

DEVELOPMENT AND PSYCHOMETRIC CHARACTERISTICS
OF THE SPIRITUALITY ASSESSMENT SCALE

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BY

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ABSTRACT

DEVELOPMENT AND PSYCHOMETRIC CHARACTERISTICS OF THE SPIRITUALITY ASSESSMENT SCALE

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Nurses consider spirituality as a factor that may influence an individual's health and/or response to illness, death and dying. The need in nursing for an instrument to assess an individual's spirituality was the problem addressed by this study.

The conceptual framework for the research study was developed around four general themes of identified attributes of spirituality derived from a review of the literature: Unifying Interconnectedness, Innerness or Inner Resources, Purpose and Meaning in Life, and Transcendence. The themes were represented as four concepts in a developed model that guided development of the Spirituality Assessment Scale (SAS).

Psychometric evaluation of the 36-item instrument was conducted following investigation of content validity and a subsequent pilot study. A convenience sample of 189 adults between the ages of 40 and 60 years residing in a large metroplex and 50-mile radius area participated in the study. Participants were recruited from civic and social organizations and a recreational center. All responses were voluntary and anonymous.

Data were analyzed using Cronbach's coefficient alpha, Pearson product-moment correlation and exploratory principal components factor analysis. The findings resulted in a final revised instrument with 28 items. Alpha coefficients for the 28-item total instrument was 0.9164. Alpha coefficients for the subscales were: Purpose or Meaning, 0.9117; Innerness, 0.7944; Interconnectedness, 0.8017; and Transcendence, 0.7091. Most item-to-total correlations ranged from 0.30 to 0.70. Seventy percent of inter-item correlations ranged from 0.30 to 0.70. Fifty percent of item-subscale correlations ranged from 0.50 to 0.70. Two thirds (66%) of subscale-subscale correlations ranged from 0.55 to 0.70.

Exploratory factor analysis yielded six factors with four or more items each loading at 0.40 or higher. The Innerness and Interconnectedness subscales produced two factors each with conceptual congruency evident in the "split" factors. The findings of factor analysis supported the four concepts in the researcher's theoretical model of spirituality. External validity of the study was assessed through theoretically predicted relationships between SAS and select variables and provided mixed results. One predicted relationship was supported and two were not. The study's findings provided beginning support for SAS as a reliable and valid measure of spirituality. A valid and reliable instrument can assist the study of spirituality, a basic human dimension. Assessment of spirituality and

possible relationships to health-related concerns could have significant impact for individuals and nursing practice.

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CHAPTER I

INTRODUCTION

The phenomenon of interest in this study was human spirituality, particularly as manifested in adults. The researcher, as a nurse, has witnessed marked differences in individual responses to devastating events such as illness, death and/or dying. Comments from fellow nurses as well as family and friends of individuals desperately ill have included: "He has a strong spirit...he will fight to make it" or "Her spirit is broken, she's giving up" or "She has such inner peace, even with all that has happened to her". These experiences have prompted the researcher to ponder: What is the human spirit? How is the spirit expressed as spirituality? What does spirituality have to do with health? How does it relate to nursing?

As a profession concerned with individuals and their health, nursing has long taken pride in its "whole-person" approach to care. The person has come to be accepted as a composite being in which body, mind and spirit are the basic descriptors of the interrelated dimensions of the person (Dunn, 1961). A broad description of spirituality as a dimension of the person that is an integrating or unifying factor has been increasingly supported (Banks, Poehler & Russell, 1984; Burkhardt, 1991; Hover-Kramer, 1989; Hungelmann, Kenkel-Rossi, Klassen & Stollenwerk, 1985; Nagai-Jacobson

& Burkhardt, 1989). Spirituality also has increasingly been viewed as a vital component of the health of the person (Burkhardt, 1989; Carlyon, 1984; Hill & Smith, 1985; Nagai-Jacobson & Burkhardt, 1989). Several advocates of a holistic idea of health contend that health involves a unity or harmony in mind, body and spirit. A spiritual integration is seen as important with all healing, and no degree of body healing is considered effective if the spirit is not also healed (Mattson, 1982).

Florence Nightingale, considered the founder of modern nursing, referred to the human body as a temple of the spirit (Nightingale, 1981). Additionally, in summarizing a study of nurses' awareness of clients' spiritual needs, Highfield and Cason (1983) stated "We [nursing] cannot abdicate our responsibility for treating a person's spiritual needs to the chaplain, anymore than we can abdicate our responsibility for man's physical needs to the physician, or his psychosocial needs to the psychologist and social worker" (p. 191).

It was the aim of this study to contribute to the body of knowledge of nursing related to spirituality. Research dealing with spirituality is relevant to our time. Advances in technology, pharmaceuticals, and increased understanding of physiological and psychological factors have not accounted for all the influences on an individual's response to illness or health-related concerns, therefore, spirituality has been suggested as an additional

contributing variable (Burkhardt, 1991; Dossey, 1982, 1984; Siegel, 1986, 1989; Simonton, Matthews-Simonton & Creighton, 1978).

Despite the general acceptance in nursing of a spiritual dimension of the human being, there is only recent evidence of nursing research concerning this dimension. This research has begun to provide emerging commonalities and themes related to identified attributes or indicators of spirituality. There has been no evidence of an available instrument that encompasses the emerging attributes of spirituality. Therefore, the development of such an instrument was the end to which this study was directed.

Problem of Study

The desire to examine spirituality and the relationship it may have to an individual's health precipitated the focus of the present study. The identification of the attributes that individually, or collectively, represent an individual's spirituality and a corresponding reliable and valid measure of the identified attributes arose as a necessary first step to this end.

The problem addressed by this study was as follows: What are the attributes (variables) that represent an individual's spirituality and how might these attributes (variables) be measured?

Purpose of the Study

The purpose of this study was to develop, refine and psychometrically estimate the properties of the researcher-developed instrument, the Spirituality Assessment Scale (SAS). Further, in order to assess robustness or external validity of the study findings, relationships between SAS scores and select variables were theoretically hypothesized.

Rationale for the Study

The phenomenon of spirituality is an important concept for nursing to explore in relation to health and health care. Nursing authors have postulated that health is the unity of the body, mind and spirit, and a disruption or disturbance in one area will affect the others (Burkhardt, 1991; Nagai-Jacobson & Burkhardt, 1989; Stallwood, 1975; Stoll, 1979). The spiritual dimension, however, has only recently begun to be addressed in nursing research. Initially, a few nursing authors proposed theoretical frameworks for the spiritual dimension that served as useful guides for practice, but these have not been empirically examined (Burkhardt, 1989; Colliton, 1981; Fish & Shelly, 1983; Stallwood, 1975; Stoll, 1979).

A qualitative, grounded theory study of spiritual well-being in the elderly provided nursing with the first theory about spirituality based on research findings (Hungelmann, Kenkel-Rossi, Klassen & Stollenwerk, 1985). Several doctoral dissertations have provided qualitative studies of

spirituality (Barker, 1989; Burkhardt, 1991; Burns, 1989; Trice, 1985). The remaining research studies in nursing have looked at spirituality in relation to specific life events such as terminal illness, death, depression, or suffering (Carson, Winkelstein, Soeken & Brunins, 1986; Fehring, Brennan, & Keller, 1987; Francis, 1986; Highfield & Cason, 1983; Highfield, 1992; Reed, 1987; Sodestrom & Martinson, 1987). This research has provided some emerging commonalities and themes related to identified attributes or indicators of spirituality. These commonalities or themes were woven into the conceptual framework of this study. For this study, spirituality was defined as the dimension of one's being that is an integrating or unifying factor which is manifested through unifying interconnectedness, purpose and meaning in life, innerness or inner resources, and transcendence. A literature search revealed no available instrument for measuring spirituality as defined, confirming the need for a valid and reliable instrument consistent with the definition and related conceptual framework.

Such an instrument is essential to studying the relationship of spirituality to health and health-related concerns. If nursing truly accepts a whole person approach as a philosophical base of nursing, then the study of spirituality and corresponding relationships to health and health-related concerns is important for nursing theory and practice.

Conceptual Framework

The present study was guided by the Spirituality Model. The model was developed by the researcher through the processes of concept analysis, synthesis and derivation (Walker & Avant, 1988) as well as theory construction (Blalock, 1969). The development of the model included a preliminary step of reviewing the literature for relevant material regarding various conceptualizations of spirituality. Philosophy, psychology, sociology, theology, and nursing comprised the primary literature sources. From this endeavor, the concepts of the model were identified and theoretically described. The identified concepts are considered the critical attributes of spirituality.

Following these activities, observable indicators of the concepts were outlined following the guidelines for conceptual mapping described by Waltz, Strickland and Lenz (1984). Figure 1 presents the researcher's mapping of the attributes and indicators for spirituality. According to Waltz, Strickland and Lenz (1984), the conceptual map is "essentially a tool that organizes the meaning of the concept into a usable framework and helps to assure that critical elements are included in the definition" (p. 30). The activity leads to the selection of observable indicators for the concept guided by the theoretical definition, the map of the concept's meaning, and the variable dimensions that have been identified.




Figure 1
MAP OF THE ATTRIBUTES AND INDICATORS FOR SPIRITUALITY

CONCEPT	SPIRITUALITY			
CRITICAL ATTRIBUTES	PURPOSE AND MEANING IN LIFE	INNERNESS OR INNER RESOURCES	UNIFYING INTERCONNECTED-NESS	TRANSCENDENCE
INDICATORS	Expresses that life has meaning or purpose	Relies on inner strength & inner resources in times of crisis	Feeling of connection to all of life	Ability to achieve new perspectives
	Expresses reason for living	Expresses inner harmony or peace (balance)	Feeling of kinship with others	Experiences of rising above body changes or loss
	Expresses life is meaningful	Knows (can identify) inner strengths (awareness)	Desire to be of service to others	Capacity to extend self beyond usual contexts
	Expresses goals & aims	Expresses inner calmness or serenity	Seeks forgiveness and reconciliation	Experiences of rising above or going beyond psychological or physical conditions

(Figure continues)

CRITICAL ATTRIBUTES	PURPOSE AND MEANING IN LIFE	INNERNESS OR INNER RESOURCES	UNIFYING INTERCONNECTED- NESS	TRANSCENDENCE
INDICATORS, (continued)	Expresses fulfillment	Taps inner resources for coping	Feels responsibility for environmental preservation	Perceives environment as extending beyond spatial and temporal boundaries
	Values own life	Inner resources help in dealing with uncertainty in life	Feeling of oneness with universe and/or a universal element	Experiences of self healing
	Enjoys living	Positive self-concept and self esteem	Cultivates loving, supportive relationships	Belief in an ability for achieving self healing or wellness
	Looks forward to the future	Goes inside of self for guidance	Feeling of closeness to nature	
	Finds meaning as peace	Feels that knows self	Sense of belonging	

After the processes of concept analysis, synthesis and derivation (Walker & Avant, 1988) and conceptual mapping (Waltz, Strickland & Lenz, 1984) of observable indicators and dimensions for the variables identified as comprising spirituality, a model was constructed. The resulting conceptual model, presented in Figure 2, illustrates the concepts or variables and their relationships.

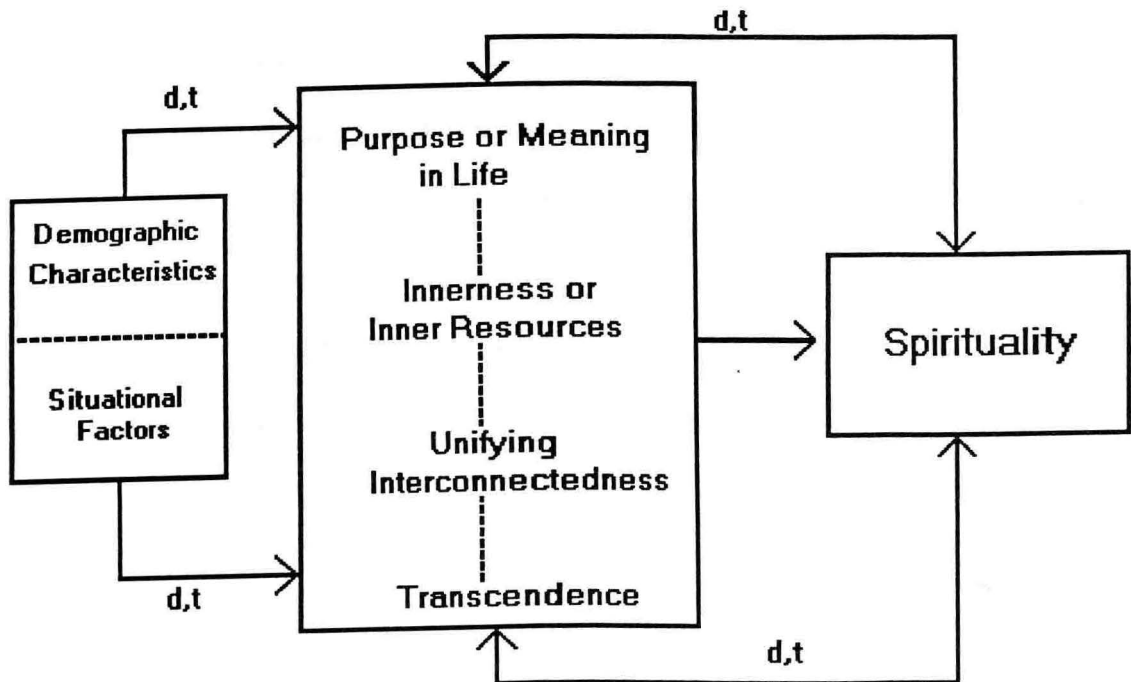
Concepts in the model include unifying interconnectedness, purpose and meaning in life, innerness or inner resources, and transcendence. The model depicts the conceptualized nature of the relationships among the concepts or variables. An explanation of the four major concepts or variables is necessary for a clear understanding of the model.

Unifying interconnectedness is defined as the feeling of relatedness or attachment to others, a sense of relationship to all of life, a feeling of harmony with self and others, and a feeling of oneness with the universe and/or a universal element or Supreme Being. The definition of unifying interconnectedness was drawn from the work of Hungelmann and others (1985) who coined the term "harmonious interconnectedness" in a phenomenologic study to describe spiritual well-being in persons 65 years of age and older. The term was coined to describe a concept which they believed exists throughout and beyond time and space.

Purpose and meaning in life is defined as the process of searching for or discovering events or relationships that provide a sense of worth, hope and/or reason for living/existence. The description of this concept is generally based on the work of Frankl (1962), a Jewish psychiatrist who survived a Nazi concentration camp in World War II. Frankl found that prisoners who could find a purpose or goal in life could survive. He theorized that when a person's striving for meaning is frustrated a neurosis pertaining to the spiritual core may develop. An outgrowth of his theory was the development of the psychiatric treatment modality, termed "logotherapy", which treated this spiritual neurosis.

Innerness, or inner resources, is defined as the process of striving for and/or discovering wholeness, identity, and a sense of empowerment. Innerness or inner resources are manifested in feelings of strength in times of crisis, calmness or serenity in dealing with uncertainty in life, guidance in living, being at peace with one's self and the world, and feelings of ability. The definition of innerness or inner resources came from the work of Vaughn (1986) who viewed spirituality as "radiating from an inner source" (p. 87); Sinnott (1969) who described the spirit as "a reservoir on which man may draw" (p. 358); and Burkhardt (1989) who described inner strength as including "one's inner resources, awareness, consciousness and sense of sacred source" (p. 72).

Figure 2

Conceptual Model of Spirituality

Transcendence is defined as the ability to reach or exceed the limits of usual experience; the capacity, willingness or experience of rising above or overcoming bodily or psychic conditions; or the capacity for achieving wellness and/or self-healing. The definition of transcendence was drawn from: (1) the work of Frankl (1962), who viewed transcendence as the ability to rise above inflictions of the body or psyche; (2) Jackson (1980) who viewed transcendence as the self going beyond itself; (3) Reed (1987) who described transcendence as "reflective of the human capacity to extend the self beyond common boundaries of the immediate context and achieve new perspectives and experiences" (p. 335); and, (4) Pilch (1981) who viewed wellness as a self-purposeful activity that could be motivated by spirituality.

The four major variables are viewed as being interrelated. Broken lines connect the four variables (concepts) to show interrelatedness. They are conceptualized as occurring in no particular sequential order, but rather are believed to covary with one another.

Variables conceptualized as influencing the four major variables are believed to fall into the two categories of demographic characteristics and situational factors. Demographic characteristics thought to influence the four major variables (and ultimately spirituality) include age, gender, marital status, and income. Situational factors considered to influence the

four major variables (and ultimately spirituality) include the experience of a crisis event and possibly state of health.

Relationships in the model are depicted by solid lines and by arrows indicating the direction of the relationships. Testing of the conceptual model only has meaning after estimates of reliability and validity of the Spirituality Assessment Scale (SAS) are shown to be adequate.

The goal of the present study was to develop, refine and psychometrically evaluate an instrument to measure spirituality. The concepts (variables) and the relationships identified in the model served as the framework for the writing of items as well as the evaluation of the instrument's validity. Nunnally (1978) asserts that instrument development does not examine each relationship in the conceptual framework, but rather postulates that the relationships among the identified concepts (or attributes) together represent the theoretical construct.

Assumptions

The following assumptions are recognized for this study:

1. All humans possess a spiritual dimension, and are therefore capable of spirituality.
2. Spirituality can be measured.
3. A score on the proposed instrument can quantitatively represent the degree of spirituality present in an individual.

4. An individual's self report of behavior and attitudes can accurately reflect spirituality.

Hypotheses

Research hypotheses for this study fall into the two categories of reliability and validity assessments and are as follows:

1. The internal consistency reliability coefficient for the Spirituality Assessment Scale (SAS) is greater than or equal to 0.7.
2. Unifying interconnectedness, purpose and meaning in life, innerness or inner resources, and transcendence are dimensions of the phenomenon of spirituality.
3. There is a significant ($p \leq .01$) positive relationship between total Spirituality Assessment Scale (SAS) scores and the recent (within the past year) experience of a crisis event.
4. There is no significant ($p \leq .01$) relationship between total SAS scores and religiousness.
5. There is no significant ($p \leq .01$) relationship between total SAS scores and frequency of attendance at religious events.

Definition of Terms

For the purposes of this study, terms were defined as follows:

Spirituality - is the dimension of one's being that is an integrating or unifying factor which is manifested through unifying interconnectedness, purpose and meaning in life, innerness or inner resources, and transcendence. Spirituality was operationalized as scores on the Spirituality Assessment Scale (SAS).

Unifying Interconnectedness - was defined as the feeling of relatedness or attachment to others, a sense of relationship to all of life, a feeling of harmony with self and others, and a feeling of oneness with the universe and/or a universal element or Universal Being. Unifying interconnectedness was operationalized as the unifying interconnectedness subscale of the Spirituality Assessment Scale (SAS).

Purpose and Meaning in Life - was defined as the process of searching for or discovering events or relationships that provide a sense of worth, hope, and/or reason for living/existence. Purpose and meaning in life was operationalized as the purpose and meaning in life subscale of the Spirituality Assessment Scale (SAS).

Innerness or Inner Resources - was defined as the process of striving for or discovering wholeness, identity and a sense of empowerment. Innerness or inner resources are manifested in feelings of strength in times

of crisis, calmness or serenity in dealing with uncertainty in life, guidance in living, being at peace with one's self and the world, and feelings of ability. Innerness or inner resources was operationalized as the innerness or inner resources subscale of the Spirituality Assessment Scale (SAS).

Transcendence - was defined as the ability to reach or go beyond the limits of usual experience; the capacity, willingness, or experience of rising above or overcoming bodily or psychic conditions; or the capacity for achieving wellness and/or self-healing. Transcendence was operationalized as the transcendence subscale of the Spirituality Assessment Scale (SAS).

Limitations

The following limitations were identified as potentially affecting the conclusions of this study:

1. Reliability in the study was limited to the assessment of internal consistency.
2. Although the Spirituality Assessment Scale (SAS) was designed to measure Spirituality in adults, the sample only allowed for generalization of the findings to the population from which the sample was drawn.
3. The results were limited to the degree to which subjects were truthful in their self-report responses.

Summary

Chapter one introduced spirituality as an important concept for study in nursing. A conceptual framework presenting four attributes of spirituality was outlined. Further, a conceptual map of the four attributes developed by the researcher was displayed. Additionally, a need for a valid and reliable measure of spirituality consistent with the conceptual framework was supported. The development and psychometric assessment of an instrument to measure spirituality was presented as the purpose of the study. Finally, the assumptions, hypotheses and limitations of the study were enumerated.

CHAPTER II

REVIEW OF LITERATURE

Spirituality as addressed in the literature can be divided into three general areas: theoretical literature, qualitative research and quantitative research. Philosophy, psychology, sociology, theology and nursing comprised the primary literature sources searched as the background for this study. Spirituality, until very recently, was often considered to be synonymous with religion. In much of the literature reviewed, although spirituality often appeared in the title or was identified as the focus of the study, most articles focused on religious belief, religious practice, or religious perspective. Recently, there has been a growing tendency to view spirituality as an inherent human dimension which may or may not be expressed by the individual through religious belief, religious practice, or religious perspective. Therefore, the utilization of the literature which reflects a broader view of spirituality was judged to be the most relevant as a basis for this study.

In keeping with the instrument development focus of this study, the literature was approached with the purpose of identifying themes or commonalities in ideas or notions about spirituality. The ultimate goal was to identify attributes or indicators of spirituality that could be utilized in

constructing items on an instrument that could measure spirituality. In order to establish the basis for the present study, the three general areas of literature designated above will be reviewed with their resulting contributions to this endeavor.

To conclude the review of literature, two instruments purported to measure spiritual well-being and spiritual perspective, uncovered by the researcher prior to beginning instrument development are reviewed. Limitations for the use of each instrument in relation to the conceptual framework for this study are identified.

Theoretical Literature

As early as 1971, a few individuals and groups voiced a view of spirituality as broader than the previous view of spirituality as synonymous with religiosity. The 1971 White House Conference on Aging defined the spiritual dimension as pertaining to "man's inner resources, especially...the central philosophy of life, which guides a person's conduct, the supernatural and nonmaterial dimensions of human nature" (Moberg, 1971, p. 27).

Frankl (1962) asserted that an individual exists in three dimensions: the somatic, the mental, and the spiritual. He contended that the person is uniquely human through the spiritual dimension that is indicated in a person's will-to-meaning. Frankl theorized that a person's spirit supports an ability to rise above or to transcend bodily or psychic conditions, and

affords the individual the choice of how to respond to the conditions imposed by heredity or environment. A person's purpose or meaning in life was viewed by Frankl as including creative action, receptivity towards the world, and attitude toward condition or lot in life.

Jackson (1980), a theologian, conceptualized spirituality as "the enhancement of transcendence as the self goes beyond itself, lives beyond itself, dies beyond itself" (p. 414). He viewed spirituality as integral to the person's struggle for self-creation. Jackson also linked aspiration in the person to self-transcendence. He wrote about the concept of transcendence as involving the enactment of what is, that can be transformed by what can yet be (Jackson, 1980).

Hill and Smith (1985) contended that spirituality is a vague concept, difficult to define, includes a person's relationship to the nonmaterial aspects of life, is usually felt in an abstract, nonlogical manner, and is highly variable and personal. They viewed spirituality as involving concepts of religion, ritual, creativity, intuition, life philosophy and joy. They also believed that love, choice and transcendence have spiritual aspects. Their particular definition was that spirituality is "a component of health related to the essence of life; the vital principle in human beings that gives life to the physical organism in contrast to its purely material aspects; relating to the soul as opposed to the body; 'the breath of life'" (p. 187). They proposed

that any attempt to assess or intervene in the arena of health without considering the spiritual dimension of the individual would be missing the mark.

Lane (1987) described spirituality in relation to four ways that the spirit is indicated. These evidences of spirituality were identified as: 1) the transcending or going beyond the here and now, 2) connection or belonging, as in the desire to form community, 3) giving or preserving life, and 4) being free. She believed that the spirit is "that which gives life; the animator of existence" (p. 332). She wrote further on the connecting or belonging as "the spirit's desire to belong to someone or something, somewhere; . . . to form community" (p. 333).

The role of spirituality in health and/or wellness, or as an influence of health outcomes has been conceptualized by several authors. Dunn (1961) expressed an optimal view of health as high-level wellness that involves the individual striving toward a maximum level of functioning. He described this as involving " . . . the integration of the whole being of the individual, . . . his body, his mind, his spirit-in the functioning process" (p. 9). He stated further that as a physician he had " . . . come to realize that the spirit is something very real, that it involves the process of healing, and that we can't shrug it off as something for the churches and the ministers alone; . . . we have frequently observed people with a sick body but a well

spirit; such people try to get well and frequently do. But we seldom see a person with a sick spirit who has a well body" (p. 11).

Pilch (1981) extended Dunn's view of high level wellness by incorporating the concepts of wellness and spirituality in a definition of wellness as "an ever-expanding experience of pleasurable and purposeful living which you and I, especially as motivated by spiritual values and religious beliefs, create and direct for ourselves in any way we choose" (p. i). Pilch espoused the belief that spirituality is a motivating force in wellness that is reinforced when spirituality is described as a distinctive and encompassing characteristic of the human person. A characteristic wherein humans can relate to and respond to spiritual realities because a person is more than a body. Pilch further contended that no matter how one chooses to specify this spirit, most people agree that it is a "higher" element in the human person.

Burkhardt (1989) took the position that spirituality is of the essence of one's human nature, whether or not it is expressed through religious beliefs. She suggested that nursing practice should address spirituality through assessments that require the art of "being with" another with the intent of coming to know who the person is and facilitating the person's coming to a fuller understanding of self within the context of all their life experiences. Burkhardt identified descriptive characteristics of spirituality

which she compiled from a synthesis of frequently repeated characteristics encountered in the literature while undertaking an analysis of the concept of spirituality. The descriptive characteristics included: unfolding mystery, harmonious interconnectedness, and inner strength. Unfolding mystery was identified as including "one's experience of dealing with mystery or uncertainty in life, discovering and struggling with the meaning and purpose of one's life, and can include a sense of transcendence" (p. 72). Harmonious interconnectedness was seen as referring to a relatedness or connection with all of life or being "in harmony with the universe" (p. 72). Inner strength was stated as including "one's inner resources, awareness, consciousness, and sense of sacred source" (p. 72).

Nagai-Jacobson and Burkhardt (1989) presented spirituality as a cornerstone of nursing practice considered essential to a person's well-being. Spirituality was viewed as the essence of one's being expressed as an integrating or unifying factor that gives meaning and purpose to one's life. They purported that spirituality of both nurse and client is involved in nursing. The nurse, guided by an understanding of spirituality, seeks to facilitate the harmonious interconnectedness within and between persons, as well as with the interpersonal and physical environments and with the Ultimate Other as understood by the individual.

Hover-Kramer (1989) applied the concept of transpersonal perspective to spirituality when she wrote that "differentiated from a specific set of religious beliefs, the transpersonal deals with broader and deeper levels of awareness, the spiritual journey that begins quite naturally when we question profoundly the meaning of life and death" (p. 28). This perspective was presented as a new paradigm where the human spirit is viewed as providing integration in the search for meaning in the human experience.

Thomas (1989) described a treatment program for hypertension based on transactional psychophysiology (TP) therapy. In TP therapy, a person's inherent spirituality is integral to the treatment approach. Observation of the client's capacity to lower blood pressure and heart rate in the midst of life's ups and downs was said to provide the author with new understanding of the term "inner peace". It was noted by Thomas that the program reinforced a belief that healing could not be complete without the spiritual component in therapy.

Rew (1989) in looking at the relationship between spirituality and intuition contended that a change in a nurse's alertness or awareness state is an indication of the connection between nurse and client. She presented a belief that intuitive experiences particularly happen when a feeling of confidence and closeness is present. Conversely, she contended, when confidence or trust is lacking, nurses tend to discount their own inner

strength and spirituality with a resulting look to concrete data for explanations for what is happening to them and/or their clients.

Haase and others (1992) carried out a simultaneous concept analysis of spiritual perspective, hope, acceptance and self-transcendence. The purpose of the analysis was to clarify the four concepts, provide theoretical definitions for each concept, and consider interrelationships and distinguishing characteristics among the concepts. The authors viewed spirituality as a basic or inherent quality of all humans. They presented the view that spiritual perspective is the phenomenon that actually varies among individuals as "a highly individualized awareness of one's spirituality and its qualities" (p. 143). Spiritual perspective was defined as "an integrating and creative energy based on belief in, and a feeling of interconnectedness with, a power greater than self" (p. 143). Further, the authors identified three outcomes of spiritual perspective: 1) purpose and meaning in life, 2) guidance of human values, manifested in perceptions, beliefs and philosophies of life that guide conduct, and 3) a personal transcendence beyond the present context of reality, thus helping the individual to reach out and rise above personal concerns and the realm of the material.

Qualitative Research

Hungelmann and others (1985) conducted a qualitative study using a grounded theory approach through the constant comparative method of data analysis. The study was designed to identify indicators of spiritual well-being in persons 65 years of age and over. Data for the study were obtained over a period of 18 months from 31 interviews of adults ranging in age from 65 to 85 years. Participants health status ranged from good physical health to terminal illness. As data were collected and analyzed, indicators began to cluster around emerging categories. Validity of categories was determined by consensus of the four investigators. Analysis revealed that all of the activities and qualities that subjects used to describe spiritual well-being were either time- or person-related. Under these two headings, six core categories were identified: Ultimate Other, other/nature, self, past, present, and future. Further delimitation produced two major themes that applied to all categories: harmony and connection. Thus the basic social process of harmonious interconnectedness was determined to be the unifying theoretical construct of all categories.

Banks, Poehler and Russell (1984) carried out research to investigate the perceptions of health educators about the concept of human-spiritual interaction. Studies by Banks in 1979 and Poehler in 1982 used the Delphi Technique consisting of three rounds of investigation. The Russell study

was reported as a continuing investigation rather than a one time sampling utilizing an entirely different methodology from Banks and Poehler.

In the Banks study, the first round of investigation consisted of six experts from the Midwest selected on the basis of leadership in the field of health education, publications, academic positions, as well as representing a diverse range in relation to the topic. Rounds two and three included 70 subjects (25 active health educators, 25 doctoral level graduate teaching assistants randomly selected from institutions offering a doctorate in health education, and 20 retired experts). In the Poehler study, 11 subjects participated in the first round (health education faculty members from colleges or universities in the central and southern regions of Illinois and Indiana that had major programs in health education, and one retired professor). Subjects for the second and third rounds were from each of the colleges or universities represented on the first round. The participant from round one at each institution chose two other health education faculty, two undergraduate, and two graduate majors based on their interest in the topic. In the Russell study, the researcher identified the parameters of the concept of human-spiritual interaction through a literature search and interviews, and then began collecting stories illustrating the principles postulated. The research was described as Piaget-type, meaning nonsystematic but constant. The researcher reported new dimensions to the

concept as well as verification of many of the original principles evolving out of the stories (Banks, Poehler, & Russell, 1984).

The conclusions to the Banks, Poehler and Russell research was presented as the composite findings from the three research studies. Findings revealed that most subjects accepted spirit as a reality, the spiritual as a dimension of well being, and human-spiritual interaction as a contribution to positive health. The term and the concept spirit or spiritual was not considered synonymous with religion or religious. The researchers concluded that persons "with a well developed spiritual dimension may reject religion completely, may belong to no organized religion, or may be diffident to active members of any religious group or organization" (p. 19). Also found was that spirit was frequently identified in relation to purpose and meaning in life. A major concept used to identify the spiritual dimension was selflessness or doing more for others than for self. The concern beyond self may be directed towards others or as a relationship with God in abstract or personal terms. The spirit was recognized by some as having a unifying function in social relationships and also in relation to self. Spirit was identified as the best unifier and coordinator of the physical, mental, emotional, social and environmental dimensions of health. Two of the studies identified inner strength as a manifestation of spirit. The third study referred to occurrences for which there is no rational

explanation, such as when an individual performs beyond normal expectations. Banks' study noted such spiritual action as "recognition of powers beyond the natural and rational" (p. 19).

Trice (1985) conducted a phenomenological study as a doctoral dissertation concerning the human spirit as a meaningful experience to the elderly. Study participants were 11 elderly adults (9 females and 2 males) between the ages of 65 and 87 who were asked to recount experiences from life during which they had a sense that life was meaningful. Using Colaizzi's guidelines for phenomenological research, interviews were conducted until common concepts surfaced. Major themes which surfaced to describe a meaningful experience were concern for others, helpfulness, action and positiveness. One theme not included in the list of common themes, because it did not appear universally, was considered worthy of mention by the researcher due to how often the theme did appear. The theme of descriptions related to God, Higher Being or church appeared in 8 of the 11 interviews concerning the meaningful experience. Trice analyzed the interview data in relation to a framework of the human spirit gleaned from the literature. Critical attributes of the framework of human spirit were identified as essence, vision, action, and zeal. Study findings implied that the critical attributes of the framework of human spirit are consonant with attributes of spirit revealed by the descriptions of meaningful

experiences in the elderly participants of the study. Implications for nursing included the suggestion by the author that nurses adopt a broader view of the human spirit to incorporate the facet of meaning to life.

Burns (1989) completed a doctoral dissertation of a phenomenological study of the experience of spirituality in the well adult. Study participants were 10 adults, six males and four females. Eight of the participants were white, and two were black. The ages of the participants ranged from 31 to 48. Eight participants were married, and two were single. All reported their health as good or excellent. Descriptions and meanings of spirituality, obtained through participant interviews, were analyzed and categorized. The essential elements of spirituality for the study were found to be: the philosophy of the interrelationship between the Infinite and human, essenergy permeability (a term coined by Burns to describe a person's access to their own spiritual dimension), a precipitating event, a depth experience, the interpretation of the meaning(s) of the event, human feeling and action responses, and life-changing event. In the study, spirituality was found to be "the process of striving for and/or being infused with the reality of the interconnectedness among self, other human beings, and the Infinite that occurs during a depth experience" (p. 111). One conclusion of the study was that an experience of spirituality is more likely to occur with a precipitating crisis event. Additionally, the researcher concluded that a

person can access his or her own spiritual dimension through specific practices such as meditation, relaxation, or prayer.

Barker (1989) completed a doctoral dissertation of a phenomenological study of spiritual well-being in Appalachian Women. The study participants were 13 women living in Appalachia, which were interviewed by the researcher. Interview times were listed as lasting from 40 minutes to over two hours, depending on the energy level of the participant. According to the investigator, the interviews stopped when the participant felt that she had said all there was to say on the topic. Themes from interview data were categorized into the two broad areas of relationship and self. Relationship was further delineated into relationship with Deity, relationship with kin, relationships with others and relationship with nature. Self was further categorized into purpose, satisfaction, inner strength, responsibility, clear values, individual identity and service. The author concluded that the phenomenon of spiritual well-being in Appalachian women embodied expressions of being whole. The findings revealed that expressions indicated a valuing of self and participation in the pattern of creation. Spiritual well-being was found to exist for the participants within contact with others and by being in touch with self. Spiritual well-being was concluded as being a process of development that

continues to be developed and deepened as the woman experiences life--yet does not have discernable developmental tasks or stages.

Burkhardt (1991) completed a doctoral dissertation of a phenomenological study concerned with exploring understandings of spirituality among women in Appalachia. Unstructured interviews conducted with 12 adult women living in West Virginia focused on exploring personal understandings of spirituality among the women. Interviews lasted about one hour and were audio tape recorded. According to the researcher, the common understanding of spirituality which emerged from the data was: "the unifying force that shapes and gives meaning to the pattern of one's Self becoming. This force is expressed in one's being, in one's knowing, and in one's doing, and is experienced within the context of caring connections with Self, Others, Nature, and God or Higher Power" (p. 178-179). The author concluded that the findings suggested that spirituality is related to an inner knowing and source of strength, which enables women to deal with the circumstances of their lives, and which gives meaning to their lives. It was also concluded by the author that the study indicated that spirituality may or may not be expressed through religion or religious practices. Burkhardt suggested that the findings demonstrated that spirituality has to do with who the person is, recognizing that what one does is an expression of who one is. Additionally, the author

contended that nursing needs to learn how to recognize and focus on all aspects of spirituality in the individual. Such nursing practice, Burkhardt asserted, would include attentiveness to the sources of the individual's strength from within, relationships with others, with one's environment and with God or Higher Power (however the persons understands this Force).

Francis (1986) carried out a descriptive study which explored the concerns of terminally ill adult hospitalized Hindu cancer patients in India. The conceptual framework used to design the study was the living-dying interval of life as described by Pattison. A one-time interview with 11 patients and 6 informants was conducted in Hindu by the investigator. A content analysis revealed five major categories of concern themes: physical or physiological concerns, illness-related concerns, social concerns, personal concerns, and spiritual concerns. In the area of spirituality, a leading concern expressed by both patients and informants was their faith in a higher being. Both groups dealt with the anxiety and conflict they were experiencing by relying on their faith to provide them with support. An implication of the study is that spirituality can provide a positive coping mechanism. It was not established how long the patients had been in the terminal phase and the amount of time since the cancer diagnosis was unknown.

Quantitative Research

Reed (1987) compared terminally ill hospitalized cancer patients who were aware of the terminal nature of their illness, nonterminally ill hospitalized patients, and healthy nonhospitalized persons in relation to spirituality and well-being. All participants ($N= 300$) completed a spiritual perspective scale and an index of well-being. In addition, a perceived health rating from 1 for poor health to 5 for excellent health was used to validate participant's understanding of their health status, and open-ended questions about changes if any, that occurred in spiritual views during recent months or years. The results of this study provide a view of spirituality as a potentially significant variable in the dying process. As hypothesized, hospitalized terminally ill adults indicated greater spirituality than both the hospitalized nonterminally ill group and healthy group of adults ($F= 5.16$, $p= .02$). This finding may be further support for the idea that spirituality is more evident during a crisis event. The similarity in well-being scores across all groups implied that dying individuals have potential for well-being as do their nonseriously ill and healthy counterparts . Findings from the open-ended questions concerning recent change in spiritual views showed that, among those who indicated a change, the terminally ill group had the largest percentage of change in increase in spiritual beliefs and behaviors.

Fehring, Brennan and Keller (1987) conducted two separate studies to investigate the relationship between psychological and spiritual well-being. The concepts used to guide the research design were: spirituality, depression and life change. In the first study a spiritual well-being index, a spiritual maturity scale, a life-change index, and a depression scale were administered to 95 nursing students. In the second study a spiritual-outlook scale and a mood state profile index was added to the above tests and administered to 75 randomly selected college students. The results demonstrated a weak positive relationship between life change and depression ($r = .19$, $p = <.05$). A correlation of depression with spiritual well-being ($r = -.35$, $p = <.01$) and spiritual outlook ($r = -.34$, $p = <.01$) suggested that spiritual variables may influence psychological well-being. Implication is that depression in response to life change is in some way mediated by the individual's sense of spiritual well-being. For the college students in this study, this mediation was reflected in a purpose and satisfaction in life and not to a relationship with God. The researchers concluded that the results of the studies confirm the existence of some relationship between crisis and/or stress responses and spiritual phenomena.

Carson and others (1986) evaluated the effectiveness of an elective course on spirituality in altering student attitudes. Subjects were 176 junior baccalaureate nursing students enrolled in seven different electives

(one of which was on spirituality). Participants completed both a demographic data sheet, which included information about religious practices and Apfeldorf's Religious Belief Questionnaire, which contains the seven subscales of God, prayer, Bible, good/evil, organized religion, religious practices, and duties of living. These were administered at the beginning and at the end of a semester term. Students as a whole had the most positive attitude toward the value of prayer and least positive attitude toward the necessity of prescribed religious practices. At the completion of the courses, students enrolled in the spirituality elective had significantly increased scores on the subscales of organized religion ($t = 2.48, p = .010$) and religious practices ($t = 2.07, p = .024$). The increases were attributed to the emphasis placed on these topics and their relation to health throughout the course. Compared to the others, students in the spirituality elective had significantly increased scores in the areas of God, organized religion, religious practices, and the Bible (all topics examined in the elective). Of the total sample, 63% reported that religious beliefs were important to their lives, yet only 34% attended a church or synagogue weekly; 47.2% worshipped twice a year or less. The investigators believe this finding indicates that attendance at a place of worship is only a small indicator of an individual's spiritual attitudes.

A study was carried out by Sodestrom and Martinson (1987) to describe the spiritual coping strategies of 25 hospitalized patients with cancer, and their nurses' awareness of these strategies. The Patient Spiritual Coping Interview, consisting of 30 items describing the patient's relationship with God or a higher being, use of spiritual activities and resource people, and perception of the nurse's role in spiritual care was used to collect the data. Results indicated that almost half the patients used nurses as resources for spiritual needs and for assistance with spiritual activities. The nurse perspective differed from the patient perspective in that only 4 out of the 25 nurses interviewed reported that they incorporated a spiritual assessment, 3 declared they would not initiate a conversation about the patient's religion or spiritual activities, and 18 expressed a desire to learn more about spirituality.

Highfield (1992) conducted a descriptive, cross-sectional survey designed to investigate the spiritual health of oncology patients and how well oncology nurses assess spiritual health. Parallel nurse and patient Spiritual Health Inventories (SHI) were distributed to a convenience sample of 40 nurse-inpatient pairs from two hospitals. Prior to the reported study, reliability of each instrument (nurse and patient Inventories) was estimated by Cronbach's alpha as follows: 1) for the nursing assessment SHI ($\alpha = 0.92$, $n = 52$), and 2) for the patient self-report SHI ($\alpha = 0.89$, $n = 8$). Analysis of

data from the reported study produced a Cronbach's alpha for the nursing SHI ($r = 0.89$) and for the patient SHI ($r = 0.77$). In the reported study, twenty three patients with primary lung cancer and twenty seven registered nurses responded ($N = 50$). Analysis of paired nurse and patient SHI scores revealed no significant relationship between the self-reported spiritual health of patients and the nurse-assessed spiritual health of those patients ($r = -0.2513$, $p = <0.14$). When data were examined for relationships between patient demographic variables and patient SHI scores, only patient age ($r = 0.4299$, $p = <0.02$) and self-reported physical well-being ($r = 0.4564$, $p = <0.014$) were related to scores. In contrast, patient gender, religious preference, and frequency of attendance at religious functions were unrelated to patient SHI scores. Of the nurse variables investigated, only nurse ethnic background was related to nurse SHI scores. Inventory scores of the nurses of Asian ($n = 9$, mean = 104) background were significantly lower than SHI scores of either the Afro-American ($n = 4$, mean = 161) or Caucasian nurse respondents ($n = 12$, mean = 127). In contrast, no relationships were identified between nurse age, level of education, frequency of attendance at religious functions, years of practice, or the number of days spent caring for patient respondents, and nurse SHI scores. To determine nurse and patient choices of spiritual caregivers, respondents were asked to rank eight potential caregivers (chaplain, family member or

friend, nurse, personal pastor or rabbi, physician, psychiatrist or psychologist, or social worker). Most nurses and patients chose family member/friend as a first choice of spiritual caregiver, while some patients preferred personal clergy. Nurses and patients differed in their second and third choices of spiritual caregiver, but were similar in their fourth choice. Fourteen nurse participants selected clergy as their second referral choice. In contrast, 12 patients selected the physician as their second choice. Both nurses and patients, ranked nurses as a fourth choice of spiritual caregiver. Nurses and patients in this study ranked psychiatrists/psychologists and social workers as low priority choices for spiritual assistance, and some patients also ranked the chaplain as less preferred.

Existing Instruments

At the time the researcher began instrument development there were two instruments seemingly related to spirituality uncovered in the review of literature. Neither of the instruments were determined to be consistent with the researcher's developed model of spirituality nor the conceptual framework for this study. The two instruments were the Spiritual Well-Being Scale (Ellison & Paloutzian, 1982), and the Spiritual Perspective Scale (Reed, 1987). The two instruments are reviewed, with limitations identified for their use in relation to the conceptual framework underlying the present study.

The Spiritual Well-Being Scale. The Spiritual Well-Being Scale

(SWB) was developed by Ellison and Paloutzian (Ellison, 1983) and built upon the work of Moberg. Moberg conceptualized spiritual well-being with two dimensions, identified as existential well-being and religious well-being. Religious well-being, viewed as a vertical dimension, was described as dealing with an individual's sense of well-being in relation to God. Existential well-being, conceptualized as a horizontal dimension, was described as an individual's perception of their purpose and satisfaction in life apart from any specific religious reference. Both dimensions were considered to involve transcendence, or "stepping back from and moving beyond what is" (p. 331). Ellison (1983) in describing the SWB authors' conceptualization of spiritual well-being outlined the idea that it is the spirit of individuals which enables and motivates the search for meaning and purpose in life. Also identified was the belief that if individuals are spiritually healthy they will feel generally alive, purposeful, and fulfilled, but only to the extent that they are also psychologically healthy. It was also suggested that spiritual well-being may not be the same thing as spiritual health. Further, it was pointed out that spiritual well-being does not appear to be the same as spiritual maturity.

The Spiritual Well-Being Scale (SWB) consists of 20 items using six response options ranging from Strongly Agree to Strongly Disagree. Ten of

the items measure Religious Well-Being (RWB) and ten items measure Existential Well-Being (EWB). The SWB yields three scores: 1) a total spiritual well-being score, 2) a summed score for religious well-being items, and 3) a summed score for existential well-being items. Odd numbered items assess religious well-being and even-numbered items assess existential well-being. Higher scores on the total instrument are considered to indicate greater Spiritual Well-Being.

The 10 items relating to existential well-being refer to such circumstances as: 1) knowing who one is, where one came from, or where one is going, 2) feeling that life is a positive experience, 3) feeling settled about one's future, 4) feeling fulfilled and satisfied with life, 5) life having meaning, and 6) believing in some real purpose in one's life. The 10 items relating to religious well-being all contain a reference to God and include statements dealing with: 1) satisfaction in private prayer, 2) being loved and cared about by God, 3) having a meaningful relationship with God, 4) getting strength and support from God, 5) being fulfilled from close communion with God, and 6) having a sense of well-being increased through relationship with God.

An analysis of the 20 items comprising the SWB in relation to the researcher's delineated four areas of critical attributes for spirituality (Purpose and Meaning in Life, Innerness or Inner Resources, Unifying

Interconnectedness, and Transcendence) was carried out. The analysis revealed that the 10 items relating to existential well-being fit well with the attribute of Purpose and Meaning in Life, and the 10 items of religious well-being fit somewhat with the attribute of Unifying Interconnectedness--specifically a connectedness with a Supreme Being or Higher Power. The analysis yielded no SWB items that were specifically congruent with Innerness or Inner Resources or Transcendence.

Reliability and validity information for the SWB was provided by the instrument authors as follows. Reported test-retest reliability correlation coefficients were .93 for total SWB, .96 for RWB, and .86 for EWB obtained from testing with 100 college student volunteers. Internal consistency alpha coefficients were .89 for SWB, .87 for RWB, and .78 for EWB. The subscales were confirmed through factor analysis with varimax rotation. In addition, the SWB has been found to correlate negatively with the UCLA Loneliness Scale ($r = -.55$) and positively with the Purpose In Life Test ($r = .52$), Intrinsic Religious Orientation ($r = .67$), and self-esteem ($r = .44$) (Ellison, 1983). These correlations address construct validity of the scale.

The major limitation for the use of the Spiritual Well-Being Scale (SWB) for this research study is focused on the deficiency of the instrument to address all of the four identified critical attributes for spirituality delineated in the conceptual framework. Several items on the SWB are

consistent with Purpose or Meaning in Life, and several are partially consistent with Unifying Interconnectedness, specifically connectedness with a Supreme Being or Higher Power. However, no items address the remaining interconnectedness parameters with self, others, and nature. Further, no items address Innerness or Inner Resources or Transcendence.

The Spiritual Perspective Scale. The Spiritual Perspective Scale (SPS) (Reed, 1987) was originally developed as the Religious Perspective Scale (RPS) and underwent revision as the result of a study titled "Religiousness Among Terminally Ill and Healthy Adults" (Reed, 1986). The original instrument was developed to measure religious beliefs and behaviors that exist in a person's life. The introductory section of the scale defined religion as "that which relates people to a spiritual realm or to something greater than themselves without disregarding the individual" (p. 37). The RPS was adapted from King and Hunt's Dimensions of Religiosity scales. King and Hunt's scales were revised by Reed to develop the RPS after a review of the literature in three areas: religiousness particularly in Western culture, adult development, and religiousness in seriously or terminally ill adults. The author then revised the RPS into the SPS for a 1987 study. Reed stated in the subsequent 1987 study that "spirituality is a broader concept than religion or religiosity. It may or may not incorporate religious rituals and behaviors, and does not necessarily involve

participation in a religious organization" (Reed, 1987, p. 336). Central to the theoretical background of the Spiritual Perspective Scale (SPS) is the concept of transcendence. Reed defined transcendence as "a level of awareness that exceeds ordinary, physical boundaries and limitation. Transcend means to cross over or climb beyond. It is reflective of the human capacity to extend the self beyond common boundaries of the immediate context and achieve new perspectives and experiences" (p. 335). Spirituality as one empirical indicator of the human capacity for transcendence seemed to be the theoretical base for the instrument.

The Spiritual Perspective Scale (SPS) is a 10-item questionnaire (the author stipulates that the instrument can also be used in a structured interview) which uses Likert type responses on a scale of 1 to 6. Four items use response options based on frequency: 1) Not at all, 2) Less than once a year, 3) About once a year, 4) About once a month, 5) About once a week, and 6) About once a day. The remaining six items use response items ranging from Strongly Disagree to Strongly Agree. Eight of the ten items use the words spiritual, spiritually-related, and spirituality as part of a question or statement. For instance, items ask for a response to such things as how often the person mentions spiritual matters in talking with family or friends, how often the person reads spiritually-related material, if the person seeks spiritual guidance in making decisions in everyday life, or

if spirituality is a significant part of the person's life. The remaining two items deal with how often the person engages in private prayer and if the person frequently feels close to God or a "Higher Power" during prayer, public worship, or important moments in daily life. The instrument ends with an open-ended question asking for any views about the importance or meaning of spirituality in the person's life that might not have been addressed by the 10 items. In the directions to the instrument, the author asked that individuals, in answering the questions about spiritual views, think about what spirituality means to them personally.

Reliability and validity of the instrument were addressed following use by the author in a study titled "Spirituality and Well-Being in Terminally Ill Hospitalized Adults" (Reed, 1987). The sample of the study was 300 adults distributed into three groups of 100 each: Group 1, terminally ill hospitalized cancer patients who were aware of the terminal nature of their illness; Group 2, non-terminally ill hospitalized patients; and Group 3, healthy nonhospitalized persons. This study is reviewed in more detail earlier in this chapter as part of the review of literature. Reliability of the SPS in the study was measured by Cronbach's alpha as an estimate of internal consistency. Alpha coefficients ranged from .93 in Group 2 of the sample, to .95 in Groups 1 and 3. Inter-item analysis indicated that one item concerning prayer was redundant. No inter-item correlations fell

below .41. Average inter-correlations ranged from .57 to .68 across the groups (Reed, 1987). The author reported that evidence for construct validity was found in the study sample in that those who reported having a religious background scored higher on the SPS. The author further stated the qualitative data generated by open-ended questions also indicated the validity of the SPS for participants in the study.

Limitations identified for the use of the Spiritual Perspective Scale (SPS) for this study centered around a lack of fit with the researcher's model of spirituality and the conceptual framework underlying this study as well as concern about item statements in the SPS used as a measure of spirituality. A major area of misfit revolves around the conceptualization of transcendence in relation to spirituality. The author of the SPS sees spirituality as an empirical indicator of transcendence, whereas the researcher views transcendence as an empirical indicator of spirituality. The researcher values Reed's work on transcendence and has incorporated her work into the theoretical definition of transcendence in the conceptual framework of this study. However, there is basic disagreement as to the relationship between transcendence and spirituality as concepts. Secondly, of concern to the researcher was the use of the words "spiritual", "spiritually related", and "spirituality" in 8 of the 10 items on the SPS. Response to the items rests on the respondents idea or view of spirituality. Further, items

seem to assume the individual equates spiritual with religious, perhaps related to the religious orientation of the original instrument development. Central to the researcher's goal of a spirituality instrument, is a measure that includes statements based on the observable or reportable attributes and empirical indicators of spirituality, not what the individual thinks spirituality might be. Also, probably fundamental to the unfitness of the SPS for this study is that it is purported as a measure of spiritual "perspective" not spirituality per se.

Summary

Spirituality, until recently, was often confused with religion. However, a recent resurgence in the study of spirituality reflects a broader view. The literature concerning spirituality was found to comprise three categories: theoretical literature, qualitative research and quantitative research. Each area was helpful in the researchers pursuit to begin the identification of attributes or indicators of spirituality.

The theoretical literature yielded ideas or notions about spirituality as pertaining to inner resources that provide a central philosophy of life and guide a person's conduct. Also, ideas of spirituality as including transcendence and providing integration in the individual's search for meaning and purpose in life were found. Further, repeated characteristics associated with spirituality encountered in one author's literature review for

a concept analysis yielded themes related to unfolding mystery, harmonious interconnectedness, and inner strength.

The area of qualitative research presented themes related to spirituality from phenomenologic studies conducted in older adults (65 years of age and over), terminally ill adult hospitalized Hindu cancer patients in India, well adults in the American midwest, and Appalachian women. Characteristics pertaining to spirituality that were found in the studies included: feelings of harmonious interconnectedness; relationship to Deity, others, and nature; and aspects related to the self such as purpose, satisfaction, inner strength, identity, and service.

The area of quantitative research provided data concerning spirituality as a potentially significant variable in the dying process. The finding that hospitalized terminally ill adults indicated greater spirituality than hospitalized nonterminally ill or healthy adults may be further support for the idea that spirituality is more evident during a crisis event. Additionally, another study concerning college students presented data that suggested spiritual variables may influence psychological well-being. Also concluded in another study with college students was that attendance at a place of worship is only a small indicator of an individual's spiritual attitudes. Finally, a study comparing hospitalized patients' and nurses' perspectives of the nurses as a spiritual resource differed significantly, in

that, patients tended to view nurses as resources, but the nurses did not tend to view themselves as resources.

Two instruments (seemingly related to spirituality) discovered by the researcher in the review of literature prior to the beginning of instrument development were reviewed. The instruments were the Spiritual Well-Being Scale (SWB) and the Spiritual Perspective Scale (SPS). Limitations of each instrument for use with the conceptual framework for this study were identified.

CHAPTER III

PROCEDURE FOR

COLLECTION AND TREATMENT OF DATA

For the present study, a methodological design was used. This design is appropriate for instrument development and evaluation according to Kerlinger (1973) and Nunnally (1978). Such a methodological study focuses on the delineation and measurement of identified concepts or attributes operationalized as variables. The method involves activities of scale construction, item writing, and analysis and estimation of reliability and validity.

A multi-step process was employed for instrument development. First, the process consisted of an extensive literature review. Secondly, concept analysis, synthesis, and derivation were undertaken. Next, concept operationalization involving the activities of concept mapping, formulating variable definitions, identifying variable dimensions and observable indicators was carried out. Further, developing a means of measurement through item writing was conducted (Waltz, Strickland & Lenz, 1984). An original instrument with 44 items was constructed utilizing Likert-type responses on a scale of 1 to 6, ranging from Strongly Disagree to Strongly Agree. Once original instrument development was concluded, the

instrument was submitted to content experts for evaluation and then was pilot tested. Following content expert evaluation and pilot testing, the instrument was revised and prepared for the present (major) study.

Pilot Study and Content Expert Evaluation

A pilot study and content expert evaluation were carried out for three primary reasons. First, to gain information from content experts regarding the adequacy with which items on the developed instrument represented the phenomenon of spirituality and the four theoretically identified subscales. Secondly, to gain feedback from the content experts and pilot participants about the readability, clarity of items, and ease or difficulty in completing the instrument. Thirdly, to obtain data for statistical analysis related to beginning reliability and validity assessment.

Setting

The setting for the pilot study was a state university thirty-five miles from a large metroplex city. The instrument and a cover letter were provided to 100 undergraduate and graduate nursing students. Participants were approached in class settings and informed that the purpose of the pilot study was to evaluate the effectiveness of the instrument. The instrument was passed out to those indicating an interest in participating in the study. Ninety four chose to participate by completing the instrument and placing it

in a closed box with a slit in the top. This setting was chosen for convenience and ease of data collection.

Two weeks from the initial collection of data, a subsample of 34 of the original participants were retested. The retest was conducted in the same way as the initial test with participants completing the form and returning it to a closed box with a slit in the top.

Subjects

Subjects for the pilot study consisted of 94 male and female university undergraduate and graduate nursing students between the ages of 19 and 57. Demographic data about the participants are presented in Table 1. The pilot sample was largely caucasian (77.7%), predominantly married (56.4%), and female (89.4%), with a mean age of 32.98 years.

Table 1

Demographic Data of the Pilot Sample

<u>Age</u>	Mean 32.98 years	Range 19 to 57 years	s.d. = 9.23
Variable	Frequency	Percent	
<u>Gender</u>			
Males	10	10.6	
Females	84	89.4	
<u>Ethnicity/Race</u>			
Caucasian	73	77.7	
African-American	13	13.8	
Spanish-American	1	1.1	
Asian-American	5	5.3	
Native-American	2	2.1	
<u>Marital Status</u>			
Married	53	56.4	
Widowed	1	1.1	
Divorced	9	9.6	
Single	31	33.0	
<u>Education</u>			
Some College	41	43.6	
College Degree	31	33.0	
Graduate Degree	22	23.4	
<u>Combined Household</u>			
<u>Income</u>			
\$10,000 or Below	11	11.7	
\$10,000 to \$20,000	13	13.8	
\$20,001 to \$30,000	11	11.7	
\$30,001 to \$40,000	10	10.6	
\$40,001 to \$50,000	19	20.2	
\$50,001 to \$60,000	11	11.7	
Above \$60,000	19	20.2	

(table continues)

Variable	Frequency	Percent
<u>Religious Affiliation</u>		
Nondenominational	24	25.5
Baptist	24	25.5
Catholic	18	19.1
None	10	10.6
Methodist	7	7.4
Mormon	2	2.1
Church of Christ	2	2.1
Episcopalian	2	2.1
Lutheran	1	1.1
Hindu	1	1.1
Pentecostal	1	1.1
Buddhist	1	1.1
Presbyterian	1	1.1
<u>Religious Event Attendance</u>		
Once a Week	31	33.0
Once a Month	19	20.2
2-3 Times A Year	18	19.1
Not At All	10	10.6
Other (Specified)	16	17.0

Reliability

In the pilot study, the Spirituality Assessment Scale (SAS) was evaluated for internal consistency reliability using Cronbach's coefficient alpha. This method is "the preferred index of internal consistency reliability" and "measures the extent to which performance on any one item on an instrument is a good indicator of performance on any other item in the same instrument" (Waltz, Strickland & Lenz, 1984, p. 136). The estimation of internal consistency is considered to be very important before an instrument, either modified or original, is used for clinical or research purposes.

To compute Cronbach's alpha, the RELIABILITY procedure was performed using SPSS-X software. This procedure executes an item analysis by computing the coefficients of reliability (Norusis, 1983). Coefficient alphas of 0.8 to 0.9 are preferred, although 0.7 is considered acceptable for newly-developed instruments (Nunnally, 1978). In addition to providing a total instrument alpha, this procedure is applicable to determining internal consistency of any subscales as well.

Alpha correlation coefficients were determined from the pilot sample data ($N=94$) for each of the four theoretically identified subscales and the total original SAS (44-item) instrument. The alpha coefficients of the original total SAS instrument in the pilot study was 0.9424. The alphas for the subscales were: 0.8163 for Transcendence, 0.8753 for Unifying Interconnectedness, 0.8883 for Innerness, and 0.9262 for Meaning or Purpose in Life. The alpha coefficients for the total instrument and the subscales were considered strong for a newly developed instrument.

According to Kerlinger (1986), a stability interpretation of reliability is concerned with the consistency of an instrument when given to the same person on at least two different occasions. Nunnally (1978) pointed out that except for certain special instances, there are serious problems in using the retest method. The major problem is that experience in the first completion of an instrument or test may influence responses in the second completion

or testing. Nunnally (1978) contended that the major information of a valuable nature supplied by the retest method is one of negation of an instrument. If an instrument does not have at least a moderate correlation with itself when administered on two occasions, it is fruitless to attempt other evidence of reliability or to employ the instrument in correlational studies. It was for this reason that it was decided to carry out a retest of the newly developed SAS on a subsample. The researcher felt that if initial correlations in the pilot test-retest were strongly negative, then further work on the instrument would be discontinued. Test and retest scores were compared for a subsample of 34. The internal consistency coefficient for the entire sample was 0.9424 ($N=94$). The internal consistency coefficient for the subsample ($n=34$) was 0.9595 for the initial test, and 0.9562 for the retest two weeks later. The stability coefficient for the test-retest subsample ($r=.83$, $p<.001$) suggests that the concept of spirituality is stable and that the instrument performed reliably in the test-retest situation.

Validity

The process of estimating validity of a new instrument begins with support that the method of measurement actually measures the expected content (Burns & Grove, 1987). Estimating content validity consists of judgments of the representativeness of the items to the concepts being measured (Kerlinger, 1986). The more representative the items are of the

concept being measured, the more confidence the researcher can have in the results of the study (Burns & Grove, 1987; Nunnally, 1978).

The type of content validity used for the Spirituality Assessment Scale was expert validity (Burns & Grove, 1987). The instrument was mailed to a panel of seven experts who had within the last five years published theoretical work and/or research related to spirituality. Initial contact was made by mail with potential participants asked to indicate willingness to serve as a content expert. All seven indicated a willingness to serve. Six of the seven were doctorally prepared nurses, and the seventh was completing a dissertation (a phenomenologic study on spirituality) for a doctorate in nursing. The seven experts exhibited regionally diverse locations. States of residence included: Arizona, Illinois, Texas, Maryland, Massachusetts and West Virginia. The experts were chosen for their work in the area of spirituality and for their regional diversity.

In addition to the instrument, each expert was provided the conceptual framework, including definitions for spirituality and definitions for each subscale. The experts were requested to first evaluate each item's congruency as a measure of spirituality as delineated in the conceptual framework, and secondly, to evaluate each item's congruency with its conceptually-identified subscale. The experts were then invited to comment on items they felt were ambiguous, unclear, or not appropriate. Any other

comments the experts might have regarding the instrument were also sought. Six of the seven experts returned evaluations by the deadline date.

Content expert evaluation of the instrument consisted of two steps. First, content experts rated each item in relation to the item's congruence with the conceptual framework definition of spirituality. Secondly, the content experts rated each item's congruence with the corresponding subscale. Following a method proposed by Lynn (1986), it was determined that in order to retain an item on the instrument, it must be supported or endorsed by at least 5 of the 6 content experts (or an 83.33% or higher endorsement). This number was reached following procedures described by Lynn (1986) for identifying the minimum number of content evaluators who must agree on an item for content validity. The method involves calculating the proportion of the number of content experts who might agree out of the total number of participating content experts. The standard error of this proportion is set in order to identify the cutoff for chance versus real agreement (Lynn, 1986).

The Content Validity Index (CVI) is a widely used quantitative index of content validity. The CVI is the proportion of items on an instrument that are endorsed by the content experts (Waltz, Strickland & Lenz, 1984). The Content Validity Index (CVI) for the 44 items was .88.

Fifteen out of the 44 items were endorsed by all 6 of the experts. Twenty four of the 44 items were endorsed by 5 of the 6 experts, yielding a total of 39 items meeting the retention criteria. Five items were deleted from the instrument due to failure to achieve the minimum endorsement level from the content experts. Revisions were also made in the wording of 2 items in light of content expert written feedback.

To begin the estimation of construct validity of the Spirituality Assessment Scale (SAS), exploratory factor analysis was employed. However, due to an insufficient sample size the results were inconclusive (a minimum of 5 subjects per item would have required at least 220 subjects, and only 94 were used in the pilot test).

Changes in the SAS and Readiness for Major Study. The revision of the original 44-item instrument involved the deletion of eight items and the rewording of four items, which resulted in a 36-item instrument. Five items were deleted because they failed to receive endorsement by a minimum of the content experts. Three items were deleted because both examination of their wording (following negative feedback from some content experts and pilot participants) and statistical analysis indicated that they were redundant and unnecessary. Three of the four reworded items were changed from positive statements to statements that refer to struggle and difficult times. This was in response to content expert suggestion that,

according to research to date, individuals may get more in touch with their spirituality in times of struggle. The other item was reworded for clarity based on both content expert and pilot participant feedback.

Coefficient alphas were recalculated from the pilot sample data ($N=94$) for each of the revised theoretical subscales and the total revised SAS (36-item) instrument. The alpha coefficient for the revised total instrument was 0.9351, a very minor reduction from the original (44 item) instrument coefficient of 0.9424. The alphas for the revised subscales were:

1) Meaning and Purpose in Life, 0.8819 (a reduction from 0.9262 in the original instrument), 2) Innerness or Inner Resources, 0.8384 (a reduction from 0.8883 in the original instrument), 3) Unifying Interconnectedness, 0.8753 (exactly the same as in the original instrument), and 4) Transcendence, 0.7825 (a reduction from 0.8163 in the original instrument). The alpha coefficients for the revised total instrument as well as the subscales are considered adequate for a newly developed instrument. Alpha coefficients in the revised instrument showed minor reductions from the original instrument, with the exception of one subscale which remained the same, possibly due to the reduction in the number of items in the instrument as well as the affected subscales. Even though alpha coefficients were slightly reduced from revision, the benefits overall to the development of the instrument were felt to far outweigh the minor

reduction in reliability assessments from the pilot sample. Further, all coefficients (with the exception of one subscale) fell in the preferred range of 0.8 to 0.9 (Nunnally, 1978). The one subscale (Transcendence with coefficient of 0.7825) provided an acceptable value for newly developed instruments (Nunnally, 1978). Therefore, it was determined by the researcher that revision of the instrument was supported.

The revised Spirituality Assessment Scale was rewritten and reprocessed on a laser printer to give the instrument a professional appearance. Additionally, a new cover letter was written explaining the proposed psychometric study to participants.

Major (Psychometric) Study

The purpose of the major (psychometric) study was to further develop, refine, and estimate the psychometric properties of the Spirituality Assessment Scale (SAS). Following is a description of the design of the study, including population and sample selection criteria. Also included is the method of data collection and data analysis for the study.

Setting

The setting of the study was a southwestern metroplex (Dallas--Fort Worth and 50 mile radius) area with a 1990 population of over three million people. The area's population includes significant groups of people of Canadian, English, German, Mexican, and Russian ancestry as well as

smaller percentages from almost every country. American Indians from many tribes live in the area. Blacks make up about a fourth of the population. Baptists form the largest religious group. Other major religious groups, in order of size, are Methodists, Catholics, and Presbyterians. The metroplex area is one of the nation's major centers for the manufacture of electronics and electrical equipment, aircraft and missile parts, and clothing. Other important industries include nonelectrical machinery, food and food products, and printing and publishing. More than a fourth of the area's workers are employed in manufacturing. The area has over 5,000 factories (World Book Encyclopedia, 1992). Specific sites within this setting for collection of data included civic and social organizations, and a recreation center.

Population and Sample

The target population selected for this research study was adults between the ages of 40 and 60 who resided in the metroplex area and could read and complete the instrument used in the study. Convenience sampling was the method of selection for the sample. Convenience sampling uses subjects that are available for a research study. Burns and Grove (1987) explained that in a convenience sample, available subjects are entered into the study until the desired sample size is reached. Although potential for bias exists in this sampling type, serious bias is not necessarily present in

the sample. In order to allow for comparison of the sample with the target population, as much data as possible should be collected and reported about the study sample (Burns & Grove, 1987).

✧ McGrath and Brinberg (1983) ^{state} avowed that sampling plays a crucial and complex role in external validity--the robustness of research findings or the ability to generalize the findings of a study. They contended there are at least four major sampling strategies that might be adopted for a study.

✧ These include: 1) sampling homogeneously over the entire study (i.e., staying with one age group), 2) sampling several subsets, each homogeneous within subset but differing between subsets, so that all subsets together span the whole range (e.g., subsets in the teens, the 20's, 30-50, and over 50), 3) sampling heterogeneously, but in a way that yields an overall distribution among the cases within the study that is reflective of the distribution of the real world (e.g., the age distribution of the target population, and 4) sampling heterogeneously without regard to representativeness. McGrath and Brinberg pointed out that these four strategies offer different opportunities for, and pose different threats to, exploring robustness for any given set of findings. ✧ McGrath and Brinberg (1983) supported a decision of going with a selective approach of choosing a homogenous sample as more useful when the researcher is explicitly searching for boundary conditions on theoretically predicted hypotheses. ^{as in this study}

Lynch (1983) contended that when a researcher has no formal theoretical (explanatory) grounds for predicting an outcome on a variable (rather is relying on tangentially related literature, casual empirical observations, or researcher hunches) the selective approach of homogenous sampling would be preferable to deliberate sampling for heterogeneity because interaction or relationships can be interpreted more easily.

Lynch (1983) advocated that theoretical predictions on variables offers both a challenge and an opportunity for theory enrichment. Each prediction or "block" on a variable can be considered to be an independent method by which the predictions of one's theory can be tested. Lynch supported Cronbach and Meehl's contention that one's confidence in an hypothesized nomological network increases with the number and independence of predictions that are confirmed.

With a desire to assess aspects of robustness or external validity in ^{*} this research study, the decision was made to go with a homogeneous sample in relation to age (i.e., ^(18 years of age or older) 40 to 60 year old adults) and to make theoretical predictions on selected variables (expressed in hypotheses 3, 4, and 5).

Nunnally (1978) points out that psychometric theory relates much more to the sampling of content than to the sampling of people. This sets up a two-way problem, one concerned with the sampling of people and the

other with the sampling of content. Nunnally (1978) asserts that in performing statistical analyses in an instrument development study, it is virtually impossible to simultaneously consider both of these dimensions in sampling. Therefore, psychometric theory is considered to be large-sample theory. Nunnally (1978) contended that enough subjects should be used in testing a new instrument that sampling error with respect to persons is a minor consideration. Nunnally (1978) purported that in a psychometric evaluation of a new measure that a minimum of five subjects per item is needed. Burns and Grove (1987) supported that the minimum number of subjects for each variable in a study is five. As the proposed study involves instrument development, each item on the instrument is considered a variable.

The instrument under development in the present study has 36 items. Therefore, using the minimum number of 5 subjects for each item, the minimal study sample size was considered to be at least 180.

Protection of Human Participants

As the present study was a survey of adults, seeking anonymous information of a nonsensitive nature, permission to conduct the study from Texas Woman's University Human Subjects Review Committee was not necessary. The researcher constantly considered legal and ethical guidelines during the study. Participation was voluntary. Subjects could

withdraw at any time. Confidentiality was maintained by various measures: the participant's name was not written on the instrument, nor was any other means of identifying participants with any of the research data used; and participants returned the completed forms to a closed box which was not opened by the researcher until the desired number of participants had been obtained. No data were collected until approval of the study was granted by Texas Woman's University.

A cover letter on the first page of the instrument served to explain the purpose of the study. The cover letter stated that completion and return of the instrument constituted consent to be a part of the study and that the participant could withdraw at any time from the study.

Data Collection

The data for the present study were collected at social and civic organization meetings, and a recreation center. The researcher alone collected data, over a period of three months. The researcher explained the study to potential participants, either individually or in groups, and invited participation in the study. A brief explanation of the purpose of the study followed by aspects involved in completing the instrument was provided. The SAS, along with pencils, were distributed to those indicating a willingness to participate. The participants then were asked to complete the instrument and return them to a closed box while the researcher waited

in an area adjacent to where participants were completing the instruments. The length of time for participants to complete the instruments ranged from 8 to 15 minutes.

Instrumentation

The Spirituality Assessment Scale (SAS) with appended demographic and situational questions was the instrumentation used in this study. The SAS was originally developed with 44 items. The SAS was then revised to 36 items following content expert evaluation and pilot study data analysis. The 36-item version (See Appendix C) was used in the major (psychometric) study. The SAS is a self report scale which provides quantitative data on spirituality, an abstract concept. The items are placed on a six point Likert-type scale ranging from Strongly Disagree to Strongly Agree. Scores on items are summed to obtain an individual's score. A higher score on SAS is considered to represent a higher degree of spirituality.

Demographic and situational data were obtained from study participants through an appended demographic section to the SAS (See Appendix E). Questions sought information regarding gender, age, educational level, race/ethnic background, marital status, income, number of people residing in household, how religious the participant considered self, how often religious events were attended, religious affiliation, if there was a belief in a Higher Power or Supreme Being, how recently a crisis event had

been experienced, the nature of the crisis event, and a rating of physical health.

The data obtained on how religious the participant considered self, how often religious events were attended, and how recently a crisis event had been experienced were used as related constructs in expanded validity assessments for the study. Theoretical predictions were made about relationships between scores on the SAS and ratings on the questions pertaining to the related constructs. A discussion concerning the predictions follows in the treatment of data section of this chapter.

Treatment of Data

Following data collection, data were coded and entered into a computer data file. The data were analyzed for internal consistency (reliability) and factor loadings (construct validity), thereby testing the conceptual framework. Further, correlation, regression, and descriptive statistics were used to describe the sample and analyze relationships between select variables. Following are study hypotheses with their specific data treatments and specified criteria:

H1. The internal consistency reliability coefficient of the Spirituality Assessment Scale (SAS) is greater than or equal to 0.7.

Cronbach's coefficient alpha was used to estimate internal consistency of the Spirituality Assessment Scale (SAS). Internal consistency refers to

the extent to which all items on a scale or subscale measure the same concept (Kerlinger, 1986). Support for internal consistency would be demonstrated by alpha correlation coefficients of 0.7 or greater on each subscale as well as on the total instrument. The higher the alpha correlation coefficient, the higher the reliability of the instrument. While alpha correlation coefficients of 0.8 to 0.9 are desirable, it is expected that a newly-developed instrument would demonstrate a lower estimate of internal consistency (Nunnally, 1978).

H2. Unifying interconnectedness, purpose and meaning in life, innerness or inner resources, and transcendence are factors related to the phenomenon of spirituality.

Construct validity is dependent on a conceptual or theoretical base for a study. If an instrument has construct validity, the instrument represents the conceptual or theoretical constructs (Waltz, Strickland & Lenz, 1984). As a beginning assessment of internal construct validity, the Spirituality Assessment Scale (SAS) was factored by using principal components factor analysis. This technique was chosen to begin assessment as to whether the dimensions or clusters of attributes or variables are representative of the conceptualized concepts identified in the theoretical model. Factor loadings of 0.40 or greater give support for construct validity (Hedderson, 1987; Tabachnick & Fidell, 1989).

H3. There is a significant ($p \leq .01$) positive relationship between total Spirituality Assessment Scale (SAS) scores and the recent (within the past year) experience of a crisis event.

H4. There is no significant ($p \leq .01$) relationship between total SAS scores and religiousness.

H5. There is no significant ($p \leq .01$) relationship between total SAS scores and frequency of attendance at religious events.

Lynch (1983) argued that external validity is highly relevant to theoretical research. If theoretical predictions are shown to hold in a particular research study, one's confidence in the generality of the theory's predictions is increased. Lynch contended that making theoretical predictions on variables offers both a challenge and an opportunity for theory enrichment as well as external validity assessments. Each theoretical prediction on a variable can be considered to be an independent method of theory testing.

Brinberg and McGrath (1985) expressed external validity as "a concern for the robustness of an empirical finding, which in turn is a concern for reducing uncertainty vis a vis that finding" (p. 127). Brinberg and McGrath avowed that only by exploring the scope and limits of a set of findings is the researcher likely to reduce uncertainty about it.

Hypotheses 3, 4, and 5 were theoretically predicted in order to begin assessments of external validity for this study. These select predictions were based on ideas gleaned from the review of literature in which research in adult populations in the area of spirituality has yielded early findings in relation to these variables. Findings concerning a positive relationship between spirituality and the experience of a crisis event were found in studies by Burns (1989) and Fehring, Brennan and Keller (1987). Studies by Banks, Poehler and Russell (1984); Burkhardt (1991); Carson, Winkelstein, Soeken and Brunins (1986); and Highfield (1992) presented findings/conclusions that individuals may or may not express spirituality through religion, religious practices or attendance at religious events.

For hypotheses 3, 4, and 5 the significance level was set at .01 due to the large sample size ($N=189$) for this study. According to the r power tables in Cohen and Cohen (1986) for $\alpha=.05$ with $r=.30$ and $n=180$, power=.98; for $\alpha=.01$ with $r=.30$ and $n=190$, power=.95. Due to both the homogenous nature of the sample and the large size needed for the instrument development focus of the study, the more stringent significance level of .01 was chosen.

* Data related to these hypotheses were obtained through the responses of study participants to specific questions in the demographic section of the administered instrument (Appendix E). One question asked if

the participant considered self to be a religious person and gave response options as not at all, not very religious, moderately religious, very religious and other (specify). Another question asked how often the participant attended religious events with response options consisting of at least once a week, at least once a month, 2-3 times a year, not at all and other (specify). Questions related to the experience of a crisis event asked how recently the participant had experienced a crisis event and what the nature of the crisis(es) experienced were. Response options for the recency of an experienced crisis included: 1) I have not experienced any crisis in my adult life, 2) More than 5 years ago, 3) Between 2 and 5 years ago, 4) Between 1 and 2 years ago, and 5) During the past year. The question about the nature of the crisis was open-ended, with a space left for the participant to answer the question in their own words.

Each of these hypotheses (3, 4, and 5) expresses a relationship between two variables. Correlational analysis involves the systematic investigation of relationships between two or more variables. If a relationship exists, the type (positive or negative) and the degree or strength of the relationship can be determined (Burns & Grove, 1987; Porter & Hamm, 1986). Pearson product-moment correlations were completed to analyze the predicted relationships. Assumptions to be met for Pearson correlation include normality, linearity and homoscedasticity.

Therefore data pertaining to the correlation variables were screened prior to analysis with SPSS-X programs FREQUENCIES, EXAMINE with the subcommand "Plot" and, REGRESSION with the subcommands "Scatterplot" and "Outliers".

Summary

This chapter detailed the development of the Spirituality Assessment Scale, a research instrument designed to measure the concept of spirituality. The originally developed instrument consisted of 44 items. Methods for the estimation of validity and reliability were presented. Content validity was supported by a panel of content experts. A pilot test was conducted with 94 undergraduate and graduate nursing students. The alpha correlation coefficients for the original instrument were very favorable, providing preliminary evidence of internal consistency.

Statistical analysis and participant feedback of the pilot test as well as the content expert evaluation was used to revise the original instrument into a 36 item version. Procedures for the psychometric study of the revised instrument for sample selection, administration of the instrument, and collection and treatment of data were described. The sample for the psychometric evaluation was 189 adults between the ages of 40 and 60 who resided in a southwestern metroplex and 50-mile radius area. SPSS-X programs RELIABILITY, FACTOR, CORRELATION, FREQUENCY,

EXAMINE, REGRESSION and CROSSTABS were used for data analysis in the study.

CHAPTER IV

ANALYSIS OF DATA

A methodological study was conducted to psychometrically evaluate the Spirituality Assessment Scale (SAS), a measure to assess spirituality, in a sample of adults. Central to the psychometric evaluation of the SAS was the estimation of reliability and validity. The data were analyzed through a series of statistical and analytic procedures. Data analysis findings will be described in detail, and each hypothesis will be examined in light of the findings.

Description of Sample

The final sample for this study consisted of 189 adults between the ages of 40 and 60 residing within a 50 mile radius of a large metroplex in the southwestern United States. Instruments were returned by 194 individuals with 189 (97%) sufficiently complete for use. The data were collected over a period of two and one-half months. Descriptive data, including gender, age, educational level, ethnic background, marital status, income level, degree of religiousness, frequency of attendance at religious events, religious affiliation, belief in a Higher Power or Supreme Being, designation of self in relation to religious belief, recency and nature of crisis events in adult life, and rating of physical health are presented in Table 2.

Table 2

Descriptive Data of Research Sample

Variable	Frequency	Percent
<u>Gender</u>		
Female	94	49.7
Male	95	50.3
<u>Age</u>		
40	8	4.2
41	5	2.6
42	10	5.3
43	18	9.5
44	22	11.6
45	13	6.9
46	15	7.9
47	11	5.8
48	2	1.1
49	3	1.6
50	10	5.3
51	8	4.2
52	7	3.7
53	11	5.8
54	6	3.2
55	13	6.9

(table continues)

Variable	Frequency	Percent
56	5	2.6
57	8	4.2
58	5	2.6
59	7	3.7
60	2	1.1

Education Level

High School or G.E.D.	10	5.3
Some College	50	26.5
Vocational School	9	4.8
College Graduate	43	22.8
Graduate Degree	77	40.7

Ethnic Background/Race

Caucasian/White	179	94.7
African-American/Black	6	3.2
Spanish-American/Hispanic	2	1.1
Asian-American	2	1.0

Marital Status

Married	163	86.2
Divorced	21	11.1
Single	3	1.6
Widowed	2	1.1

(table continues)

Variable	Frequency	Percent
<u>Family Income Per Year</u>		
\$10,000 - 20,000	14	7.4
\$20,001 - 30,000	15	7.9
\$30,001 - 50,000	38	20.1
\$50,001 - 80,000	76	40.2
\$80,001 - 100,000	26	13.8
Over \$100,000	20	10.6
<u>Number People Residing In Household</u>		
1	15	7.9
2	84	44.4
3	29	15.3
4	55	29.1
5	3	1.6
6	3	1.6
<u>Considers Self To Be A Religious Person</u>		
Not At All	5	2.6
Not Very Religious	8	4.2
Moderately Religious	103	54.5
Very Religious	73	38.6

(table continues)

Variable	Frequency	Percent
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Frequency Of Attendance At Religious Events

At Least Once A Week	128	67.7
At Least Once A Month	30	15.9
2-3 Times A Year	22	11.6
Not At All	7	3.7
Other	2	1.1

Religious Affiliation

Baptist	79	41.8
Christian, Non-specified	20	10.6
Presbyterian	17	9.0
Methodist	15	7.9
Catholic	14	7.4
Episcopal	13	6.9
No Affiliation	11	5.8
Protestant	8	4.2
Church of Christ	6	3.2
Disciples Of Christ	3	1.6
Lutheran	3	1.6

Belief In A Higher Power Or Supreme Being

Yes	180	95.2
No	5	2.6
Other	4	2.1

(table continues)

Variable	Frequency	Percent
<u>Considers Self</u>		
Agnostic	7	3.7
Believer	178	94.2
Atheist	2	1.1
Other	2	1.1
<u>Recency Of Experiencing A Crisis Event</u>		
More Than 5 Years Ago	41	21.7
Between 2 and 5 Years	42	22.2
Between 1 and 2 Years	28	14.8
During Past Year	78	41.3
<u>Nature Of Crisis(es) Experienced</u>		
Death	80	42.3
Illness	30	15.9
Financial Difficulty	27	14.3
Divorce	22	11.6
Career Change Or Loss	15	7.9
Move Of More Than 100 Miles	8	4.2
Broken Relationship	4	2.1
Family Problems	3	1.6

(table continues)

Variable	Frequency	Percent
<u>Rating Of Physical Health</u>		
Excellent	74	39.2
Good	104	55.0
Fair	11	5.8

The sample was virtually equally divided between females (49.7%) and males (50.3%). The mean age was 48.5 years, with all years between 40 and 60 represented. The largest age group represented was 44 (11.6%), followed by 43 (9.5%). By decade, the 40's represented 56.5% of the sample, and the 50's represented 42.2%. The sample was predominately Caucasian/white (94.7%) with a modest representation from African-American/blacks (3.2%), Spanish-American/Hispanics (1.1%), and Asian-Americans (1.0%). The majority of the subjects (86.2%) were married. Eleven percent (11.1%) were divorced, with slight representation from single (1.6%) and widowed (1.1%) subjects. Educational levels consisted of at least High School or G.E.D. (5.3%), with the majority holding a graduate degree (40.7%), and the remainder having attended some college (26.5%), vocational school (4.8%), or having graduated from college (22.8%).

The mean family income for subjects was \$47,670, with sixty-four percent (64.6%) reporting incomes of \$50,001 or greater. Number of people residing in the household was reported as one (7.9%), two (44.4%), three (15.3%), four (29.1%), five (1.6%), or six (1.6%), with 2 to 4 people in the household representing 88.8% of the sample.

Subjects primarily reported being moderately (54.5%) or very (38.6%) religious, with the remainder reporting being not at all religious (2.6%) or not very religious (4.2%). Frequency of attendance at religious events was largely reported as at least once a week (67.7%), with at least once a month representing 15.9%, 2-3 times a year representing 11.6%, not at all representing 3.7%, and two subjects (1.1%) stating attendance as "weddings and funerals only" and "don't like church". Religious affiliation was overwhelming reported as Christian (94.2%) with denominational breakdown consisting of Methodist (7.9%), Presbyterian (9.0%), Baptist (41.8%), Episcopal (6.9%), Catholic (7.4%), Disciples of Christ (1.6%), Lutheran (1.6%), and Church of Christ (3.2%). No religious affiliation was reported by 11 (5.8%) subjects.

A belief in a Higher Power or Supreme Being was strongly reported by subjects (95.2%), with 5 subjects (2.6%) reporting no belief and two subjects reporting as "not sure" or "undecided", one subject stating "I believe in a true and living God", and one subject stating "I believe in Almighty

God". Subjects predominately considered self to be a believer (94.2%), with the remainder designating themselves as agnostic (3.7%), atheist (1.1%) and two subjects (1.1%) designating themselves as "not sure".

In relation to the recency of experiencing a crisis event, 41 subjects (21.7%) reported a crisis of more than five years ago, 42 subjects (22.2%) reported a crisis of between two and five years ago, 28 subjects (14.8%) reported a crisis between one and two years ago, and 78 subjects (41.3%) reported a crisis within the past year. The nature of the crisis(es) experienced was reported as death (42.3%), career change or loss (7.9%), illness (15.9%), divorce (11.6%), financial difficulty (14.3%), broken relationship (2.1%), family problems (1.6%), and move of more than 100 miles (4.2%). The majority of subjects reported their physical health as good (55.0%). The remaining subjects reported their health as excellent (39.2%) or fair (5.8%).

In summary, the study sample was equally divided between females and males and was largely Caucasian, married, and holding a college or graduate degree. Further, subjects predominately reported having two to four people residing in the household, with a family income of \$30,000 or more a year, considered themselves to be moderately or very religious, and generally attended religious events at least once a week. Religious affiliation was overwhelmingly reported as Christian with Baptists,

Presbyterians, Methodists, and Catholics comprising the predominate denominations. Subjects overwhelmingly expressed a belief in a Higher Power or Supreme Being. The majority had experienced a crisis event within the past two years, and reported their physical health as being good or excellent.

Findings

The purpose of this study was to further develop, refine, and psychometrically evaluate the Spirituality Assessment Scale (SAS), an instrument to measure spirituality. Central to this study was the examination of the reliability and validity of the instrument. Cronbach's alpha correlation coefficient was used to assess the internal consistency reliability of SAS and each of its four subscales at three separate points: 1) an initial assessment of the 36 item SAS, 2) an interim assessment following revision of SAS based on the initial reliability assessment, and 3) final assessment following final revision of the instrument based on construct validity assessment carried out using exploratory factor analysis. Further, additional assessment of the validity of SAS was carried out through the use of theoretical predictions on select variables. Specific procedures and findings related to these activities are delineated in the following pages.

Initial Internal Consistency Reliability of the SAS

The original 44-item SAS was revised following content expert evaluation and pilot testing into a 36 item instrument. The instrument was developed using four theoretical subscales: Purpose and Meaning in Life, Innerness or Inner Resources, Unifying Interconnectedness and Transcendence. The 36 item instrument was administered to 189 adults in the present study. Cronbach's alpha correlation coefficient was used to assess the internal consistency reliability of SAS and its four theoretical subscales. The SPSS-X RELIABILITY program was used to calculate alpha values for the total instrument and the four theoretical subscales. For initial statistical analysis, a grouping of all 36 items was compiled for total instrument analysis, and items were grouped for the same subscale for subscale analysis. The results of the initial analysis for internal consistency for the total SAS and for each subscale are summarized in Table 3. The initial alpha correlation coefficient for SAS (36 items) was 0.9088. The initial alpha correlation coefficient for the subscales ranged from 0.7099 for the Transcendence subscale to 0.8508 for the Meaning or Purpose in Life subscale.

Table 3

Initial Alpha Correlation Coefficients for SAS and Four Subscales

Subscale	No. Items	Alpha
SAS (Total Instrument)	36	0.9088
Meaning or Purpose	5	0.8508
Innerness	9	0.7944
Interconnectedness	15	0.7627
Transcendence	7	0.7099

Tables 4-7 include additional data related to each of the subscales.

Data include corrected item/total correlation for each item in the subscale, alpha of subscale and alpha of total scale if the item was deleted.

Table 4

Initial Alpha Correlation Coefficients for Meaning and Purpose Subscale

Item No.	Corrected Item/Subscale Correlation	Alpha Subscale if Item Deleted	Alpha Total Scale if Item Deleted
21	.8248	.7720	.9034
23	.7508	.7950	.9018
25	.8609	.7706	.9030
28	.1388	.9117	.9087
36	.7368	.7991	.9043

Meaning and Purpose Subscale Alpha Coefficient .8505

Table 5

Initial Alpha Correlation Coefficients for Innerness or Inner Resources Subscale

Item No.	Corrected Item/Subscale Correlation	Alpha Subscale if Item Deleted	Alpha Total Scale if Item Deleted
11	.6455	.7518	.9039
13	.4135	.7896	.9081
15	.4483	.7789	.9044
17	.6861	.7466	.9045
19	.4999	.7727	.9049
20	.4549	.7787	.9043
27	.5745	.7647	.9057
31	.3668	.7884	.9072
35	.3543	.7948	.9073
Innerness or Inner Resources Subscale Alpha Coefficient .7944			

Table 6

Initial Alpha Correlation Coefficients for Unifying Interconnectedness Subscale

Item No.	Corrected Item/Subscale Correlation	Alpha Subscale if Item Deleted	Alpha Total Scale if Item Deleted
2	.3258	.7533	.9056
3	.3899	.7478	.9076
5	.4110	.7454	.9081
6	.2930	.7564	.9100
7	.3288	.7531	.9087
9	.6006	.7285	.9061
10	.6324	.7211	.9031
12	.4129	.7475	.9076
22	.4594	.7407	.9060
26	.1590	.7655	.9086
29	.1857	.7644	.9117
30	.2848	.7574	.9079
32	.4042	.7461	.9071
33	.4027	.7463	.9065
34	.1917	.7686	.9080

Unifying Interconnectedness Subscale Alpha Coefficient .7627

Table 7

Initial Alpha Correlation Coefficients for Transcendence Subscale (n=7)

Item No.	Corrected Item/Subscale Correlation	Alpha Subscale if Item Deleted	Alpha Total Scale if Item Deleted
1	.2670	.7091	.9099
4	.3680	.6892	.9068
8	.3343	.7022	.9059
14	.5297	.6475	.9042
16	.4973	.6554	.9066
18	.4221	.6772	.9062
24	.5473	.6507	.9048
Transcendence Subscale Alpha Coefficient		.7099	

Interim Reliability of SAS (32 Items)

Following initial reliability assessment, each item was evaluated based on its corrected item-total correlation with both the theoretical subscale and total instrument. A series of analyses were carried out in which items that decreased the coefficient alpha of either the total instrument or the assigned subscale were deleted from the item pool and item-total correlations of the revised set were recalculated. Results of these analyses yielded a deletion of four items with lower than 0.20 correlation coefficients (one item had a negative correlation of 0.0033 with the total

instrument as well as a correlation lower than 0.20 with the subscale). This was consistent with the recommendation by Shelly (1984) to delete items with lower than 0.20 correlation. Items with correlations higher than 0.20 yielded a lowered alpha if deleted. Alpha correlation coefficients were then recalculated from the study sample ($N= 189$) for each of the revised subscales and the total revised SAS instrument. A summary of the results of the interim analysis for internal consistency reliability for the revised total SAS (32 items) and the revised subscales are provided in Table 8.

Table 8

Interim Alpha Correlation Coefficients for Revised SAS and Four Subscales

Subscale	No. Items	Alpha
SAS (Total Instrument)	32	0.9115
Meaning or Purpose	4	0.9117
Innerness	9	0.7944
Interconnectedness	12	0.7795
Transcendence	7	0.7099

The alpha coefficient for the total instrument improved and alpha coefficients for all of the subscales either improved or remained the same. Tables 9-12 include alpha correlation coefficients for each of the four revised subscales. Each table includes corrected item/total correlation for each item, alpha of subscale if item deleted, and alpha of total scale if item deleted.

Table 9

Interim Alpha Coefficients for Revised Meaning or Purpose Subscale

Item No.	Corrected Item/ Subscale Correlation	Alpha Subscale if Item Deleted	Alpha Total Scale if Item Deleted
21	.8375	.8735	.9058
23	.7700	.8961	.9042
25	.8510	.8748	.9056
36	.7645	.8477	.9067
Meaning or Purpose Revised Subscale Alpha Coefficient			.9117

Table 10

Interim Alpha Coefficients for Revised Innerness Subscale

Item No.	Corrected Item/ Subscale Correlation	Alpha Subscale if Item Deleted	Alpha Total Scale if Item Deleted
11	.6455	.7518	.9070
13	.4135	.7896	.9113
15	.4483	.7789	.9067
17	.6861	.7466	.9070
19	.4999	.7727	.9076
20	.4549	.7787	.9068
27	.5745	.7647	.9086
31	.3668	.7884	.9103
35	.3543	.7948	.9112
Innerness or Inner Resources Revised Subscale Alpha Coefficient			.7944

Table 11

<u>Interim Alpha Correlation Coefficients for Unifying Interconnectedness Subscale</u>			
Item No.	Corrected Item/Subscale Correlation	Alpha Subscale if Item Deleted	Alpha Total Scale if Item Deleted
2	.3486	.7708	.9082
3	.4394	.7621	.9103
5	.4812	.7570	.9108
6	.2583	.7804	.9133
7	.3422	.7717	.9117
9	.6307	.7422	.9089
10	.6636	.7341	.9056
12	.3416	.7715	.9108
22	.5348	.7511	.9086
30	.1162	.7952	.9118
32	.3904	.7674	.9102
33	.4849	.7568	.9089
Unifying Interconnectedness Revised Subscale Alpha Coefficient .7795			

Table 12

Interim Alpha Correlation Coefficients for Revised Transcendence Subscale

Item No.	Corrected Item/Subscale Correlation	Alpha Subscale if Item Deleted	Alpha Total Scale if Item Deleted
1	.2670	.7091	.9131
4	.3680	.6892	.9097
8	.3343	.7022	.9089
14	.5297	.6475	.9067
16	.4973	.6554	.9091
18	.4221	.6772	.9095
24	.5473	.6507	.9076
Transcendence Revised Subscale Alpha Coefficient		.7099	

Construct Validity and Factor Analysis

Factor analysis was employed to begin estimation of construct validity for the Spirituality Assessment Scale (SAS). Although guided by the supposition that four subscales were present, the analysis was considered exploratory as it provided the initial assessment of the construct validity of the instrument. Confirmatory factor analysis was not undertaken in this study. The principal components method was used through the SPSS-X program FACTOR. Nunnally (1978) recommended principal component analysis in exploratory factor analysis because "each

principal-component factor explains more variance than would the loadings obtained from any other method of factoring" (p. 357). Additionally, it was decided that factors extracted would be rotated using both oblique and varimax rotations. Ferketich and Muller (1990) explained that varimax rotation is based on the assumption that the factors are uncorrelated while oblique rotation assumes that factors may be correlated with each other. They further contended that when more than one rotation procedure is applied, "comparison of the results, particularly from the perspective of the theoretical framework, will result in the strongest final decision" (p. 62). To assess construct validity of the SAS, each item was evaluated as to its "loading on a factor". Factor loadings of 0.40 or higher on at least three items for a factor was considered support for the factor and the retention of those items (Kim & Mueller, 1978; Tabachnick & Fidell, 1989). It was decided that if an item loaded on more than one factor, then the factor with the highest loading would be selected. Also, for items loading on more than one factor, a difference of at least 0.15 was sought. The Kaiser-Guttman standard of an eigenvalue of greater than 1.0 was used to determine the number of factors for interpretation (Ferketich & Muller, 1990; Tabachnick & Fidell, 1989).

Factor analysis was performed with the 32 items in the revised version of SAS in order to investigate the groupings of the items in relation

to the hypothesized subscales. The factor analysis extracted eight factors, explaining 72.1% of the variance of the instrument. Table 13 displays the extracted factors, eigenvalues, percentage of variance contributed by each factor, and the cumulative percentage of variance yielded by the factor analysis.

Table 13

Eigenvalues and Variance Percentages for Factors (32 item instrument)

Factor	Eigenvalue	% of variance	Cumulative %
1	9.53	29.8	29.8
2	3.81	11.9	41.7
3	2.48	7.7	49.4
4	1.83	5.7	55.1
5	1.58	5.0	60.1
6	1.50	4.7	64.8
7	1.24	3.9	68.6
8	1.09	3.4	72.1

Examination of the rotations on the extracted eight factors revealed similar results, however the oblique rotation was not as interpretable. Ferketich and Muller (1990) explained that with oblique rotation the results "may be difficult to interpret since the closeness of any two vectors may

obscure the distinction between factors" (p. 62). Ferketich and Muller (1990) stated that varimax rotation is the most frequently used and reported option because it "tends to clarify the relationship of items to factors by maximizing the loading on one factor and minimizing loadings on all others" (p. 62). Therefore the varimax rotation was used. Results of the varimax rotation indicated that factors seven and eight had only one item each that loaded at 0.4 or greater. The items as well as the factors were deleted. Six factors that met the specified factor analysis criteria remained. Items were grouped by factor and theoretical subscale for easier interpretation. Items within a factor supporting a particular theoretical subscale were listed. Factors one and three contained five items; Factors two, four and six contained four items; Factor five contained six items. The results of the principal component factor analysis, grouped by theoretical subscale, is presented in Table 14. As can be seen in the table, the loadings for the items were fairly well correlated, with most loadings well above the inclusion criteria of 0.40. Also evident is support for the theoretical subscales even though two subscales produced two factors each. The conceptual congruency among the items that loaded together in these "split" subscales was an interesting finding. It was felt that the exploratory factor analysis yielded results that conceptually "made sense" and supported the hypothesized theoretical subscales drawn from the conceptual framework.

Table 14

Factor Analysis of SAS Using Varimax Rotation*

Theoretical Subscale/Item #	Factor					
	1	2	3	4	5	6
<u>Unifying Interconnectedness</u>						
2	.71					
3	.77					
5				.66		
9	.68					
10				.61		
12	.83					
22	.40			.58		
32	.72					
33	.41			.67		
<u>Meaning and Purpose in Life</u>						
21		.92				
23		.79				
25		.84				
36		.80				

(table continues)

Theoretical Subscale/Item #	Factor					
	1	2	3	4	5	6
<u>Innerness or Inner Resources</u>						
11			.66			
13			.75			
15						.66
17			.57			.46
19						.79
20						.90
27			.63			
31			.70			
35						.76
<u>Transcendence</u>						
4		.44			.67	
8					.56	
14					.59	
16					.46	
18	.45				.61	
24					.81	

* Items included are limited to those with loading of 0.40 and greater.

Note: The clusters that support the theoretical subscale are in boldface type.

Examination of the loading of items when grouped by subscale revealed two items that had no apparent relevance to the other items that loaded on the respective factors. Therefore, the items were deleted. Further examination of item loadings, made through the theoretical framework of spirituality, disclosed that two subscales produced two factors each. The subscale on Innerness or Inner Resources produced two factors identified as: 1) Innerness expressed as harmony, balance, peace, and relationship with Supreme Being, and 2) Innerness utilized for guidance and strength particularly in times of difficulty or struggle. The subscale on Unifying Interconnectedness produced two factors identified as: 1) Connectedness to others, and 2) Connectedness to life, community and world. The subscales of Meaning and Purpose in Life and Transcendence were supported through item loadings. This provided a six factor solution, which explained 64.8% of the variance. With the theoretical theme being maintained between the two factors produced in each of the subscales of Innerness or Inner Resources and Unifying Interconnectedness, a four attribute model of spirituality as proposed in this study was supported. An additional finding from the factor analysis was that many items loaded on more than one factor. However, most of the loadings on a second and sometimes third factor were below the inclusion criteria of 0.40. This suggested there may be an enmeshed-type relationship between the

attributes being measured by the instrument. This would be consistent with the researcher's conceptual view of spirituality.

Final Reliability of SAS

The findings of factor analysis resulted in the deletion of four items (1, 6, 7, and 30). Items 1 and 30 were deleted because they were the only items to load on their respective factors at 0.4 or greater. Items six and seven were deleted because they had no apparent theoretical relevance to the remaining items that loaded on their particular factors. Numerous groupings and comparisons were carried out to assess further item deletions, but had the overall effect of lowering the internal consistency of the instrument and/or subscale. It was therefore determined that the 28 item instrument that emerged from the factor analysis yielded the maximum reliability for each subscale and the total instrument, while leaving the maximum number of items. The resulting alpha coefficients for SAS and each of the subscales are presented in Tables 15 through 19.

Table 15

Final Alpha Correlation Coefficients for SAS and Four Subscales

Subscale	No. Items	Alpha
SAS (Total Instrument)	28	0.9164
Meaning or Purpose	4	0.9117
Innerness	9	0.7944
Interconnectedness	9	0.8017
Transcendence	6	0.7091

Table 16

Final Alpha Correlation Coefficients for the Revised Meaning or Purpose Subscale

Item No.	Corrected Item/Subscale Correlation	Alpha Subscale if Item Deleted	Alpha Total Scale if Item Deleted
21	.8375	.8735	.9101
23	.7700	.8961	.9087
25	.8510	.8748	.9103
36	.7645	.8977	.9113

Meaning or Purpose Final Subscale Alpha Coefficient .9117

Table 17

Final Alpha Correlation Coefficients for the Revised Innerness or Inner Resources Subscale

Item No.	Corrected Item/Subscale Correlation	Alpha Subscale if Item Deleted	Alpha Total Scale if Item Deleted
11	.6455	.7518	.9125
13	.4135	.7896	.9172
15	.4483	.7789	.9116
17	.6861	.7466	.9119
19	.4999	.7727	.9124
20	.4549	.7787	.9110
27	.5745	.7647	.9140
31	.3668	.7884	.9157
35	.3543	.7948	.9172
Innerness or Inner Resources Final Subscale Alpha Coefficient .7944			

Table 18

Final Alpha Correlation Coefficients for Unifying Interconnectedness Subscale

Item No.	Corrected Item/Subscale Correlation	Alpha Subscale if Item Deleted	Alpha Total Scale if Item Deleted
2	.4544	.7871	.9129
3	.4873	.7830	.9155
5	.4675	.7861	.9165
9	.6077	.7677	.9143
10	.6566	.7579	.9107
12	.2848	.8043	.9163
22	.5722	.7713	.9137
32	.3094	.8077	.9159
33	.6020	.7671	.9135
Unifying Interconnectedness Final Subscale Alpha Coefficient .8017			

Table 19

Final Alpha Correlation Coefficients for the Revised Transcendence Subscale

Item No.	Corrected Item/Subscale Correlation	Alpha Subscale if Item Deleted	Alpha Total Scale if Item Deleted
4	.3027	.7082	.9150
8	.3399	.7045	.9151
14	.5250	.6432	.9119
16	.5010	.6499	.9145
18	.4477	.6682	.9153
24	.5683	.6399	.9130

Transcendence Final Subscale Alpha Coefficient .7091

Pearson product-moment correlation coefficients between SAS (total instrument) and each of its four subscales were: 0.8789 for the Innerness or Inner Resources subscale, 0.8421 for the Transcendence subscale, 0.7897 for the Meaning and Purpose in Life subscale, and 0.7789 for the Unifying Interconnectedness subscale. Pearson correlation coefficients were produced as a matrix when subscales were correlated with each other as well as the total instrument. The matrix is presented in Table 20.

Table 20

Pearson Correlation Coefficient Matrix for the Final SAS

Scale	Meaning	Inner	Connect	Trans	Total
Meaning	1.0				
Inner	.7048	1.0			
Connect	.6418	.5007	1.0		
Trans	.5632	.7302	.5164	1.0	
Total	.7897	.8789	.7789	.8421	1.0

Meaning = Meaning and Purpose in Life
 Inner = Innerness or Inner Resources
 Connect = Unifying Interconnectedness
 Trans = Transcendence

The evaluation of the correlation coefficients between the subscales indicated significant correlations at values ranging from .50 to .88. All correlations were positive and of moderate value, therefore correlations are interpreted as indicating significant positive relationships among the subscales. This is congruent with the conceptual framework for this study.

Summary of Item Analysis Correlations for 28-Item Final Instrument

Four estimates were used for item analysis in the study: item-total, inter-item, item-subscale, and subscale-subscale correlations. The criterion level for item-total correlations was 0.30 to 0.70, to indicate that items averaged together represent the content of the instrument rather than a few items with high correlations accounting for the content being measured

(Nunnally, 1978). The criterion level for inter-item correlations was 0.30 to 0.70 "to be high enough to index similar content yet low enough to avoid redundancy" (Hinshaw & Atwood, 1982, p. 172). The criterion for item-subscale correlations was 0.50 to 0.70 and 0.55 to 0.70 for subscale-subscale correlations for reasons similar to the rationale for the inter-item correlations (Hinshaw & Atwood, 1982).

Results of the item analysis yielded findings generally within the criteria specifications. Most item-total correlations ranged from 0.30 to 0.70. Seventy five percent of the inter-item correlations ranged from 0.30 to 0.70. One item in the Meaning and Purpose Subscale correlated strongly with two other items in the subscale. Correlations were 0.82 and 0.83, suggesting some redundancy between items. The one item stated "There is fulfillment in my life" and the strongly correlated items stated, "My life has meaning and purpose" and "The meaning I have found for my life provides a sense of peace". Since there were conceptual differences between the items, the researcher elected to keep the item in the final instrument and observe the item's performance in future studies. If the item continues to perform in a redundant fashion in other studies, then it would probably be deleted. Fifty percent of the item-subscale correlations ranged from 0.50 to 0.70. Two thirds (66%) of the subscale-subscale correlations ranged from 0.55 to 0.70.

Description of Summary Statistics of the Revised SAS and Subscales

Examination of summary statistics provided a means of analyzing subjects' responses to the SAS and its subscales. With response options scored from 1 to 6 (Strongly Disagree to Strongly Agree) possible total SAS scores could range from 28 to 168. It was determined that score ranges would represent spirituality as follows: 1) 140 - 160 would represent strong, positive spirituality, 2) 84 - 112 would represent fair, or mixed positive and negative spirituality, and 3) 28 - 56 would represent weak or negative spirituality--possibly "spiritual distress". Statistical analysis of the total instrument responses revealed a mean of 139.18, with a range of scores from 90 to 160 (showing a moderate dispersion of scores around the mean), indicating that subjects moderately varied their responses to the items. Table 21 provides a statistical summary of subject responses to the revised SAS and subscales.

Table 21

Summary Statistics of Subject Responses to the Revised SAS and Subscales

Scale # Items	Mean	S.D.	Range	Variance
Meaning (4 Items)	20.38	3.20	7-24	10.21
Inner (9 Items)	45.63	5.00	29-52	25.02
Connect (9 Items)	44.95	4.86	25-52	23.66
Trans (6 Items)	28.23	3.96	15-38	15.66
Total	139.18	14.30	90-160	204.42

Findings Concerning SAS Scores Within Demographic Groups

Scores on the SAS in relation to demographic groups in the study were analyzed. Table 22 presents the mean and standard deviation for selected demographic groups of the research sample. The data are useful in identifying possible differences in the performance of the instrument within various demographic groups. Several interesting findings emerged in the analysis. Marital status was the grouping with the largest disparity in mean scores. The religiousness grouping showed a notably higher mean score for the "not at all" religious as compared to the "not very" religious. The health grouping showed a much lower mean for the "fair" category.

Table 22

Mean SAS Scores Within Demographic Groups

<u>N=189</u> Group	<u>n</u>	Mean	Standard Deviation
<u>Gender</u>			
Female	94	184.60	16.49
Male	95	177.71	14.34
<u>Marital Status</u>			
Widowed	2	194.50	.71
Married	163	182.56	13.52
Divorced	21	176.33	19.50
Single	3	128.00	4.26
<u>Income</u>			
\$50,001-80,000	76	184.66	10.98
\$80,001-100,000	26	184.15	11.13
\$30,001-50,000	38	178.74	15.82
\$10,001-20,000	14	178.21	27.70
\$20,001-30,000	15	163.47	21.38

(table continues)

<u>N=189</u> Group	<u>n</u>	Mean	Standard Deviation
<u>Religiousness</u>			
Very	73	185.92	12.69
Not at all	5	181.00	10.84
Moderately	103	179.83	14.39
Not Very	8	154.38	30.67
<u>Attendance at Religious Events</u>			
At least once a week	128	183.26	13.66
Not at all	7	179.57	2.44
At least once a month	30	178.70	20.07
2-3 times a year	22	173.86	20.85
<u>Recency in Experiencing a Crisis Event</u>			
More then 5 years ago	41	183.24	12.62
2-5 years ago	42	178.64	14.06
1-2 years ago	28	176.32	18.71

(table continues)

<u>N=189</u> Group	<u>n</u>	Mean	Standard Deviation
<u>Rating of Physical Health</u>			
Excellent	74	183.72	9.57
Good	104	181.56	15.42
Fair	11	159.73	31.84

A t-test was completed (using SPSS) for the gender groups (females compared to males) to test for significant differences between their mean scores on the SAS. The SPSS program showed the variance of these two groups as not significantly different, therefore the pooled variance estimate was used for interpretation. This yielded a $t=3.07$ with 187 df and a two-tailed probability (p) of .002. This was interpreted as indicating that females scored significantly higher than males on the SAS in this study. Other comparisons between groups were not meaningful in this study due to the lack of variance in those groups.

Findings Concerning SAS and Relationship to Select Variables

Three relationships between total SAS scores and select variables were theoretically hypothesized in order to begin assessments of robustness or external validity for this study. Hypotheses included a positive relationship between SAS scores and the experience of a recent crisis event, no significant relationship between SAS scores and religiousness (subject

report of self as a religious person), and no significant relationship between SAS scores and frequency of attendance at religious events. Pearson product-moment correlational analysis was performed to examine the hypothesized relationships.

Correlation is used to measure association between variables, in that correlation is the measure of the size and direction of relationship between two variables (Tabachnick & Fidell, 1989). According to Porter and Hamm (1986), correlation coefficients between 0.0 and 0.4 should be interpreted as no relationship at 0 and progressively weak relationships from 0.4 toward 0.0. Correlation coefficients between 0.4 and 0.8 should be interpreted as moderate relationships. Coefficients between 0.8 and 1.0 should be interpreted as strong relationships, with 1.0 interpreted as a perfect correlation. The coefficient indicates the degree of relationship between two variables. The direction of the relationship is indicated by a positive or negative value. A positive correlation results when low values of one variable are associated with low values of the second variable, and high values are associated with high values. A negative correlation results when low values of a variable are associated with high values of the second variable and high values of a variable are associated with low values in the second variable (Porter & Hamm, 1986). Assumptions that should be met in order to use Pearson correlation include interval measurement, normal

distribution and homoscedasticity--indicating a linear relationship (Burns & Grove, 1987). Porter and Hamm (1986) stated that it is important for interpretation to remember that Pearson correlation can describe only a linear relationship between two variables. Tabachnick and Fidell (1989) explained that only the linear relationships among variables are analyzed and if there are substantial nonlinear relationships among variables, they are ignored unless the variables are transformed so as to capture the nonlinear relationship.

In order to assess for normality, linearity and homoscedasticity of the data the SPSS-X programs FREQUENCIES, EXAMINE with the subcommand "Plot", and REGRESSION with the subcommands "Outliers" and "Scatterplot" were used. Results indicated the presence of a few outliers and some failure in normality and linearity in the variables for recent experience of a crisis event, religiousness and frequency of attendance at religious events. Tabachnick and Fidell (1989) recommended data transformation as a remedy for outliers and for failures of normality, linearity, and homoscedasticity. The process consists of utilizing different transformations until the transformation that produces skewness and kurtosis values nearest zero, or the fewest outliers is revealed. ~~The~~ successful transformation was used on the three variables. To improve linearity and reduce extreme skewness and kurtosis, the religiousness variables were

variable was logarithmically transformed. The variables on frequency of attendance at religious events and recency in experiencing a crisis event exhibited curvilinear relationships with total SAS scores. Therefore, these two variables were split, coded into high and low on dummy variables and entered into the correlation analysis. Tabachnick and Fidell (1989) explained that the dichotomous dummy variable "can only have a linear relationship with other variables, if, indeed, it has any relationship at all" (p.80).

Findings from descriptive data analysis revealed that all study participants reported the experience of a crisis event in their adult lives. The Pearson correlation coefficient between total SAS scores and recency in experiencing a crisis event was $r=0.0122$ ($p=.018$). The correlation coefficient and corresponding significance level were interpreted as indicating no significant relationship between the recent (within the past year) experience of a crisis event and higher total SAS scores.

The Pearson correlation coefficient between total SAS scores and reported religiousness in study participants was $r=0.2447$ ($p=.001$). This was interpreted as a significant weakly positive relationship between higher total SAS scores and reports of participants considering self to be religious.

The Pearson correlation coefficient between total SAS scores and frequency of attendance at religious events was $r=0.0598$ ($p=.014$). This was

interpreted as indicating no significant relationship between higher total SAS scores and reports of participants frequently attending religious events.

Analysis of Study Findings in Relation to Conceptual Model

One important purpose of a ^{theoretical framework} ~~conceptual model~~ is to provide a ^{concept} ~~context~~ for the interpretation of study findings (Burns & Grove, 1987). For this study, the ^{theoretical model} ~~conceptual model~~ presented concepts (variables) and relationships among the variables that served as the framework for instrument development as well as for validity assessments.

As part of instrument development and construct validity assessment, exploratory factor analysis was carried out. The results supported the major variables in the conceptual model as subscales for the developed instrument even though two subscales produced two factors each. The conceptual congruency among the items that loaded together in these "split" subscales was an interesting finding. It was felt that the exploratory factor analysis yielded results that conceptually "made sense" and supported the hypothesized theoretical subscales drawn from the four major concepts (variables) of the conceptual model. Therefore, the four major concepts (variables) and their covary relationship were supported.

Expanded validity assessments were conducted in the study through theoretical predictions made regarding SAS scores and relationship to recent experience of a crisis event, religiousness and frequency of

attendance at religious events. These selected predictions were based on literature which suggested that relationships exist between these variables. Findings related to the expanded validity provided mixed results. One of the predicted relationships was supported and two were not. It is felt that relationships do exist between the variables of experience of a crisis event, religiousness, frequency of attendance at religious events and spirituality as the model suggests, however, it is not clear either from previous research or this study the exact nature of the relationships. A detailed discussion of the findings, conclusions and implications related to the expanded validity assessments in this study is provided in Chapter Five.

Analysis of Study Findings and Research Hypotheses

The examination of findings from the data analysis yielded conclusions regarding the research hypotheses of the study. Following is a presentation of conclusions for each hypothesis based on study findings.

H1. The internal consistency reliability of the Spirituality Assessment Scale (SAS) is greater than or equal to 0.7.

The internal consistency reliability of the SAS total instrument maximized at an alpha correlation coefficient of 0.9164. Additionally, all subscale alpha correlations were above 0.7. Based on the statistical analysis of the internal consistency of SAS and its subscales, hypothesis one was accepted.

H2. Unifying interconnectedness, purpose and meaning in life, innerness or inner resources and transcendence are factors related to the phenomenon of spirituality.

Principal component factor analysis with a factor loading criteria of 0.40, and a minimal loading of 3 items on a single factor, produced six factors meeting the specified criteria. The theoretical subscales on unifying interconnectedness and innerness or inner resources split between two factors each. The other two theoretical subscales met the factor loading criteria with single factors. Based on factor analysis of SAS, hypothesis two was accepted.

H3. There is a significant positive relationship between total Spirituality Assessment Scale (SAS) scores and the recent (within the past year) experience of a crisis event.

The Pearson correlation coefficient between total SAS scores and the reported recency of a crisis event was $r=0.0122$ ($p=.018$). This was interpreted as indication of no significant relationship between higher total SAS scores and a recent experience of a crisis event. Based on the correlation analysis, hypothesis three was rejected.

H4. There is no significant relationship between total SAS scores and religiousness.

The Pearson correlation coefficient between total SAS scores and reported religiousness in study participants was $r=0.2447$ ($p=.001$). This was interpreted as a significant weakly positive relationship between higher total SAS scores and a report of religiousness in study participants. Based on the correlation analysis, hypothesis four was rejected.

H5. There is no significant relationship between total SAS scores and frequency of attendance at religious events.

The Pearson correlation coefficient between total SAS scores and frequency of attendance at religious events was $r=0.0598$ ($p=.014$). This was interpreted as no significant relationship between higher total SAS scores and more frequent attendance at religious events. Based on the correlational analysis, hypothesis five was accepted.

Summary of Findings

The data analysis of this study for the development and psychometric evaluation of the Spirituality Assessment Scale (SAS) produced favorable results. The findings provided support for reliability and construct validity for SAS as a newly developed instrument.

The revised SAS (28 items) with an internal consistency reliability coefficient of 0.9164 is well above the minimum value of 0.70 (Nunnally, 1978) specified as acceptable for a newly developed instrument. This indicates a very solid reliability. The reliability assessments for the four

subscales also indicate solid reliability, with coefficients ranging between 0.7091 and 0.9117. Initial construct validity assessment conducted with principal component factor analysis supported the validity of the instrument. Assessments of robustness or external validity of the study conducted through theoretically predicted relationships between SAS and select variables provided mixed results. One of the predicted relationships was supported and two were not. A discussion of findings as related to implications for nursing and recommendations for further study of the SAS is presented in Chapter Five.

CHAPTER V

SUMMARY OF THE STUDY

The problem of the study focused on the identification of the attributes or variables which represent an individual's spirituality. The purpose of the methodological study was to develop, refine, and estimate the psychometric properties of the researcher developed Spirituality Assessment Scale (SAS). The initial segment of the study involved the identification of the attributes or variables that represent spirituality. Following the writing of items and the construction of the SAS, content validity was evaluated by experts who have conducted research and/or written in the area of spirituality. The instrument was pilot tested and revised in light of content expert evaluation, pilot participant feedback, and pilot data analysis. The instrument was reprocessed in readiness for the psychometric study. Five hypotheses related to reliability and validity were proposed prior to the collection of the data.

This chapter includes a summary of the psychometric research study, a discussion of findings, conclusions and implications, and recommendations for further study. The reliability and validity of the Spirituality Assessment Scale (SAS), a newly developed instrument to measure spirituality in

adults, are addressed in a discussion of the findings of this study. Findings are summarized as they relate to the five proposed hypotheses.

Synopsis

This methodological study was designed for the purpose of producing a valid and reliable instrument to measure spirituality in adults. The construction of the Spirituality Assessment Scale (SAS) was guided by the Spirituality Model. The model was developed by the researcher through the processes of concept analysis, synthesis and derivation (Walker & Avant, 1988) and theory construction (Blalock, 1969). The concepts of the model are considered the critical attributes of spirituality and include: Purpose and meaning in life, Innerness or inner resources, Unifying Interconnectedness, and Transcendence.

The psychometric study was conducted with 189 adults between the ages of 40 and 60 from a southwestern metroplex and 50 mile radius area. Subjects were equally divided between males (50.3%) and females (49.7%). The mean age was 48.5 years, with all years between 40 and 60 represented. The sample was largely caucasian, married, and holding a college or graduate degree. Further, subjects predominately reported having two to four people residing in the household, with a family income of \$30,000 or more a year, considered themselves to be moderately or very religious, and generally attended religious events at least once a week.

Religious affiliation was overwhelmingly reported as Christian with Baptists, Presbyterians, Methodists, and Catholics comprising the predominate denominations. Subjects overwhelmingly expressed a belief in a Higher Power or Supreme Being. The majority had experienced a crisis event within the past 2 years, and reported their physical health as being good or excellent.

The Spirituality Scale (SAS) that was administered to study participants contained 36 items. The originally constructed SAS had contained 44 items but was revised following content expert evaluation and pilot testing in readiness for the psychometric study with a larger sample. Following data collection, questionnaires were coded, entered into a data file, and statistically analyzed using SPSS-X computer programs for estimates of internal consistency reliability, factorial validity and external validity. Descriptive statistics were used to describe the demographic and personal characteristic data.

Discussion of the Findings

The findings of the study are discussed in relation to reliability and validity assessments. Demographic and personal characteristics of the sample are also discussed in relation to the outcomes of the study.

Reliability

Internal consistency of the total instrument as well as subscales was assessed using Cronbach's alpha correlation coefficient. The hypothesis related to internal consistency (hypothesis 1) was supported. The alpha for the final version (28 items) total SAS was 0.9164. The final alpha coefficients of the subscales were: 1) Purpose and Meaning in Life, 0.9117, 2) Innerness or Inner Resources, 0.7944, 3) Unifying Interconnectedness, 0.8017, and 4) Transcendence, 0.7091. The internal consistency reliability coefficients were considered acceptable for a newly developed instrument. According to Waltz, Strickland & Lenz (1984), alpha "measures the extent to which performance on any one item on an instrument is a good indicator of performance on any other item in the same instrument" (p. 136). Since alpha is a measure of internal consistency, the higher the alpha for an instrument or a subscale, the higher the consistency of the instrument or subscale. Nunnally (1978) stated that alpha levels of 0.8 to 0.9 are desired, but 0.7 may be acceptable for a newly developed instrument. Since all final alphas for the SAS fell at 0.7 or above, this would be considered acceptable. The two subscales of Innerness or Inner Resources with 9 items and Transcendence with 6 items yielded the lowest alphas at 0.7944 and 0.7091. The literature theoretically supports these concepts as representing

spirituality. The challenge is to be able to write instrument items that will precisely measure these variables.

Construct Validity

Factor analysis proved helpful in revising the SAS instrument. A factor loading criteria of 0.40, and a minimal loading of 3 items on a single factor, produced six factors meeting the specified criteria. The additional two factors, with loadings of only one item each, resulted in those items being deleted from the instrument. Additionally, examination of the loading of items when grouped by subscale revealed two items that had no apparent relevance to the other items that loaded on the respective factors. These items were also deleted from the instrument. Further examination of item loadings, made through the theoretical framework of spirituality, disclosed that two subscales produced two factors each. The subscale on Innerness or Inner Resources produced two factors identified as: 1) Innerness expressed as harmony, balance, peace and relationship with Supreme Being, and 2) Innerness utilized for guidance and strength, particularly in times of difficulty or struggle. The subscale on Unifying Interconnectedness produced two factors identified as: 1) Connectedness to others, and 2) Connectedness to life, community and world. The subscales of Meaning and Purpose in Life and Transcendence were supported through item loadings. With the theoretical theme being maintained between the two factors

produced in each of the subscales of Innerness or Inner Resources and Unifying Interconnectedness, a four factor model of spirituality as proposed in this study was supported.

Overall, the factor analysis was helpful in identifying ineffectual items. Finally, initial construct validity for the SAS was supported by the results of the factor analysis.

External Validity

Robustness or external validity estimation of study findings was analyzed using Pearson correlation to assess theoretically predicted relationships between SAS total scores and select variables. The selected predictions were based on literature which suggested that relationships exist between these variables and spirituality. Three relationships were hypothesized. Hypotheses 3, 4, and 5 postulated the following relationships: 1) a significant positive relationship between total SAS scores and the recent experience of a crisis event, 2) no significant relationship between total SAS scores and religiousness (or subject consideration of self as a religious person), and 3) no significant relationship between total SAS scores and frequency of attendance at religious events. For these hypotheses the significance level was set at .01 due to the sample size ($N=189$) for this study. The level of statistical significance is greatly affected by the size of the sample. Given large samples, correlations that

are described as demonstrating "little, if any" relationship are statistically significant (Cohen & Cohen, 1983; Munro, Visintainer, & Page, 1986).

The third hypothesis postulated that there was a relationship between the recent experience of a crisis event and total SAS scores. The Pearson correlation coefficient between total SAS scores and a recent (within the past year) experience of a crisis event ($r = 0.0122$, $p = .018$) was interpreted as indicating no significant relationship (thereby rejecting the hypothesis). The coefficient of determination (or r squared) is often used as a measure of the "meaningfulness" of r (Munro, Visintainer & Page, 1986). This coefficient is a measure of the amount of variance that the variables share. For the variables of SAS scores and a recent experience of a crisis event, r squared = 0.0001, or .01%. Which means that only .01% of the variance in SAS scores can be explained by a recent experience of a crisis event. Further research between these variables is indicated. A review of cross tabulated data confirmed that subjects in this study who had experienced a crisis event between 1 and 2 years ago, or between 2 and 5 years ago, or more than 5 years ago scored just as high on the SAS as those who had experienced a crisis within the past year. What was not possible to analyze in this study was whether there was any relationship between SAS scores and no experience of a crisis event in adult life (if in fact such people exist) as all study participants reported having experienced an adult

crisis event. Even though research by Burns (1989) and Fehring, Brennan and Keller (1987) supported a relationship between the experience of crisis and the experience of spirituality or spiritual phenomena, no relationship was supported in this study. Possible explanations for this difference in findings include: 1) skewness in the variable distribution that could not be adequately corrected, 2) nonlinear relationships between the variables that could not be adequately corrected with data transformations, and 3) inexperience of the researcher that resulted in a theoretical "leap" from a reported relationship between the two variables to an assumption that the relationship was based on recency in experience of the crisis event.

The fourth hypothesis postulated that there was no relationship between reported religiousness and total SAS scores. The Pearson correlation coefficient between total SAS scores and reported religiousness in study participants ($r = 0.2447$, $p = .001$) was interpreted as a significant weakly positive relationship. Based on the correlational analysis, this hypothesis of non-relationship was rejected. For these variables $r^2 = 0.0598$, or 6%. Therefore, only 6% of the variance in SAS scores could be explained by reported religiousness in study subjects, or 94% of the variance is attributed to factors other than religiousness. A look at the study sample shows that all but 13 out of the 189 subjects reported being very or moderately religious. Even though the hypothesis was rejected, due

to the variables not having sufficient variance as well as a large, homogeneous sample, on a practical level this result was not meaningful. Further research between these variables is indicated.

The fifth hypothesis postulated that there was no relationship between frequency of attendance at religious events and total SAS scores. The Pearson correlation coefficient between total SAS scores and frequency of attendance at religious events ($r = 0.0598$, $p = .014$) was interpreted as indicating no relationship between higher total SAS scores and more frequent attendance at religious events. Based on the correlational analysis, this hypothesis was accepted. For these two variables, $r^2 = 0.0036$, or 0.36%. This means that only 0.36% of the variance in SAS scores can be explained by frequency of attendance at religious events. Frequency data indicate that all but 29 out of the 189 participants attended religious events at least weekly or monthly. Due to the lack of variance on this variable, little faith can be put in these statistical results. Studies by Banks, Poehler and Russell (1984); Burkhardt (1991); Carson, Winkelstein, Soeken and Brunins (1986); and Highfield (1992) presented findings or conclusions that individuals may or may not express spirituality through religion, religious practices or attendance at religious events. The results of the correlational analyses in this study between total SAS scores, reported religiousness and frequency of attendance at religious events can not be

construed as either support or nonsupport for the previous studies' findings for the reasons cited.

Conclusions and Implications

From the review of literature, it is apparent that an instrument to measure spirituality would be useful to nurses in determining possible relationships between spirituality and an individual's response to health and health-related concerns. The results of the study supported the conceptual framework which identified four attributes as representing spirituality. The final 28 item version of the Spirituality Assessment Scale (SAS) (Appendix D) has potential as a useful instrument for data collection and research regarding spirituality. The instrument is concise enough to be completed in 10 minutes or less with most adults. It spawned great interest in many study participants, who engaged the researcher in discussion following data collection, and who shared personal experiences of spirituality.

Further reliability and validity assessments of the instrument are indicated. Due to the homogenous nature of the study sample (40 to 60 year old, predominately white, middle class, well educated, moderately religious, and Christian-primarily Protestant-adults from a single geographic area), findings cannot be generalized to other adults or to other geographic areas.

The researcher concluded that the Spirituality Assessment Scale demonstrates sufficient initial psychometric strength to warrant its continued evaluation in research with a wide variety of adult populations. It provides the first attempt of a measure to assess spirituality that encompasses the critical attributes to have recently emerged in the literature.

Recommendations for Further Study

The following recommendations for future study were identified:

1. The SAS's validity should be further examined utilizing a multitrait-multimethod design.
2. Further research studies should be conducted to establish a normative profile of total instrument as well as subscale scores for the general adult population.
3. Test/retest reliability estimation for assessment of stability of the SAS should be further explored.
4. Regression analysis with SAS and subject characteristics should be performed to ascertain predictor variables for spirituality.
5. Different populations should be tested and compared to ascertain possible differences in the performance of the instrument in groups who differ with regard to demographic characteristics and religious affiliation. A

random sampling technique would strengthen confidence in the validity and reliability of the SAS.

6. Analysis of the instrument's performance within various demographic groupings should be tested and compared (females vs. males, religious vs. nonreligious, etc.) to assess for possible differences. A random sampling technique would strengthen confidence in the results of such studies.

7. The technique known as LISREL should be utilized in a confirmatory factor analysis of the four attribute model of this study.

Summary

Instrument development is a long and arduous process. This study embodies the beginning development and evaluation of the Spirituality Assessment Scale (SAS). Results of the study are largely encouraging and indicate that SAS shows promise as a reliable and valid measure of spirituality in adults.

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APPENDIX A
Prospectus Approval

TEXAS WOMAN'S UNIVERSITY

DENTON DALLAS HOUSTON

THE GRADUATE SCHOOL

P.O. Box 22479, Denton, Texas 76204-0479 817/898-3400



August 27, 1991

Ms. Judy Howden
2100 Northlake Trail
Denton, TX 76201

Dear Ms. Howden:

I have received and approved the Prospectus for your reserach project. Best wishes to you in the research and writing of your project.

Sincerely yours,

Dissertation/Theses signature page is here.

To protect individuals we have covered their signatures.

APPENDIX B

Consent to Participate

Dear Participant,

I am a Doctoral Student at Texas Woman's University in the College of Nursing. The purpose of my study is to develop an instrument to assess spirituality. Spirituality is defined as the values, beliefs, and behaviors of the individual related to purpose or meaning in life; connectedness to self, others, life, and universal dimension(s); innerness or inner resources; and capacity for transcendence. The instrument is designed to assess these four areas. Information gained from completed forms will be analyzed to evaluate the effectiveness of the instrument. Ultimately, my goal is to study a possible relationship between spirituality and health. Research in this area might help nurses, and other health professionals, gain insight into factors that can influence an individual's health.

Completion of this instrument is strictly voluntary and you may withdraw from the study at any time. The return of a completed form will indicate consent to participate in the study. All instructions are contained on the instrument and responses will be anonymous. Your participation is greatly appreciated.

Thank you for your interest and participation,

Judy W. Howden, M.S.E., R.N.
Doctoral Student
Texas Woman's University
College of Nursing
Denton, Texas

APPENDIX C
Spirituality Assessment Scale
Psychometric Evaluation Version (36 Items)

SPIRITUALITY ASSESSMENT SCALE

DIRECTIONS: Please indicate your response by circling the appropriate letters indicating how you respond to the statement.

MARK:

"SA" if you STRONGLY AGREE

"A" if you AGREE

"AM" if you AGREE MORE than DISAGREE

"DM" if you DISAGREE MORE than AGREE

"D" if you DISAGREE

"SD" if you STRONGLY DISAGREE

There is no "right" or "wrong" answer. Please respond to what you think or how you feel at this point in time.

- | | | |
|----|--|-----------------|
| 1. | I can look at things from new and different points of view. | SA A AM DM D SD |
| 2. | I have a general sense of belonging. | SA A AM DM D SD |
| 3. | I am able to forgive people who have done me wrong. | SA A AM DM D SD |
| 4. | I have the ability to rise above or go beyond a physical or psychological condition. | SA A AM DM D SD |
| 5. | I am concerned about destruction of the environment. | SA A AM DM D SD |
| 6. | Relationships are important to me, even though they may be hard. | SA A AM DM D SD |
| 7. | I feel close to nature. | SA A AM DM D SD |

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|-----|---|-----------------|
| 8. | I have experienced moments of peace in a devastating event. | SA A AM DM D SD |
| 9. | I feel a kinship to other people. | SA A AM DM D SD |
| 10. | I feel a connection to all of life. | SA A AM DM D SD |
| 11. | I rely on an inner strength in hard times. | SA A AM DM D SD |
| 12. | I enjoy being of service to others. | SA A AM DM D SD |
| 13. | I can go to a spiritual dimension within myself for guidance. | SA A AM DM D SD |
| 14. | I have the ability to rise above or go beyond a body change or body loss. | SA A AM DM D SD |
| 15. | I have a sense of harmony or inner peace. | SA A AM DM D SD |
| 16. | I have the ability for self-healing. | SA A AM DM D SD |
| 17. | I have an inner strength. | SA A AM DM D SD |
| 18. | The boundaries of my universe extend beyond usual ideas of what space and time are thought to be. | SA A AM DM D SD |
| 19. | I feel good about myself. | SA A AM DM D SD |
| 20. | I have a sense of balance in my life. | SA A AM DM D SD |
| 21. | There is fulfillment in my life. | SA A AM DM D SD |
| 22. | I feel a responsibility to preserve the planet. | SA A AM DM D SD |

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|-----|--|-----------------|
| 23. | The meaning I have found for my life provides a sense of peace. | SA A AM DM D SD |
| 24. | Even when I feel discouraged, I trust that life is good. | SA A AM DM D SD |
| 25. | My life has meaning and purpose. | SA A AM DM D SD |
| 26. | I provide and/or receive emotional support from my relationships. | SA A AM DM D SD |
| 27. | My innerness or an inner resource helps me deal with uncertainty in life. | SA A AM DM D SD |
| 28. | I value my life. | SA A AM DM D SD |
| 29. | I believe there is a love connection that can exist between all open people. | SA A AM DM D SD |
| 30. | I feel a oneness with the universe and/or a Supreme Being. | SA A AM DM D SD |
| 31. | I have discovered my own strength in times of struggle. | SA A AM DM D SD |
| 32. | Reconciling relationships is important to me. | SA A AM DM D SD |
| 33. | I feel a part of the community in which I live. | SA A AM DM D SD |
| 34. | I have a relationship with a Supreme Being or Higher Power. | SA A AM DM D SD |
| 35. | My inner strength is related to a belief in a Higher Power or Supreme Being. | SA A AM DM D SD |
| 36. | I have goals and aims for my life. | SA A AM DM D SD |

APPENDIX D
Spirituality Assessment Scale
Final Version (28 Items)

SPIRITUALITY ASSESSMENT SCALE

DIRECTIONS: Please indicate your response by circling the appropriate letters indicating how you respond to the statement.

MARK:

"SA" if you STRONGLY AGREE

"A" if you AGREE

"AM" if you AGREE MORE than DISAGREE

"DM" if you DISAGREE MORE than AGREE

"D" if you DISAGREE

"SD" if you STRONGLY DISAGREE

There is no "right" or "wrong" answer. Please respond to what you think or how you feel at this point in time.

- | | | |
|----|--|-----------------|
| 1. | I have a general sense of belonging. | SA A AM DM D SD |
| 2. | I am able to forgive people who have done me wrong. | SA A AM DM D SD |
| 3. | I have the ability to rise above or go beyond a physical or psychological condition. | SA A AM DM D SD |
| 4. | I am concerned about destruction of the environment. | SA A AM DM D SD |
| 5. | I have experienced moments of peace in a devastating event. | SA A AM DM D SD |

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|-----|---|-----------------|
| 6. | I feel a kinship to other people. | SA A AM DM D SD |
| 7. | I feel a connection to all of life. | SA A AM DM D SD |
| 8. | I rely on an inner strength in hard times. | SA A AM DM D SD |
| 9. | I enjoy being of service to others. | SA A AM DM D SD |
| 10. | I can go to a spiritual dimension within myself for guidance. | SA A AM DM D SD |
| 11. | I have the ability to rise above or go beyond a body change or body loss. | SA A AM DM D SD |
| 12. | I have a sense of harmony or inner peace. | SA A AM DM D SD |
| 13. | I have the ability for self-healing. | SA A AM DM D SD |
| 14. | I have an inner strength. | SA A AM DM D SD |
| 15. | The boundaries of my universe extend beyond usual ideas of what space and time are thought to be. | SA A AM DM D SD |
| 16. | I feel good about myself. | SA A AM DM D SD |
| 17. | I have a sense of balance in my life. | SA A AM DM D SD |
| 18. | There is fulfillment in my life. | SA A AM DM D SD |

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|-----|--|-----------------|
| 19. | I feel a responsibility to preserve the planet. | SA A AM DM D SD |
| 20. | The meaning I have found for my life provides a sense of peace. | SA A AM DM D SD |
| 21. | Even when I feel discouraged, I trust that life is good. | SA A AM DM D SD |
| 22. | My life has meaning and purpose. | SA A AM DM D SD |
| 23. | My innerness or an inner resource helps me deal with uncertainty in life. | SA A AM DM D SD |
| 24. | I have discovered my own strength in times of struggle. | SA A AM DM D SD |
| 25. | Reconciling relationships is important to me. | SA A AM DM D SD |
| 26. | I feel a part of the community in which I live. | SA A AM DM D SD |
| 27. | My inner strength is related to a belief in a Higher Power or Supreme Being. | SA A AM DM D SD |
| 28. | I have goals and aims for my life. | SA A AM DM D SD |

APPENDIX E
Demographic Questions

DEMOGRAPHIC QUESTIONS

DIRECTIONS: Please answer the following questions about your demographic characteristics. The information gained will be kept confidential and will be used only for the preparation of a general profile for individuals participating in this research. Please circle the number in front of your answer and fill in the blank where appropriate.

1. What is your gender?
 - 1 FEMALE
 - 2 MALE
2. What is your birth date:
3. What is the highest educational level you have completed?
 - 1 Grammar School
 - 2 High School or G.E.D.
 - 3 Attended some college
 - 4 Vocational School
 - 5 College Graduate
 - 6 Graduate Degree
 - 7 Other (Specify)
4. What is your race/ethnic background?
 - 1 Caucasian/White
 - 2 African-American/Black
 - 3 Spanish-American/Hispanic
 - 4 Asian-American
 - 5 Other (specify) _____

5. What is your marital status?
- 1 Married
 - 2 Widowed
 - 3 Divorced
 - 4 Single
6. What is your household (combined) income per year?
- 1 Less Than \$10,000/Year
 - 2 \$10,000 - \$20,000/Year
 - 3 \$20,001 - \$30,000/Year
 - 4 \$30,001 - \$50,000/Year
 - 5 \$50,000 - \$80,000/Year
 - 6 \$80,001 - \$100,000/Year
 - 7 Over \$100,000
7. How many people reside in your household?
-
8. Do you consider yourself to be a religious person?
- 1 Not at all
 - 2 Not very religious
 - 3 Moderately religious
 - 4 Very religious
 - 5 Other (specify)

9. How often do you attend religious events?
- 1 At least once a week
 - 2 At least once a month
 - 3 2-3 times a year
 - 4 Not at all
 - 5 Other (specify)
10. What is your religious affiliation?
- _____
11. Do you believe in a Higher Power or Supreme Being?
- 1 Yes
 - 2 No
 - 3 Other (specify) _____
12. Do you consider yourself to be a(n):
- 1 Agnostic
 - 2 Believer
 - 3 Atheist
 - 4 Other (specify) _____

13. How recently have you experienced a crisis event in your life (death, financial difficulty, prolonged illness or injury, move of more than 100 miles, divorce, loss of job or career change, etc.):
- 1 I have not experienced any crisis in my adult life (skip to question 51)
 - 2 More than 5 years ago
 - 3 Between 2 and 5 years ago
 - 4 Between 1 and 2 years ago
 - 5 During the past year
14. What is the nature of the crisis(es) you have experienced in your life?
15. Please rate your physical health:
- 1 Excellent
 - 2 Good
 - 3 Fair
 - 4 Poor
 - 5 Other (specify)