

# Development and Testing of the Spiritual Needs Inventory for Patients Near the End of Life

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**Purpose/Objectives:** To develop and test an instrument to measure the spiritual needs of patients near the end of life.

**Design:** Instrumentation methodology.

**Setting:** One inpatient and five outpatient hospices.

**Sample:** 62 female and 38 male hospice patients with a mean age of 67 years; most were Caucasian, Protestant, and dying of cancer.

**Methods:** Items for the Spiritual Needs Inventory (SNI) were developed from a qualitative study of spiritual needs of dying patients. Data were analyzed for internal consistency using Cronbach's alpha and item-to-total correlations and for content and construct validity using factor analysis.

**Main Research Variables:** Spiritual needs and life satisfaction.

**Findings:** The total scale alpha of the 27-item SNI was 0.81. Item-to-total correlations ranged from 0.07–0.65, resulting in seven items being eliminated. A principal component factor analysis with a promax oblique rotation was used to estimate content and construct validity. A total of 17 items comprised the five-factor solution. Cronbach's alpha for the revised SNI was 0.85.

**Conclusions:** The SNI is a valid and reliable measurement of spiritual needs of patients near the end of life. Further psychometric testing of this newly developed instrument is warranted.

**Implications for Nursing:** Nurses must recognize the spiritual needs of all patients, particularly those near the end of life. The SNI may be useful in the clinical setting as well as in future studies of spiritual needs of patients.

## Key Points . . .

- ▶ A need exists for an instrument that can be used in research and clinical settings to assist in identifying the specific spiritual needs of patients who are near the end of life.
- ▶ The Spiritual Needs Inventory (SNI) was developed from a qualitative study of hospice patients in which they identified the spiritual needs they were experiencing.
- ▶ The SNI assesses the degree to which patients have specific spiritual needs and whether those needs are met in their lives.

## Background

Spirituality often is equated with religion, but important differences exist. Religion is an organized system of beliefs and worship (Jenkins & Pargament, 1995). Spirituality is broader than religion and has been described as a personal quest to find meaning and purpose in life (Taylor & Ferszt, 1990) and as a sense of relatedness to a transcendent dimension (Reed, 1992). Spirituality involves the whole person, including physical, psychological, and social aspects (Wright, 1998), and is always present (Reed, 1992). For this study, spirituality was defined as the inherent quality of all humans that activates and drives the search for meaning and purpose in life. It involves all aspects of the individual as lived in relationships with self, others, and a transcendent dimension. A spiritual need is something required or wanted by an individual to find meaning and purpose in life. Spirituality applies to everyone, regardless of religious beliefs (Ellerhorst-Ryan, 1997).

## Spirituality in Illness and Death

The role of religion and spirituality in coping with illness and death has been studied to a limited degree. Results conflict slightly, but religion and spirituality generally have been found to help individuals cope with illness and death. Spirituality has been found to be negatively correlated with loneliness (Miller, 1985) and anxiety (Kaczorowski, 1989) and positively correlated with hope (Mickley, Soeken, &

Spiritual assessment and intervention are important aspects of care for individuals as they near the end of life. The mandate for nurses to provide spiritual care for patients near the end of life is clear. The American Association of Colleges of Nursing ([AACN], 1997) included the assessment and treatment of spiritual needs in its list of "Competencies Necessary for Nurses to Provide High-Quality Care to Patients and Families During the Transition at the End of Life." Although nursing advocates spiritual care for all patients, nurses do not regularly provide spiritual care (Highfield, 1992; Narayanasamy, 1993; Narayanasamy & Owens, 2001; Taylor, Amenta, & Highfield, 1995). The reasons that spiritual care is not consistently provided include lack of education (Lemmer, 2002; Sellers & Haag, 1998) and confusion regarding the meaning of spirituality (Narayanasamy & Owens). Spiritual assessment tools can be found in the literature; however, they often measure religiosity as opposed to spirituality or they provide a general measurement of spiritual well-being instead of identifying specific spiritual needs. Thus, the development of a valid and reliable measurement of the spiritual needs of patients is essential for comprehensive care of dying patients. The purpose of this study was to develop and test an instrument to measure the spiritual needs of patients near the end of life.

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Belcher, 1992) and hardiness (Carson & Green, 1992). In her groundbreaking research on religiosity and spirituality, Reed (1986, 1987) found that terminally ill individuals reported comparable or greater religiosity (1986) and spirituality (1987) than healthy individuals or non-terminally ill, hospitalized adults and that spirituality was positively related to well-being (1987).

The importance of spirituality for patients with cancer is supported in a review of studies measuring religious and spiritual variables from three major oncology journals (Flannelly, Flannelly, & Weaver, 2002). Religiosity and spirituality were included as study variables but were less likely to be the major focus of studies. In addition, spirituality was studied more often using qualitative rather than quantitative methodology.

## Existing Tools to Measure Spirituality

Tools that measure some aspect of spirituality are in existence, and several have been used with ill patients. Existing tools are qualitative and quantitative in nature. Although excellent qualitative tools are available, including Stoll's (1979) classic Guidelines for Spiritual Assessment, Hess's (1983) Spiritual Needs Survey, the "SPIRITual History" (Maugans, 1996), and Dossey's (1998) Spiritual Assessment Tool, information on these instruments will not be presented because they yield different data than the Spiritual Needs Inventory (SNI), the tool developed in this study.

Several quantitative tools that measure aspects of spirituality can be found in the literature. An in-depth exploration of all of the tools is beyond the scope of this article; however, a brief review of the most commonly used measurement tools found in the healthcare literature will be provided to facilitate a comparison of the SNI with existing tools.

The measurement of spiritual well-being has been used frequently as an indicator of an individual's spirituality. A commonly used instrument is the Spiritual Well-Being Scale (SWBS), developed by Paloutzian and Ellison (1982). The SWBS is a 20-item scale, with 10 items that measure existential well-being and 10 items that measure religious well-being. Combining the scores on the two subscales provides an overall score of spiritual well-being. The authors acknowledged that the scale arises out of the Judeo-Christian conception of religious well-being in which God is conceived of in personal terms. Factor analysis of the SWBS found items clustered together as expected. Test-retest reliability coefficients have been reported to be 0.93 (spiritual well-being), 0.96 (religious well-being), and 0.86 (existential well-being) (Ellison, 1983). Problems in using the scale with individuals who do not believe in God, who believe in a different higher being, or who are not religious have been noted (Fernsler, Klemm, & Miller, 1999; Kirschling & Pittman, 1989; VandeCreek & Smith, 1992).

Reed's (1987) Spiritual Perspective Scale (SPS), formerly titled the Religious Perspective Scale (Reed, 1986), has been used widely in studies dealing with spirituality. The SPS is a 10-item scale that measures the degree to which spirituality permeates an individual's life and the extent to which individuals engage in spiritually oriented interactions (Reed, 1987). Higher scores indicate a greater spiritual perspective. Reliability and validity of the SPS have been supported. Cronbach's alpha coefficients have been reported to range from 0.93–0.95. Inter-item correlations range from 0.57–0.68. Construct validity of the SPS has been supported by the fact

that subjects who report a religious background have scored higher on the SPS than those not reporting a religious background.

The assessment of spiritual health is the focus of Highfield's (1992) Spiritual Health Inventory (SHI). The SHI is a 31-item self-report instrument that assesses whether patients have satisfactorily met spiritual needs for self-actualization, relationships, and hope. Higher scores are associated with higher spiritual health levels. Content and construct validity is based on literature review, consultation with experts in the field, and factor analysis. Factor analysis revealed three factors that accounted for 71.5% of the variance. Cronbach's alpha for the scale has been reported at 0.77.

Roberts' Serenity Scale is designed to measure a spiritual experience of inner peace (Roberts & Aspy, 1993). The 40-item scale measures components of serenity including meaning and purpose in life, hope, forgiveness, love, and relatedness. Greater levels of serenity are indicated by higher scores. An expert panel analysis established content validity. Factor analysis revealed nine factors that explained 58.2% of the variance. Cronbach's alpha was reported at 0.92. The Serenity Scale may be used with individuals with a wide range of religious views, including atheism (Ellerhorst-Ryan, 1997).

The development and use of instruments such as the scales mentioned previously have contributed a great deal of knowledge related to the spirituality of patients. Little research has been done regarding spirituality in patients near the end of life; however, spirituality is viewed as a contributor to quality of life in dying individuals (Wasner, Longaker, Fegg, & Borasio, 2005). None of the instruments mentioned was designed specifically for use with patients who are near the end of life. A great need exists for an instrument that would identify patients' specific spiritual needs and be appropriate for use with dying patients. Identification of specific needs could direct interventions aimed at improving the quality of life of patients who are near the end of life.

## Theoretical Model

Maslow's (1970) theory of motivation guided development and testing of the SNI. Maslow's theory is based on the idea that the individual is an integrated, organized whole and is most integrated when successfully facing a great joy, creative moment, major problem, threat, or emergency. The study of motivation is the study of the ultimate human goals, desires, or needs that are constant, never-ending, fluctuating, and complex. Maslow stated that man is a wanting animal, and as one desire is satisfied, another surfaces. His motivation theory was based on two underlying principles: Humans are satisfied in a relative or "one step along the path" (Maslow, p. 24) fashion, and humans want and need to arrange themselves in some sort of hierarchy of prepotency. Maslow arranged human needs in a hierarchy as follows: basic physiologic needs, safety, belongingness and love, esteem, and self-actualization.

Familiarity with the basics of Maslow's (1970) theory of motivation is great; however, misunderstandings do exist. Maslow stated that needs are organized into a hierarchy, but he did not intend that a need must be satisfied 100% before the next need emerges. He actually stated that the vast majority of people are partially satisfied and partially unsatisfied in all of their basic needs at the same time. A more realistic representation of the basic human needs hierarchy would be a declining

percentage of satisfaction as one progresses from the lowest needs up to self-actualization. Another misconception is that the hierarchy is in a fixed order, which, Maslow stated, is not always the case.

When Maslow's (1970) hierarchy is examined, the various aspects of man as a biopsychologic and spiritual being are revealed. The first level of needs, physiologic, corresponds with the biologic or physical aspect of the individual. The psychosocial aspects are encompassed in several of Maslow's categories, including the needs for safety, belongingness and love, and esteem. The spiritual aspect is evident in increasing levels, beginning with the safety needs and ending with self-actualization. Maslow stated that when a person is self-actualized, he or she has become everything that he or she is capable of becoming. When self-actualization is present, the needs of the individual have been met, including not only biopsychosocial needs but also spiritual needs.

Maslow (1970) stated, "It would seem that the degree of basic need gratification is positively correlated with the degree of psychological health" (p. 67). Higher need gratification results in more positive results on the individual's part, such as more profound happiness, serenity, and richness of inner life. Maslow's explanation of higher needs gratification seems to indicate that as an individual has his or her needs gratified and approaches self-actualization, quality of life improves in a concomitant manner. For instrument development, the investigator theorized that as spiritual needs are met, an individual moves closer to self-actualization and quality of life improves.

## Methods

### Scale Development

The SNI was based on results from a qualitative study of 19 hospice patients (Hermann, 2001). Patients described the meaning of the word spiritual and identified their specific spiritual needs. Most patients defined spiritual as "related to God" or "faith in God." Others perceived spiritual more deeply and stated that it gives meaning to life and touches everything in one's life. The qualitative data indicated that spirituality was a part of patients' total existence (Hermann). Twenty-nine different spiritual needs were identified from patients' narratives. The needs were grouped into six themes: (a) religion, (b) companionship, (c) involvement and control, (d) finish business, (e) experience nature, and (f) positive outlook. Items for the SNI were constructed by writing an item for each spiritual need that participants identified. An exception involved several needs relating to nature that were collapsed into one item, resulting in a 27-item scale. The themes served as subscale headings.

The SNI was constructed so that each subject answered three different questions for each spiritual need on the inventory. The questions ascertained to what degree the subjects experienced each need and which needs were met in their lives. Because the SNI was in development, the investigator also asked which needs subjects considered to be spiritual in nature. The question was asked to substantiate that the needs were spiritual in nature. Figure 1 provides the format of the SNI and five of the 27 items. The questions were (a) In order to live your life fully, do you need to . . . ? (rated on a Likert scale from 1 [never] to 5 [always]; column B on the SNI); (b) Do you think this is a spiritual need? (answered by marking yes or no; column C on the SNI); and (c) Is this need

currently met in your life? (answered by marking yes or no; column D on the SNI). The questions contributed to the psychometric testing of the SNI. In column B, subjects indicated the degree to which they experienced each need. Responses to the 27 items were added to obtain a total scale score. The psychometric tests of Cronbach's coefficient alpha, item-to-total correlations, item-to-subscale correlations, and factor analysis were based on ratings in this column. The results of these tests indicated which items to eliminate from the SNI during further development.

In column C, subjects indicated which needs they considered to be spiritual in nature. The question was answered only by subjects indicating in column B that they had a particular need. Column D ascertained the degree to which each need was met and was used to support construct validity. The number of unmet spiritual needs was correlated with life satisfaction as measured by a Cantril ladder (Cantril, 1965; Laborde & Powers, 1980). The Cantril ladder is a self-anchoring life satisfaction scale that uses a printed image of a ladder with the rungs numbered from 1–10. Subjects were asked to describe the best possible life they could imagine, and descriptors given by each patient were written by the top rung. Patients then were asked to imagine the worst possible life they could, and those descriptors were written next to the bottom (number 1) rung. Using the personally defined endpoints, subjects rated their life satisfaction for the present and for the time immediately preceding when they received the diagnosis of the disease from which they were dying.

After initial construction of the SNI, content validity was assessed using an expert rater panel. Three nurse researchers with content expertise in spirituality and one with additional expertise in instrument development reviewed the SNI for format, readability, clarity, and appropriateness to the concept of spirituality. The experts' comments were considered by the researcher and, after personal reflection and dialogue with colleagues as suggested by Green and Lewis (1986), changes were made.

Following review by the nurse researchers, five hospice chaplains reviewed the SNI for content validity and readability. No revisions were suggested. A statistician reviewed the instrument and randomly ordered the items to avoid response bias. Eleven laypeople completed the instrument and provided feedback on the readability, clarity, and appropriateness of each item to the instrument, as well as redundancy of items. A final review of the 27-item SNI was done by the three nurse researchers who served as initial reviewers, two additional nurse researchers, and two sociologists. One open-ended question was added for individuals to identify other spiritual needs not on the inventory.

### Procedure

All procedures were approved by the university's institutional review board and the participating hospices. Hospice staff members identified patients who met the inclusion criteria (18 years of age and older, alert and oriented, and able to communicate in English) and ascertained their interest in participating. The investigator was notified of interested patients, and plans for visits were made. The researcher visited potential subjects at their residences, explained the study, and obtained informed consent. The investigator and subject viewed the Cantril ladder and the SNI together. The investigator read the instructions and all items aloud and recorded

This questionnaire contains 27 phrases that describe needs (activities, thoughts, or experiences) that some people have said they have during their illness. For some people, these needs relate to the spiritual part of them. They define spiritual as that part of them that tries to find meaning and purpose in life. They believe a spiritual need is something they need or want in order to live their lives fully. I am interested in finding out what you consider spiritual needs to be and which of these needs you currently have.

Directions: Read the need in column A, then answer the questions in columns B, C, and D before going on to the next need in column A.

Column A	Column B					Column C		Column D	
	Please rate the items in the column below. For every item in column A that you answer 2, 3, 4, or 5, please answer yes or no in columns C and D.					Do you consider this activity to be a spiritual need?		Is this need being met in your life now?	
	Never	Rarely	Sometimes	Frequently	Always				
<b>In order to live my life fully, I need to</b>									
Sing/listen to inspirational music.	1	2	3	4	5	Yes	No	Yes	No
Laugh.	1	2	3	4	5	Yes	No	Yes	No
Be with friends.	1	2	3	4	5	Yes	No	Yes	No
Read inspirational materials.	1	2	3	4	5	Yes	No	Yes	No
Pray.	1	2	3	4	5	Yes	No	Yes	No

**Figure 1. Spiritual Needs Inventory (Select Items)**

*Note.* Figure courtesy of Carla P. Hermann. Adapted with permission.

the subjects' responses. A medical characteristics and demographic data form also was completed during visits.

## Setting and Sample

This study was conducted in five different outpatient hospices and one inpatient hospice facility. Data were collected from 100 hospice patients who met the inclusion criteria. Originally, 110 hospice patients agreed to participate in the study; however, 10 deteriorated or died before data collection could be completed. Of the 100 subjects, 62 were female. Most were Caucasian (n = 89) and Protestant (n = 71) with a diagnosis of cancer (n = 74), as shown in Table 1. Ages ranged from 21–99 years, with a mean of 67 years. The mean education level was 10.6 years with a range of 0–22 years. Most subjects (69%) were living in their own or a relative's home, and most (69%) indicated no

financial difficulty. Fifty-six percent of the sample had been hospice patients for fewer than four months. Hospice staff members were asked to rate subjects' health status as rapidly or slowly declining or stable. Ten percent were rated as rapidly declining, 56% were slowly declining, and 34% had been stable during the previous month.

## Results of Psychometric Analysis

Psychometric assessment of the SNI was modeled after the method recommended by Streiner and Norman (1995). To examine internal consistency, the item-to-total correlations and the total scale Cronbach's coefficient alpha were examined. The total scale score, obtained by adding each subject's responses on a Likert scale, signified the degree to which an individual had the needs. The possible range was 27 (subject indicates never having any of the needs) to 135 (subject indicates always having all of the needs). Therefore, a higher score would indicate a greater degree of "neediness." A greater degree of neediness does not indicate whether needs are met or unmet. Cronbach's coefficient alpha of the total 27-item scale was 0.81. Item-to-total correlations were obtained by correlating each item with the total scale score (from column B) while omitting that item. Correlations ranged from 0.07–0.65. All items with correlations lower than 0.20 were deleted as recommended by Streiner and Norman. Seven items were eliminated during the first phase of psychometric testing: the needs to (a) keep much of my life the same even though I am sick, (b) have information about my care, (c) think back over my life, (d) take one day at a time, (e) have input into decisions about my life, (f) resolve bitter feelings, and (g) enjoy nature.

Before factor analysis, "finish life tasks" was dropped from the 20-item instrument because the other items that were related to this item had been eliminated as a result of low item-to-total correlations. Factor analysis was used to estimate content and construct validity and was based on subjects' responses in column B. Factors were assumed to be correlated, and a principal component factor analysis with a promax oblique rotation was performed. After factor analysis of the 19-item SNI, the items

**Table 1. Demographic Characteristics**

Characteristic	%
<b>Gender</b>	
Female	62
Male	38
<b>Race</b>	
Caucasian	89
African American	9
Other	2
<b>Religious preference</b>	
Protestant	71
Catholic	18
Other	3
No preference	8
<b>Socioeconomic status</b>	
Basic needs perceived as met	69
Basic needs perceived as unmet	31
<b>Place of residence</b>	
Home (own or that of a relative)	69
Nursing home	20
Inpatient hospice unit	11

N = 100



“do as much for myself as possible” and “help care for others” were removed because they emerged as specific factors. The result was a 17-item instrument. To ensure that a five-factor solution was the most appropriate, an attempt to extract six factors was made. In the six-factor solution, two unrelated items, “be around children” and “use phrases from a religious text” formed a sixth factor. The items were not removed. Five factors again were extracted, and an interpretable factor solution was obtained (see Table 2). A total of 17 items comprised the factor solution, explaining 63.7% of the variance. All communalities were greater than 0.50. Correlations between the factors ranged from 0.04–0.22. The five factors were as follows: outlook, inspiration, spiritual activities, religion, and community.

## Psychometric Properties of the 17-Item Spiritual Needs Inventory

The coefficient alpha for the 17-item SNI was 0.85. Alpha-if-item-deleted statistics indicated that, for all 17 items, the alpha fell slightly below the total scale alpha coefficient and ranged from 0.83–0.85. Item-to-total correlations ranged from 0.33–0.70. In addition to the principal component method, the principal factor method was used to factor analyze the SNI. Identical factor structures for the 17 items were obtained using both methods of factor analysis.

The content validity of the subscales of the 17-item SNI was examined by calculating a Cronbach’s coefficient alpha for each subscale identified by factor analysis. In addition, the effect on each subscale’s alpha-if-item-deleted was examined. Item-to-subscale correlations were done. The total subscale score was obtained by adding each subject’s responses on the Likert scale in Column B for the subscale as indicated by the factor analysis. The possible range for each subscale differed depending on the number of items included. Table 3 indicates the coefficient alpha for each subscale, the alpha-if-item-deleted, and the item-to-subscale correlations. No increases

in alphas occurred if any item was removed, thus supporting all items belonging in the subscale. Because the coefficient alpha of each subscale was 0.62 or greater, the item-to-subscale correlations were well above 0.20 and the effects on the subscale alpha when each item was deleted individually were not problematic; therefore, no further revisions of the SNI were made.

Construct validity of the 17-item scale was evaluated by correlating the number of unmet spiritual needs as measured in column D of the SNI with the results of current life satisfaction as measured by the Cantril ladder. Originally, the correlations were done between the number of unmet spiritual needs as measured by the 27-item SNI. This correlation was –0.29. The correlation between the 17-item scale and the Cantril ladder was –0.17.

## Discussion

This study’s purpose was to develop and perform initial psychometric testing of a newly constructed tool that measures spiritual needs of patients near the end of life. A reliable and valid tool would assist healthcare professionals to identify spiritual needs of dying patients and intervene appropriately. The SNI is unique in that no other tool measures dying patients’ specific spiritual needs. Initial psychometric testing indicated sufficient reliability and validity to merit further development and testing of the instrument.

The investigator desired that the SNI would measure only one construct—spiritual needs. The SNI’s ability to examine the concept of spiritual needs was assessed by the item-to-total correlations. A moderate correlation among items in a scale supports homogeneity. The more homogenous the items, the more precise the reliability of the instrument (Strickland, 1996). Seven items were eliminated from the tool because of low item-to-total correlations. Perhaps the seven items

**Table 2. Factor Solution of the 17-Item Spiritual Needs Inventory<sup>a</sup>**

Variable (Factor)	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Communality
<b>Number 1</b>						
See smiles of others.	0.76	–	–	–	–	0.66
Think happy thoughts.	0.74	–	–	–	–	0.65
Talk about day-to-day things.	0.69	–	–	–	–	0.55
Be around children (own or others).	0.67	–	–	–	–	0.56
Laugh.	0.55	–	–	–	–	0.52
<b>Number 2</b>						
Talk with someone about spiritual issues.	–	0.81	–	–	–	0.70
Sing/listen to inspirational music.	–	0.64	–	–	–	0.56
Be with people who share my spiritual beliefs.	0.36	0.55	–	–	–	0.67
Read a religious text.	–	0.49	–	0.42	–	0.67
<b>Number 3</b>						
Use inspirational materials.	–	–	0.74	–	–	0.67
Use phrases from a religious text.	–	–	0.73	–	–	0.63
Read inspirational materials.	–	–	0.57	–	–	0.55
<b>Number 4</b>						
Pray.	–	–	–	0.76	–	0.72
Go to religious services.	–	–	–	0.67	–	0.67
<b>Number 5</b>						
Be with friends.	–	0.32	–	–	0.80	0.76
Be with family.	–	–	–	–	0.70	0.61
Have information about family and friends.	–	–	0.39	0.43	0.51	0.67

<sup>a</sup> Method of extraction: principal component; method of rotation: promax oblique rotation (second power); percent variance expected: 63.7%

**Table 3. Subscale Alpha Coefficients, Effect on Alpha Removing Each Item Individually, and Item-to-Subscale Correlations for the 17-Item Spiritual Needs Inventory**

Subscale and Corresponding Item	Subscale Alpha	Effect on Alpha Removing Each Item Individually	Correlation With Total <sup>a</sup>
<b>Subscale 1: outlook</b>	0.777018		
Laugh.		0.752919	0.50
Be around children.		0.755673	0.49
Think happy thoughts.		0.746039	0.52
Talk about day-to-day things.		0.726819	0.58
See smiles of others.		0.694306	0.67
<b>Subscale 2: inspiration</b>	0.763496		
Sing/listen to music.		0.735423	0.51
Read a religious text.		0.673978	0.62
Talk with someone about religious or spiritual issues.		0.724361	0.53
Be with people who share my religious beliefs.		0.694084	0.59
<b>Subscale 3: spiritual activities</b>	0.684805		
Read inspirational material.		0.607029	0.49
Use inspirational material.		0.512533	0.56
Use phrases from a religious text.		0.648401	0.45
<b>Subscale 4: religion</b>	0.740140		
Pray.		—	0.59
Go to religious services.		—	0.59
<b>Subscale 5: community</b>	0.623915		
Be with family.		0.566792	0.40
Be with friends.		0.410345	0.51
Have information about family and friends.		0.586211	0.39

<sup>a</sup> Standardized variables

measured a concept other than spirituality. Determining exactly why the items had such low correlations is difficult, but rewording the items may be warranted in further development of the SNI.

The items from the qualitative theme of “finish business” need to be examined further. All three items from the theme were eliminated during psychometric testing. The items may have been too broad. Subjects sometimes needed clarification on “think back over my life” and “finish life tasks.” A standard response was given, but differing interpretations may have been problematic. Finding meaning in one’s life as death nears has long been recognized as an important task of the dying. Doka (1993) noted that facilitating life review, personal reflection, and other activities that assist those who are dying to find meaning in life are important interventions for healthcare professionals to use with patients near the end of life. Including items related to this area will be explored in further development of the SNI.

Some items were eliminated from the SNI because they emerged as specific factors during factor analysis. Perhaps the number of items assessing certain spiritual needs was inadequate. Items were developed from qualitative data results, but some items seemed too narrow in focus and were eliminated because they emerged as a specific factor. For example, “help care for others” was the only item pertaining to doing for others. The need to help others is reflected in Reed’s (1991) Self Transcendence Scale by three items that involve helping others: (a) being involved with others, (b) sharing wisdom or experience with others, and (c) helping younger people or others in some way. This concept of altruism, important in the concept of spirituality, should be incorporated more fully into future versions of the SNI. Additionally, several items relating to experiencing nature had

been identified in the qualitative work on which the SNI was based (Hermann, 2001). For the SNI, these items were collapsed into one item, “enjoy nature.” Because only one item related to this need, the item emerged as a specific factor and was eliminated from the scale. As the SNI is developed further, all of the items from the experiencing nature theme in the qualitative study may need to be included.

The results of factor analysis on the final 17-item instrument distributed items into subscales somewhat differently than items were grouped under themes in the qualitative study; however, the multidimensionality of spiritual needs was apparent. Spiritual needs are multidimensional in nature and encompass much more than religion. Assessment of spirituality must be broad in scope if spiritual needs are to be met. The five-factor solution produced strong loadings for the 17 items. The results of the factor analysis supported construct validity by identifying five factors or clusters of variables that correlated more highly among themselves than with variables in other factors.

Cronbach’s coefficient alpha for the 17-item SNI was 0.85. Nunnally and Bernstein (1994) recommended that alpha be 0.70–0.90; therefore, 0.85 is favorable, particularly for a newly developed instrument, which supports internal consistency of the SNI. Internal consistency reliability was supported by the alpha-if-item-deleted statistics. Item-to-total correlations (0.33–0.70) indicated good homogeneity and lack of redundancy (Strickland, 1996) and supported reliability of the SNI.

The content validity of the subscales of the SNI was supported. The coefficient alphas for each subscale were respectable, particularly when the low number of items in each subscale is considered. Examination of the alpha-if-item-deleted supported the items belonging in the subscales, as did the item-to-total correlations. Enough independence among

the subscales exists to treat them separately. Therefore, a total score for the SNI could be obtained and a subscale score for each of the subscales could be calculated.

When construct validity of the SNI was examined, the correlation between the number of unmet spiritual needs and life satisfaction as measured by the Cantril ladder was  $-0.17$ . This negative correlation was not strong, but it demonstrates a general trend of unmet spiritual needs resulting in decreased quality of life, which lends support to the construct validity of the SNI. Perhaps a stronger negative correlation was not obtained because, although subjects reported needs as unmet, they believed these needs would never be met. For instance, "go to religious services" was an unmet need in more than 70% of the subjects. Subjects may have resigned themselves to a need such as this remaining unmet because of their health status so that the effect of this unmet need on life satisfaction was minimal. The correlation of unmet needs and life satisfaction was  $-0.29$  for the original 27-item scale, which decreased to  $-0.17$  when the number of items was reduced. The decrease may indicate that some of the items deleted from the scale should be reexamined for inclusion in future testing.

Additional planned revisions of the SNI include deletion of column C. The column was included during instrument development and testing to validate that the items did pertain to the concept of spirituality as determined in the qualitative study on which the instrument is based (Hermann, 2001). The notion that these needs are spiritual is well supported. Another revision that will be explored includes changing column D from a yes or no response to a Likert scale to ascertain the degree to which each need is being met. Examining which needs patients feel they frequently or always need to live their lives fully and then examining which are never or rarely met will aid in assessing and intervening for patients' most salient spiritual needs.

## Limitations

Although most data collection occurred while the investigator was alone with subjects, some interviews took place in the presence of hospice staff or family members. Individuals may have responded differently while in the presence of others. The SNI was read by the investigator to subjects as they viewed the tool. The psychometric results must be viewed in that light.

Further psychometric testing would be necessary if the SNI were to be self-administered as a paper-and-pencil instrument. Another possible limitation concerns sample size. Nunnally and Bernstein (1994) recommended a minimum of five subjects per item for factor analysis when conducting psychometric testing of an instrument; however, stable factor solutions with three subjects per item have been demonstrated (Knapp & Brown, 1995). Munro (1997) stated that because factor analysis is based on correlation, 100–200 subjects are adequate for most purposes. Psychometric evaluation of the SNI may be enhanced by use of a larger sample size. Few differences in responses based on demographic variables were observed, perhaps because of the sample size. A larger sample may reveal differences in responses. The lack of racial, cultural, and religious diversity in the sample is also a limitation. In addition, all subjects were hospice patients. The findings of this study may have been different among dying patients not receiving hospice care.

An estimate of the SNI's stability over time was not done. A test-retest would have provided an estimate of the stability of the scale and would have examined its potential for assessing change. Because the subjects were close to death, conducting a test-retest was inappropriate. Nunnally and Bernstein (1994) strongly supported the coefficient alpha as the best measure of reliability; however, a test-retest would have provided an estimate of stability over time.

## Conclusion

Spiritual needs of patients must be addressed if nurses are to provide optimal holistic care. The SNI holds promise as a valid and reliable measure of spiritual needs of people near the end of life; however, further development and testing are needed. A larger, more diverse, and random sample would yield stronger support for the SNI's psychometric properties. In addition, exploration of adapting the scale for use with patients at varying points in their illness trajectory may be warranted. Use of the SNI could aid in the identification of spiritual needs and assist in the provision of holistic care to individuals near the end of life.

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