 mothers who agreed to participate by completing and returning the survey. Since the responses were blinded, ethnic makeup of the final sample was unknown. Observations and interactions with these mothers during the original glyconutritional asthma study indicated that the majority of these mothers were Caucasian, middle-class, and between the ages of 30-50.

Instruments

The Kim Alliance Scale (KAS) was used to evaluate the characteristics of the nurse/client relationship (see Appendix A for a copy of the KAS). Questions on the
survey pertain to the perceived relationship with a health care provider. The KAS is a 30 item survey with Likert type ranked responses from 1-4, with 1 = never, 2 = rarely, 3 = sometimes, and 4 = always. The instrument includes four subscales—communication, collaboration, integration, and empowerment. Eleven items were assigned to evaluate communication, 8 items were assigned to evaluate collaboration, 5 items were assigned to evaluate integration, and 6 items were assigned to evaluate empowerment. This tool has been tested to date in one sample. The internal consistency rating is 0.94 (alpha coefficient for the entire tool). The reliability coefficients for the subscales ranged from 0.71-0.87. Content and construct validity have been demonstrated by Kim and associates (2001).

Responses from 2 questions from the intake questionnaire and 1 question from the exit questionnaire utilized in the glyconutritional supplement asthma trial were used to quantify change in openness of mothers to use nutritional supplements as a CAT for their children with asthma (see Appendix A for intake and exit questionnaires). The first (intake) questionnaire asked the questions “Have you ever used an alternative therapy in the past”, and “ if you have not used an alternative therapy in the past why not.” Three responses to the second question were: interested but apprehensive, not interested, and other. Those choosing the “other” response were asked to explain their choice (see Appendix A). The second (exit) questionnaire, distributed at the completion of the nutritional trial asked the question, “Based on your participation in this study would you consider utilizing a nutritional supplement in the future for your child with asthma?” (see Appendix A). Changes in response from intake to exit questionnaires were viewed as indicators of developing dependent-care agency utilizing CAT.
Procedures

The research nurse for the glyconutrient asthma study interacted with participants and their mothers extensively over the 6-month study period. These interactions consisted of education in regards to the study requirements and proposed mechanism of action of study supplements. Contact was maintained between the nurse and participant families throughout the 6-month study period through monthly mailings and intermittent phone conversations. The research nurse was the contact person for participants throughout the study and participants were to call their pulmonologist only if emergent asthma symptoms developed. Nurse/mother interactions were focused on reviewing each child's current treatment plan, explaining and reviewing study requirements and logs, clarifying misunderstandings, answering questions, negotiating how to meet study requirements, and discussing how these mothers could support their children's compliance throughout the study.

Mothers of the children who completed the 6-month trial were resurveyed at the time of study completion. One question on the exit survey pertained to the mothers' openness to utilize a nutritional supplement as a complementary therapy for their child with asthma in the future.

The current study sought to determine whether or not the study participant's mothers perceived the defining characteristics of therapeutic alliance in relationship with the research nurse, and whether characteristics of this relationship correlated with an increased openness to consider utilization of a CAT, (in this case a nutritional supplement), in the future.

The Kim Alliance Scale (KAS) was mailed to eligible mothers along with a letter of invitation to participate in the study, and a self-addressed stamped envelope (see Appendix C for letter of invitation). Prior to mailing, the instruments were coded by a research assistant to allow for blinding of the nurse researcher. The top of each survey
was coded with 2 numbers. The first number was assigned to identify responders and was also attached to copies of the original glyconutrient asthma studies’ intake and exit questionnaires previously completed by the mothers. The second coded number corresponded with the original treatment group to which the child was randomly assigned to during the glyconutrient asthma trial. The number 07141 was assigned to the treatment group utilizing a glyconutritional. The number 71612 was assigned to the treatment group utilizing a phytonutritional. The number 07164 was assigned to the treatment group utilizing both a glyconutritional and a phytonutritional. The treatment number 01601 was assigned to the placebo group. In addition to allowing for blinding of the investigator, the coded numbers also allowed for comparison between study groups from the original study and matching of responses on the intake and exit questionnaires with those on the mailed KAS. The letter of invitation explained the blinding of the researcher by use of the coded numbers and explained that responses would be anonymous. The coded number system was stored away from the researcher and destroyed at the completion of data analysis.

It was stated in the letter of invitation that return of the completed KAS instrument was indication of consent to participate. Those persons not interested in participating were asked to return the uncompleted instrument in the self-addressed stamped envelope. A date 10 days from initial mailing was specified as a deadline to respond. A follow-up letter and second KAS survey were mailed along with a self-addressed stamped envelope five days after the deadline for return noted on the letter of invitation to those whose numbered surveys had not been received back (see Appendix C for copy of follow-up letter).
The intake and exit questionnaires from the original study, along with the protocol for this study were reviewed and approved by the GVSU Human Research Review Committee (HRRC) and the review board of a large midwestern health care organization (see Appendix D for approval letters). No inherent risks or benefits to the participants were identified as a result of participating in this study.

Operational Definitions

Mother

For the purpose of this study, mother, will be defined as an adult female who is functioning in the role of guardian and dependent-care provider.

Children with Asthma

For the purpose of this study, children with asthma, will be defined as children between the ages of 7-17 with diagnosed mild intermittent to moderate persistent asthma. In this study children with asthma represent dependent-care recipients.

Nutritional Supplement

For the purpose of this study nutritional supplement connotes plant based ingestible compounds that are intended to support dietary intake. In this study nutritional supplements refer to glyconutritionals and phytonutritionals.

Complementary and Alternative Therapies (CAT)

For the purpose of this study CAT will be defined as healing modalities that are used to complement traditional medical therapies or are used in place of traditional allopathic medical therapies.
Research Nurse

For the purpose of this study, research nurse is defined as a licensed nurse who is functioning as part of a research team involved in a clinical trial. Duties of the research nurse in this study included screening and enrollment of participants; distributing forms, supplements, and reimbursements on a monthly basis; being available for questions and difficulties; and exiting participants at the conclusion of the study.

Openness to use of CAT

For the purpose of this study, openness to use of CAT is defined as a measure of change score that indicates positive movement in intention to use a nutritional supplement in the future as a complementary therapy.

Dependent-care strategies

For the purpose of this study, dependent-care strategies are defined as plans or activities engaged in by dependent-care agents directed toward improving or maintaining health of the dependent-care recipient.
CHAPTER 4
DATA ANALYSIS

Data Preparation and Analysis

The purposes of this study were 2-fold. The first was to determination whether mothers whose asthmatic children were enrolled in a glyconutritional trial perceived the defining characteristics of therapeutic alliance in their relationship with the research nurse. The second purpose was to determine whether the therapeutic alliance between these mothers and the research nurse correlated with change in openness to utilize nutritional supplements as CAT for their children with asthma. Responses on the Kim Alliance Scale (KAS) were matched with participants' responses on intake and exit questionnaires utilized in the original glyconutritional asthma study through blinded coding done by a research assistant. The independent variable in this study was therapeutic alliance. The dependent variable was “measure of change” score. Therapeutic alliance was measured using the Kim Alliance Scale (KAS) and was ranked on an interval scale while “measure of change” was ranked on an ordinal scale. A “measure of change” score was established by comparing responses in regards to previous CAT usage on intake questionnaires from the original glyconutritional asthma study with responses in regards to anticipated future CAT usage from the exit questionnaires of the same study. Therapeutic alliance scores were then analyzed with measure of change scores to determine correlations. The Statistical Package for the Social Sciences (SPSS) version 10 was used to analyze the data.
Descriptive statistics elucidated frequency and distribution of responses on the KAS as well as on responses from the intake and exit questionnaires. Cronbach's alpha analysis was used to establish the reliability of each of the domains of the KAS as well as the entire instrument to validate internal reliability of this tool in this sample. Correlational determinations were made using Spearman's correlation procedures.

Response Rates and Distributions

Seventy-two (82%) of the original 87 distributed surveys were returned. Sixty-eight were completed (78%), 2 were blank, and 1 was returned undeliverable. As can be noted from Table 1, respondents represented all 4 treatment groups established in the original glyconutritional asthma study with a good distribution among groups.

Table 1.

<table>
<thead>
<tr>
<th>Frequency and Distribution Scores of Survey Respondents N=68</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td></td>
</tr>
<tr>
<td>Placebo (01601)</td>
<td>19</td>
</tr>
<tr>
<td>Ambrotose (07141)</td>
<td>17</td>
</tr>
<tr>
<td>Phytaloe (71612)</td>
<td>13</td>
</tr>
<tr>
<td>Ambrotose/Phytaloe (07164)</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>68</td>
</tr>
</tbody>
</table>

Kim Alliance Scale (KAS)

The KAS was used to address the first research question: Did mothers of children with asthma involved in a glyconutritional supplementation trial perceive the characteristics of therapeutic alliance in relationship with the research nurse? Four items on the tool were negatively ranked which required reversal of responses before analysis. Responses from the KAS tool were first tabulated by question to establish frequency and distribution. These responses were further categorized into the 4 domains of the tool: communication, collaboration, integration and empowerment. Surveys with missing data
were examined to determine the effect on the analysis. Nine surveys contained blank responses. Of these nine, 3 demonstrated greater than 3 blank responses (10% of total tool), which resulted in their being eliminated from the analysis of reliability. Further analysis was done on the 6 other surveys to determine that no more than 15% of blank responses occurred within any one domain of the tool. Two, which demonstrated more that 15% missing data from a single domain, were also eliminated from analysis. The 4 remaining surveys with missing data (1-2 items left blank out of 30) were adjusted by using the mean of responses present. A total of 59 surveys were included in the analysis of reliability. A Cronbach’s alpha analysis on the whole tool demonstrated a reliability score of .9264 (standardized to .9370) in this sample. This is consistent with the authors’ published alpha score of .94 for this tool (Kim et al., 2001). The individual dimensions of the tool fell below those reported on initial testing of the tool by Kim and associates (2001) (see Table 2). Although there are no standardized acceptable reliability coefficients, generally a coefficient of greater than .80 is desirable (Polit & Hungler, 1999).

Table 2.

<table>
<thead>
<tr>
<th>Domain</th>
<th>No.</th>
<th>Alpha</th>
<th>Stand-Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>11</td>
<td>.8633</td>
<td>.8972 (.87)</td>
</tr>
<tr>
<td>Collaboration</td>
<td>8</td>
<td>.7343</td>
<td>.7565 (.80)</td>
</tr>
<tr>
<td>Integration</td>
<td>5</td>
<td>.5628</td>
<td>.6988 (.80)</td>
</tr>
<tr>
<td>Empowerment</td>
<td>6</td>
<td>.6542</td>
<td>.6612 (.71)</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>.9264</td>
<td>.9370 (.94)</td>
</tr>
</tbody>
</table>

Note. NO. = numbers of items on KAS tool
STAND-ALPH= standardized alpha
( ) = alpha scores reported from initial testing of KAS (Kim et al., 2001, p.325)

Participants scores of perceived therapeutic alliance (TA) were determined. The range of possible scores on this 30-item survey is 30-120. Scoring is graded so that scores
of 30 or less indicate that TA was never perceived and scores of 120 indicate a perception of therapeutic alliance always. The developers of the KAS have yet to assign strengths to intermediate scores, however averaged total scores of > 90 would indicate a perception of therapeutic alliance falling somewhere between "sometimes" and "always". The results from this analysis demonstrated very high scoring with > 90% of respondents scoring above 105, 55% of respondents scoring within 4 points of the maximum 120 points, and 14 demonstrating perfect scores of 120 (see Table 3).

Table 3.

<table>
<thead>
<tr>
<th>Score</th>
<th>No.</th>
<th>Valid %</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>85</td>
<td>1</td>
<td>1.6</td>
<td>1.6</td>
</tr>
<tr>
<td>89</td>
<td>1</td>
<td>1.6</td>
<td>3.2</td>
</tr>
<tr>
<td>96</td>
<td>1</td>
<td>1.6</td>
<td>4.7</td>
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<tr>
<td>98</td>
<td>1</td>
<td>1.6</td>
<td>6.3</td>
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<td>102</td>
<td>1</td>
<td>1.6</td>
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<tr>
<td>107.45</td>
<td>1</td>
<td>1.6</td>
<td>10.9</td>
</tr>
<tr>
<td>109</td>
<td>4</td>
<td>6.3</td>
<td>17.2</td>
</tr>
<tr>
<td>110</td>
<td>1</td>
<td>1.6</td>
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</tr>
<tr>
<td>111</td>
<td>3</td>
<td>4.7</td>
<td>23.4</td>
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<tr>
<td>112</td>
<td>4</td>
<td>5.9</td>
<td>29.7</td>
</tr>
<tr>
<td>113</td>
<td>3</td>
<td>4.7</td>
<td>34.4</td>
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<tr>
<td>114</td>
<td>4</td>
<td>5.9</td>
<td>40.6</td>
</tr>
<tr>
<td>114.7</td>
<td>1</td>
<td>1.5</td>
<td>42.1</td>
</tr>
<tr>
<td>115</td>
<td>2</td>
<td>3.1</td>
<td>45.2</td>
</tr>
<tr>
<td>116</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>68</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>
Figure 4. Histogram depicting Therapeutic Alliance scores.

Note. ALLISCOR = Alliance Score

The histogram allows for visualization of the skewedness and lack of variability in the data (see Figure 4). Note the mean score of 114 with a SD of 7.25.

Measures of Change

Responses to one question from the intake questionnaires, circulated at the time of screening for the original glyconutritional asthma study, were evaluated for frequency and distribution. The question, “Have you in the past used any alternative therapies?” was asked in regards to past CAT usage for their child with asthma. Analysis indicated 55
“no” responses and 9 “yes” responses, resulting in a total of 85.9% of valid respondents who had not utilized a CAT in the past as a treatment modality for their children (see Table 4). The percentage of participants in this study who acknowledged CAT use for their children in the past was 14.1%

Table 4.

<table>
<thead>
<tr>
<th>Past Use-Cat</th>
<th>n</th>
<th>%</th>
<th>Valid %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>9</td>
<td>13.2</td>
<td>14.1</td>
</tr>
<tr>
<td>No</td>
<td>55</td>
<td>80.9</td>
<td>85.9</td>
</tr>
<tr>
<td>Missing</td>
<td>4</td>
<td>5.9</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>68</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

A second question from the intake questionnaires asked, “If you have not used alternative therapies, why not?” Choices for response were limited to: Interested but apprehensive, not interested, and other. Responses are displayed (see Table 5).

Table 5.

<table>
<thead>
<tr>
<th>Reason</th>
<th>n</th>
<th>%</th>
<th>Valid %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interested by apprehensive</td>
<td>17</td>
<td>25</td>
<td>32.1</td>
</tr>
<tr>
<td>Not interested</td>
<td>8</td>
<td>11.8</td>
<td>5.1</td>
</tr>
<tr>
<td>Other</td>
<td>28</td>
<td>41.2</td>
<td>52.8</td>
</tr>
<tr>
<td>Missing</td>
<td>15</td>
<td>22.1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>68</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

The number of valid “interested but apprehensive” responses, tabulated at 32.1%, was similar to the 38.2% noted by Pippenger et al. (in progress) in the tabulation of individuals screened for the glyconutritional asthma study.

A question from the glyconutritional asthma study exit questionnaire asked: "Based on your participation with the glyconutritional asthma study would you consider
including supplements as a complementary therapy in the future?" Choices were: yes, no, or maybe. The responses to this question were tabulated and are displayed in Table 6.

Table 6.

| Scores on Openness to Future Supplement Use- Glyconutrient Asthma Trial |
|---------------------------------|---------|----------|----------|
| Futsupp                         | n       | %        | Valid %   |
| Yes                             | 42      | 61.8     | 62.7     |
| No                              | 5       | 7.4      | 7.5      |
| Maybe                           | 20      | 29.4     | 29.9     |
| Missing                         | 1       | 1.5      |          |
| Total                           | 68      | 100      | 100      |

*Note. Futsupp= Future Supplement Use*

Forty-two respondents, representing 61.8% of the sample, indicated that they would consider using a nutritional supplement in the future. Twenty respondents (29.4) indicated that they would "maybe" consider using a nutritional supplement in the future. These 2 groups combined produce a total number of 62 respondents (91.2%) who would possibly consider using a supplement in the future. Conversely, only 5 respondents (7.4%) indicated that they would not consider using a nutritional supplement in the future.

Table 7.

<table>
<thead>
<tr>
<th>Change Scores from Intake to Exit of Glyconutrient Asthma Trial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use change</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>-1</td>
</tr>
<tr>
<td>Missing</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

A "measure of change" score was assigned to comparisons of responses on the intake and exit questionnaires. The measure of change score indicated a movement in openness by these mothers to consider using a nutritional supplement as a CAT in the future for their children with asthma. Responses on the intake questionnaire were either
“yes” or “no”, while responses on the exit questionnaire included an additional “maybe” category. A score of -1 indicated negative movement from a “yes” on the intake form (they had used a CAT in the past) to a “no” on the exit questionnaire (they would not consider using a nutritional supplement in the future). A score of 0 indicated no movement from intake to exit questionnaire. A score of 1 indicated a change from a “no” on the intake questionnaire to a response of “maybe” on the exit questionnaire. A score of 2 indicated the most change, from a “no” on the intake questionnaire to a “yes” on the exit questionnaire. See Table 7 for a breakdown of scores. Five of the intake or exit questionnaires were missing responses, which is indicated in the calculations.

As is noted in the table, 32 (50.8%) of respondents demonstrated the maximum change from a “no” to a “yes” while 17 (27%) showed movement from a “no” to a “maybe”. These combined groups indicate that greater than 77% of respondents demonstrated measurable positive change from intake to exit questionnaire. Nineteen percent of respondents showed no movement; and 3% moved in a negative direction.
Figure 5. Histogram depicting measure of change scores.

The histogram in figure 5 visually demonstrates the large degree of skewness in measure of change in openness to use CAT (Note mean of 1.3 and SD = .88).

Relationship Between Variables

The second research question was: Were dimensions of therapeutic alliance as experienced by mothers of children with asthma involved in a glyconutritional
supplement trial related to development of openness to use CAT as dependent-care strategies? To address the second research question, a correlational evaluation was done. As the individual domains of the KAS did not demonstrate strong reliability individually and the high overall internal consistency, the total scores on the KAS were correlated against the change of use scores using Spearman's correlational procedures with a significance level set at .05. A resultant p-value of .164 failed to demonstrate a correlation between scores of therapeutic alliance and change in openness to use nutritional supplements as a CAT in the future (see Table 8).

Table 8.

<table>
<thead>
<tr>
<th>Alliance score</th>
<th>Use change score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alliance score</td>
<td>1.0</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.</td>
</tr>
<tr>
<td>Use change</td>
<td>-0.183</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.164</td>
</tr>
</tbody>
</table>

An additional analysis was done on the subset of mothers in this study whose children were from the placebo group in the glyconutritional study (n=19). One question on the exit questionnaire from the glyconutritional asthma study read: During the 6-month study period, while your child was taking the supplement(s), did his/her asthma 1) improve, 2) stay the same, or 3) get worse. Responses to this question were tabulated (See Table 9).

Table 9.

<table>
<thead>
<tr>
<th>Asthma rating</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asthma Improved</td>
<td>6</td>
<td>31.58%</td>
</tr>
<tr>
<td>Asthma Stayed the Same</td>
<td>12</td>
<td>63.16%</td>
</tr>
<tr>
<td>Asthma Worsened</td>
<td>1</td>
<td>5.26%</td>
</tr>
<tr>
<td>Totals (n)</td>
<td>19</td>
<td>100</td>
</tr>
</tbody>
</table>
Twelve out of 19 (68.4%) of placebo participants had perceived that their child’s asthma had stayed the same; 6 out of 19 (31.6%) felt their child’s asthma had improved and 1 (5.3%) felt it had worsened. The reported asthma rating of the 12 participants who felt their children had stayed the same were compared with their “measure of change” scores. Adjustments were made for missing data. By combining the 2 groups that showed movement (scores of 1 or 2), it can be seen that 60% of this subset demonstrated an openness to consider use of nutritional supplements in the future even though they perceived no health benefits in their children from their participation in the glyconutritional trial (see Table 10).

Table 10.

<table>
<thead>
<tr>
<th>Measure of Use Scores (Placebo Subset Who Perceived No Change in Asthma)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use change score</td>
</tr>
<tr>
<td>-1</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>Missing Data</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Summary of Findings

The first analysis of the data for frequency and distribution demonstrated that 82% of surveys mailed were returned. Seventy-eight percent of those surveyed agree to participate. Participants were well distributed among the original study groups.

The first research question, did mothers of children with asthma involved in a nutritional supplementation trial perceive the characteristics of therapeutic alliance in relationship with the research nurse, was answered very affirmatively. The vast majority of mothers perceived characteristics of therapeutic alliance frequently in their relationship.
with the research nurse during their child’s involvement in a 6-month glyconutritional asthma trial.

Analysis of intake questionnaires from the previous glyconutritional asthma study demonstrated that 14.1% of respondents had used a CAT in the past for their children with asthma while 85.9% had not. Analysis of exit questionnaires demonstrated that greater than 60% of respondents would consider using a nutritional supplement as a CAT in the future as a result of being involved in the trial. Twenty-seven percent of participants demonstrated minimum change scores (from “no” to “maybe”) and 50.8% of participants demonstrated maximum change scores (from “no” to “yes”). A combined 77.8% of participants indicated positive change scores toward openness to consider using a nutritional supplement as a CAT in the future.

A Spearman’s correlation of variables, evaluated at a .05 significance level, demonstrated a coefficient of .164, which failed to elucidate a relationship between therapeutic alliance and openness to use a nutritional supplement as a CAT in the future.

An additional analysis of the placebo group demonstrated that although 68.4% of them had not perceived improvements in their child’s asthma, 60% of this group still demonstrated change in openness to consider use of nutritional supplementation in the future for their children with asthma.
CHAPTER 5
DISCUSSION AND IMPLICATIONS

Discussion

The first purpose of this research study was to explore the characteristics of the nurse-client relationship. The KAS was used to help in this exploration. The KAS demonstrated strong reliability as a whole in this sample with an alpha of .937. The fact that the individual domains did not score high on reliability may be due in part to the limited number of items retained on the survey to address them. Integration with a reliability score of .699 was only addressed in 5 out of the 30 items and empowerment, with a score of .661 was only addressed in 6 out of 30 items. A second reason why these domains tested out lower in this sample was the fact that they related to perceptions of autonomy and empowerment in regards to health care decisions. The rigidity required in maintaining controls and compliance with protocol in a research trial may have impinged on this sample's perceptions of integration and empowerment. The survey contained questions like, "I feel my provider supports my point of view", which was an integration item, or "I am free to refuse my provider's recommendations", which was an empowerment item. Items like these in the context of a research study may very well have impacted the score on these domains in this sample.

This study sought to determine if the mothers whose children were involved in a 6-month glyconutritional trial experienced the characteristics of therapeutic alliance in relationship with the research nurse. This investigation clearly demonstrated that the
majority of mothers perceived the characteristics of therapeutic alliance “most” of the
time. High scores of therapeutic alliance, high levels of study participation, and a large
percentage of measurable change scores were all identified in this study. One
interpretation of these observations is that the research nurse role and relationship factors
within that role may be very influential in the overall outcome of research trials. The
small amount of variance and strength of therapeutic alliance scores was somewhat
surprising. A research nurse is generally not thought of a having high degrees of
attachment with study participants and is not providing direct “patient care”. The
restraints on autonomy and empowerment as noted were expected to negatively impact
perceptions of therapeutic alliance. These high therapeutic alliance scores raise some
interesting questions and points to a need for further research into the role of the research
nurse, characteristics of the relationships that ensue between research nurses and study
participants and the impact of nurse-client relationships in supportive-educative nursing
systems. A brief literature search indicated that the role of the research nurse has not been
evaluated for its significance on outcomes of research trials. As was noted in the
introduction, therapeutic alliance has aspects of both mutuality and empowerment built
into its 4 domains. Limited research has supported the positive effects on patient
outcomes that have been realized by nurse-client relationships that focus on mutuality
and empowerment (Anderson et al., 1995; Falk-Rafael, 2001; Jerzak, 2001; Kim et al.,
2001; Ramos, 1992).

The second purpose of this study was to determine if the dimensions of
therapeutic alliance perceived by mothers of children with asthma involved in a
glyconutritional asthma trial correlated with the development of openness to use CAT,
namely nutritional supplements, as dependent care strategies in the future. The high scores of therapeutic alliance, high levels of study participation, and large percentage of measurable change scores would seem to point to the influence of the nurse-client relationship that transpired during the glyconutritional asthma study. It is merely conjecture at this point to conclude that the relationship of the research nurse with mothers of study participants was responsible for these high levels of compliance, participation, and change in openness to use nutritional supplementation. This relationship was not supported by the data (p = .164) A lack of demonstrable correlation can be explained in part by the large degree of skewedness of both variables and small degree of variance in alliance scores (mean = 112 with a SD of use 7.25) The high scores of therapeutic alliance and high percentage of mothers with measurable change is very positive even though correlations were not established. This lack of correlation did not lead this researcher to conclude that a correlation does not exist or that characteristics of the nurse-client relationship are not influential in supporting the development of dependent care agency. Participants in the glyconutritional asthma study did demonstrate a high level of compliance and high completion rate. The comparison of intake and exit questionnaires did elucidate an increased openness to consider use of nutritional supplementation as dependent-care strategies in the future. This would seem to indicate an increased openness to developing dependent-care agency in the area of use of CAT. Further testing, using better measurement tools, to assess for the relationship between therapeutic alliance and the development of DCA in the area of CAT is warranted. Conducting a similar study in different populations with more ethnic, educational, and economic diversity would be of value in investigating correlations.
The fact that a high percentage of mothers (77.8%) are open to considering nutritional supplementation in the future is a very positive finding in its own right. One of the underlying purposes of this researcher in conducting both the glyconutritional asthma study and this correlational study was to assist in validating CAT, in this instance glyconutritional supplements, as acceptable self-care and dependent-care modalities. Much apprehension still exists among health care providers and the general public toward the use of CAT as self-care strategies. Another underlying purpose of the current study was to begin to evaluate how nurses can support the development of self-care agency and/or dependent-care agency in clients interested in incorporating CAT as self-care or dependent-care strategies. Loreno and Drick (1990) state, “nurses hold much of the responsibility for providing consumers with the knowledge and skills necessary to promote self-care” (p. 79). This includes knowledge and skills for the development of traditional self-care health promotion strategies, as well as self-care strategies that incorporate CAT. Nurses can and should support the development of autonomous health behaviors that incorporate CAT. A supportive-educative system is certainly needed, however, the desire to remain autonomous and empowered noted in individuals who use CAT (Braun et al., 2000; Ness et al., 1999, Spigelblatt et al., 1994; Weeks, 1998) requires that the nurse-client relationship support autonomy and empowerment in this population. A focus on therapeutic alliance in nurse-client relationships is important in most supportive-educative nursing systems. It would be especially important to focus on therapeutic alliance when working with clients who are interested in developing their self-care or dependent-care agency in the area of CAT.
Limitations of Study

There were a number of limitations in this study. The first and foremost was that this study was adjunct to the larger glyconutritional asthma study and used retrospective data collected for the glyconutrient asthma study. As such, it did not allow for a well-controlled study. While use of this sample was readily available and provided for good “pre” and “post” evaluation of CAT usage, there were also some drawbacks. Questions on the intake and exit questionnaires, though helpful, could have been worded more specifically for this study had they been designed specifically for this investigation. The question on the intake questionnaire asked about past use of “alternative medicine therapies”. The exit questionnaire asked about using “supplements as a complementary therapy in the future”. The use of similar but different terms was confusing and did not allow for adequate comparisons between intake and exit questionnaires. These terms, alternative medicine therapies and complementary therapy, were never defined for the participants. Using consistent wording and defining terms would have allowed for truer comparisons between intake and exit questionnaires. It was felt by this researcher that answers about CAT usage, in a survey designed and circulated after participation in the glyconutritional study may be quite different from those obtained before participation in the study. Also, this sample had been surveyed repeatedly during participation in the original trial and it was felt that the rate of participation would have been lower in this already small sample if they were asked to do complete new surveys.

Use of the KAS, although beneficial for this investigation, provided some limitations. It is a fairly new tool and as such has not been validated for reliability in different populations. The researcher had to spell out to would be participants, in the
letter, of invitation that the research nurse should be viewed as their “provider” and that they and their child should be viewed as the unit receiving care. It was hard for some of them to conceptualize the research nurse as their provider as acknowledged by some comments on the returned surveys. Some of the items from different domains of the KAS did not fit the research setting well. The small number of items in each domain and the need to include all of the domains to achieve reliability prevented the separation of domains for separate analysis of the domains this study. This tool had only been tested in a sample of nurses to date before this study. The instrument needs to be evaluated in other populations to verify its reliability.

Another limitation was the fact that the researcher was involved with this sample as both provider and observer. This allowed for some measure of bias. The majority of mothers were in the same age group and race as the researcher. The research nurse has 2 children with asthma and shared this fact and experiences they had undergone with participant mothers. This may also have allowed for more connectedness of this researcher with this sample.

The fact that there were no demographic data collected on this sample was another limitation of this study. It is known that the vast majority of these mothers were Caucasian and fell between the ages of 30-50. It is not known if educational or socio-economic level impacted the results in this study. As a result findings of therapeutic alliance in this sample cannot be generalized to other populations of mixed ethnicity or varying socio-economic and educational levels without further testing.

Yet another issue was the data and procedures used to correlate change of use scores. The question used from the exit questionnaire read: Based on your participation in
the glyconutrient Asthma Study would you consider including supplements as a complementary therapy in the future? Since many of the mothers (32.1%) had responded on the intake questionnaire that they were “interested but apprehensive” it is hard to know if they had been considering use in the past, and how much real change in openness was realized. There may have been several explanations for the high “measure of change” scores. One reason for increased openness may have been time period of study. The influence of nutrition and supplementation on health promotion has been publicized more over the 2 years since the beginning of the glyconutritional asthma study. Interest in nutrition and supplementation may have increased as a result of being in the study and acquiring more information about nutritional supplementation. One has to wonder also how much effect perceived approval from health care providers had on participants’ openness to consider supplementation in the future. The asthma nutritional study was reviewed and approved by the review board of a large midwestern health care organization. Initial letters on invitation were mailed on the participating pulmonologists’ letterhead. Many mothers also reported having shared the news of their child’s participation with their pediatrician and having received positive reinforcement for this participation. Further investigation would be required to help shed light on all the factors that contributed to change in openness.

Applications to Practice, Education, Nursing Systems and Research

The findings from this study provide numerous applications and areas for further thought and endeavor. Orem and her colleagues have not gone far enough in identifying the defining characteristics of an ideal “nurse-patient interaction” and have not identified or developed instruments for measuring these characteristics. Further studies are needed.
to identify and evaluate the characteristics of the nurse-client relationship, within supportive-educative nursing systems, which enhance the development of self-care agency and dependent-care agency. Focus should be placed on not just the acquisition of skills required for nursing but also on relationship attributes that promote the role and outcomes of nursing care. This focus on relationship attributes should be incorporated at all levels of nursing, from the introduction to nursing at the educational level to the development of nursing systems by expert nurses. The KAS, with the dimensions of communication, collaboration, integration, and empowerment has captured the relational characteristics that encourage “reciprocal action and influence” and provides a reliable tool for measurement of the nurse-client relationship. The use of the KAS in further studies to establish the importance of therapeutic alliance in nurse-client interactions is recommended. As the KAS is still a relatively new tool, further testing for reliability and validity in various populations is warranted.

The promotion and support of SCA and DCA is viewed by Orem (1995) as the goal of nursing. Further study is needed to elucidate links between nurse-client relationships and the development SCA and DCA. CAT use is increasing rapidly in this country. The use change scores evaluated in this study support the conclusions of Spigelblatt et al. (1994) that CAT use is trickling down to the pediatric population.

The numbers of individuals utilizing CAT and the amount of money expended on such therapies would indicate a significant percentage of the population who pursue self-care through use of these modalities. Autonomous health behaviors, as noted in the introduction are self-care behaviors that incorporate traditional health promotion strategies and CAT. Health-care providers need to acknowledge and support autonomous
health behaviors as appropriate self-care measures. Health-care systems need to acknowledge the widespread use of CAT for health promotion and develop health promotion strategies that incorporate CAT. Nursing has been identified as the best discipline to develop and implement these health-care systems. Unfortunately, studies indicate that at this time nursing as a whole is not well prepared to provide leadership in this paradigm (Hayes & Alexander, 2000; Brolinson, Price, Ditmyer, & Reis, 2001). Cole & Eamon (1998) criticize advance practice nurses who enter the current medical paradigm as "junior doctors" and forsake their philosophical underpinnings. They acknowledge the similarities in philosophies and approach to health care that exist between nursing and CAT and expound on the need for nursing leadership in developing health-care systems that incorporate CAT. Their convincing argument describes the need for nurses to embrace their core philosophies of holism and patient centeredness and advance their scope of practice by providing leadership in the evolving CAT paradigm.

Summary and Conclusions

The KAS, with an alpha coefficient of .937, is a reliable tool for evaluating characteristics of the nurse-client relationship. Participants in this study scored very high on therapeutic alliance. Nurse-client relationships that demonstrate a therapeutic alliance may positively impact treatment outcomes. The role of the research nurse in relationship with study participants needs to be evaluated for its impact on outcomes of trials. A correlation was not established between therapeutic alliance and openness to use CAT. More research is needed to establish links between therapeutic alliance and the use of CAT for the development of DCA. Nursing systems need to be developed to support the use of CAT as self-care strategies. Orem's SCDT provides a framework for research in
the area of nursing systems that incorporate CAT as self-care and dependent care strategies.
APPENDIX A

MEASUREMENT TOOLS
**APPENDIX A**

Measurement Tools

**KIM ALLIANCE SCALE**

*(KAS)*

Instructions: You are being asked to rate the quality of therapeutic alliance between you and your provider. There are no right or wrong answers. Please read each statement and give the answer that best fits you. Please circle one of the numbers.

Never = 1  Rarely = 2  Sometimes = 3  Always = 4

<table>
<thead>
<tr>
<th>Statement</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. My provider and I work well together.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. Plain language is used by my provider.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. I have a good rapport with my provider.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. I do what my provider and I have agreed.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. I am allowed in the decision-making process.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6. I feel my provider criticizes me too much.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7. My provider spends lots of time educating me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8. I can express negative feelings freely.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9. I make suggestions on what works best for me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10. I have an active partnership with my provider.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11. My provider listens to me without judgement.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12. My provider respects me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>13. I and my provider have the same goals.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>14. I feel my provider gives me enough information.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>15. I respect my provider.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>16. I participate in establishing goals.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>17. I am committed to reach the goals.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>18. We have mutual goals for the care of my child.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>19. I feel involved in my child’s health care.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>20. My provider weighs my suggestions as equal to his/hers.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>21. I feel my provider does not listen to me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>22. My provider respects my wishes.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>23. I am free to refuse my provider’s recommendations.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>24. My provider does not allow me to state my opinion.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>25. I cannot really care for my child’s health.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>26. It is easy to understand my provider’s instructions.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>27. My provider encourages me to make decisions.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>28. I feel my provider supports my point of view.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>29. My provider gives me positive feedback.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>30. I am able to talk to my provider about anything.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
INTAKE QUESTIONNAIRE PARENTAL RESPONSE
GLYCONUTRIENT /ASTHMA STUDY

Patient Name______________________Patient Initials______________________
Parent Name(s)________________________________________________________
Address________________________________ Home Phone: ______________________
Work Phone: ______________________
E-mail address __________________________________________________________
Age _______Date of Birth: ____________ Sex M F Ht.________ Wt.________
Primary Physician: ______________________ Phone #: ______________________
Asthma Specialist: ______________________ Date of last appointment______________
Age/Date diagnosed with Asthma: __________ Next scheduled Appointment__________
Does your child have asthma symptoms Daily? __ Weekly? __ Monthly? __
Seasonally? __ Occasionally? __
How would you classify your child’s asthma? Mild____ Moderate ____ Severe____
Does your child also have allergies? ______________________
Has your child had allergy testing done? ______ When? __________
By whom? _____________________________
Has your child been diagnosed with allergic rhinitis? Y N When? ______
Is your child allergic to any medications? _____ If so which ones? _________
Is your child able to do peak flows? ________What is your child’s normal peak flow
reading? __
How often does your child do peak flows? ___________
Does your child have any other medical conditions besides asthma? ______________
If so what other conditions?
Has your child been hospitalized with asthma in the last year? ________________
If so, how many times? ______________________
When was the last time? ______________________
Has your child ever been treated in the ER for asthma? _________________
If so, when was the last time? ______________________

Patient Initials__________
Is your child able to swallow medications? __________

What medications is your child presently taking on a daily basis?

________________________________________________________

________________________________________________________

What rescue medications or intermittent medications does your child use?

________________________________________________________

________________________________________________________

Is your child allergic to any foods? ____ If so which foods is he/she allergic to?

________________________________________________________

Is your child currently taking any over the counter herbal preparations, vitamins, or other nutritional supplements? ______
If so what-brand names and amounts?

________________________________________________________

________________________________________________________

Are you willing to discontinue these if requested to during the study period?

________

Are you currently or have you in the past used any other alternative medicine therapies?
If so what and for how long? ________________________________

________________________________________________________

What prompted you to try an alternative therapy in the past? The recommendation of a friend/loved one ____ Literature that you read ____ Other (please explain)________

________________________________________________________

Was the alternative therapy effective and how did you evaluate it?

________________________________________________________

Patient initials __________
Did your child experience any adverse reactions as the result of using an alternative therapy? ______ If yes, please explain _______________________________________

If you have not used alternative therapies, why not? Interested but apprehensive_____
Not interested____ Other (please explain)______________________________________

What prompted you to consider enrolling in this study? The recommendation of a friend/loved one ____ Recommendation of your Health Care Professional Team_____
Literature that you read _____ Other (please explain)_________

Is your child currently enrolled in any other research study? ______

Name of person completing this questionnaire __________________________________
Your relationship to child? _________________ Date Questionnaire Completed ______
GLYCONUTRIENT/ASTHMA STUDY- EXIT QUESTIONNAIRE

Patient Name________________________ Patient Initials_________

Patient ID _______ Patient Supplement Number __________

Name of person completing questionnaire________________________

Check Relationship to Patient: Mother ___ Father ___

• THIS IS THE FINAL PARENTAL FORM THAT NEEDS TO BE
  COMPLETED AT THE END OF YOUR CHILD’S PARTICIPATION IN THE
  GLYCONUTRIENT/ASTHMA STUDY!! AS WE WOULD LIKE THE INPUT
  OF BOTH PARENTS (IF APPROPRIATE), WE ARE INCLUDING TWO
  FORMS. THE COMPLETION OF THE 2ND FORM IS OPTIONAL,
  HOWEVER, WE MUST RECEIVE ONE FORM BACK FOR YOUR CHILD
  TO RECEIVE THEIR FINAL REIMBURSEMENT MONEY. PLEASE
  CIRCLE AND/OR WRITE YOUR ANSWER BELOW.

1. During the 6-MONTH study period, while your child was taking the
   supplement(s), did his/her asthma

   1) Improve
   2) Stay the same
   3) Get worse

   COMMENTS

   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________

2. During the 6-MONTH study period, while your child was taking the
   supplement(s), did his/her allergies

   1) Improve
   2) Stay the same
   3) Get worse

   COMMENTS

   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
3. During the 6-MONTH study period, while your child was taking the supplement(s), did his/her behavior(s)
   1) Improve
   2) Stay the same
   3) Get worse
   COMMENTS

4. Over the course of the 6-month study period, as compared to his/her normal asthma/allergies pattern, did your child’s use of rescue medications
   1) Increase
   2) Decrease
   3) Stay the Same
   COMMENTS

5. Over the course of the 6-month study period, compared to their previous history of antibiotic use, did your child require more or less courses of antibiotics?
   1) More
   2) Less
   3) Same
   COMMENTS

6. Over the course of the 6-month study period, as compared to their previous history, did the frequency of doctor’s office visits
   1) Increase
   2) Decrease
   3) Stay the same
7. Please list any other observations or changes in your child's health or daily life patterns you noted over the course of the 6-month study period.

8. Please circle which supplement you believe your child was taking during the last 6 months
   1) Placebo (Inactive Supplement)
   2) Antioxidant fruits and vegetables
   3) Sugars
   4) Sugars plus Antioxidant fruits and vegetables
   5) Antioxidant fruits and vegetables plus Placebo (Inactive Supplement)
   6) Sugars plus Placebo (Inactive Supplement)
   7) None of the above

9. How did you determine which supplement he/she was taking?

10. What prompted you to consider enrolling in this study?
    1) The recommendation of a friend/loved one
    2) Recommendation of your Health Care professional
    3) Literature that you read
    4) Information provided by the Glyconutrient-Asthma Research Team
    5) Other (Please explain)
11. Had you given your child food supplements or alternative therapies to control his/her asthma prior to the time he/she enrolled in this study? YES NO If YES what and for how long?

12. If you had not used alternative therapies, why not?
   1) Interested but Apprehensive
   2) Not interested
   3) Other (Please explain)

13. What prompted you to try an alternative therapy in the past?
   1) The recommendation of a friend/loved one
   2) Literature that you read
   3) Other (Please explain)

14. Was the alternative therapy used in the past effective and how did you evaluate it?

15. Based on your participation with the Glyconutrient Asthma Study would you consider including supplements as a complementary therapy in the future?
   1) Yes
   2) No
   3) Maybe

COMMENTS
APPENDIX B

LETTERS OF INVITATION
APPENDIX B

Letters of Invitation

Dear Mothers of G/N Asthma Study Participants,

First of all let me thank you once again for helping to complete the Glyconutritional Asthma Study. Our data has all been entered into a database and we are working on analyzing the results. We hope to have the preliminary analysis done by September. You will be informed of the findings as soon as we have them available.

I mentioned to several of you that I am working on my masters of nursing degree and would be using part of the study for my master’s thesis. Hence, the purpose of this letter. My master’s thesis is examining the impact of relationships between a nurse and her clients. I am interested in your perceptions of the interactions you and I had over the course of your participation in the asthma study. I am asking that you complete a survey that will ask questions about the relationship between a provider and client. The survey was developed by a nurse to evaluate clients’ opinions of their interactions with their provider. Each question has four choices ranging from never to always. For the purpose of this study I (Mary) should be viewed as the provider (not your pediatrician or pulmonologist) and you and your child should be viewed as the one receiving care. The number at the top of the survey is the group number that your child was in so that I can compare results across the supplement groups. You do not need to provide your name. Your responses will be anonymous so you can feel free to be completely honest. You may provide any additional comments in the space provided at the bottom of the page. If you are willing to be contacted for an additional interview please provide your name and number at the bottom of the survey. I may or may not contact you.

I realize you completed numerous forms already to complete the asthma study but I would ask that you take a few minutes and complete this short survey as well. It should take 5-10 minutes to complete. I have enclosed a self addressed stamped envelope and would ask that you return the completed survey promptly. Completion and return of the survey will serve as your implied consent to participate in this study.

If you have any questions about the survey please do not hesitate to call me at 616-677-3783.

Thank you for your willingness to help me complete my thesis. I hope to graduate in December of this year!

Mary VanderWal BS, RN
P.S. Please return this survey promptly.
Dear Mother of G/N Asthma Study Participant,

In late November I asked you to consider completing a questionnaire for use in my Master’s thesis. To date I have not received your response. Since the data must be returned and analyzed within a tight time frame I have enclosed another copy of the questionnaire and another self-addressed envelope. Will you please complete the questionnaire and return as soon as possible. If you decide not to complete the questionnaire please return the blank questionnaire in the enclosed envelope. If you have already returned the questionnaire and I just haven’t received it yet—thankyou.

My Master’s thesis is examining the impact of relationships between a nurse and her clients. I am looking at mothers’ perceptions of the interactions we had over the course of your participation in the asthma study. If you agree to participate I am asking that you complete a survey that asks questions about the relationship between a provider and client. It should only take 5-10 minutes to complete the survey. The survey was developed by a nurse to evaluate clients’ opinions of their interactions with their provider. Each question has four choices ranging from never to always. For the purpose of this study I (Mary) should be viewed as the provider (not your pediatrician or pulmonologist) and you and your child should be viewed as the one receiving care, i.e. the client.

At the top of your survey you will see 2 hand written numbers. The assigned code number is written and circled in red ink in the upper right hand corner of the survey. A research assistant assigned this coded number so that I will not know who responded to the survey and their responses. These numbers will allow for the comparison of intake and exit questionnaires to this survey’s responses. I will not have access to the code. The coded number system will be kept locked and be destroyed at the conclusion of data analysis. You do not need to provide your name. Your responses will be kept anonymous so you can be completely honest in your responses. Your child’s supplement group number is written in red ink under the code number in the upper right hand corner. This number allows me to compare results across the different supplement groups. You may provide any additional comments in the space provided at the bottom of the page.

You have completed numerous forms during the asthma study but I am asking, if you are willing, to take a few minutes and complete this short survey as well. There is no direct benefit to you in completing this survey but the information gained may help to enhance relationships between providers and their clients. There is no known risk to participation in this study. Enclosed is a self addressed stamped envelope and I would ask that you return the completed survey promptly if you agree to participate. If you choose not to participate, please return the blank survey in the enclosed envelop. Completion and
return of the survey will serve as your implied consent to participate in this study. Please return the survey by December 12, 2002 if you fill it out or not.

You are free to decide not to participate in this study or to withdraw at any time without adversely affecting your relationship with this investigator, Grand Valley State University, or Spectrum Health. Your decision will not result in any loss of benefits to which you are otherwise entitled.

If you have any questions about the survey please do not hesitate to call me at 616-677-3783 or Dr. Patricia Schafer, Ph. D. at 616-336-7166. Should you have any questions regarding your rights as a participant, you may call the Grand Valley State University Human Research Review Committee’s representative, Professor Paul A. Huizenga at the following number: (616) 895-2472 or the Spectrum Health Human Right’s Committee representative, Linda Pool, at the following number: (616) 391-1291 or 391-1299.

Thank you for your willingness to participate in this study.

Sincerely,

Mary VanderWal BS, RN
APPENDIX C

LETTERS OF APPROVAL FOR STUDY
November 21, 2002

Mary VanderWal
13712 Thirty-second Ave.
Marne, Mi 49435

RE: Proposal #03-104-H Dear Mary:
The Human Research Review Committee of Grand Valley State University is charged to examine proposals with respect to protection of human subjects. The Committee has considered your proposal entitled Evaluation of Empowerment, Mutuality and Self-Care in the Context of Complementary, Alternative Therapy Utilization and is satisfied that you have complied with the intent of the regulations published in the Federal Register 46(16)8386-8392, January 26, 1981.

Sincerely,

Paul Huizenga, Chair
Human Research Review Committee
November 22, 2002

Mary Vanderwal
13712 SP Ave
Marne, MI 49435

Dear Ms. Vanderwal,

By means of the expedited review process your project entitled, "Examination of Empowerment, Mutuality and Self-Care in the Context of Complementary and Alternative Therapy Utilization by Mothers for their Children with Asthma," protocol dated 11/15/2002 was given approval by the Spectrum Health Research and Human Rights Committee. Any changes made to the study, including informed consent changes, following this approval, require submission in writing and approval of the Committee before the changes are implemented. The Spectrum Health number assigned to your study is 2002-170. Please use this number as a reference in all correspondence with the Research Office.

This approval does not include the awarding of any monies for your study.

Please be advised that any unexpected serious, adverse reactions must be promptly reported to the Research and Human Rights Committee within five days—any changes made to the study after initiation require prior approval of the Research and Human Rights Committee before changes are implemented.

The Research and Human Rights Committee and the FDA require you submit in writing, a progress report to the committee by October 1, 2003, and you will need reapproval should your study be ongoing at that time.

If you have any questions please phone me or Linda Pool at 391-1291/1299.

Sincerely,

Jeffrey S. Jones, MD.
Chairman, Spectrum Health Research and Human Rights Committee

JSJ/jld
cc File
APPENDIX D

LETTERS OF CONSENT TO USE INSTRUMENTS
APPENDIX D

Letters of Consent to Use Instruments

Mary VanderWal, BS, RN
13712nd Ave
Marne, MI 49435
616-677-3644

Dear Mary--

Thank you for your interest in using the Kim Alliance Scale (KAS) in your research project. I am enclosing a copy of the Kim Alliance Scale for your review. If you decide to use this instrument for your research, please sign at the bottom of this letter, agreeing with the following conditions and return a copy back to me. I would like to have the data derived from your own research after the completion.

Conditions for use of KAS
1. KAS may be used for your study only and cannot be sold or transferred to any other entity.
2. You must have a written permission from Son Chae Kim to publish all or any part of the KAS, in academic journals or other publications.

Please indicate your agreement with the terms stated above by countersigning below and returning one copy of this letter.

Sincerely,

Son Chae Kim, PhD, RN
Associate Professor
Department of Nursing
Point Loma Nazarene University
3900 Lomaland Dr
San Diego CA 92106
619-849-7146
E-mail: sokim@ptloma.edu

Signature. (Please print your name after the signature)
October 28, 2002

TO WHOM IT MAY CONCERN, This letter authorizes Mary VanderWal to have complete and total access to all data generated in our research studies entitled **Evaluation of the Potential Efficacy of Glyconutrient and Phytonutrient Supplementation in the Clinical Management of Asthma and Evaluation of the Potential Efficacy of Glyconutrient and Phytonutrient Supplementation in the Clinical Management of Asthma: Placebo Replacement Study.** If you have any questions concerning this matter please call me at 616-895-2546. Sincerely,

C. E. Pippenger, Ph.D.

Peter C. and Pat Cook Research Professor

Department of Biomedical and Health Sciences
LIST OF REFERENCES


