

UNIVERSITY OF MIAMI
DEVELOPMENT AND TESTING OF A MEASURE
OF PATIENT SATISFACTION WITH NURSING CARE

By

Lee Alan Schmidt

A DISSERTATION

Submitted to the Faculty
of the University of Miami
in partial fulfillment of the requirements for
the degree of Doctor of Philosophy

Coral Gables, Florida

May 2001

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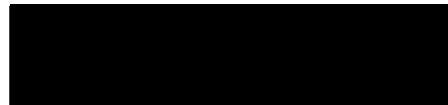
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Schmidt, Lee Alan
Development and Testing of a Measure of Patient
Satisfaction with Nursing Care

(Ph.D., Nursing)
(May 2001)

Abstract of a dissertation at the University of Miami

Dissertation supervised by Professor Nancy Hogan
No. of pages in text 262

The purpose of this research was to test an empirically derived measure of patient satisfaction with nursing care. Existing measures of this important phenomenon lack adequate validity and a strong theoretical base. A grounded theory study was completed with patients discharged from medical surgical units of a tertiary care facility. The results of that study provided the theoretical basis for the development of a measure of patient satisfaction with nursing care that was grounded in the experience of experts – the patients who have received nursing care.

The initial 37-item, 7-factor measure was tested in a sample of discharged medical surgical patients. Reliability was assessed through internal consistency. Construct validity was assessed through confirmatory factor analysis.

Acceptable reliability was obtained for the 7-factor model. In confirmatory factor analysis, the model did not fit the data at an acceptable level. Subsequently, model generating strategies were undertaken to improve the fit of individual constructs. The model demonstrating the best fit to the data consisted of 15 items and 4 factors. These factors include Seeing the Individual Patient, Explaining, Responding, and Watching Over. This model was validated using data from a holdout sample of patient responses and adequate fit of the model to the data was obtained.

Validity was assessed by correlating the subscales of the 15-item, 4-factor model to the two widely used measures of patient satisfaction with nursing care. All results were consistent with predictions. As additional evidence of validity, the relationships between the subscales of the 4-factor measure and measures of general satisfaction with the care experience and the extent to which patients were following discharge instructions were examined. All relationships were consistent with predictions.

Based on the findings of this study, the measure is judged as a reliable and valid measure of patient satisfaction with nursing care in the hospital setting. Implications for nursing practice, education, research, and administration, as well as methodological issues for instrument development are presented. Suggestions for future research using the measure are also presented.

Dedication

Dedicated to my parents, Herb and Elda Schmidt. Although many miles separate us, your support was a constant presence.

Acknowledgement

Words alone cannot express my gratitude toward the members of my dissertation committee. I gratefully acknowledge the support, caring, mentoring and encouragement of my committee chairperson, Dr. Nancy Hogan. My other committee members, Dr. Doris Ugarriza, Dr. Christine Williams, Dr. Kathryn Sapnas, and Dr. Terri Scandura shared their knowledge and expertise with me throughout this journey. I offer my deepest thanks for your support, guidance and encouragement.

To Dr. Patricia Schultz from the University of Tampa, I offer my thanks and appreciation for your words of support and encouragement.

To Deana Nelson, Vice President of Nursing, Tampa General Hospital, my deepest thanks for supporting me in my education and this research.

To my dear friend, Allan Belcher, my heartfelt thanks for being there and caring.

And finally, to the patients who shared their experiences. Your willingness to share your stories made this research possible.

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CHAPTER I

INTRODUCTION

The American healthcare system is in crisis. Costs of care are rising at an unprecedented rate and the Office of the Inspector General (2000) predicts this trend will continue, with national health expenditures reaching 16.2% of the gross domestic product by the year 2008. The population is aging (Office of the Inspector General, 2000), and the demand for and availability of advanced, technologically sophisticated care is increasing (Gates, 1996). Health care providers, especially hospitals, are experiencing serious financial difficulties as payors shift the financial risk of care to these providers (Gates, 1996). Profit margins continue to decrease (Egger, 2000b).

Prior to the 1980s, a cost based reimbursement system and projections for growth in the demand for inpatient services prompted many hospitals to incur significant debt as large inpatient facilities were constructed or renovated (Hayward, 1998). Because of shift from cost based reimbursement to prospective payment and capitated systems in the 1990s, hospitals are struggling for financial survival. Inpatient beds remain unoccupied as increasing amounts of care are delivered in the outpatient setting. Hospital credit ratings continue to decline as cash reserves are used to cover operating expenses (Egger, 2000a).

According to Egger (2000b), hospitals have two choices, reduce expenses or enhance revenues. As hospitals are in the business of providing patient care, enhancing revenue, or at the very minimum, maintaining revenue, depends on an adequate census of patients. This situation is true under a prospective payment based system as well as a capitated system. In captiated systems, organizations are reimbursed for the number of

covered lives that would potentially receive care. Under this reimbursement scheme, an adequate base of potential patients must still be maintained to insure a steady revenue stream. Failure to do so will result in an increased restriction on the available hospital services, closure of inpatient beds, or in the most extreme cases, closure of inpatient facilities, leaving members of society with limited options to meet their health care needs. This set of factors comes at a time when people are living longer and expensive pharmacologic and technological therapies are available to prolong life.

One key strategy for hospitals to use in maintaining or enhancing the patient base is responsiveness to the needs of consumers of health care – those that use or potentially will use the services of the facility. Smith (1998) reported that almost 75% of the respondents to an American Medical Association survey would pay more to select a physician and a hospital of their choosing, and would request a change in the facility recommended by their physician if this choice conflicted with their preference. Patient choice may very well be the deciding factor for the financial survival or demise of modern hospitals.

Donebedian (1966) asserted that overall patient satisfaction is a desirable outcome of care, possibly representing an element of the overall health of an individual. Researchers of satisfaction with medical care (Ware & Davies, 1983; Woodside, Frey, & Daly, 1989) have noted that the level of patient satisfaction with the care received has a direct relationship to behavioral intentions such as following post discharge health care regimens and seeking follow-up care. Marketing researchers (Baker & Taylor, 1997; John, 1992) have noted that patient satisfaction is a predictor of behavioral intentions related to the purchase of health care services in the future. Organizations that purchase

health care services for their subscribers commonly use patient satisfaction as an indicator in the decision making process of whether or not to contract with a specific health care agency (Krownski & Steiber, 1996).

Patient satisfaction with care has far reaching implications for the health care industry as well as society at large. If assertions are correct, patient satisfaction becomes a significant predictor of the economic success of a hospital. Dissatisfied patients may choose to receive future health care services at an alternate institution, even if this choice results in increased personal expense for care. These choices may result in a loss of revenue for the hospital. If a large group of patients becomes dissatisfied with the care they have received, a purchasing organization may elect to discontinue affiliation with a hospital as a care setting. This loss of revenue has far reaching economic implications (Krowinski & Steiber, 1996).

If patient satisfaction has a direct relationship to the behavioral intentions of patients, dissatisfied patients may not seek follow-up care or adhere to the discharge plan of care. The health of individual members of society, as well as society at large, may suffer.

Nursing has an important role in the satisfaction of patients who receive care. Nursing is a constant presence in the care of patients in the hospital setting. As nursing care represents the largest amount of care delivered in the hospital setting, it seems logical that patient satisfaction with nursing care would have a significant relationship to patients' overall satisfaction with the care experience. The findings of several researchers that patient satisfaction with nursing care is the most important predictor of

overall satisfaction with the hospital experience support this relationship (Abramowitz, Cote & Berry, 1988; Lemke, 1987; Woodside, Frey & Daly, 1989).

Therefore, patient satisfaction with nursing care becomes a construct of primary interest to the members of the profession and discipline of nursing and hospital administrators. The economic welfare of an organization could very well depend on patient satisfaction with nursing care. Nursing administrators and direct nursing care providers therefore, have an onerous responsibility.

Professional nursing in the hospital setting exists and functions within an economic context (Turkel & Ray, 2000). In an economic climate focused on cost cutting, restructuring, a shortage of Registered Nurses, and higher acuity patients, direct nursing care providers and nursing and hospital administrators must find ways to ensure patients are satisfied with the nursing care they receive. To ignore this phenomenon may very well place the entire organization, or at least some of the patient care services of the organization, at risk for elimination.

The development of measures to accurately reflect patient satisfaction with nursing care has been slow to proceed. Despite the importance and popular use of patient satisfaction with nursing care as an outcome measure, existing instruments lack adequate validity, and sensitivity. An adaptation of the Risser (1975) instrument (Hinshaw & Atwood, 1982) is perhaps the most widely used measure of patient satisfaction with nursing care in evaluative studies. Nursing care is evaluated across the dimensions of technical care, the trusting relationship, and the educational relationship. Many of the items of this measure are outdated and not reflective of current nursing practice (Marsh, 1999). Nursing care is a constant in the care experience of patients in the hospital setting,

with patients receiving direct or indirect care from the nursing staff on a continuous basis. This unique aspect of the nursing care experience is not reflected in existing measures.

Another problematic area with existing measures of patient satisfaction with nursing care is item content. The inclusion of items that are within the specific domain of the Registered Nurse requires patients to evaluate care received from Registered Nurses only, or at the very minimum separate their responses to these items from items tapping more general aspects of the nursing care experience. Given that patients may have some difficulty differentiating between the different levels of nursing staff (Lange, 1999; Oermann, 1999), a measure that requires patients to guess at the professional level of their care providers reduces data collection to a guessing game, casting serious doubts on the validity of findings.

Lin (1996) noted that patient satisfaction with nursing care has been hampered by the lack of a theoretical basis of the phenomenon and without adequate theory and consistent conceptualization, the interpretation of patient satisfaction with nursing care research findings is essentially meaningless. Despite the importance and popular use of patient satisfaction with nursing care as an outcome measure, little is truly known about this phenomenon. If we are to believe the results of numerous studies as a representation of the reality of patients, we must assume that patients are highly satisfied with the care they receive in the hospital setting. Yet O'Connell, Young and Twiggs (1999) found large discrepancies between self reported patient satisfaction with nursing care using a widely used measure (LaMonica, Oberst, Madea, & Wolf, 1986), also adapted from Risser's (1975) instrument, and telephone interviews. Similarly, Minnick, Young and Roberts (1995), in a study of 2000 discharged patients, found that despite overall

favorable ratings of care, patients reported high levels of failure of the nursing staff in meeting their nursing care needs. Given these findings, consistently high ratings of patient satisfaction with nursing care must be called into question, and as Alt (1995) and Minnick, et al. (1995) noted, patient satisfaction with nursing care may represent the lowest common denominator of quality. The lowest common denominator of quality provides little help to hospital and nursing administrators who are struggling to maintain or improve the financial health of an organization, and seeking to maintain consumer preference for their organization as a service provider.

Existing measures of patient satisfaction with nursing care are obviously not sensitive enough to detect variability in this important phenomenon. The need is great for a measure of patient satisfaction with nursing care that is conceptually valid, grounded in theory, measures the salient aspects of the nursing care experience as identified by patients, and is reflective of the current state of health and nursing care delivery systems. Existing measures of patient satisfaction with nursing care do not meet these essential criteria.

Measurement of patient satisfaction with nursing care has been hampered by not considering aspects of nursing care that are important to patients. Rather, existing measures consist of items generated from literature reviews and endorsement by content experts, most commonly those who provide nursing care, or more concerning, those removed from the direct care situation. In situations where items have been presented to patients for their endorsement, items have been generated a priori before presentation to these true content experts, the patients who have received nursing care. The patient perspective is virtually eliminated from item generation and instrument development.

This rational approach to instrument development presents a threat to the validity of these measures. If measures are to be constructed as representations of the reality experienced by patients as they receive nursing care, these measures must accurately describe the meanings patients attach to their nursing care experience. Blumer (1969) described these representations of reality as sensitizing concepts. Through the process of deriving concepts from the perspective of participants, researchers are able to identify the meanings attached to situational experiences (van den Hoonaard, 1997). Logically then, measures constructed from the meaning patients attach to their experience with nursing care would be more representative of the reality experienced by patients in those situations. This perspective contrasts sharply with the researcher imposed definition of reality that is the product of rational instrument development using the literature as the data source for item generation.

Converse and Presser (1986) noted that instrument development involves exploration into the area of interest and this exploration should, “take investigators beyond their own academic or industrial subculture, to new ‘experts’” (p. 48). Citing the work of McKennell (1974), Converse and Presser (1986) cautioned against using the literature as a data source since these items will “often represent other professionals’ impression of what people in general think about things, with almost no validation by work with people in general themselves” (p. 49). This lack of validation presents a serious threat to the construct validity of a measure. Following this line of reasoning, a measure of patient satisfaction with nursing care derived from the perspective of the experts, those patients who have received nursing care, will portray a more accurate

representation of reality. Existing measures of patient satisfaction with nursing care do not meet this essential criterion.

Without strong evidence of construct validity, inferences made from the findings of measurement of patient satisfaction with nursing care are suspect. Given the discrepancy between patient ratings of their nursing care and their qualitative judgment of the overall nursing care experience (Minnick, et al., 1995; O'Connell, et al., 1999) the construct validity of existing measures is called into question.

Construct validity is at the core of measurement and research of a phenomenon. If the validity of a construct is questionable, then so are the findings from the entire line of research (Hogan & Nicholson, 1988). One of the most important canons of measurement involves the generation of instrument items from a theoretically defined content domain (Cronbach & Meehl, 1955; Devillis, 1991; Hinkin, 1998; Nunnally & Bernstein, 1994). Cronbach and Meehl (1955) noted that specification of the content domain of interest is key, and the adequacy of the measurement of a construct cannot be tested without a well specified domain. They noted the "meaning of theoretical constructs is set forth by stating laws in which they occur. The incomplete knowledge of the laws produces vague constructs" (p. 294). Laws, in this context, refer to the relationship between observable quantities and properties, the relationship of observable variables to theoretical constructs, and the relationship between different theoretical constructs. Thus, a well defined theoretical foundation is essential for construct explication and measurement. As Lin (1996) noted, and the findings of others (Minnick, et al., 1995; O'Connell, et al., 1999) support, the measurement of patient satisfaction with

nursing care has been atheoretical, and the constructs purported to represent this important phenomenon may not be consistent with reality.

This study was undertaken to overcome a significant number of the aforementioned conceptual and methodological shortcomings. A theory of patient satisfaction with nursing care in the hospital setting, generated using the grounded theory methodology (Glaser & Straus, 1967), provided the theoretical basis for the development of an instrument to measure patient satisfaction with nursing care in discharged patients. The results of reliability and validity testing of this measure, using samples of patients discharged from an academic medical center in the southeastern United States, are presented in this study. The chapters that follow provide a review of the literature involving patient satisfaction, a description of the development of the instrument, the results of instrument testing, and the discussion of the findings.

CHAPTER II

REVIEW OF THE LITERATURE

This chapter is a review of the literature related to service quality, patient satisfaction in general, and more specifically patient satisfaction with nursing care. The overall focus of this chapter is health care situations. Service quality is briefly reviewed to provide a basis for the subsequent discussions of patient satisfaction and patient satisfaction with nursing care. The review of patient satisfaction in general is a focus on existing conceptualizations of this construct and the emphasis on patient satisfaction as an important outcome measure. Issues related to measurement and conceptualization are identified. The review concludes with an in-depth analysis of patient satisfaction with nursing care, focusing on usage as an outcome variable, existing conceptualizations, and measurement.

Service Quality

The quality movement in the manufacturing sector prompted the rise of the quality movement in services. Building on the work of Deming (1986), service industries have embraced the concept of quality, identifying services provided as the product. While similarities exist, service quality is conceptually different from quality in the manufacturing sector. Zeithaml, Parasuraman, & Berry (1990) outlined the key differences, noting that: (a) services are intangible, with the product of service being performance and experience; (b) services are especially high in labor content, heterogenous, and are not amenable to standardization; and (c) production and consumption of services are not separated in that consumption occurs during service delivery. Leebov and Scott (1994) noted similar distinctions in that service quality

“occurs in the moment” (p. 9). An additional, but fundamental difference between service and manufacturing is that service quality includes not only the outcome (product), but also the process. Consumers, as the recipients of services, are naturally involved in the process, while in the manufacturing sector, the consumer is removed from the process of production.

Kenagy, Berwick, and Shore (1999) described the healthcare industry as the “world’s largest service industry” (p. 661). They defined services as elements that contribute to the experience of care, external to the technical quality of procedures.

Service quality and patient satisfaction have been used interchangeably in discussions of quality in health care, although as several have noted (Ovretveit, 1992; Taylor, 1994), service quality and patient satisfaction are distinctly different. Service quality has been conceptualized as a longer term judgment on the part of the consumer while patient satisfaction has been viewed as a more short term evaluation (Taylor, 1994). Empirical support has been provided for a causal model of service quality, patient satisfaction, and future behavioral intentions related to the purchase of healthcare services with a direct link between patient satisfaction and behavioral intentions as well as a direct link between service quality and future intentions (Baker & Taylor, 1997; McAlexander, Kaldenberg, & Koenig, 1994).

A generally agreed upon definition of service quality involves the expectation(s) of the customer and the degree to which those expectations are met in the service encounter (Leebov & Scott, 1994; Woodside, et al., 1989). Zeithaml, et al.(1990) noted that expectations are influenced by a number of factors including word of mouth communication, past experiences, personal needs, and advertising and marketing efforts

from service providers. These expectations, then form the basis from which a judgment of the presence or absence of service quality is formed. Following the causal model of Woodside, et al. (1989), only after this judgment is formed are consumers able to make a judgment of their satisfaction with services.

It is noteworthy that the definition of service quality is very similar to the definition of patient satisfaction in general (John, 1992; Oberst, 1984; Ware, Snyder, Wright, & Davies, 1983) and patient satisfaction with nursing care. Risser (1975) defined patient satisfaction with nursing care as “the degree of congruency between a patient’s expectations of ideal nursing care and his perception of the real nursing care he receives” (p. 46). Hinshaw and Atwood (1982) and LaMonica, et al. (1986) have adopted similar definitions, most likely due to the fact that their measures of patient satisfaction with nursing care are adaptations of Risser’s (1975) work. Based on these definitions, existing measures may likely be more a measure of service quality, rather than patient satisfaction with nursing care. Investigations have not been undertaken to evaluate whether the constructs measured by the Patient Satisfaction Instrument (Hinshaw & Atwood, 1982) or the LaMonica Oberst Patient Satisfaction Scale (LaMonica, et al., 1986) are long term or short term judgments. If these judgments are of a more long term nature, given the definitions of patient satisfaction with nursing care offered by the authors, these measures may very well be representative of service quality in nursing rather than patient satisfaction.

Ovretveit (1992) noted that, even if satisfaction scores are high, quality may be perceived to be low. Reflecting on the longer term nature of service quality, Ovretveit, (1992) noted that service quality, as perceived by the consumer, is more than satisfaction

with service. Rather, a perception of service quality represents a “global and enduring attitude towards a service, built up from repeated satisfaction over time, rather than a judgement about the service in relation to a specific recent transaction” (p. 46). One could experience an isolated incident of high satisfaction, yet retain a low opinion of service quality based on repeated transactions over time.

Woodruff and Gardial (1996) noted that most companies measure satisfaction with services at the level of attributes of the service, or what the service offers to the consumer. They defined this level of measurement as “Here is what I do for you (the attributes), now how do you feel about what I do?” (p. 229). Using a hotel as an example of a service, attributes included friendliness, efficiency, speed of check-in and check-out, cleanliness, food quality, speed of restaurant and lounge service, accuracy in reservations, and the working order of various amenities. Woodruff and Gardial (1996) noted that, when satisfaction scores level out at the top of the scale, a limit is reached as to how much the service can further be improved, limiting the utility of measures at this level of specificity. Little can be learned about customer satisfaction using this approach. Rather, they recommended incorporating customer values into the measurement of satisfaction to gain more insight into customer satisfaction. Woodruff and Gardial (1996) also noted that value “captures the relationship between the product, the user, and his or her goals and purposes in a specific use situation” (p. 94). The measurement of satisfaction then, is a indicator of the match between a customer’s values and the organization’s ability to align itself with those values. Woodruff and Gardial (1996) defined customer satisfaction as “a customer’s positive or negative feeling about the value that was received as a result of using a particular organization’s offering (service) in a specific use situation. This

feeling can be a reaction to an immediate use situation or an overall reaction to a series of use situation experiences” (parentheses added) (p. 95).

Rosander (1991), in an application of Deming’s (1986) 14 points to services, noted that quality means meeting customer requirements and that service quality is what the providers of the service provide to the consumer. This conceptualization bears a remarkable similarity to the attribute level of quality defined by Woodruff and Gardial (1996). Rosander (1991) also noted that service quality is not defined with one encounter, but only after repeated consumption of the same service over months or years.

In summary, service quality and patient satisfaction are conceptually different, with service quality functioning as more of an antecedent to patient satisfaction. Measures asserted to tap patient satisfaction by examining responses to service attributes may very well be measuring an antecedent to patient satisfaction, rather than patient satisfaction itself.

Patient Satisfaction

Ever since Donebedian’s (1966) statement that patient satisfaction is a desirable outcome of care, and perhaps an element of health in itself, there has been a high level of interest in patient satisfaction as an outcome of the care experience. Despite this interest, little conceptual and theoretical work has been completed, hampering a clear understanding of this reportedly important phenomenon.

One of the few theoretical works related to patient satisfaction was reported by Linder-Pelz (1982a; 1982b). Using a theory derivation strategy (Walker & Avant, 1995) for a portion of her work, Linder-Pelz (1982a) derived a theory of patient satisfaction and tested several hypotheses related to this theory. Patient satisfaction was defined as an

“individual’s positive evaluation of distinct dimensions of health care” (Linder-Pelz, 1982a, p. 578). In a sample of 125 patients from an ambulatory services clinic, Linder-Pelz (1982b) examined five hypotheses related to patient satisfaction. The supported hypothesis described patient satisfaction as a combination of expectations, values, and occurrences. Expectations were identified as the most important antecedent of patient satisfaction. Linder-Pelz (1982b) also reported some weak support for theoretical derivations of discrepancy theory and fulfillment theory. Several methodological weaknesses, including low reliability of the measures and the use of single item measures, hampered the interpretation of these results.

Two comprehensive reviews of the literature related to patient satisfaction were completed by Ware, et al. (1978) and Pascoe (1983). The work of Ware, et al. (1978) consisted of a review of 111 articles and reports of patient satisfaction over a 25 year period. From this review, eight dimensions of patient satisfaction were identified including the art of care, accessibility, technical quality and competence, finances, physical environment, availability, efficacy and outcomes, and continuity. The dimensions most frequently mentioned included the art of care, technical quality and competence, accessibility, and finances. Four observations of patient satisfaction were identified, including the multidimensional nature of the phenomenon, some limited empirical support for the validity of the patient satisfaction construct based on support for hypothesized relationships, the usefulness of patient satisfaction as a dependent measure, and the relationship of patient satisfaction to health – illness behaviors. Ware et al. (1978) declared patient satisfaction, in combination with health status, as the ultimate outcome of care.

Approaching a review of the literature from a more theoretical position, Pascoe (1983), while acknowledging little theory building related to patient satisfaction, offered possible alternative theoretical descriptions. Pascoe (1983) offered fulfillment theory and discrepancy theory as alternatives to Linder-Pelz's (1982a; 1982b) theoretical work. Fulfillment theory could define patient satisfaction as a function of the amount of care received. Discrepancy theory was noted to be the most common conceptualization of patient satisfaction appearing in the literature, although Pascoe (1983) noted this theory was rarely defined as a conceptual framework guiding investigation. In discrepancy theory, patient satisfaction is a function of a comparison of expected care and received care. Pascoe (1983) noted a fundamental flaw with theory that used expectancy as an absolute factor in judgments of patient satisfaction in that expectations may not necessarily be formed prior to the care encounter.

Drawing on the consumer satisfaction literature, Pascoe (1983) offered alternative conceptualizations of patient satisfaction. These included an assimilation model, a contrast model, and a mixed assimilation/contrast model. The assimilation model was described as a situation where inconsistencies between actual and expected care would result in a lessening of the patient's expectations related to care delivery. The contrast model incorporated prior experiences with care delivery in the formulation of a judgment of patient satisfaction, defined as the perceived congruence between the current experience of care and prior experiences with care. The mixed model used expectations as a standard setting mechanism. Expectations however, were not fixed, but rather free to increase or decrease in a "wide latitude of acceptance" (p. 187) based on the care

experience. Patient satisfaction would therefore be defined as the comparison of actual care and expectations of that care, free to increase or decrease within tolerance levels.

Based on this review, Pascoe (1983) defined patient satisfaction as an evaluation of directly received care. Received care was described as the “salient aspects of context, process, and results of a service experience” (p. 189).

One of the more comprehensive approaches to the theoretical definition of patient satisfaction was explicated by Wilde, Larsson, Larsson, and Starrin (1994). The investigators used a grounded theory approach in developing a model of quality of patient care. Interview data from 35 patients with infectious diseases were used. The authors defined patient perceptions of quality of care based on norms, expectations, and experiences. Quality was defined as a “number of interrelated dimensions that, when taken together form a whole” (p. 40).

This model of quality of patient care existed along two orthogonal dimensions, the resource structure and patient preferences. The resource structure consisted of person related qualities and attributes of the physical and administrative care environment. Person qualities were described as attributes of the caregivers themselves, while the physical and administrative care environment related to the infrastructure of the care organization. The patient preferences structure consisted of the constructs of rationality and humanity. Rationality was described as a sense of order and predictability in the care situation, while humanity was described as a recognition of the uniqueness of the care situation on the part of the caregivers. The four most discrete components of the model were represented by the intersection of a patient preference and resource structure component.

Medical-technical competence was represented by the intersection of rationality and person related qualities. This attribute of quality patient care was defined as the availability of and treatment by competent caregivers. Physical-technical conditions were represented by the intersection of qualities related to the physical and administrative structure and rationality. This attribute was defined as the availability of advanced equipment and an environment that was clean, comfortable, safe, and sanitary. The identity oriented approach was represented by the intersection of person related qualities and humanity. This attribute of quality care represented an interest and commitment to the patient on the part of the caregiver and the caregiver's sympathy toward the patient. Finally, the socio-cultural atmosphere was represented at the intersection of the physical and administrative environment and humanity. This attribute of quality care represented the homelike atmosphere of the care environment and the degree the patient had control over some routines in their care.

Items for a measure of this model were generated from the interview data and submitted to content experts for review, including patients and members of different health professions. The item pool was reduced from 150 to 69 with this procedure. Items were scaled and two different scores were obtained, one a measure of the perceived reality of quality and the other a measure of the subjective importance of the attribute. A quality of care index was calculated mathematically from these scores.

Two tests of the model were completed, one with 147 patients with an infectious disease diagnosis and the other with a sample of nursing students. In the test of the model with patients, a principal components factor analysis with oblique rotation was used to explore the dimensionality of the scale, using only the subjective importance

scale. Seventeen factors were extracted and these factors were grouped under the four discrete components of the quality of patient care model. The explained variance was 66.9% for the identity orientation scale (8 factors, 23 items), 50.4% for the medical-technical competency scale (2 factors, 9 items), 44.8% for the physical technical conditions scale (3 factors, 11 items) and 65.8% for the sociocultural scale (4 factors, 13 items). It is unclear why the authors chose to maintain separate factors and arrange these factors under the original quality of care model. The goal of exploratory factor analysis is traditionally associated with decreasing the dimensionality of a measure (Stevens, 1996). One can hypothesize the authors perceived the four dimensions of the quality of care model as representing higher order factors, with the extracted factors representing lower order factors, although a reason for this analysis was not implicitly stated.

Patient ratings of subjective physical health were significantly correlated with the perceived reality, subjective importance and quality index for medical care (medical-technical competence), sympathy (identity oriented approach), participation (identity oriented approach), and positive treatment of the significant other (socio-cultural atmosphere). Patient ratings of subjective well-being were significantly correlated with the perceived reality, subjective importance and quality index for medical care (medical-technical competence), being personal (identity oriented approach), sympathy (identity oriented approach), trust and understanding (identity oriented approach), and positive treatment of significant others (sociocultural atmosphere). Thus, of the 17 scales representing the 4 dimensions of quality patient care, only six scales demonstrated significant correlations with the perceived reality, subjective importance, and derived quality index, representing only 3 of the 4 hypothesized dimensions of quality care.

Scattered significant correlations were noted between either physical health or subjective well being and other lower order scales along the four dimensions of the model, although these relationships were not easily interpreted. These findings call the validity of this measure into question, despite the authors' rigorous method of scale construction.

Expectations are a common theme in the limited discussions of the theoretical basis of patient satisfaction. John (1992) explored the role of expectations, derived from prior experiences, in an investigation on the effects between patient satisfaction, perceived quality, and the behavioral intention to use the same facility for future health care services. In a sample of 353 patients from three hospitals, satisfaction with all prior health care experiences had a significant main effect on perception of overall quality. Prior impressions of a health care facility had a significant main effect on patients' perceptions of overall quality, satisfaction, and the intention to return to the same organization for services in the future. Satisfaction with previous experience was reported by John (1992) to have a significant effect on patient satisfaction, although an alpha level of .10 was used in testing this hypothesis, compared to an alpha level of .05 for the other hypotheses. The author's statement that the previous experience-satisfaction hypothesis was confirmed in light of the use of a substandard alpha level for hypothesis testing calls this assertion into question.

Thompson and Sunol (1995) attempted to further explicate the role of expectations in patient satisfaction research. Surveying the literature related to expectations in the fields of psychology, sociology, social policy, health services management, and marketing, the authors synthesized expectations as beliefs. They noted that unformed expectations may be the most prevalent expectations related to health care,

and called the use of expectations as an antecedent and contributing factor in patient satisfaction judgment into question. They concluded that values ultimately define and influence expectations and that expectations are contextually based. The authors concluded that further investigation, using qualitative and quantitative approaches, was needed before including or excluding the role of expectations in the formation of judgments of patient satisfaction.

Clearly, more than 25 years after Donebedian's (1966) statement that patient satisfaction is an important outcome of care, little is still known about the theoretical and conceptual basis of this phenomenon. In a discussion of issues related to the interpretation of patient satisfaction, Scott and Smith (1994) noted the continuing weak conceptual base of patient satisfaction studies, affecting the clarity and interpretability of findings. Expressing a similar view, Nettleman (1998) noted that health care has not kept pace with the need to develop conceptually sound measures of patient satisfaction and the emphasis in patient satisfaction measurement needs to shift to the focus of the consumer of health care services. Patients and providers typically differ on conceptualizations of quality and satisfying care, and in the end result, the patient's perspective is the only one that really matters (DeSouza, 1989).

Despite a weak conceptual basis, the measurement of patient satisfaction continues to be used widely as a measure of the effectiveness of service delivery in health care organizations. The Joint Commission on the Accreditation of Healthcare Organizations (2001) performance improvement standards require organizations to collect data to monitor organizational performance. In the intent for this standard, the Joint Commission states:

Organizations are required to collect data about the needs, expectations, and satisfaction of individuals and organizations served. Individuals served and their family members can provide information that will give an organization insight about process design and functioning (p. 164).

The Joint Commission further requires that organizations ask about specific needs and expectations, perception of how well these needs and expectations are met, and how the organization can improve from the consumer's perspective. While not requiring formal patient satisfaction surveys, the Joint Commission does identify surveys as one method of gathering these data. A footnote to the performance improvement standards notes that the Joint Commission is moving away from the term "satisfaction," opting for a more inclusive phrase of "perception of care and service" (p. 164).

The measurement of patient satisfaction is not only a quality initiative, but also a major service line of several consulting firms (Baker & Taylor, 1997; McAlexander, Kaldenberg, & Koenig, 1994). Press Ganey Associates and the Picker/Commonwealth Program for Patient Centered Care market the measurement of patient satisfaction as a service line. The conceptualizations of patient satisfaction in these corporations are distinctly different.

Press Ganey Associates (1997) conceptualize inpatient patient satisfaction along the dimensions of the admission process, room, meals, nurses, tests and treatments, visitors and family, physician, discharge process, personal issues, and overall assessment of the institution. A review of the items of the inpatient questionnaire provided by Press-Ganey revealed the items to be more consistent with the definition of service attributes. This measure may therefore, represent more of a service quality measure than patient satisfaction with inpatient care.

The Picker/Commonwealth Program for Patient Centered Care (Gerteis, Edgman-Levitan, Daley, & Delbano, 1993) defined a conceptual framework of patient centered care as a model of patient satisfaction. An analysis of interview data from a nationwide sample of over 6,000 patients and 2,000 care partners identified seven dimensions of this model. These dimensions included: (a) respect for patients' values, preferences, and expressed needs; (b) coordination and integration of care; (c) information, communication and education; (d) physical comfort; (e) emotional support and alleviation of fear and anxiety; (f) involvement of family and friends; and (g) transition and continuity. The method of qualitative analysis that gave rise to these dimensions of care was not clearly identified.

Despite the apparent difficulty with conceptualizing patient satisfaction with care, and the attendant difficulties associated with interpreting the results of a poorly conceptualized measure (Avis, Bond, & Arthur, 1995; Hogan & Nicholson, 1988; Lin, 1996), numerous studies using patient satisfaction with care as a variable have been completed and overall patient satisfaction continues to be judged as an important indicator of the care experience and a contributing factor in the economic survival of health care organizations. Press, Ganey, and Malone (1991) identified patient satisfaction as an important foundation for the financial well-being of an organization. Steiber (1988) reported satisfaction with the hospital experience as representing more than 50% of a patient's overall assessment of quality of care. Hospital Patient Relations Report (1992) reported that interpersonal skills were the most important determinants of patient satisfaction with a care experience. Cleary, Edgman-Levitan, McMullen, and Delbanco (1992) reported nearly 80% of a sample of 6,455 patients rated their care as excellent or

very good with significant negative correlations between satisfaction with care and the number of reported problems with care along nine dimensions (communication, financial information, patient needs and preferences, emotional support, physical comfort and care, education, pain management, family involvement, and discharge preparation).

The inadequate conceptualization and theoretical basis of measuring patient satisfaction makes the comparison of findings across studies extremely difficult and misleading. The observations by Lin (1996) and Scott and Smith (1994) continue to be relevant cautions in the use of patient satisfaction as a variable in research. As DeSouza (1989) and Luther (1996) noted, patients and providers differ on perceptions of what constitutes a satisfying experience with care, and the emphasis on defining and measuring patient satisfaction with care must shift from a focus on attributes deemed important by the provider to those considered important to the recipient of health care services.

Patient Satisfaction with Nursing Care

As with patient satisfaction in general, patient satisfaction with nursing care has received considerable attention as an outcome measure of the quality of the nursing care experience. Despite this popularity, patient satisfaction with nursing care suffers from the same conceptual and measurement problems as patient satisfaction in general. This section is a review of the major conceptualizations of patient satisfaction with nursing care and several measures of this concept, with a specific focus on the psychometric properties of the measures.

As with patient satisfaction in general, the role of expectations is a common theme in the conceptualization of patient satisfaction with nursing care. Risser (1975) defined patient satisfaction with nursing care as the “degree of congruency between a

patient's expectations of ideal nursing care and his perception of the real nursing care he receives" (p. 46). This definition remains popular some 25 years later, most likely because the more widely used measures of patient satisfaction with nursing care (Hinshaw & Atwood, 1982; LaMonica, et al., 1986) were derived from Risser's (1975) work.

Oberst (1984) questioned the use of indirect measures of the quality and quantity of care as proxies of patient satisfaction with nursing care, asserting that satisfaction occurs as a result of service, and a valid measure of patient satisfaction must include the patient's perspective of service. Oberst (1984) proposed a framework of expectations to describe the salient aspects and mechanism by which patients come to a judgment of satisfaction or dissatisfaction with care.

According to Oberst (1984), patient knowledge, characteristics, experiences, and attributes define the care situation in terms of perceived care needs. These perceived needs give rise to expectations about caregiver behaviors, system performance, and outcomes. When expectations are combined with the perceived realities of a care situation, patients form a judgment of satisfaction with services and this judgment is then a reflection of the quality of service.

Greeneich, Long, and Miller (1992) used a content analysis approach to analyze the agreement between existing patient satisfaction with nursing care measures and the taxonomy proposed by Ware, et al. (1978). Measures of patient satisfaction did not fit conceptually with that taxonomy, and a five dimensional model of patient satisfaction with nursing care was proposed. The model included the personality characteristics of

the caregivers, the characteristics of nursing, proficiency in providing care, the nursing environment, and expectations.

In a review of patient satisfaction with nursing care studies, Messner (1993) framed the findings from the perspective of the patient. This accomplishment is notable as there is general agreement that the patient's perspective is of utmost importance (DeSouza, 1989), yet most measures define nursing care from the provider perspective. Messner (1993) identified eleven desirable characteristics of nursing care and labeled those characteristics from the perspective of the patient. The characteristics included: (a) listening to me; (b) asking what I think; (c) not dismissing my concerns; (d) not treating me like a disease, but treating me like a person; (e) talking to me, not at me; (f) respecting my privacy; (g) not keeping me waiting; (h) telling me how to do something when you tell me what to do; (i) keeping me informed; (j) remembering who I used to be; and (k) letting me know you care.

Eriksen (1995) completed a concept analysis of patient satisfaction with nursing care using the model proposed by Walker and Avant (1988). The need for this analysis was prompted by the results of a factor analysis of the measure of patient satisfaction with nursing care developed by Eriksen (1988) in which the results did not support the proposed conceptual structure of the measure. Eriksen (1995) reviewed dictionary usage, satisfaction with medical care, satisfaction with nursing care and consumer satisfaction and offered a conceptual definition based on this analysis. Patient satisfaction with nursing care was defined as "the patient's subjective evaluation of the cognitive/emotional response that results from the interaction of the patient's expectations of nursing care and their perception of actual nurse behaviors and

characteristics” (p. 71). Defining attributes of patient satisfaction with nursing care included a set of patient defined expectations, a cognitive emotional response to experience with nursing behaviors and characteristics, a focus on how the patient was treated and care was delivered, and a judgment of the degree of positiveness in the nursing care experience. Antecedents of satisfaction with nursing care included experiencing nursing care, the development of expectations, and an interaction between expectations and perceptions of nursing performance. Consequences included adherence to prescribed regimens, increased attention and participation by the patient, and a behavioral intention to use the service again. Eriksen (1995) was clear to assert that technical and interpersonal competence was misguided as an aspect of patient satisfaction with nursing care. Rather, Eriksen (1995) proposed that patients have an expectation of competence when entering the health care situation, and patient satisfaction with nursing care is more appropriately focused on the way patients are treated and the care is delivered.

The work of Pontin and Webb (1996) represents one of the few qualitative works undertaken in an effort to clarify the concept of patient satisfaction with nursing care. They analyzed interview data of patients and identified three analytic domains of patient satisfaction, including nursing, the hospital, and patient concerns. Several categories were included in each domain. The nursing domain included the actual nursing care, a knowledge of patients, and the orderliness of the nursing system. Actual nursing care was described in terms of looking out for the patient, monitoring the patient condition, self care, and technical aspects of care. Knowledge of patients included the use of nursing care plans and the knowledge passed from one nurse to another during a shift

report. The orderliness of the nursing system referred to the use of regular staff or temporary personnel. The hospital domain was primarily concerned with the hotel type services of the organization, including the decor, ward arrangements versus open rooms, and meal service. Interestingly, the patient concerns domain included those aspects of the experience labeled by the investigators as areas of dissatisfaction. Concerns included the environment (cleanliness, temperature, layout), administration of health care services (wastage, delays, poor planning, decreased length of stay), and meals (quality, temperature, and service). The results of the patient concerns domain seem contradictory to several works that noted hotel type attributes of the care experience to rank lower in importance than nursing or medical care in judgments of patient satisfaction (Press, Ganey & Malone, 1991; Steiber, 1988). Because Pontin and Webb's (1996) work was completed in the United Kingdom, while the majority of patient satisfaction work has been completed in the United States, regional and cultural differences may have contributed to this disparity in findings.

Chang (1997) followed an approach similar to Greeneich, et al. (1992) in attempting to clarify the conceptual structure of patient satisfaction with nursing care, using the more global categories of structure, process, and outcome as a guide to analysis. In a review of 53 studies of patient satisfaction with nursing care using 13 different measures, Chang identified more discrete attributes within the structure, process, and outcome dimensions. The structure dimension included the physical environment of the nursing care setting. The process dimension included availability, technical skills, the art of care, explanations, and continuity. The outcome dimension included specific outcomes, more global outcomes of overall satisfaction, and future intentions.

Clearly, our knowledge of the conceptual and theoretical basis of patient satisfaction with nursing care has not advanced to the degree necessary for a clear understanding of this phenomenon. The disparate findings of the analyses cited makes it difficult to establish any commonalities among studies using patient satisfaction with nursing care as an outcome measure. Despite this fundamental concern, patient satisfaction with nursing care remains an important indicator of the quality and effectiveness of the care experience. The findings of several researchers (Abramowitz, et al., 1988; Lemke, 1987) have identified the nursing care experience as being the overall determinant of patient satisfaction with the care experience. Yet, the weak conceptualization of this important phenomenon hampers the true interpretation of these findings. The concerns expressed by Hogan and Nicholson (1988) related to construct validity are very applicable to the measurement of patient satisfaction with nursing care. If the construct is not adequately defined at the conceptual level, the findings of an entire line of research may be called into question.

Despite this lack of conceptual clarity, the measurement of patient satisfaction with nursing care is prevalent and deemed important to the profession. The American Nurses' Association has included patient satisfaction with nursing care as an indicator in the Nursing Care Report Card (as cited in Lowe & Baker, 1997). The remaining section of this review is a focus on efforts aimed at measuring this somewhat elusive, but none the less important, construct.

Measurement of Patient Satisfaction with Nursing Care

This section of the review is a focus on instrumentation to measure patient satisfaction with nursing care. Although many measures include nursing care as a

component of the overall satisfaction with the care experience (McDaniel & Nash, 1990), this review is a focus on only those tools used to measure satisfaction with nursing care as a sole purpose. Also, while many measures of satisfaction with nursing care exist that are context specific (Sitzia, 1999), these measures are not included in this section, as the focus of this study is the development of a measure of patient satisfaction with nursing care that is not limited to use with a specific patient population (e. g. obstetrics, hemodialysis). The criteria used to determine inclusion or exclusion from this section of the review included a focus on patient satisfaction with nursing care that is not context dependent, administration in a survey format, and available reliability and validity assessments. McDaniel and Nash (1990) reviewed patient satisfaction with nursing care measures, identifying 21 instruments published during 1970 to 1989. Of those 21 measures, only nine contained reliability data and only nine contained some form of validity assessment, ranging from face validity to construct and criterion related validity. Of those with reported reliability and validity data, only three were related to patient satisfaction with nursing care in a context-free situation. The remaining six instruments with reported reliability and validity data included nursing care as a component of measuring satisfaction with the total care experience.

The first reported effort at measuring patient satisfaction with nursing care was reported by Abdellah and Levine (1957). They were attempting to answer the question of what determined how patients and personnel reacted to the provision of nursing care. The measure was based on the frequency of specific events occurring throughout a hospital stay, with weights assigned to those events. Satisfaction was therefore equated with the frequency of desirable events. Psychometric data were not reported on this

measure, but the findings from several field studies remain somewhat relevant today, some 44 years later. Abdellah and Levine (1957) found that total nursing care hours did not affect satisfaction, yet total professional nursing care hours did predict patient satisfaction with nursing care. In the instrument development phase, the events assigned the most importance by patients included promptness in answering calls, the nursing staff being nice to the patient, a bedpan brought and taken away promptly, the nurse showing interest in the patient, and concern and intervention related to pain control.

Risser's (1975) work at developing a measure of patient satisfaction with nursing care in primary health care settings represents probably the most well known work in the area of patient satisfaction with nursing care. Two of the more widely used scales in current practice, the Hinshaw and Atwood (1982) Patient Satisfaction Instrument, and the LaMonica Oberst Patient Satisfaction Scale (LaMonica, et al., 1986), were derived from Risser's (1975) work. Risser (1975) defined patient satisfaction with nursing care as the "degree of congruency between a patient's expectations of ideal nursing care and his perception of the real nursing care he receives" (p. 46). Items were defined based on interview data and the literature, with patients being asked to describe those nursing care behaviors they liked or disliked. Initially, four subscales were developed that included intra-interpersonal behaviors, technical professional behaviors, the trusting relationship, and the educational relationship. In the first trial of the measure, items from the intra-interpersonal subscale were found to correlate highly with the other three scales, and those items were subsequently incorporated into those scales. Reliability and content validity were reported as psychometric properties of the measure. In two separate samples, the Cronbach's alpha reliability of the scales was reported as .80 and .63 for the

technical-professional subscale, .86 and .82 for the educational relationship subscale, and .89 and .81 for the trusting relationship subscale. The reliability of the total scale was reported at .91. Subscale to subscale correlations were reported for both studies as .64 and .59 for the technical-professional and education subscales, .76 and .80 for the technical-professional and trusting relationship subscales, and .67 and .64 for the educational relationship and trusting relationship subscales. The subscale correlations are within acceptable ranges, with the exception of the technical-professional and trusting relationship subscales, possibly representing some overlap. The use of patient interview data in instrument construction was reported as evidence of content validity.

The revision of Risser's (1975) instrument by Hinshaw and Atwood (1982) resulted in an instrument that is most commonly used in research (Chang, 1997). One item was revised to eliminate the reference to an ambulatory care setting. The item "The nurse gives good advice over the telephone" was revised to "The nurse gives good advice." Hinshaw and Atwood (1982) reported the results of four studies as evidence of the reliability and validity of the measure.

Reliability, using Cronbach's alpha, was reported for three of the four studies. Findings revealed a reliability of .70, .97, and .92 for the technical-professional subscale, .44, .95, and .83 for the educational relationship subscale, and .82, .98, and .87 for the trusting relationship subscale. Convergent and discriminant validity was assessed in a study of Registered Nurse skill mix changes, a study of preoperative education, and the introduction of education related to comfort care measures.

In the skill mix study, the physical condition of the patient correlated significantly ($r = .29, p < .05$) with the educational relationship scale. Non-significant correlations

were reported between the patient's physical condition and the technical-professional ($r = .26$) and trusting relationship ($r = .10$) subscales. A nurse generated rating of direct care quality did not demonstrate significant correlations with any of the subscales (educational relationship, $r = .15$; trusting relationship, $r = .07$; technical professional, $r = .09$). A patient generated rating of the quality of direct patient care correlated significantly with the educational relationship ($r = .63$, $p < .05$) and trusting relationship ($r = .62$, $p < .05$) subscales, but not the technical-professional ($r = .44$) subscale. The reported reliability of the patient and nurse generated measures of the quality of direct patient care was well below acceptable limits, .53 and .61 respectively, making these results somewhat tentative. Additionally, Hinshaw and Atwood (1982) did not offer a rationale for the correlation results being as expected, and examination of the results does not reveal a clear conceptual reason for predicting these correlations.

In the preoperative patient education study, Hinshaw and Atwood (1982) predicted that patient satisfaction scores would not be related to preoperative or postoperative anxiety or coping in groups receiving varying amounts of preoperative education by the nursing staff. Significant correlations ($r = 0.00 \pm .18$, $p < .05$) were not noted among any of the subscales and anxiety or coping as predicted. Hinshaw and Atwood (1982) described these findings as evidence of validity, asserting the correlations would not be significant under a multitrait, monomethod approach to validity. This line of reasoning is not conceptually sound as the primary intervention under investigation was preoperative education by the nursing staff. One would question why a significant relationship between the educational relationship subscale and anxiety would not be present. Devine and Cook's (1986) meta-analysis of 191 studies of psychoeducational

care in adult surgical patients identified small to moderate effect sizes between psychoeducational interventions (patient education and psychosocial support) and postoperative recovery, pain, and psychological distress.

Hinshaw and Atwood (1982) also provided evidence of discriminant validity in the RN skill mix study, the comfort care study, and preoperative education study. For the skill mix study, the percentage of RN staffing was changed over a period of time, and it was predicted that patient satisfaction scores would be higher in the later phases of the study, or a time with a higher percentage of RN staffing. The technical-professional and trusting relationship subscales behaved as predicted, but the scores for the educational relationship subscale decreased by a statistically significant amount with a higher percentage of RN staffing. This finding seems contradictory as patient education is a role function within the domain of Registered Nurses. No mention was made of controlling possible confounding variables or any assessment of the equivalency of the groups over the months of the study. These results must therefore be interpreted tentatively.

In a study designed to assess patient satisfaction with nursing care before and after the introduction of a specific set of comfort care standards (Hinshaw & Atwood, 1982), the researchers predicted that patient satisfaction scores would increase after the introduction of the standards. The scores on all three subscales increased by a statistically significant level as predicted, although once again, no mention was made of possible confounding variables or the equivalency of the groups being compared.

In the final reported study related to preoperative patient education, Hinshaw and Atwood (1982) predicted that higher levels of preoperative patient education would result in higher patient satisfaction scores. These predictions were supported for the technical-

professional and trusting relationship subscales, but the educational subscale scores actually decreased by a statistically significant amount with the intervention. As noted previously, because education was the primary intervention in this study, one would expect higher scores on the educational relationship scale to be associated with an increased amount of preoperative patient education, yet the opposite occurred.

Despite the conceptual weaknesses of these studies, Hinshaw and Atwood (1982) asserted that the findings provided evidence of the construct validity and reliability of the revised measure. The Hinshaw and Atwood (1982) measure has been used frequently as a measure of patient satisfaction of nursing care in nursing research with mixed results. Miller-Bader (1988) reported that 15 of the measure's items were predictive of a global assessment of overall patient satisfaction with 12 of these predictors from the affective dimension of nursing care and three from the instrumental dimension of care. Cottrel and Grubbs (1994) adapted Hinshaw and Atwood's (1982) measure for use in the postpartum setting. A significant difference between patient satisfaction with nursing care under couplet care and rooming in was not noted. Validity of the revised scale was not reported. Larson and Ferketich (1993) reported a significant correlation between the Hinshaw and Atwood (1982) measure of patient satisfaction with nursing care and a 50 item visual analogue scale constructed to measure patient satisfaction with caring behaviors in a hospital setting ($r = .80, p < .05$). Webb, Bower and Gill (1997) compared patient satisfaction with nursing care in different diagnosis groups. Patient satisfaction was statistically higher in patients with medical diagnoses, compared to those diagnosed with HIV/AIDS. No relationship was identified between patient demographic variables and patient satisfaction, nor were differences noted across nursing units.

Risser's (1975) work was also used by LaMonica, et al. (1986) in developing a measure of patient satisfaction with nursing care for use in the study of the effects of empathy training on outcomes in oncologic patients. Three studies were reported, two for instrument development, and one for empirical testing.

As the Risser (1975) scale was originally developed for use in an ambulatory care setting, LaMonica, et al. (1986) added items reflecting physical care and comfort judged to be reflective of care in the acute care setting. Content experts, including representatives from nursing education, nursing practice, and psychometricians, were used to judge the content validity of the measure.

In the first study, the 50-item measure was administered to 75 patients. Patients were instructed to rate the importance of the behaviors using a 5 point Likert-type scale. Items with a mean of ≥ 3.50 and a standard deviation of ≤ 1.1 were retained for future study, although the rationale for using these limits was not explained. In total, 42 items were retained, distributed across the technical-professional subscale (14 items), the trusting relationship subscale (18 items) and the educational relationship subscale (10 items).

In the second instrument development study, LaMonica, et al. (1986) sampled 100 patients. Patients were instructed to rate, using a 7 point Likert-type scale, their agreement that each item represented their experience with and opinion of professional nurses they had come in contact with since admission. As with most patient satisfaction studies, the scores were highly skewed. The lowest mean score was 5.5, with 32 items having scores ≥ 6 . Standard deviations ranged from .62 to 2.15, with a standard deviation of ≥ 1.25 reported for 32 items. The Cronbach's alpha of the subscales was .81 for the

technical-professional subscale, .80 for the educational relationship subscale, and .84 for the trusting relationship subscale. The Cronbach's alpha for the total scale was .92. Subscale to subscale correlations were .66 for the technical-professional and educational relationship subscales, .72 for the technical-professional and trusting relationship subscales, and .59 for the educational relationship and trusting relationship subscales. Using the recommendation for maximum subscale to subscale correlations of .70 in exploratory studies (Nunnally & Bernstein, 1994), the technical-professional and trusting relationship subscales may have had some degree of overlap. No changes were made to the instrument based on the results of this study.

In the final study by LaMonica, et al. (1986), patient satisfaction with nursing care and mood were used as dependent measures to test the effects of an empathy training intervention. Data were collected weekly for four weeks, followed by the four week empathy training intervention, and data collection weekly for four weeks following the intervention. Data were available for 553 patients, although the authors did not mention if this represented 553 independent measures, or if patients may have been sampled on more than once occasion. Nor was there any indication of whether some patients completed a pre-intervention rating as well as a post intervention rating. The internal consistency of the subscales was .85 for the technical-professional subscale, .84 for the educational relationship subscale, and .90 for the trusting relationship subscale. Scores continued to be highly skewed with a mean score of 246.28 reported, out of a possible total of 294. Subscale to subscale correlations in excess of .70 were also reported.

In this study, LaMonica, et al. (1986) hypothesized that patient satisfaction might correlate negatively with anxiety, depression, and hostility. These variables did correlate

negatively with patient satisfaction with nursing care, at $r = -.21$, $r = -.20$, and $r = -.27$ respectively. All results were reported significant at the $p < .001$ level. Despite the significant correlations, the variance explained (4-7.29%) is considerably small and the prediction that patient satisfaction might correlate with anxiety, depression, and hostility, rather than specifying a directional nature of the relationship, requires cautious interpretation of these results. Interestingly, these findings are not consistent with Hinshaw and Atwood's (1982) original study where significant relationships were not predicted between anxiety and the three subscales of the measure. An exploratory factor analysis with varimax rotation did not support the originally conceptualized structure of the measure. Rather, three distinctly different factors were extracted, accounting for 93.7% of the variance. These factors were labeled dissatisfaction, interpersonal support, and good impression. It is noteworthy that all 17 negatively worded items loaded on the dissatisfaction factor, possibly representing a response bias.

O'Connor (1989) used the 42-item LaMonica-Oberst Patient Satisfaction Scale (LOPSS) (LaMonica, et al., 1986) as a dependent measure in an examination of correlates of service quality in nursing. The correlation between patient satisfaction with nursing care and a measure of the nurse patient relationship was significant ($r = .75$, $p < .0001$). Counter to prediction, the correlation between patient satisfaction with nursing care and a nursing unit score of humanistic behaviors was not significant. Patient scores on an assertiveness measure were also not significantly correlated to patient satisfaction with nursing care. Significant differences were noted on patient satisfaction with nursing care scores across hospital control types (public teaching, community, and private teaching) although post hoc tests were not completed to further isolate those significant differences.

Significant differences were also noted based on the presence or absence of a primary nursing mode of care delivery, with the presence of primary care nursing resulting in higher patient satisfaction with nursing care scores.

A further test of the psychometric properties of the LOPSS was completed by Munro, Jacobsen and Brooten (1994). Using data from three studies of a nurse model of transitional care, the investigators again noted highly skewed scores, ranging from 93 to 205 out of a possible range of 41 to 205. The mean score was 175. Using item to total correlations as a guide, the investigators eliminated three items with a correlation of $\leq .60$. Ten items were also eliminated based on a standard deviation of $\leq .70$, resulting in a scale of dissatisfaction (14 items), interpersonal support (9 items), and good impression (5 items). An exploratory factor analysis of this revised scale did not support the conceptual structure of the measure. Rather, two factors were extracted, accounting for 60.2% of the variance. Items from the interpersonal support and good impression scales all loaded on one factor (eigen value 15.67, variance explained 56.00%), with the remaining dissatisfaction items loading on the other factor (eigen value 1.17, variance explained 14.20%). The correlation between the factors revealed considerable shared variance, .48%. The Cronbach's alpha reliability coefficient of the new factors was also high, .96 for factor 1 and .94 for factor 2. The revised scale was compared to single item measures of satisfaction with nursing care, medical care, and overall satisfaction with care. Significant correlations were noted between patient satisfaction and nursing care, as well as overall satisfaction with care. The correlation between patient satisfaction with nursing care and satisfaction with medical care was not significant. As single item measures are notoriously unreliable (DeVillis, 1991) these findings must be interpreted

with caution, even though these findings are consistent with those of Abramowitz, et al. (1988) and Lemke (1987). The authors reported that the shortened version of the LOPSS could be used as a measure of patient satisfaction with nursing care, although considerable issues with the measure required further investigation.

The work of Eriksen (1988) was not based on Risser's (1975) conceptualization of patient satisfaction with nursing care, but rather the taxonomy of patient satisfaction with medical care proposed by Ware, et al. (1978). Eriksen (1988) eliminated two dimensions from Ware's (1978) taxonomy and constructed a measure inclusive of the dimensions of the art of care, the technical quality of care, the physical environment, availability, continuity, and the efficacy and outcomes of care. Thirty five items were generated from a review of the literature and existing patient satisfaction measures. One additional item was generated as a measure of overall global satisfaction.

Eriksen (1988) used a magnitude scaling technique in scoring the measure. Patients were instructed to use a score of 100 as a reference and assign any number to each of the items as a reflection of what they thought about the item. A principal components factor analysis of the scores did not support the originally conceptualized structure of the measure. Rather five factors were extracted, although the interpretation of these factors was not clear. The first factor consisted of items from the art of care and technical care. The second and third factor consisted of items from the art of care. The fourth and fifth factors consisted of environmental items. Eriksen asserted that the measure represented two distinct factors, the art and technique of care and the environment of care. Reliability for the measure was not reported. Predictive validity was reported by asking a director of nursing and two nursing supervisors to predict which

nursing unit would have the highest patient satisfaction scores. The predictions were supported, although this assessment of predictive validity is conceptually and methodologically weak as it is unclear what factors these individuals would consider in making their predictions. Eriksen (1995) has reported a reconceptualization of the scale based on a concept analysis of patient satisfaction with nursing care.

Killeen (1996) attempted to overcome the serious limitation of the lack of a theoretical base in the measurement of patient satisfaction with nursing care by using a theory derivation strategy in instrument development. Killeen (1996) conceptualized patient satisfaction with nursing care as cognitive, affective and behavioral processes that result in an attitude, manifested in cognitive, affective, and behavioral responses. Perceptions of role performance defined the processes, while perception of nursing services provided defined the responses. The role of perception was key to this research, as Killeen (1996) used theory derivation from social psychology within the framework of King's (1981) systems model.

The 60-item measure included six separate scales, a cognitive measure of nursing role performance, an affective measure of nursing role performance, a behavioral measure of nursing role performance, a cognitive measure of response to nursing services, an affective measure of response to nursing services, and a behavioral measure of response to nursing services. A large sample study (N=1,631) from four midwestern hospitals was used to test the reliability and validity of the six subscales and the scale as a whole. Items for the measures were generated by the investigator and members of a content expert panel. Two expert panels judged items for content validity. One panel judged items for consistency with King's (1981) systems framework, while the other

panel judged the relevancy of items. Two patients were included in the relevancy panel (Killeen, 1996).

Reliability of the measures was assessed through internal consistency estimates and test-retest. The internal consistency of the six scales ranged from .84 to .97. Test-retest reliability over a mean period of 22 days (range 10 to 40 days) resulted in $r = .88$ ($p < .01$) (Killeen, 1996).

To assess construct validity, Killeen (1996) hypothesized convergence between the cognitive perception of nursing role performance scale and the Hinshaw and Atwood (1982) Patient Satisfaction Instrument (PSI), and divergence between the affective perception of role performance and behavioral perception of role performance scales and the PSI. The convergence hypothesis was supported ($r = .54$, $p < .01$). The divergence hypotheses were not supported and resulted in correlations similar to those reported for the cognitive perception of role performance scale. It is unclear why Killeen did not assess the three response to nursing service scales in this analysis. The correlation between the six scales combined into one measure, the Killeen King Patient Satisfaction with Nursing Care (KKPSNC) survey and the PSI was reported at $r = .59$, $p < .01$.

Killeen (1996) originally conceptualized the perceptions of role performance scales along the dimensions of caregiver, friend, teacher, and advocate. A principal components analysis with varimax rotation was used to assess the dimensionality of the 48 items representing perceptions of role performance. The 4-factor structure was not supported and a 3-factor structure was reported as not theoretically interpretable. Killeen then subjected all 60 items of the KKPSNC measure to a principal components analysis, initially reporting seven factors with eigen values > 1.0 . The final factor structure

subjected to interpretation consisted of five factors. These five factors and selected attributes included: (a) positive qualities of the caregiver (intelligent, effective, gentle, prompt, good listener); (b) personal-control promoting teacher (effective teacher, mutual goal setting, patient knowing what to expect); (c) personal-care promoting friend (compassionate, emotionally supportive, patient, helping patients gain knowledge); (d) independence promoting advocator (pain control, protection of rights, participation of patients in care decisions); and (e) involvement promoting communicator (asking the patient questions and explaining). The factor descriptions provided by Killeen (1996) point to considerable overlap. Subscale to subscale correlations, ranging from .66 to .86 support this interpretation. Additionally, Killeen (1996) noted that 10 items loaded significantly on 2 factors and these items were assigned to the scale with the highest loading. The five subscales had strong internal consistency, ranging from .86 to .98, with three greater than .90. Significant correlations were noted between selected demographic characteristics of the sample and the KKPSNC. Positive relationships were noted between the KKPSNC and marital status, the obstetric service, and type of admission. Negative correlations were noted for the number of times in the same hospital, the number of admissions in the past two years, length of stay, medical service patients, and the presence of a roommate during the hospitalization.

One of the more recently developed scales to measure patient satisfaction with nursing care was reported by Jacox, Bausell, and Mahrenholz (1997), using Risser's (1975) conceptualization of patient satisfaction with nursing care. Expressing concern that the LOPSS (LaMonica, et al, 1986) items were most reflective of the interpersonal aspects of the care situation, they generated additional items based on a review of the

literature and existing measures. A principal components analysis with varimax rotation was used to select and refine items for inclusion in the final scale. The authors reported a reduction in the number of items to 15, although it is unclear what the original number of items was or what criteria were used to eliminate items. Cronbach's alpha reliability of the 15-item measure was .95 for the caring dimension scale (equivalent to the trusting relationship scale in the Risser (1975) measure), .91 for the technical-professional subscale, and .94 for the teaching subscale (equivalent to the educational relationship scale in Risser's (1975) measure). The conceptual structure of the measure was supported in a study of 1,453 patients using a principal components factor analysis technique, although eigen values of less than 1.0 were reported for some of the caring subscale items. A review of the scale as published revealed that an element possibly contributing to response bias may be present, calling these results into question. Items for each subscale were grouped under a heading that described what the subscale was measuring. As an example, four items for the caring scale were preceded by a heading that states "Caring about patients." The inclusion of heading such as this may have artificially biased patient responses.

The use of a principal components analysis by both Killeen (1996) and Jacox, et al. (1997) warrants discussion. Principal components analysis and exploratory factor analysis are commonly considered conceptually equal, but as Fabrigar, Wegener, MacCallum, and Strahan (1999) point out, this is an erroneous assumption. The goal of principal components analysis is data reduction, while the goal of exploratory factor analysis, based on the common factor model, is one of a more parsimonious picture of the associations among measured variables. Principal components represent linear

combinations of measured variables which are not latent variables. In contrast, common factors consist of a factor component and measurement error. Given that most attributes in the social sciences are not measured error free (Maruyama, 1998), the use of the principal components analysis in these studies represents a methodological weakness. Additional, both studies applied a varimax rotation in the analysis. While a varimax rotation produces a factor structure that is simpler to interpret, many constructs in the social sciences would be expected to be correlated, and therefore an oblique rotation would provide a more realistic representation of the factor structure (Fabrigar, et al., 1999).

Summary

Based on this review of the service quality, patient satisfaction in general, and patient satisfaction with nursing care literature, one concludes that knowledge development related to this reportedly important outcome of care has been hampered by inconsistent conceptualizations, a lack of theoretical grounding, measures that lack enough sensitivity to detect change, and measures demonstrating inconsistent performance and limited construct validity. Little research of patient satisfaction with nursing care has occurred beyond the level of description. The highly skewed nature of the scores limits the use of multivariate analysis procedures as this would violate an assumption of most multivariate procedures (Stevens, 1996). Construction of instruments to measure patient satisfaction with nursing care has failed to account for the patient's perspective during development, which may be a key factor in the failure of conceptualizations of patient satisfaction to be replicated in several studies. Risser's (1975) definition of patient satisfaction with nursing care continues to be dominant,

despite the inherent difficulties associated with using expectations as a factor in arriving at a judgment of patient satisfaction. Additionally, at the item level, most measures appear to be more consistent with a definition of service quality rather than satisfaction, and as noted in this review, service quality and patient satisfaction are conceptually different. Limited reliability beyond Cronbach's alpha has been reported, and the reported results of construct validity testing are equally scant.

A theory of patient satisfaction with nursing care is needed and this theory must be grounded in the experience of patients. Once a theoretical base is established, then development of instrumentation and testing of the reliability and validity of these measures can proceed. The next chapter is a description of the construction of an instrument to measure patient satisfaction with nursing care based on a grounded theory study that explored the experience of receiving nursing care in the hospital setting.

CHAPTER III

INSTRUMENT DEVELOPMENT

The preceding chapters are an outline of the need to develop a psychometrically sound measure of patient satisfaction with nursing care that is grounded in the experience of patients receiving nursing care. This chapter is an outline of the findings from a grounded theory study that explored the experience of receiving nursing care in the hospital setting. The chapter concludes with a description of an instrument developed to measure patient satisfaction with nursing care in the hospital setting based on this theory.

Description of the Grounded Theory Study

A qualitative approach was used to generate a substantive theory of patient satisfaction with nursing care. The data collection and analysis followed the classical grounded theory method as outlined by Glaser and Strauss (1967). The recruitment, data collection, data analysis and theoretical integration resulted in a theory of patient satisfaction with nursing care.

Recruitment

Participants were recruited from the population of discharged medical-surgical patients from an academic medical center in a southeastern state. Initially, patients nearing discharge (within 1 to 2 days) were identified by the investigator after consultation with the nurse managers of the nursing units. Upon identification, the investigator approached each patient in the patient's room. After an introduction, the investigator briefly described the study and asked patients if they might be interested in participating. If the patient answered affirmatively, a packet consisting of an introductory

letter and a postage paid reply card was left with the patient. Patients were instructed to return the reply card to the investigator after their discharge if they were still interested in participating in the study.

Thirty-five patients were approached in this manner during a three month period. Of those patients, only one patient returned the reply card and was subsequently interviewed for this study.

Discussions with the faculty advisor resulted in a decision to alter the recruitment procedures. Rather than approaching patients during their hospitalization, a letter and postcard would be mailed to the patient's home after discharge. An addendum to the study protocol was submitted to the University of Miami Human Subjects Committee and approved prior to initiating this change in the recruitment procedure.

Following approval from the Human Subjects Committee, a list of the names and addresses of all discharged patients was obtained intermittently from the information system of the study site. Patients who were discharged from one of the medical-surgical units of the facility were identified according to inclusion and exclusion criteria (adult medical or surgical inpatient stay, greater than 18 years old) and mailed an introduction letter outlining the study and a postage paid reply card. Patients were asked to return the reply card to the investigator if they were interested in participating in the study. Upon receipt of the reply card, the investigator contacted the respondent by telephone to provide further information about the study and answer any questions the respondent might have. Patients who expressed a continued interest in participation were given the option of an in-person or telephone interview. For those requesting an in-person interview, a time and place for the interview were scheduled. Those requesting a

telephone interview were informed that two copies of an informed consent form would be mailed to their home. They were to read and sign both copies of the consent form, retaining one for their records and returning one to the investigator in a supplied postage paid reply envelope. After the signed informed consent was received by the investigator, the patient was again called to arrange a date and time for the interview.

Two patients requested in person interviews at their homes. In these instances, the informed consent process was completed at that time, prior to beginning the interview.

Sample

A total of eight patients comprised the sample for this study. The demographic characteristics of the study participants are outlined in Table 1. Of these eight participants, two were interviewed in their home, with the remainder interviewed via telephone. Participants were recruited over a 7 month period from March, 1999 to September, 1999.

Data Collection

Prior to beginning each interview, participants were asked if they had any additional questions related to the study and those questions were answered. Each interview was tape recorded. Participants were encouraged to speak freely during the interview with the assurance that any identifying information would be deleted from the transcription of the interview. Participants were also reminded they could choose not to answer any questions, and could ask to have the tape recorder turned off at any time during the interview.

Table 1. Demographic Characteristics of Discharged Patients (n=8)

	N	Mean
Gender		
Male	3	
Female	5	
Diagnostic Category		
Medical	4	
Surgical	4	
Age		55.85 years
Length of Stay		4.14 days

An interview schedule was used as a guide to the questions to be asked during the interviews. Responses to those questions and questions arising during the data analysis guided areas of inquiry in subsequent interviews. Participants were allowed to speak freely during the interviews without interruption from the investigator. Elaboration was encouraged using phrases such as, 'Could you tell me a little more about that?' or 'Could you give me an example of that?'

The investigator was an employee of the organization from where the patients were discharged. The employment relationship presented special challenges for the investigator to bracket out any knowledge of the particular nursing unit from which the patient was discharged to prevent the introduction of bias in the data collection and analysis. During the interview, the investigator remained focused on the substance of the participant interview. The content of the interviews was not shared in any manner with the discharging organization or personnel of that organization. During data analysis, memoing was used as necessary to document any knowledge of the nursing units that might bias the analysis of the data.

Data Analysis

Following the completion of an interview, the tape recording was transcribed by the investigator. Following transcription, the tape recording was replayed and compared to the transcription with any errors being corrected. The tape recording, a copy of the transcription, and the signed informed consent were then stored in a locked file at the investigator's residence. A second copy of the transcription was used as the source for data analysis.

Consistent with the grounded theory method (Glaser & Strauss, 1967), the first interview was analyzed prior to proceeding with any further interviews. Areas for further data collection were identified in the data analysis procedure and these findings served as the basis for questions in subsequent interviews. This process was continued throughout the data collection phase of the study, with each interview being transcribed and analyzed prior to proceeding to the next interview.

Data were analyzed following the constant comparative method outlined by Glaser and Strauss (1967). During the open coding process, interview transcriptions were analyzed using words, phrases, sentences, and passages as units of analysis.

Substantiative codes were recorded in the margins of the transcription with the text that represented the specific code highlighted in the transcription copy. In interviews subsequent to the first interview, as codes were identified, the text was compared to other descriptions of the same or similar codes. Memoing was used to describe possible dimensions and theoretical questions about the codes as these emerged from the data.

After an interview was coded in its entirety, previously marked words, phrases, sentences, or passages were cut from the transcription and pasted to a sheet of paper

labeled for the specific code. Content was marked with the interview number and page number to preserve a reference to the original transcript. Interview data that did not represent a new or existing code were preserved under a miscellaneous category.

Data collection and analysis, through interview and open coding, continued until the interviews were not revealing any new data – that is, saturation had been reached in all categories that had emerged from the data (Glaser & Strauss, 1967). Several categories saturated quickly. Despite this early saturation, content related to these categories continued to be gathered from the participants to discover further examples of the category or to increase in the variability of the category.

The grounded theory method requires the investigator to search for cases that minimize and maximize the differences in emergent categories (Glaser & Strauss, 1967). The nature of this investigation did not allow for the active pursuit of such cases. To follow this maxim would have required the investigator to solicit participation from patients who were satisfied and those who were dissatisfied with the nursing care they had received. This could have potentially introduced bias into the respondents' answers. Rather than active solicitation of patients who were satisfied or dissatisfied with their nursing care, dimensions of nursing care the participants judged as being good or needing improvement were used as proxies of satisfaction versus dissatisfaction and allowed to emerge naturally from the participants.

Following the completion of open coding, second level coding at a higher level of abstraction was completed. During this process, codes were subsumed under categorical labels at a higher level of abstraction. Throughout this process, attention was paid to discovering the core category (Glaser & Strauss, 1967) of the emergent theory.

Consistent with the classical grounded theory method, categories had to earn their way into the theory. Glaser (1978) noted that approximately 90% of the categories should be integrated around the core category of the theory. This criterion was met during the second level coding process, after consideration and elimination of a category that was not conceptually consistent with the theory. Rather, this category represented patients' observations related to the staffing of the nursing units, rather than the experience of receiving nursing care.

Results

The theory of patient satisfaction with nursing care consists of seven categories that emerged during open and theoretical coding. A patient's judgment of satisfaction or dissatisfaction with nursing care represents their perception as to the degree to which the constructs of the theory are representative of their hospitalization experience.

Knowing the Other

Knowing the Other represents the reciprocal nature of the nursing care situation. Patients and nurses meet as strangers in this situation. Prior to meeting, the nursing staff has some knowledge of the patient in terms of his/her name, gender, age, physician, diagnosis, and room number. The patient, on the other hand, knows nothing of the nurse. Both the patient and the nurse have the potential and opportunity to learn more about each other.

Opportunities exist for this reciprocal knowing throughout the duration of the nursing care situation. Because of the different degrees and directions of knowing, two subcategories of Knowing the Other exist. These include "Nurse Knowing the Patient" and "Patient Knowing the Nurse."

Nurse Knowing the Patient. The nursing staff enters the patient care situation with some knowledge of the patient that may include the patient's name, diagnosis, gender, age, diagnosis, and physician. Through the process of the nursing assessment and interactions with the patient and possibly others (e.g. family members), the nursing staff has the opportunity to learn more about the patient as an individual.

Nurse Knowing the Patient is an understanding of the patient that goes beyond the basic data described above. Those patients with repeated admissions described this understanding as giving them a sense of security. Other respondents described the nursing staff knowing the patient beyond the diagnosis. As one patient who had repeated admissions to the same nursing unit stated

But I was always admitted to the same floor. I knew everybody on that floor. I knew the residents, I knew the cleaning people, I knew everybody.... I knew and they knew, you know. Oh no, you're back you poor thing. And it was like the word got out, _____'s back in. I felt more secure and the last time I was admitted to the surgeon's floor, the ____th floor, oh I was miserable. I didn't know anybody up there. I felt like I didn't get the best of care. And I did get good care. But afterwards, it's like, why did I feel that way? And it was just because I didn't know anybody and they didn't know me. And I didn't feel that care.

While the above passage describes both subcategories of Knowing the Other, it is representative of the staff not knowing the patient. Patients who had repeated admissions described a somewhat deeper conceptualization of the staff knowing the patient, but this property was present to varying degrees throughout the interviews. The opposite of knowing the patient was described by patients as "being a room number" or "being treated like a two year old." As one patient stated, "I would have to say not satisfied [with my care] and what would probably make me say that would be because I was a room number and nothing more."

Patient Knowing the Nurse. The subcategory, Patient Knowing the Nurse, is the other dimension of Knowing the Other. The properties of this category ranged from knowing to not knowing. Unlike the category of Nurse Knowing the Patient, this subcategory possesses less depth. Patient Knowing the Nurse primarily consisted of knowing the names of the nursing staff and their credentials. This information might be offered by members of the nursing staff or solicited by the patient. Patients also described knowing who to call for as important. As one patient stated

I don't like all these scrubs everywhere. They should wear uniforms. Uniforms, you know, nurses should be in uniforms. Everybody's walking around in scrubs. Who the hell is this one? Who's this one? Who's that one? I don't know who they are.

Another patient noted that name tags would be another way for the patient to know the staff.

Yes, small name tags, and what they do, RN, LPN, Volunteer, Student Nurse, something like that. Cleaning lady (laughter). I don't really want a cleaning lady coming in and seeing if I had a heartbeat.

This same respondent related

Well there was one girl, I don't know if she was training or a student, she'd come in and make the bed. I didn't know if she was a nurse or what. I had to ask her, and she told me.

Patients knowing at least the names of the nursing staff and their credentials represents one extreme of Patient Knowing the Nurse. The other extreme is a situation where the patient does not know the nursing staff. One patient described this as "being in the hands of strangers."

...if they don't know that their main concern has to be what's in that bed, the patient knows it, the patient feels it and it's terrifying. It is a terrifying experience to be sick and helpless and to be totally in the hands of strangers.

Seeing the Individual Patient

Seeing the Individual Patient is a second defining characteristic of patient satisfaction with nursing care. This category provides a description of how the nursing staff approaches the patient in terms of the character of the encounter and focus on the person. The dimensions of this category include Being Personal and Focusing.

Being Personal. The Being Personal subcategory arises from the meeting of two beings in a nursing care situation. The character of the nursing staff's approach defines the "being personal" category. The nursing staff can approach the patient with a sense of warmth, or in contrast, a cold, sterile, mechanical approach. Patients used phrases such as "greeted with a smile" and "[made me] feel at home" to describe the warmth shown by the nursing staff in interactions with the patient. Patients were aware of both extremes of this category in their descriptions. As one patient stated

...But personality is the difference and it counts. It makes a difference, it really does. I mean, it makes all the difference in the world when somebody is going to come in to turn you and position you or change your dressing and they're going to hurt you. And they come in, and they're, you know, joking with you a little bit, and telling you silly things, maybe things that don't even make sense to be talking about. But it's not any heavy duty conversation, it's just to help ease your patient into what you've got to do. Versus someone who comes in like sterile gauze incorporated, you know, here we are, going to change your dressings, you're going to have a little discomfort, whap, you know, they pull every damn hair out of your belly and your arm and it's like, oh God, can't you have a little mercy on me?

Reflecting on a prior hospitalization, one patient described the warmth of the nursing staff in this way

It was very much more personal, more one on one. It was – you knew that the care they were giving you was specifically for you and not like they were treating the masses. You knew it was for you.

They would speak to you more respectfully, they did not treat you as though you were – sounds kind of funny – a patient. You had a name, you had a personality, you had needs and you had wants and they saw to that.

Another patient described being personal, saying “And they just made you feel at home.”

In contrast, a cold approach to care was described by patients as “mechanical,” “being in the back of a vet’s office”, and “indifferent.” One patient offered this description of a cold approach to care, stating

The nursing care that I was provided I thought was good. I can say that it was, it was good nursing care, but it was very impersonal nursing care. The nurses did absolutely their job and not a step further. And, I thought, that in that respect, they made my visit at the hospital feel kind of like you were placed in room and forgotten and knowing that someone was only going to come around when they absolutely had to come around. And it made you feel like if you needed something, you needed to get it yourself.

This same patient, later in the interview, went on to say

They really need to learn to be more personal with people because it isn’t just a room full of people. It’s not the back of a vet’s office where the kennels are. And they lose sight of that.

Focusing. The second subcategory of Seeing the Individual Patient is Focusing.

This category also reflects the approach of the nursing staff. Patients, in describing their experiences, noted that clearly the patient was the primary focus of the nursing staff when providing care and the staff’s attention was not diverted away from the patient. The patient occupied their attention. Patients described this experience, despite their knowledge of other patients on the same nursing unit requiring the services of the nursing staff. This subcategory exhibited a continuum of responses, representing a high degree of variability. Phrases such as “knowing the care is for you” and “made me feel important” represented the positive evaluations of focusing. As the passage from the patient in the

Being Personal category noted, "... you know that the care they were giving you was specifically for you and not like they were treating the masses. You know it was for you."

Another patient used a negative description to illustrate the idea of focusing stating, "They're caring, they're nurturing, they're sharp. They're not giving you a drug and talking to somebody who's out in the hallway at the same time."

Knowing What They're Doing

This category of the theory refers to "how" care was completed by the nursing staff in the presence of the patient. Patients expressed that nurses need to know the type of care needed, as well as how to provide that care.

Patients described their perception and judgment of the nursing staff members' expertise and competency. Competency was not judged directly, but rather inferred based on how the staff members provided care. Patients used phrases such as "sure of themselves," "confident," "sharp," "detailed," and "good at what they're doing," as descriptors of their judgment and perception. These descriptors indicate patients perceived the nursing staff as knowing what they were doing, a proxy judgment of competence and expertise.

Patients also had descriptions of perceiving and judging the nursing staff as not knowing what they were doing. Again, this judgment was not directly made, but rather inferred based on how the staff provided care. Descriptors such as "careless," "lack of follow through," and the feeling of the need to "watch the staff like a hawk" indicated a judgment of less than acceptable competency or expertise. This category also includes

any omissions of care noticed by the patient, implying that an omission of care is a proxy indicator of nursing staff competency and expertise.

One patient described her evaluation of a nurse's competency and expertise in this way

She was careless, she was stupid. At one point I told her, I said 'don't do that.' Something with my IV and there, you know, there was this massive bubble coming. I said wait a minute.

Another patient, in comparing the staff members of two different nursing units, noted, "Yes, the ___th floor, they weren't on the ball as much as the nurses on the ___th floor."

The patient's judgment of the nursing staff's competence and expertise was at times inferred based on how the nursing staff approached the care of the patient. Phrases such as "confident," "sure of themselves," and "not hesitating" were used. As one patient stated, "...the nurses have been there for a while and they know what they're doing and they feel more confident."

This same patient noted

There was a few of them that were pretty good at what they were doing, no hesitation about it. And then there was others that, you could see the hesitation... not being sure of themselves.

Another patient judged competency and expertise in a different manner, stating

Well, I'm a person that's afraid of needles. And the way that they did it, I didn't even feel it. Most places you go, when they come around to draw your blood, I mean they're poking around in there and the thing hurts. But the way the nurses there did it, I didn't barely feel anything ...

As noted, this category also included omissions of care, implying the patients were aware of some aspects of their care that should be completed. Some patients

identified that the staff had told them of certain aspects of their care that would be received, and then failed to follow through. As one patient stated

...my experience was, I don't know, this last one I felt as though I was not really treated with a coordinated effort by the staff there. There were things that they said would be done and were not done.

Another patient, having some knowledge of care that would be received from prior hospitalizations noted, "They would come in, do all their routine duties, they didn't neglect to do anything."

Finally, another patient expressed some frustration in the need to remind staff to administer medications so as to prevent an omission in care. This patient noted

But there was one thing. There was certain things they forgot to give me my medications on time, and I had to keep reminding them, the nurse staff.... I had to, whatever I had to do to encourage them to attend to my needs. I called the nurses' station and mentioned to them that is it OK to take my such and such medication due at this time? And I guess they realized that it was due, and finally came down and administered whatever they had to do to me. I wasn't nasty or anything, but I did have to encourage them.

Enacting the Caregiver Role

Patients are the recipients of care in the nursing situation. As recipients, they will receive an amount of care as nurses enact their role as a caregiver. Patients will enter the nursing situation with some expectations of the quantity of care they will receive. These expectations may come from past experiences in the patient role, or the patient's conceptualization of the role of the nursing staff. In approaching the care of patients, the nursing staff will meet or not meet the patient's expectations. Enacting the Caregiver Role, then, includes two subcategories, Amount of Care Received and Meeting Expectations.

Amount of Care Received. This subcategory of Enacting the Caregiver Role describes the quantity of care delivered by the nursing staff. The properties of this subcategory possessed wide variation, ranging from doing nothing for the patient, through assisting and helping, to the nurse doing everything for the patient. Nursing staff members may also inquire as to some of the care the patient may need, attempting to identify those aspects of care where the patient may need assistance. Patients also discussed the nursing staff offering some aspects of care, implying that some direct care activities are implemented at the option of the patient.

In describing the idea of doing nothing for the patient, one respondent stated succinctly, “I thought jeez, if it wasn’t for my sister I might as well as just not, you know, stayed home.”

Others echoed this sentiment, describing the need to do things for themselves, as described by this patient

I mean at some points, I was actually emptying the I&O, the O part because it was full and nobody had emptied, and I’d write it on a little piece of paper because I’d forget otherwise.

Another patient noted, “It made you feel like if you needed something, you needed to get it yourself.”

Many patients described the concept of “routine care” or “doing their job.” It was somewhat difficult, however, for patients to offer further concrete explanations of what constituted routine care or the nursing staff doing their job. Several patients used the term duty when discussing the quantity of care received.

Assisting and helping the patient with some aspects of care was the most frequent occurrence related to the quantity of care provided by the nursing staff. As one patient

commented, “The only thing I remember is when I asked to go to the restroom. And I’d get up and they’d help me. I needed assistance because I just had my knee done.”

Another patient noted, “But, when they started feeding me, I needed some help, and they were there for that.”

Patients also described the converse of assisting and helping as not assisting or helping. As one patient described

No one asked me if I needed a bath, if I needed a shower, could I help you, do you need anything to sponge bathe? No one asked me. And with braces on my neck and major nerve damage, my arms don’t work real well. I could have used help, but nobody asked. They really need to address that problem.

Another patient noted, “I don’t remember them asking me, do I need help with being fed, do I need help getting up? They just didn’t do that.”

As noted in the introductory description of this subcategory, patients also described situations where the nursing staff would inquire as to the patient’s care needs, and offer some aspects of care. Patients described the inquiry component in similar manner. As one patient noted, the nursing staff frequently asked, “[Are] you all right, you need anything?”

Meeting Expectations. The second subcategory of Enacting the Caregiver Role related to the patient’s expectations of the nursing staff role. Common phrases used by the patients were “doing what they’re supposed to do” and “doing their job.” As one patient noted

I’m trying to think if there’s anything outstanding. No, I can’t say there’s anything outstanding that I can think of. It was kind of what they were supposed to do. But nothing outstanding.

Another patient noted, “Everything met my expectations. I mean they were good, very good.”

Informing

The Informing category represents the information needs and information seeking activities of the patients and the success of the nursing staff in meeting those needs. Patients may or may not actively seek information. When they do, they expect that questions will be answered. The nursing staff may also offer information without the prompt of the patient's inquiry. Rather, they will meet the patient's information needs through explaining. The properties of the Informing category include getting questions answered, the staff explaining and telling the patient what they are going to do, and not explaining. Getting questions answered existed when the patient made a direct inquiry to a member of the nursing staff. As one patient stated, "All the questions I asked them, my questions were answered."

Getting questions answered also included the action of the nursing staff in seeking other resources when they were unable to answer the patient's question(s). As one patient stated

One of them stood out in my mind. Her name was _____. She was (ethnicity). Very nice and if I had a question about something, if she didn't have the answer, she'd find somebody that had the answer for me.

Patients commonly offered descriptions of members of the nursing staff offering explanations related to their care. These explanations were offered without being solicited through patient questions. One patient provided this example, describing this experience where he vomited during his first ambulation after a surgical procedure

It was just all over me and you know, but she explained to me the reason why, like she explained it to me like your body's made to be anytime that you're laying down for a long period of time plus they'll put you under [anesthesia], your function starts slowing down. And she explained everything to me. The reason why it was happening.

Patients also described explaining as part of the teaching process. As one patient noted, “So they explained my medication to me, how to take it, when to take it and then also if I had any problems, who to contact.”

Patients also described the experience of the nursing staff not explaining. One patient, while discussing a personal care kit, noted

Because usually they’ll bring it to you, you need any hand lotion, here’s a mirror under the table. They didn’t explain, you know, the table to you at all where you could flip it up and have a mirror, nothing like that.

As with explaining, not explaining also included aspects of the teaching process.

As one patient, at the time of discharge noted

Even when she gave me my discharge papers, she didn’t even go over [them], she said read this, and so it wasn’t even explained to do this, not to do this, don’t take a shower, you know.

Another patient described the nurse giving an intravenous medication in this manner

Well, she’d come in and she’d put the bag up and adjust the flows, and leave. She wouldn’t tell me what it was, she wouldn’t tell me, you know, well this will be about fifteen minutes before it’s done. They just didn’t do that.

Responding

Responding represents the actions of the nursing staff as a result of a patient request or symptom. This category also includes the presence of the nursing staff with the patient during care. The responses were described in terms of the character of the response as well as the timeliness with which the response was delivered.

The character dimension of Responding represents the “how” of the nursing staff’s responses. Properties of this dimension include responding, spending time with the patient, and not responding.

Responding was primarily related to patient symptoms or requests. As one patient described, “So as soon as I sat up and I tried to make one step, I immediately started vomiting. The nurse didn’t jump back or back off or say anything.”

Another patient, recollecting a time when he had spilled his filled urinal described the response of the nursing staff in this manner stating, “I apologized and told him what I had done and he said ‘don’t worry about it, we do this all the time, it’s no problem.’”

Patients also described whether the nursing staff responded in person, or via the nurse station to room intercom. As one patient noted

I don’t know, sometime after that I felt like I needed some pain medicine and I pushed the button. And there was a voice [that] came on, ‘can we help you?’ and I said I needed some pain medicine.

Patients also described the nursing staff responding in person. As one patient stated

I don’t have much experience with the hospital as far as being a patient and what, but my goodness, they were just, whatever you needed, they did. You pushed a button, they were there.

The character of responding also includes the time nursing staff spent with the patient, either in response to a request, or as part of the normal course of nursing care. As one patient stated, “... didn’t leave my side. If she had to go somewhere else, she called another nurse in there and told them what to do. But she stayed right there by my side.”

Another patient noted dissatisfaction with the staff not spending time with the patient, stating

It would probably be the fact that I knew the nurses were doing administrative work at the nurses station rather than – they spent more time behind the desk than on the floor with the patient.

Responding also includes a timeliness dimension. This dimension relates to how long the patient had to wait for some aspect of care. As with most of the other categories, a wide variability was noted in the responses of patients. Patients tended to describe the positive aspect of timeliness in terms of promptness. The negative aspect of timeliness was described as waiting.

An example of a positive judgment of timeliness was characteristically expressed in this manner

If I needed something, I mean it was just a matter of within a minute somebody was there.... when I needed medication they were right there on time. And there wasn't left over then if somebody was supposed to come and change a compress or something like that.

Patients also had negative judgments of timeliness. As one patient, when describing dissatisfaction with nursing care, stated, "Um, well, the one outstanding thing that gave me that impression was the lack of care. They didn't give me the timely things that I needed."

Another patient described a negative judgment of timeliness in this way, stating

I just kept waiting, and waiting, and waiting. Then finally I got the physical therapist to help me back to bed. They didn't come back after they put me on the potty in the bathroom.

Watching Over

Watching Over represents the final category of the theory of patient satisfaction with nursing care. This category represents the patient's knowledge that the nursing staff is present and providing surveillance and some degree of protection for the patient, despite the fact the nursing staff members may not necessarily be in the physical presence or visual sight of the patient. The dimensions of the Watching Over category exhibited wide variability, falling along a continuum that included somebody always there,

watching over and watching out for the patient, checking on the patient, not checking on the patient, not watching, avoiding, feeling forgotten, and being on your own.

One patient described a positive experience of watching over in this way stating, "... you know and there was just somebody there at all times."

Another patient, describing postoperative ambulation with his family members, stated

One of them would, I mean, they didn't walk with me, but she'd be where she could see what I was doing and that I was all right, that I wasn't going to slip or anything.

This same patient described his immediate postoperative experience in this way, stating "...it seems like every time I turned around, somebody was in there watching me."

Another patient described both positive and negative aspects of Watching Over, stating

...the man ____, I felt he was like a guardian angel. If he hadn't come in and found me, I would have died. So then, the next day after I was on the floor, I had all kind of doctors, all kind of nurses in checking me all the time. They should have done that immediately after surgery.

Patients also described experiences where the nursing staff would intermittently stop by their room and check on them. Characteristic responses of this aspect of Watching Over included comments similar to this patient who stated, "...passing my room door, and someone would step in and say 'are you all right? Is there something I can get you?'"

Patients also described negative experiences of Watching Over. One patient attributed this negative experience to an untoward event of her hospital stay. When describing her dissatisfaction with nursing care, she noted, "Not having, being checked,

at least every hour after surgery. The second day, that's something different, but right after surgery..."

Patients also had other descriptions of not being watched. As one patient noted, "They made my visit at the hospital feel kind of like you were placed in a room and forgotten."

Summary of Theory

The seven categories described in the preceding paragraphs outline the theory of patient satisfaction with nursing care that emerged during the interview and coding process. The categories of the theory provided the basis for the construction of an instrument to measure patient satisfaction with nursing care. The constructs of the theory are summarized in Table 2.

Table 2. A Theory of Patient Satisfaction with Nursing Care

Construct	Theoretical definition	Examples of patient comments rephrased as items for the instrument
Knowing the Other	Reciprocal nature of the nursing care situation; the nursing staff acquires more information related to the patient and the patient acquires information about the nursing staff	The nursing staff took time to find out more about me as a person I knew who to call for when I needed help
Seeing the Individual Patient	Taking a personal approach toward the care of the patient and remaining focused on the patient when providing care	I knew my nursing care was specifically tailored to my needs When the nursing staff was giving my care, I was at the center of their attention
Knowing What They are Doing	The patient's perception that the nursing staff knows what type of care is needed and is competent to provide that care	The nursing staff appeared confident in providing my care The nursing staff did not appear to know what care I needed from them
Enacting the Caregiver Role	The amount of care received and the whether patient expectations related to their nursing care were met	The nursing staff did what they were supposed to do for me When I consider the amount of nursing care I received, I might as well have stayed home
Informing	The degree to which the nursing staff meets the information seeking and information needs of the patient	The nursing staff answered the questions I had of them The members of the nursing staff provided the information I needed without me having to ask questions

Continued,

Table 2. A Theory of Patient Satisfaction with Nursing Care, continued

Construct	Theoretical Definition	Examples of patient comments rephrased as items for the instrument
Responding	Reacting to or answering a patient request in a satisfactory and timely manner	The nursing staff responded appropriately to my requests
Watching Over	Knowing the nursing staff is present despite the fact they may not be visible. The members of the nursing staff are providing close observation, monitoring the patient's condition and protecting the patient from harm	<p>The nursing staff watched me closely</p> <p>Someone from the nursing staff was around all the time.</p>

Comparison of Theoretical Categories to Organizational Satisfaction Data

A further check of the construct validity of the categories of the theory was completed by comparing the categories of the theory with comments made by patients as part of the organization's patient satisfaction survey. The organization conducts follow-up telephone interviews with patients discharged from the hospital to obtain qualitative information related to overall patient satisfaction. Several questions related specifically to nursing care are asked as part of the survey process. These questions elicit responses focused on specific aspects of the patient's experience with nursing care (e.g. concern about pain, concern for well being). A general question at the conclusion of the survey asks patients to recommend any suggestions for improvement. Responses to this question were examined for comments demonstrating consistency with the theoretical categories of the theory constructed from interview data. Interview data spanning a six month period (January, 1999 to June, 1999), with a sample size of 2,875 patients interviewed, were examined.

Knowing the Other

The category Knowing the Other included the Patient Knowing the Nurse and Nurse Knowing the Patient subcategories. Comments related to this category were discovered in the patient satisfaction comments. A comment representing a negative aspect of the nursing staff knowing the patient was

...where the nurses/doctors overlooked that he was a diabetic and gave him juice and glucose. Patient went into shock. He was then misdiagnosed by staff as a possible stroke and his wife was called at home. When she arrived, she realized he was in sugar-shock and told them. He was treated properly and came out of it.

An example of the patient not knowing the nursing staff included the comment by this patient who stated, "All staff should wear ID. A few did not and I was confused. All

staff seem to wear same clothes and it is difficult to know who is who.”

Seeing the Individual Patient

The category Seeing the Individual Patient includes Being Personal and Focusing. A representative comment related to Being Personal included, “... treated our son like his own. He is calming – a very good nurse.”

Another patient noted, “___ is the best. Best friend and nurse to me though we only saw her once in a while. Every hospital should have a nurse like her.”

Comments related to Focusing were also evident in the comments from patient interviews. As one patient, describing a negative experience of Focusing, stated, “Had a confrontation with one nurse because she was talking to someone else while patient was being trained on a walker.”

Another parent of a patient noted, “Nurse ___ was so accommodating and great. While things were chaotic and he had 50 people pulling him in all directions, he stayed focused on our child. He was so very good.”

Knowing What They’re Doing

The category, Knowing What They’re Doing, refers to the patient’s judgment of the nursing staff’s competence and expertise. This category also included any omissions of care. Comments related to this category were evident in the comments of patients. A family member of a patient described a judgment in this manner

.... One night we had a very difficult time – a temp. Nurse was caring for him and it was a disaster. She was kind and courteous, but didn’t know what was going on. I found her outside his door, reading her Merck manual and I knew we were in trouble and we were.

Describing the nursing staff's expertise in phlebotomy, one patient noted, "Some didn't know what they were doing."

Omissions of care were somewhat less obvious than those obtained from the patients interviewed in this study. Yet, comments related to omissions of care were evident. As one patient noted, "[I] had to do things they should have done."

Similarly, another patient noted, "One bath during entire three week stay."

Finally, another patient noted, "Discharge nurse was very rude and did not go over instructions and gave no written ones."

Enacting the Caregiver Role

Enacting the Caregiver Role refers to the amount of care delivered to the patient by the nursing staff and the expectations of the patient related to that care. Comments representative of both of these categories were evident in the patient satisfaction comments. One patient, describing essentially no care stated

The nurses did nothing. If my wife hadn't been there, I'd have been in trouble. I finally told the doctor I would just as soon be at home. I wasn't getting nursing care.

Comments representative of patient expectations of nursing care were also evident. As one patient noted, "Nurses were griping about bad pay and yet they can't do what is expected."

Another patient noted, "Hire more nurses to do the kind of care a patient on this floor needs."

Informing

The Informing category refers to the information needs and information seeking activities of patients and the success of the nursing staff in meeting those needs.

Comments related to this category were evident in the patient satisfaction comments. As one parent noted, “One nurse never came back to explain circumcision.”

Another patient noted a positive experience with informing, stating, “One nurse, _____, explained things about meds and spent lots of time.”

A negative comment related to informing was offered by another patient, stating, “Nurse did not explain self-dispenser for pain killer.”

Responding

The Responding category represents the actions of the nurse in response to a patient request or symptom as well as a time dimension, both in the speed of the response and the time spent with the patient. Comments related to this category were prevalent in the patient satisfaction comments. As one patient noted, “The wait is too long for nurses.”

Another family member of a patient noted, “Nurse could not come for two hours. Daughter was covered in vomit.”

Another patient noted, “I had to ring three or four times before they came.”

Watching Over

The final category of the theory includes Watching Over. This category refers to the surveillance activities of the nursing staff. Comments related to this category were also evident in the patient satisfaction comments. As one patient noted, “Night shift needs to look in more often.”

Another patient, describing a positive experience with Watching Over stated, “She was always checking on us, was so on top of things, a caring professional.”

A similar comment was noted by another patient who stated, “She checked on me every five minutes.”

Another patient described a negative experience with Watching Over in this way stating, “ In a four hour period, not one nurse visited the patient to see how she was doing.”

Another patient noted, “They hardly ever checked on him.”

Summary

Data from the patient satisfaction surveys conducted by the organization over the span of six months revealed comments consistent with those obtained from the interviews of patients in this study. These findings provide some further evidence of the construct validity of the categories of the theory.

Construction of the Instrument

The categories of the theory formed the conceptual structure of the measure of patient satisfaction with nursing care being tested in this study. When patients described how they arrived at a judgment of satisfaction or dissatisfaction with care, they primarily responded that this judgment involved a consideration of the entire experience. As such, differential weights are not applied to the different factors in the measure. Rather, scores are summed to arrive at a total score that represents patient satisfaction with nursing care. Subscales are summed to arrive at a summary score for the various factors involved in patient satisfaction with nursing care.

Items were generated for the instrument using the actual comments patients made during the interviews. Minor revisions were made to the wording of some of the items to

increase clarity, while preserving the meaning of the item as reflective of what patients stated during the interviews.

By convention, negatively worded items are usually included to lessen the possibility of an acquiescent response set (DeVillis, 1991). These items are then reverse scored before data analysis. Comments from patients during the interviews represented a wide degree of variability, resulting in comments from patients that were naturally negatively worded. These items were included, rather than rewording positive comments to reflect a negative wording.

A determination of the number of items to include is an important consideration in the scale development process. The items must provide an adequate representation of the content domain while avoiding excessive length that may fatigue respondents or introduce response bias (Hinkin, 1998). Hinkin (1998) noted that a goal of scale development is adequate internal consistency with as few items as possible. Reviewing the literature related to the number of items to include in a scale, Hinkin (1998) recommended four to six items per construct, provided adequate reliability is obtained with this number.

An additional consideration in scale construction is which scaling method to use. While various options exist, the approach proposed by Likert is the most frequently used scaling procedure (DeVillis, 1991; Hinkin, 1998). In the Likert-type scaling approach, statements are worded in a declarative nature, and respondents use the response options to express their level of agreement or disagreement with the statement. Five point Likert-type scales with equal appearing intervals are most commonly used with the intervals represented by strongly disagree, disagree, neither agree or disagree, agree, and strongly

agree. The question of including a neutral midpoint has also received attention, and DeVillis (1991) noted that neither the inclusion or exclusion of a neutral midpoint offers clear advantages. DeVillis (1991) also noted that the exclusion of a neutral midpoint should be considered if it is believed that respondents will choose this option as a means to avoid making a choice. Given the nature of the measure being tested in this research, it was unlikely that patients would actively choose to avoid making a choice. Additionally, patients were being asked to respond to the items reflecting their experience as a patient. It would seem contradictory to force patients into at least a weak response by eliminating the neutral midpoint. Therefore a decision was made to include a neutral midpoint as a response option.

The factor structure of the scale is presented in Appendix A. The scale as constructed consists of 37 items, distributed as Knowing the Other (6 items), Seeing the Individual Patient (5 items), Knowing What They Are Doing (5 items), Enacting the Caregiver Role (5 items), Informing (4 items), Responding (5 items), and Watching Over (7 items). The instrument was titled the Schmidt Perception of Nursing Care Scale (SPNCS).

Assessment of Content Adequacy

Prior to testing the SPNCS using a sample of discharged patients, quantitative assessments of content adequacy were completed. Findings from these assessments were used to clarify the wording of items and obtain data that may give suggestions to modifications to the SPNCS should the need arise based on the results of the confirmatory factor analysis. These assessments included techniques outlined by

Anderson and Gerbing (1991) and Schriesheim, Powers, Scandura, Gardiner, and Lankau (1993).

Anderson and Gerbing (1991) proposed two substantive validity assessments similar in nature to the widely used content validity index (Burns & Grove, 1997), indicating these assessments are useful as predictors of the performance of measures in confirmatory factor analyses. For each technique, a sample of respondents is provided with the theoretical definitions for each construct along with the set of items and instructed to match each item with the appropriate theoretical definition. Anderson and Gerbing (1991) recommended this procedure be completed using respondents with similar characteristics to those who would be completing the scale in subsequent studies when the goal is predicting the performance of items in confirmatory factor analysis. In this phase of the current study, the goal was to determine the content validity and consistency between the theoretical definitions and the SPNCS items. For the assessments of the SPNCS, this suggestion to use respondents with similar characteristics to those who would be completing the scale was altered, since matching items to theoretical definitions was a simple cognitive task and did not require prior experience as a patient. Responses were obtained from a sample of 31 students enrolled in RN to BSN programs at universities on the west central coast of Florida and the southeastern coast of Florida. Responses from both groups were combined to obtain the sample of 31 responses.

The proportion of substantive agreement (PSA) is calculated as the number of correct item assignments to the theoretical definition divided by the number of total responses. PSA values can range from 0 to 1.0, with higher values representing a higher

degree of match between the item and the definition. The substantiative validity coefficient (SVC) is an index of the degree respondents assign the item to its intended theoretical definition more than any other definition. This index is calculated as the number of correct item assignments, less the highest number of assignments to any one incorrect theoretical definition, divided by the total number of assignments. Values for the SVC can range from -1.0 to 1.0 . High positive values indicate the item is assigned to the correct theoretical definition. Large negative values indicate the item is representative of a theoretical definition different than originally hypothesized. Results of the PSA and SVC of the 37-item SPNCS are presented in Table 3. For each item, an asterisk has been placed next to the PSA value that represents the original item assignment.

The second assessment of content adequacy followed procedures described by Schriesheim, et al. (1993). This content adequacy assessment uses judgments related to the theoretical dimensions of a set of items. These judgments are factor analyzed with the results used to assess the dimensionality of each item and the theoretical distinctiveness of each content domain.

Using the same data from the sample of 31 RN to BSN students, a value of 3 was assigned to each response that correctly matched the item with its intended theoretical definition. A value of 1 was assigned to items matched to a theoretical definition other than originally intended. Totals for each item across theoretical categories were obtained and used to construct a data matrix (item by category) of totals. This data matrix was submitted to SPSS version 10 (SPSS, 1999) and factor analyzed using principal components extraction first with varimax and then with a promax rotation. Both

solutions resulted in the extraction of six factors accounting for 100% of the variance. Schriesheim et al. (1993) recommended the interpretation of the varimax solution as the content categories are assumed to be exclusive of one another. They did note that interpretation of promax solutions may also be appropriate at times when respondents have difficulty assigning items to the correct category.

The varimax and promax solutions produced similar results and both solutions are presented. The varimax solution is presented in Table 4 with the promax solution in Table 5. For ease of interpretation, factor loadings with an absolute value of less than .30 are excluded from the tables. As an additional ease to interpretation, SPNCS items are ordered based on the originally hypothesized factor structure.

Several changes were subsequently made to the SPNCS. The wording of item 6 was changed to make the meaning more specific by changing the phrase “needed something” to “help.” Results of the PSA suggested that item 9 had an unclear meaning. The item originally read, “The nursing staff spent time with me,” conveying a vague meaning. The item was reworded to read, “The nursing staff did not appear rushed in providing my care.” It was felt this wording conveyed a better description of the idea of responding in a non-hurried manner. The PSA for item 34 suggested this item belonged to the Enacting the Caregiver Role subscale. The factor analysis results suggested the item was representative of the Knowing What They’re Doing subscale. The item wording, “I had to provide some of the care the nursing staff should have done” was perceived as somewhat awkward and similar in meaning to another item on the Knowing

Table 3. PSA and SVC Assessment of the SPNCS (n=31)

Item	Knowing the Other	Seeing the Individual	Knowing What They're Doing	Enacting the Caregiver Role	Informing	Responding	Watching Over	SVC
1.	.70	.87*	.03	.03				.81
2.	.03	.13	.03	.10*	.03	.61	.07	-.52
3.			.06	.06		.13	.74*	.61
4.	.19*	.48	.06	.06	.03	.06	.10	-.29
5.	.03	.03	.13	.06	.71*		.01	.58
6.				.13		.84*	.03	.71
7.	.03	.03	.35*	.35		.13	.10	0
8.				.10		.13	.77*	.65
9.	.13	.29	.03	.32		*	.22	-.31
10.		.03	.03	.13			.81*	.68
11.		.03	.77*	.16	.03			.61
12.	.03	.03	.17	.50*		.13	.13	.33
13.				.03	.07	.90*		.84
14.		.03	.10	.10	.03	.70*	.03	.63
15.	.03	.07	.52	.32*	.03	.03		-.19
16.	.55*	.10	.03	.07	.19	.03	.03	.35
17.	.03		.36*	.48	.13			-.13
18.	.03	.03		.13	.03	.74*	.03	.61
19.		.03	.36	.42*		.16	.03	.06
20.	.03	.74*	.13	.07		.03		.61
21.	.10		.07	.16	.65*		.03	.48
22.	.16	.26	.03	.10	.10	.10	.26*	0
23.				.03			.97*	.94
24.			.13		.55*	.32		.23
25.	.23*	.03	.67				.07	-.43
26.	.62*	.13	.07	.16	.03			.45
27.	.07	.10	.13	.03	.60*	.07		.46
28.	.13	.40*	.13	.23		.10		.16
29.	.07		.07	.19	.03	.16	.48*	.29
30.	.07	.16	.55*	.16		.07		.39
31.	.32*	.55	.07	.07				-.23
32.	.23	.29	.23*	.26				-.07
33.	.03	.81*	.03	.03		.10		.71
34.	.10	.03	.19	.55*		.13		.36
35.	.67*		.07		.17	.07	.03	.50
36.		.07		.03			.90*	.83
37.	.19	.39*	.10	.23		.03	.07	.16

Note: * refers to initial item assignment

Table 4. Varimax Rotation of Response Totals (n=31)

Item	Item No.	Factor					
		1	2	3	4	5	6
Knowing the Other	4.	.95					
	16.						-.86
	25.					.96	
	26.						-.94
	31.	.88					-.31
Seeing the Individual	35.						-.90
	1.	.94					
	20.	.94					
	28.	.92					
	33.	.93					
Knowing What They're Doing	37.	.93					
	7.			.81		.56	
	11.					.91	
	17.			.84		.31	
	30.					.91	
Enacting the Caregiver Role	32.	.67		.43	-.31	.30	-.30
	2.				.98		
	12.				.96		
	15.			.59		.74	
	19.			.85		.45	
Informing	5.	-.52	-.48		-.45		.38
	21.	-.55	-.49		-.47	-.39	
	24.	-.60	-.52	-.38			.42
	27.	-.43	-.59	-.39	-.36		.36
	34.			.98			
Responding	6.				.98		
	9.	.64	.39	.49	-.31	-.31	
	13.				.96		
	14.				.97		
	18.				.97		
Watching Over	3.		.96				
	8.		.96				
	10.		.96				
	22.	.57	.57	-.36		-.43	
	23.		.95				
	29.		.93				
	36.		.95				
Unrotated Eigen Values		9.66	8.67	7.23	5.77	3.24	2.44
Percent Variance Explained		26.10	23.40	19.50	15.60	8.70	6.60

Note: Factor loadings of $< \pm .30$ are not included in table

Table 5. Promax Rotation of Response Totals (n=31)

Item	Item No.	Factor					
		1	2	3	4	5	6
Knowing the Other	4.	.92					
	16.						-.74
	25.					.91	
	26.						-.92
	31.	.88					-.52
	35.						-.76
Seeing the Individual	1.	.88					
	20.	.87					
	28.	.91		.37			-.45
	33.	.86					
	37.	.95		.31			
Knowing What They're Doing	7.			.89		.75	
	11.			.43		.92	
	17.			.83		.52	
	30.			.48		.96	
	32.	.73		.55		.49	-.51
Enacting the Caregiver Role	2.				.95		
	12.			.94			
	15.			.72		.87	
	19.			.90		.68	
Informing	5.	-.61	-.61	-.45	-.56	-.37	.59
	21.	-.62	-.60	-.35	-.57	-.46	.48
	24.	-.72	-.63	-.52		-.32	.67
	27.	-.54	-.70	-.53	-.48	-.36	.57
	34.			.95		.35	
Responding	6.				.95		
	9.	.70	.50	.50			
	13.				.92		
	14.				.94		
	18.				.90		
Watching Over	3.		.91				
	8.		.91				
	10.		.91				
	22.	.59	.62	-.34		-.50	
	23.		.89				
	29.		.90				
	36.		.90				
Unrotated Eigen Values		9.66	8.67	7.23	5.77	3.24	2.44
Percent Explained Variance		26.10	23.40	19.50	15.60	8.70	6.60

Note: Factor loadings of $< \pm .30$ are not included in table

What They're Doing subscale that read, "The nursing staff did what they were supposed to for me." Item 34 was deleted and an additional item tapping another dimension of Informing was added to that subscale. That item read, "When the nursing staff was providing care, they would explain what they were doing."

Other suggestions that might be useful in model modification, should that need arise, were suggested by the PSA and factor analysis results. Results suggested that Item 2, "When I needed help from the nursing staff, they were there for me" might be appropriate for the Responding subscale. In the PSA results, several items from the Knowing the Other subscale had higher agreement with the Seeing the Individual subscale. Similarly, several Seeing the Individual Items were rated as consistent with the Knowing the Other definition. A similar pattern was obtained with the factor analysis results, suggesting these subscales may be combined if needed.

The varimax and promax rotated factor solutions provided further information related to the Knowing What They're Doing and Enacting the Caregiver Role subscales. The factor loading pattern suggested the majority of items from both subscales all loaded on two separate factors. This pattern suggested that these subscales could be combined as a possible model modification. The factor structure of the final measure used in testing is located in Appendix A.

CHAPTER IV

METHOD

This chapter is a description of the methods and procedures used in carrying out the current study. Included are a description of the research design, setting, population, sample and sampling plan, ethical considerations, risks and benefits, data collection procedures, measures, and the methods of data analysis.

Research Design

A descriptive, non-experimental model testing design (Burns & Grove, 1997), with data collected through mailed self-report surveys, was used for the current study. The primary goal of this study was an assessment of the reliability and validity of the Schmidt Perception of Nursing Care Scale (SPNCS). The variables of that measure, rather than population parameters, were the primary focus. The validity testing of the SPNCS also provided a test of the theory of patient satisfaction with nursing care described in Chapter III.

The mail survey method of data collection was implemented according to the recommendations of Fowler (1993). The elements of Fowler's (1993) recommendations, sample, quality of data collection, and mode of data collection are discussed under the relevant sections of this chapter.

Reliability of the SPNCS was tested using Cronbach's alpha (Cronbach & Meehl, 1955). Validity of the SPNCS was tested along two dimensions, criterion and construct validity, as recommended by DeVillis (1991). Criterion validity was assessed by examining the relationship between the SPNCS subscales and the two widely used measures of patient satisfaction with nursing care, the PSI (Hinshaw & Atwood, 1982) and the LOPSS (LaMonica, et al., 1986). It was hypothesized the SPNCS subscales

would correlate positively and significantly with the subscales of the PSI and satisfaction subscale of the LOPSS, with a significant negative correlation between the SPNCS subscales and the dissatisfaction subscale of the LOPSS.

Construct validity of the SPNCS was assessed along two dimensions. First, the theoretical factor structure of the SPNCS was tested through structural equation modeling. Since the SPNCS was constructed as a measure of the theory of patient satisfaction with nursing care described in Chapter III, the test of the factor structure represented a direct test of that theory. The theoretical structure was specified a priori and tested in a sample of data. Describing the use of structural equation modeling as a model testing strategy, Kelloway (1998) noted, “(a) every theory implies a set of correlations and (b) if the theory is valid, then the theory should be able to explain or reproduce the patterns of correlations found in the empirical data” (p. 6). Acceptable fit of the theoretical model to the data would represent construct validity of the SPNCS and validity of the theory of patient satisfaction with nursing care.

As a second dimension of construct validity, the relationships between the SPNCS subscales, a 3-item measure of general satisfaction with the hospital experience, and a 1-item measure tapping the extent to which patients were following their discharge instructions were examined. Empirical support for these relationships has been identified (John, 1992) and it was predicted the SPNCS subscales would correlate positively with a measure of general satisfaction with the hospital experience and the extent to which patients were following their discharge instructions.

Setting

This study was conducted at a university affiliated medical center located on the west coast of central Florida. Patients discharged from this facility comprised the participants in this study. Participants completed mailed surveys in their home setting. The facility is classified as private, not-for-profit and is licensed for 877 acute care beds and 59 rehabilitation beds.

For the fiscal year ending September 31, 1999, the organization had 22,734 discharges, 3,215 deliveries, 16,059 surgeries, and 47,971 emergency care visits. Total patient days, excluding newborn days totaled 154,789, or an average daily census of 424. Length of stay, excluding newborns, averaged 6.2 patient days.

A full range of services is offered by the organization. It serves as a regional referral center for the region, the state, and the Caribbean (for selected services). The facility serves as the major teaching affiliate for a medical school, and a number of nursing and allied health programs within the community use the facility for clinical experiences.

Population

For the majority of quantitative research studies, the goal is to obtain and develop statistics about a population (Fowler, 1993). That goal was also relevant for this research. However, because this study was a test of the empirically derived SPNCS, the primary goal was to obtain statistics about the measure.

The SPNCS was developed from the grounded theory (Glaser & Strauss, 1967) study detailed in Chapter III. To test the psychometrics of this measure, the population of

interest needed to resemble the participants in that study. Using a population with similar characteristics was also a test of the measure in the population of intended usage.

The target population for this study was discharged adult inpatients, 18 years of age or older, who had received general medical or surgical nursing care. The population was not restricted to only those patients spending their entire hospital stay on a general medical or surgical unit, but also included patients who may have received care in an intensive care unit at some point during their hospital stay, then subsequently received nursing care on a general medical or surgical unit prior to being discharged.

The accessible population included adult inpatients, 18 years or older, discharged from the medical surgical nursing care units of the study site. Although not included in the sample for the grounded theory study, obstetric patients were included in the target population of the current study. This decision was made for several reasons. First, the nursing care of patients in the postpartum period resembles the care received by medical or surgical patients in terms of basic nursing actions such as medication administration, assessment, hygiene, and nutrition. In this regard, the care of patients in the postpartum period was judged to be more similar than dissimilar to care delivered on a general medical surgical unit. A second reason for including postpartum patients in this study was to determine if the SPNCS would detect differences on the subscales based on the type of hospital service. The obstetric population was considered a more homogenous group in terms of diagnosis and this characteristic could be used as a reference point for any differences in subscale scores based on hospital service. Finally, examination of item content suggested the dimensions of nursing care represented in the SPNCS would also be present in the nursing care of obstetric patients.

Sampling

The target and accessible populations described in the previous section guided the sampling strategies for the current study. Fowler (1993) described two relevant aspects of sampling, the sample frame and sample procedures. These aspects are discussed below in relation to the current study.

Fowler (1993) defined the sample frame as the “set of people that have a chance to be selected, given the sampling approach that is chosen” (p. 10). Fowler (1993) also cautioned the sample can only represent those in the sampling frame and the details of sampling procedures will have a direct effect on the precision of the findings in the target population. The specific inclusion criteria for participation in this study included:

(a) willingness to participate in the study; (b) the ability to read, write, and understand the English language; (c) the ability to complete a self report measure with a pen or pencil; (d) discharged from one of the nursing units identified in the sample frame; (e) 18 years of age or older; and (f) length of stay at the study site greater than one day. These criteria are discussed in more detail in the following section.

Three general sampling strategies exist and were considered for the current study. These strategies include: (a) sampling from a complete list of individuals in the population; (b) sampling from individuals who meet criteria for the sample, based on some attribute of those individuals; and (c) a multistage sampling strategy where units that include possible participants are identified and individuals are sampled from those units (Fowler, 1993). The current study was implemented using the third sampling strategy.

Nursing care units of the study site were listed and labeled using a general classification strategy based on the type of patients who normally receive care on those units. From this listing, nursing units where adult inpatients would receive general medical or surgical care were identified, representing the units that included possible study participants. For each day of the data collection period, a listing of patients discharged from the study site was obtained, limiting the list to those nursing units included in stage one of the sampling strategy. Information obtained for each discharged patient included name, complete mailing address, age at discharge, length of stay, gender, hospital service, and discharge status (alive vs. deceased). Information was extracted electronically from the information system at the study site and transmitted electronically to the investigator via a password protected electronic mailbox. The data file was then transmitted electronically to a personal computer located at the investigator's private residence. The investigator was the only individual with access to the electronic mailbox of this computer.

Upon receipt of the electronic file, data elements to complete survey mailing labels were extracted to a word processing program for creation of personalized cover letters and mailing labels. The data elements were also formatted to a printed report for stage two of the sampling procedure. In this phase, information was examined for each discharged patient. Patients were eliminated from the sample if (a) the mailing address was incomplete, (b) patient age at discharge was less than 18 years, or (c) length of stay was one day. The decision to exclude patients with a one day length of stay was made because the study site routinely places outpatients in inpatient beds. A length of stay of one day is commonly used for the determination of outpatient vs. inpatient care and the

type of nursing care received by outpatients is qualitatively different than nursing care received by inpatients (Killeen, 1996). Patients were then sampled from the remaining eligible participants.

The study site has an existing patient satisfaction survey process in place that includes questions related to nursing care. This process was also considered in developing the sampling strategy.

The organizational patient satisfaction survey is completed through a telephone interview with a randomly selected sample of 33% of the patients discharged from each nursing unit every month. Discharged patients are contacted by interviewers until a number equal to 33% of the discharged patients is obtained. Because of the inability to contact some individuals, the actual number of patients sampled may exceed 33%.

The probability that some patients would be contacted by the interviewers to complete the patient satisfaction survey for the study site as well as receive a survey for this research was considered as a possible bias that might confound the responses for either effort. This concern was discussed with the Senior Vice President of Patient Care Services and the coordinator for the patient satisfaction survey. To support this research, while maintaining the integrity of the existing organizational survey process, it was agreed that patients discharged during the first 14 days of the month would receive a survey for this research. These patients would not be contacted by the telephone interviewers. At the end of the fourteen day period, discharged inpatients would not be mailed a survey for this research. Rather, they would be considered possible contacts for the organizational patient satisfaction survey. This arrangement was to continue until the required sample size for the current study was obtained.

After two months of this arrangement, the coordinator for the organizational survey process expressed concern that target numbers for that process were not being met. At this time, the required sample size for the current study had not yet been reached. These concerns were discussed with the Senior Vice President for Patient Services. After examining the content of the SPNCS and the questions asked in the organizational survey process, it was determined that areas of common or overlapping content did not exist and patients could be sampled continuously for both efforts. This change in procedure for the current study was submitted to the Institutional Review Boards of the University of Miami and the University of South Florida. After receiving approval from both agencies, beginning August 1, 2000, sampling of patients for this research was completed continually until the required number of responses was obtained.

In summary, the specific inclusion criteria for participation in this study included (a) willingness to participate in the study, (b) the ability to read, write, and understand the English language, (c) the ability to complete a self report measure with a pen or pencil, (d) discharged from one of the nursing units identified in the sample frame, (e) 18 years of age or older, and (f) length of stay at the study site greater than one day. The first three criteria (a, b, & c) were implied by the return of a completed survey. The remaining criteria were determined based on data elements extracted from the information system of the study site.

Fowler (1993) noted that decisions regarding sampling involve a consideration of costs and benefits. The goal, design, and analyses planned for the current study necessitated a large number of complete responses to the SPNCS since structural equation modeling is considered a large sample technique that requires a complete data

set for each response (Bollen, 1989). In an effort to minimize costs associated with duplication of the SPNCS and postage, one final strategy was employed. The address used for mailing each survey package was verified through a postage software program that automatically verifies mailing addresses with the United States Postal Service address database. Survey packets were mailed to only those discharged patients who met all inclusion criteria and had a verifiable address. Despite this effort, 188 survey packets were returned as undeliverable.

In a further effort directed at maximizing participation, survey packets were mailed 10-14 days after the discharge date. In addition to being consistent with the sampling procedures used in the organizational patient satisfaction survey of the study site, it was believed this time period would allow potential participants some additional recovery time in their discharge setting prior to receiving the survey packet.

A non-probability convenience sampling strategy was used. This sampling strategy was appropriate for this methodological study as the primary focus was the variables of the SPNCS, rather than developing statistics about the population of interest (Burns & Grove, 1997; Fowler, 1993). The required sample size and inclusion of discharged patients from medical, surgical, and postpartum nursing units increased the probability of obtaining adequate representation from several hospital services to test for SPNCS subscale differences based on the type of hospital service.

Fowler (1993) suggested that actions directed at making a mail survey appear professional and personal will have a positive effect on response rates. Killeen (1996) employed several strategies that resulted in a 58% response rate in a methodological study similar in design to the current study. Based on Fowler's (1993) recommendations

and Killeen's (1996) results, several strategies aimed at increasing the response rate in this study were implemented.

First, a letter from the Senior Vice President of Patient Care Services thanking patients for choosing the study site for their recent care and conveying administrative support for the current study was included in each survey package. This letter further explained that part of the mission of the study site included supporting actions that improve the quality of patient care. The current study was identified as an important contribution to learning more about nursing care from the perspective of patients. The letter closed with a statement encouraging participation and thanking patients in advance for providing their thoughts. This letter is included in Appendix B.

A second strategy employed in an effort to personalize the mailed survey packet was focused on the cover letter used as a vehicle to explain the current study and provide the required details of informed consent. Each letter was personalized with the appropriate salutation (Mr. or Ms.) and the last name of the patient. Patient letters were signed individually in blue ink by the investigator.

Killeen (1996) provided a token of appreciation, in the form of a wallet card to record blood pressure measurements, to participants. Fowler (1993) suggested prepayment of one to two dollars as a strategy to increase response rate as beneficial. Like other sampling decisions, cash payment or some token of appreciation was considered for the current study. In the end, a decision was made to forgo any inducement for participation. Several reasons formed the basis for this decision. Patient satisfaction surveys are routinely completed by hospitals as part of the overall quality assessment program. To the investigator's knowledge, inducement to participate in these

routine surveys is not offered. For this research, inclusion of an inducement for participation would have represented a significant increase in cost with a questionable benefit, and also may have introduced the possibility of bias in responses.

Sample Size

The use of structural equation modeling (SEM) for confirmatory factor analysis (CFA) requires a large sample (Fabrigar, et al., 1999; Hinkin, 1998; Kelloway, 1998), as the maximum likelihood estimation procedure and various indices of model fit are based on the assumption of large samples. Various definitions of large samples in SEM have been proposed. Hinkin (1998) and Kelloway (1998) recommended a sample size of at least 200 observations. Bentler and Chou (1987) recommended a sample size based on the number of estimated parameters in the model to be tested, using a sample to parameter ratio between 5:1 and 10:1. Bollen (1989) has suggested several observations for each free parameter.

In CFA implemented through SEM, several parameters are estimated from the data. These include latent variable (factor) covariances, path coefficients (factor loadings), and measurement error variances for each indicator. The latent variable covariances represent the relationships between each factor. With seven factors in the SPNCS, the number of latent variable covariances to be estimated was 42, based on the formula $p(p - 1)$ where p equals the number of factors.

Each item of the SPNCS represented an indicator variable. The unobserved, latent variables were hypothesized to affect the response obtained from participants for specific items. Each item of the SPNCS was associated with a specific latent variable and items did not cross load on more than one latent variable. The path from a specific

factor to each item represented an additional parameter to be estimated from the data. In CFA, one path in each latent variable – indicator set is traditionally assigned a fixed value. This maneuver sets a reference scale for other indicators in the latent variable – indicator set. With seven latent variables in the SPNCS, and one path in each latent variable – indicator set assigned a fixed value of 1.0, the number of path coefficients to be estimated was 30.

Finally, CFA implemented through SEM includes an estimation of measurement error for each indicator variable. All measurement error values are estimated from the data. Therefore, 37 additional parameters, representing measurement error for each of the SPNCS items were also estimated from the data.

The total number of parameters estimated from the data was 109 for the full 37 item SPNCS. The criteria of Bollen (1989), Hinkin (1998) and Kelloway (1998) were applied to determine the required sample size for the current study. Using a value of three for Kelloway's "several" recommendation, a sample size of 327 was required. This value was rounded to 350 for convenience purposes in the initial research plan.

One of the more controversial topics in SEM is model modification (Kelloway, 1998). If a proposed model does not provide an acceptable fit to the data used in the model testing procedures, the model can be modified in an effort to improve this fit. MacCallum (1995) and Joreskog (1993) noted that model modifications are based on the data set used in the analysis, a situation that capitalizes on chance. An improvement in model fit may not be reproducible with another set of data. MacCallum (1995) and Joreskog (1993) also stressed that any modifications to a theoretical model must first be justified on substantive grounds. Any time a theoretical model is modified, the new

model must be tested with an independent sample of data before assertions of an improved model fit are made.

To implement the recommendations of MacCallum (1995) and Joreskog (1993), the sample size for the current study was doubled to 700. This action allowed the final sample to be split into two samples of 350 responses each. The first sample was used to test the full 37-item SPNCS through CFA. The second sample was used to test any modifications made to the full 37-item measurement model. In the event modifications were not needed based on the results of the CFA using the first sample, the model was to be re-tested using the second sample to provide further evidence of the validity of the SPNCS.

The target sample of 700 was based on respondents answering all items of the SPNCS. Strategies for imputation of missing data are questionable in SEM because imputed values can alter the values in the covariance matrix used in the analysis (Bollen, 1989). In the original plan for this research, the response rate was projected to be 50% based on the inclusion of a letter of invitation from the Senior Vice President of Patient Care Services and a personalized, individually signed cover letter. In accounting for a 50% non-response rate, the target sample size of 700 was inflated to 1050 by multiplying the target sample size by 150% (100% + projected non-response). The sample size of 1050 was considered only an estimate, as data collection occurred continuously until the required number of usable SPNCS forms were returned. In total, 3,356 survey packets were mailed, with 817 returned, representing a crude response rate of 25.78%. Of those returned 165 were considered unusable due to missing responses for one or more items on the SPNCS. The final usable responses numbered 652 or a 20.58% usable net

response rate. While the crude and net response rates are less than anticipated, these rates are common for mail survey data collection methods (Gordon & Stokes, 1989), especially when follow-up reminders to nonrespondents to an initial mailing are not used (Nelson, Rubin, Hays, & Meterko, 1990). The 652 usable responses represented an adequate sample size to allow for splitting the sample into two independent samples as outlined above and was consistent with the original estimation of 327 required responses based on a sample to parameter ratio of 3:1.

CFA using SEM was the data analysis technique used in the current study that had the largest sample size requirements. The other planned data analysis techniques did not have the same large sample requirements. As a final check of the sample size estimations, power analysis for the SEM analysis model was completed using the recommendations of MacCallum, Browne, & Sugawara (1996), implemented through the software program, Power Estimation for Covariance Structure Models (Dudgeon, 1999). The obtained power for a test of the 37-item SPNCS using a sample size of 326 was 1.00.

Ethical Considerations

After all members of the dissertation committee had approved the dissertation proposal, the study was submitted to the University of Miami Behavioral Sciences Human Subjects committee. After the required changes to the test-retest request to patients were completed, the proposal was approved. Upon approval by the University of Miami, the proposal was submitted to the University of South Florida Social and Behavioral Sciences Institutional Review Board as required under the policy of the study site. That committee approved the proposal as written and classified the study as exempt.

Data collection was initiated on the first day of the month following approval by both committees.

A subset of 100 patients was invited to participate in test-retest of the SPNCS. To participate in this aspect of the research, patients were required to supply their name and mailing address so that another survey packet could be mailed to them 10 days after receipt of their first response. When patients provided this information, a record number was immediately affixed to the returned survey and a new mailing envelope was prepared. The paper with the patient's name and mailing address was then discarded.

All survey responses were considered anonymous and instructions to patients in the cover letter included with each survey packet instructed patients to exclude any identifying information about themselves. Despite these instructions, several patients offered specific information related to the nursing unit where they received care and the names of some of the nurses who provided care. Several patients also either signed their name to the comment section of the survey or provided contact information with an invitation for the investigator to contact them for further details related to their hospital stay. These patients were not contacted.

The investigator was also an employee of the study site during the time this research was completed. In this role, the investigator had frequent and routine contact with the Nurse Managers, Nursing Directors, and Senior Vice President for Patient Care Services of the study site. The nature of this research, testing a measure of patients' perception of the nursing care they received presented an additional ethical consideration in maintaining the promised anonymity of patient responses that included information about specific and general perceptions of nursing care delivered at the study site. All

information obtained from the written comments of patients on the survey was maintained confidentially. At no time during the course of this research were comments or experiences relayed by patients on the survey divulged to personnel of the study site. During transcription of patient comments obtained on the survey, identifying information was omitted. Patient specific information such as their name, mailing address, and telephone number written on the survey was not transcribed. Patients also routinely affixed a return mailing label to the postage paid reply envelope. Each day surveys were returned, all envelopes were opened and the return envelope discarded. Only after all surveys were opened and the return envelopes discarded were numbers attached to each survey.

Several respondents left voice mail messages at the investigator's private residence offering to discuss their nursing care experiences in further detail. After consultation with the chairperson of the dissertation committee, these calls were not returned. Patients who left messages with questions about the survey process did receive a return phone call. The content of the conversation was limited to questions about the survey process. When patients started to discuss aspects of their nursing care experience, they were informed that information of that nature should be included in the comment section of the survey if they chose to participate. Patients were informed that the investigator could not listen to or obtain any comments of this nature other than through the survey. All patients expressed understanding and did not divulge details about their nursing care experience.

Survey responses were mailed to the private residence of the investigator. Returned surveys were opened only by the investigator without any other individuals in

attendance. Once opened, all returned surveys were assigned a record number and secured in a private location of the investigator's residence.

During data entry, additional measures were taken to maintain the confidentiality and anonymity of the data while ensuring the accuracy of data entry. Data entry was completed solely by the investigator. Data files were maintained in a password protected directory of a personal computer located at the investigator's private residence. Separate data files were created for the SPNCS responses, the two additional measures used in criterion validity assessment (PSI and LOPSS) sent to a subset of 200 of the total sample, test-retest, comments, and demographic information. Data from these separate files were combined only after all surveys had been returned and the data entered and verified as described below. At the completion of the current study, the combined data file will be destroyed with data from this research preserved in the separate data files described above.

Procedures were implemented to ensure the accuracy of data entry. Double data entry, using an individual independent of the investigator was considered. This option would require someone not associated with this research access to patient demographic information, patient comments, and any other identifying information supplied by respondents. Given the possibility of a breach of the confidentiality of patient responses, double data entry was not completed.

To ensure accuracy of data entry, the investigator developed a quality control protocol. Custom data entry templates were constructed for each section of the total survey packet. The range of admissible data values was programmed into the data entry templates. After each section of a returned survey was entered, the data entered into the

template were read aloud while comparing the entered data to the responses provided by participants. When the data entry was verified as accurate using this procedure, the record was saved to the data file. When errors in data entry were identified, the entire data set for the specific record was deleted and re-entered, followed by the data entry checking procedure outlined above. As a final check of the accuracy of data entry, descriptive statistics were evaluated for each data element. Frequency distributions were used to verify that patient responses as entered into the data file fell within an admissible range of values.

Risks and Benefits

Completing the SPNCS may have brought about some temporary, unpleasant feelings related to the participants' experience with nursing care, particularly if they perceived their experience as unpleasant. However, it was not anticipated that extreme, unpleasant feelings would be experienced by a significant number of participants. Additionally, these feelings would not have been substantially different than those experienced in answering the telephone survey of the study site.

The potential risks of this study were outweighed by the anticipated benefits. Patient satisfaction with nursing care is regarded as an important outcome indicator, yet existing measures are not grounded in the experience of patients. To the investigator's knowledge, based on an extensive review of the literature, no other empirically derived measure of patient satisfaction with nursing care exists.

Data Collection

Data collection as outlined in previous sections of this chapter commenced on July 1, 2000 after approval of the research by the dissertation committee and the human

subjects review boards of the University of Miami and the University of South Florida. Survey packets were mailed to potential participants via first class mail. A postage paid return envelope was enclosed for participants to use in returning the completed survey to the investigator.

In addition to the SPNCS, the first 200 eligible participants received the PSI (Hinshaw & Atwood, 1982) and the LOPSS (LaMonica, et al., 1986). These measures were included to test the criterion validity of the SPNCS. The next 100 potential participants received an invitation to participate in the test-retest reliability of the SPNCS. For this cohort of patients, a form describing the request to complete another survey approximately 10 days after returning their first completed survey was included in the survey packet. Mailings after the first 300 included only the SPNCS and demographic information form.

Data collection continued as described in the sampling section of this chapter until the required number of usable responses was received. Data collection ended in October 2000.

Upon receipt of a returned survey, a record number was affixed to the first page of the packet. Record numbers were assigned consecutively. For the test-retest portion of the mailing, the record number was appended with the letter "a" if patients returned the appropriate information and consented to receive a second survey packet. The same record number was affixed to the second survey prior to mailing and this number was appended with the letter "b" so surveys could be matched to the correct respondent at the time the second survey was returned.

All returned surveys, regardless of the completeness of the responses, were assigned a record number and entered into the data files. At the conclusion of data collection, records were selected using criteria that specified a response for each item of the SPNCS. Records with incomplete responses for any item of the SPNCS were not included in data analysis.

Measures

In addition to the SPNCS, the PSI (Hinshaw & Atwood, 1982) and the LOPSS (LaMonica, et al., 1986) were used in this study. The psychometrics of these measures were discussed in Chapter II. The order of the measures in the survey packet was counterbalanced so that 33% received the SPNCS as the first survey, 33% received that measure as the second survey in the packet, and 33% received the SPNCS as the final survey in the packet. This action was taken to minimize any response set bias introduced based on the ordering of the measures (Burns & Grove, 1997).

Two items were added to the survey that asked participants to offer a judgment of the amount of nursing care they received by a licensed nurse (Registered Nurse or Licensed Practical Nurse) and solely by a Registered Nurse. The response scale for these items included options of all, most, some, little, none, and not sure. Participants were instructed to circle the response that best described their assessment.

Three investigator generated items were included that tapped overall satisfaction with the hospital experience. One additional item was included that referenced adherence to discharge instructions. The content of these questions was based on correlates of patient satisfaction discovered in the literature. These questions followed the SPNCS items and preceded the patient comments section. Participants were instructed to

consider their entire hospital experience in formulating their responses. Items were scored on the same Likert-type scale used for the SPNCS. The three overall satisfaction items were focused on general satisfaction with hospital services, patients' intention to use the hospital in the future, and the likelihood patients would recommend the hospital to others. The other item focused on patients' adherence to the discharge instructions they received. All items were worded as a declarative statement with participants indicating the extent they agreed or disagreed with the item content, using the same Likert-type scaling options as the SPNCS.

The item regarding the extent to which patients were following discharge instructions was a single item measure. Single item measures are usually considered unreliable (DeVillis, 1991; Nunnally & Bernstein, 1994) and this was taken into consideration in constructing the item. The specific item wording was, "I am following all the discharge instructions that were given to me." The inclusion of "all" as a qualifier was directed toward projecting a clear meaning to the item and offering a wording of sufficient strength to illicit variability in responses. These actions were taken to minimize the potential measurement error and subsequent decreased reliability of a single item measure.

The final page of the survey contained questions on demographic information. To elicit further characteristics of the sample, several items related to the current admission were requested. These included the presence of anyone in the participant's immediate family who was a Registered Nurse, Licensed Practical Nurse, or Nursing Assistant, type of hospital service, type of admission, number of days in the hospital, number of times admitted to the study site, and number of times admitted to any hospital. Routine

demographic items (gender, marital status, age, ethnic group, and total household income) were also included.

The recommendations of Fowler (1993) were followed in determining the ordering of items of the SPNCS. Fowler (1993) recommended that items requiring similar actions to respond be grouped together and the number of different actions necessary to offer a response be kept to a minimum. The items of the SPNCS, the two items about the amount of care received, the 3 items related to overall satisfaction, and the single item about adherence to discharge instructions required participants to circle a number corresponding to their response. The patient comments section was placed after the aforementioned items. Similarly, the patient demographic sheet was structured so items requiring participants to circle a number appeared first. The items requiring a fill-in-the-blank response were grouped at the end of the demographic form.

The complete SPNCS and demographic information form as mailed to participants is included in Appendix B. The Patient Satisfaction Instrument (PSI) (Hinshaw & Atwood, 1982) is included in Appendix C, with the LaMonica Oberst Patient Satisfaction Scale (LOPSS) (LaMonica, et al., 1986) located in Appendix D. Letters permitting use of these measures are included in the respective appendix. The test-retest request is located in Appendix E.

Data Analysis

The primary objective of this research involved testing of the reliability and validity of the SPNCS and further development of that measure. The procedures for validity testing also permitted a direct test of the theory of patient satisfaction with nursing care. Data analyses included descriptive statistics of the sample data and

evaluations of reliability, criterion validity, and construct validity. These analyses are presented in further detail below.

Prior to beginning any data analysis, items that were negatively worded were reversed scored. Appropriate subscale scores, expressed as a subscale total as well as a subscale mean were computed for the SPNCS, the PSI (Hinshaw & Atwood, 1982), the LOPSS (LaMonica, et al., 1986), and the general satisfaction items. Data files were then combined using the record number to match participant responses. After combining data files, records with missing responses on the SPNCS, PSI, or the LOPSS were deleted.

Descriptive statistics

Descriptive statistics provided an overall picture of the sample. Variables from the demographic information were summarized through means and standard deviations for interval level data. Frequencies were used to summarize nominal level data. The individual items and scores on each subscale of the SPNCS were expressed in terms of mean and standard deviation. These same indices were used to summarize the general satisfaction items.

Reliability

Cronbach's alpha (Cronbach & Meehl, 1955) was used to test the internal consistency of the entire measure as well as the seven subscales comprising the measure. Nunnally and Bernstein (1994) noted that new measures should have a minimum internal consistency of .70, while an internal consistency of .80 is considered adequate for existing measures. The measure was considered internally consistent if a value of .70 or greater was achieved. Cronbach's alpha was also calculated for the PSI (Hinshaw &

Atwood, 1982) and the LOPSS (LaMonica, et al., 1986) as a contribution to the ongoing establishment of the reliability and validity of these measures.

In an extensive review of the patient satisfaction with nursing care literature, test-retest was only identified as a strategy of assessing reliability in one study (Killeen, 1996). Killeen noted high test-retest reliability of the Killeen King Patient Satisfaction with Nursing Care (KKPSNC) measure ($r = .88$, $p < .01$) over a mean interval of 22.08 days (range 10 to 40 days) suggesting patient satisfaction with nursing care exhibits temporal stability over at least this time period. Based on this limited evidence, test-retest reliability appeared to be an appropriate strategy to assess the temporal stability of the SPNCS. The initial analysis plan called for calculation of the Pearson Product Moment Correlation between matched responses of the subscales of the SPNCS. As only one patient returned a usable second response to the SPNCS, test-retest reliability was not completed.

Validity

Cronbach and Meehl (1955) described construct validity as an ultimate goal of measurement. The establishment of validity is a continuous process (Nunally & Bernstein, 1994) and this process is a reflection, in part, of the scale development process (DeVillis, 1991). Various dimensions of construct validity have been described (DeVillis, 1991; Hinkin, 1998; Nunally & Bernstein, 1994) and the approach to testing the validity of the SPNCS followed the process described by DeVillis (1991), consisting of content, criterion, and construct validity. Content validity was established through the testing described at the conclusion of Chapter III, using the procedures outlined by Anderson & Gerbing (1991) and Schriesheim, et al. (1993). In addition to the results of

these quantitative assessments, the empirical method of instrument development used in this research assured a high degree of content validity. The categories of the SPNCS were derived from interviews with discharged patients and items of the SPNCS were reflective of data from those interviews. Therefore, a further discussion of content validity is not presented in this section.

Criterion Validity. DeVillis (1991) described criterion validity as the empirical association of the construct with another criterion or “gold standard” (p.44). DeVillis (1991) noted the association is not of a theoretical nature, but more of a practical matter.

The two most widely used measures of patient satisfaction with nursing care are the PSI (Hinshaw & Atwood, 1982) and the LOPSS (LaMonica, et al., 1986). As the most frequently used measures, these instruments were considered the “gold standard.” Pearson Product Moment Correlations were calculated between the subscale scores for each of these measures and the subscales scores of the SPNCS. An alpha level of .05 with correlations of sufficient magnitude to suggest significant shared variance was considered evidence of criterion validity. It was hypothesized that all subscales of the SPNCS would correlate positively and significantly with all subscales of the PSI and the Satisfaction subscale of the LOPSS. It was further predicted that all subscales of the SPNCS would correlate negatively and significantly to the Dissatisfaction subscale of the LOPSS.

Construct Validity. DeVillis (1991) described construct validity as being directly concerned with the theoretical relationship of a variable to other variables. This validity differs from criterion related validity in that the theoretical relationship among constructs

is central, while in criterion related validity, the focus is the relationship absent theoretical interest.

As noted in the literature review, patient satisfaction in general has demonstrated a significant relationship with future behavioral intentions on the part of the patient. Additionally, satisfaction with nursing care has demonstrated a significant relationship to overall satisfaction with the care experience. Patient satisfaction in general, as measured by the three investigator generated items, and the extent to which patients were following their discharge instructions were used to test these theoretical relationships. It was hypothesized that the SPNCS subscale scores would demonstrate significant, positive correlations with overall patient satisfaction and the extent to which patients were following their discharge instructions. Pearson Product Moment Correlations, with an alpha level of .05, were calculated to test these relationships.

The SPNCS was constructed as a measure of patient's perception of their nursing care experience. Based on the intended usage, one would expect higher scores on the subscales of the SPNCS to relate positively to the amount of care given by a licensed nurse (Registered Nurse or Licensed Practical Nurse) or Registered Nurse. As further evidence of construct validity, these theoretical predictions were tested by calculating the Pearson Product Moment Correlation between the SPNCS subscales and the amount of care given by a licensed nurse and Registered Nurse. For this analysis, the "not sure" response category was excluded. With the exclusion of this category, the response options were viewed as interval level data.

Structural equation modeling using Lisrel 8.31 (Joreskog & Sorebom, 1999) was used to perform a confirmatory factor analysis of the SPNCS. This analysis provided an

assessment of construct validity that was theoretically related as the SPNCS was derived empirically from the theoretical structure described in Chapter III. It is worth reiterating Kelloway's (1998) description of the logic of SEM. Kelloway (1998) stated, "(a) every theory implies a set of correlations and (b) if the theory is valid, then the theory should be able to explain or reproduce the patterns of correlations found in the empirical data" (p.

6). The closeness of the fit between this theoretical model and the SPNCS data provided evidence of the construct validity of the SPNCS.

Structural equation modeling consists of four phases, (a) model specification, (b) identification, (c) estimation and fit, and (c) possible model re-specification. These phases are discussed in further detail below.

Model Specification

Model specification involved representing the conceptual structure of the measure as a path diagram. By convention, ovals were used to identify latent, or unobserved variables, and squares were used to represent measured variables or indicators. Latent variables possess a variance, and indicator variables possess an error variance. Arrows symbolize the directional relationship between latent and measured variables (Kelloway, 1998) and the covariance between latent variables. The latent variables in this model were representative of the constructs of the theory and the indicator variables were representative of the individual scale items.

Bollen and Lennox (1991) noted that the direction of the arrows between latent variables and indicators is an important consideration in model specification, with significant implications for model testing and interpretation. Latent variables can be classified as either cause or effect variables. Causal variables, as unobserved variables,

would affect the response for indicator variables. In contrast, effect variables are viewed as linear composites of the indicator variables. The latent variables of the SPNCS are causal variables in that the unobserved latent variable influences an individual's response on the indicator variable, or scale item. A linear composite of the indicator variables would not result in the latent variable. Therefore, the arrows in the path diagram flowed from the latent variable to the indicator variable.

Identification

Identification in structural equation modeling refers to whether a unique solution can be obtained for the model from the data supplied in a covariance matrix. A just identified model has one unique solution, and therefore the model will always fit the data perfectly. An underidentified model exists when the number of unknown parameters exceeds the number of equations and therefore, a unique solution cannot be obtained. As an illustrative example, the equation $x + y = 4$ represents an underidentified model as two unique values for x and y do not exist. Rather, an infinite number of possibilities exist. An overidentified model is the goal of the identification phase of structural equation modeling. In an overidentified situation, an infinite number of unique solutions to the model exist and the goal is to select the unique solution that most closely resembles the observed data (Kelloway, 1998).

Overidentification was achieved by assigning a direction to the arrows of the model and setting some of the parameters of the model to fixed values. In confirmatory factor analytic procedures, the path from a latent variable to one indicator variable is commonly set to a value of 1. This procedure occurs with each latent variable - measured variable set. Assigning a path to a value of 1 sets a reference scale for the unobserved,

latent variable. The values for one latent variable to measured variable path for each construct were assigned a fixed value of 1.0.

Estimation and Fit

In the estimation and fit phase of a structural equation modeling analysis, parameter estimates are generated based on a covariance matrix of sample data. Parameters are changed iteratively until a solution that meets certain fit criteria is obtained. The fit criteria attempt to minimize the differences between the implied and observed covariance matrix (Kelloway, 1998).

Various parameter estimation techniques are available. The maximum likelihood estimation is most frequently used and has demonstrated consistent behavior in Monte Carlo studies (Bollen, 1989; Chou & Bentler, 1995). A large sample size and multivariate normality are assumptions associated with the maximum likelihood estimation technique. Multivariate normality was assessed using Mardia's test as supplied in the Prelis 2.0 (Joreskog & Sorbom, 1999) program. Prelis converts raw data to a covariance matrix and performs a check of univariate and multivariate normality. A significant value for multivariate normality indicates that the data depart from normality. Strategies were available for implementation if excessive multivariate non-normality was identified.

Once the model converged, that is, a solution was obtained that minimized the discrepancy between the covariance suggested by the model and the covariance matrix of sample data, fit indices were examined to assess the overall fit of the model to the data. A number of fit indices are reported in the analysis output. The fit indices used to assess model fit in the current study included those that represent absolute and comparative or

incremental fit. Absolute fit indices indicate the fit between the model and the data. The χ^2 statistic is routinely reported with a non-significant value indicating the model fits the data, or stated another way, the model can “reproduce the covariance matrix” (Kelloway, 1998, p. 5). The other absolute fit indices used to assess absolute model fit included the root mean squared error of approximation (RMSEA) (Steiger, 1990) and the standardized root mean residual (SRMR) (Kelloway, 1998). These indices are based on an analysis of the residuals between the model generated covariance matrix and the covariance matrix of the data. Values for the RMSEA range from 0 to 1, with smaller values indicating good fit of the model to the data. A value of .05 is commonly interpreted as a very good fit of the model to the data (Kelloway, 1998), and this value was used as an index of model fit in this study. Values for the SRMR also range from 0 to 1, with smaller values also indicative of a good fit of the model to the data. A model with a SRMR of 0.05 or less is considered a model with good fit to the data (Kelloway, 1998).

Comparative fit values provide information as to whether the model being analyzed is better than a competing model. The competing model is one that demonstrates no fit, commonly referred to as a null or independence model (Kelloway, 1998). A null model specifies no relationships between the variables of the model. The Comparative Fit Index (CFI) (Bentler, 1990) is most commonly reported, with values exceeding .90 indicative of a good fit between the model and the data (Kelloway, 1998). The CFI was used to assess comparative fit in the current study.

Model Respecification

The final phase of a structural equation modeling analysis involves model re-specification if the model does not fit the data at an acceptable level. This aspect of

structural equation modeling is somewhat controversial in that solutions are data driven and any model modifications will be based on the data set that was analyzed. Model modifications must be theoretically justifiable and the model retested with a different sample of data to achieve credibility (Bollen, 1989; Kelloway, 1998; MacCallum, 1995).

A holdout sample of 326 responses was used to retest the model after model modifications were made. If no modifications to the model had been undertaken, the confirmatory factor analysis would have been repeated with the holdout sample of responses as a further test of the validity of the model.

Sensitivity of the SPNCS

A desirable property of attitude scales is the ability of the measure to discriminate among groups, consistent with the intended usage of the scale (Ferketick, 1991). The SPNCS represents a measure of patients' perception of their nursing care experience during an inpatient hospitalization. Based on this intended usage, one desirable property of the measure would include the ability to discriminate between groups based on overall satisfaction. The target population for the SPNCS is inpatients who have received general medical or surgical care during an inpatient hospital stay. Based on this target population, another desirable property of the SPNCS would be the absence of significant group differences on subscale scores based on the type of admission (elective vs. emergent) and the hospital service where care was received (e.g. medical, surgical, cardiac, obstetric). These properties of the SPNCS were tested using univariate ANOVA, followed by post hoc tests where group differences were significant.

Post Hoc Data Analysis

The SPNCS is a newly constructed measure designed to capture patients' perception of their nursing care experiences. Exploratory data analyses (Polit & Hungler, 1991) were undertaken to provide additional descriptive information for the SPNCS subscales and demographic characteristics of the sample. Pearson Product Moment Correlations were calculated between SPNCS subscale scores and interval level demographic data. For nominal level data, univariate ANOVA was used to assess group differences on the SPNCS subscales based on demographic characteristics of the sample. Post hoc tests were used for significant univariate ANOVA results to further isolate group differences.

To provide further descriptive information, significant univariate ANOVA results were followed by descriptive discriminant function analyses (DFA). Descriptive DFA is a useful analytic technique used to describe group differences based on uncorrelated linear composites of variables (Stevens, 1996). The DFA assumption of homogeneity of the covariance matrices was tested using Box's M test (Stevens, 1996). The results of DFA must be interpreted cautiously where the Box's M test is significant, indicating the covariance matrices of the groups are not homogenous especially when this finding is combined with group sizes that are markedly unequal (Stevens, 1996). Consistent with the recommendations of Stevens (1996), groupings with a significant Box's M test with unequal group sizes where the sample size ratio between groups exceeded 1.5 were not tested using DFA as interpretation of the results would be of questionable use. DFA was completed for only two demographic variables, gender and employment status. Consistent with the recommendations of Huberty (1994), structure coefficients

representing the correlation between variables and the function were used to describe the function.

Analysis of Comments from Participants

An additional dimension of the analyses involved examining patient comments from the section of the survey packet where patients were invited to offer any additional comments related to their experience with receiving nursing care. Comments that were representative of the constructs of the SPNCS were highlighted and classified as either positive or negative instances of the construct. These classifications were then compared to the subscale mean scores for the corresponding construct. The finding that positive and negative comments for a construct were related to higher or lower scores respectively on the appropriate subscale provided further evidence of the construct validity of the measure.

Method Summary

The reliability and validity of the empirically derived SPNCS was tested using a sample of discharged adult inpatients, with data collected through a mailed self report survey. A model testing research design was used, with the recommendations of Fowler (1993) regarding sampling and construction of the measure integrated into the research plan. The data analysis plan for testing the reliability and validity of the SPNCS has been presented. Reliability was tested through internal consistency. Validity was tested using multiple strategies and perspectives including theory testing through structural equation modeling, correlation between the subscales of the SPNCS and the two widely used measures of patient satisfaction with nursing care, correlation between the SPNCS subscales and a measure of overall satisfaction with the care experience as well as a

measure of the extent to which patients were following the discharge plan, and univariate ANOVA to assess the sensitivity of the SPNCS subscales based on the intended usage and target population of the measure. Several exploratory post hoc analyses were undertaken to provide additional information regarding sample characteristics and the subscales of the SPNCS. The results of these analyses are presented in the next chapter.

CHAPTER V

RESULTS

The purpose of this study was to test an empirically derived measure of patient satisfaction with nursing care. Included in this chapter are the results of testing the reliability and validity of the measure as outlined in Chapter IV. A description of model modification strategies follows. Finally, the results of the reliability and validity testing of the revised Schmidt Perception of Nursing Care Scale (SPNCS) are presented.

Description of Sample

A total of 3,780 patients were discharged from the study site during the course of this study and met the inclusion criteria. Patients who were repeat admissions were excluded from a mailing subsequent to the first if the discharge date of the second or greater admission was less than one month from the previous mailing. Patients whose mailing address could not be verified through the United States Postal Service address database were also excluded. Survey packets were mailed to a total of 3,356 discharged patients.

Of the total survey packets mailed, 188 were returned as undeliverable. Responses were received from 817 participants, representing a crude response rate of 25.78%. Of those surveys returned, 165 contained one or more SPNCS items with either missing data or more than one response for an item. These responses were considered unusable and deleted from the response sample. A total of 652 usable responses were received, representing a 20.58% usable net response rate.

The response rates for those participants who received a survey package containing the SPNCS, PSI (Hinshaw & Atwood, 1982) and the LOPSS (LaMonica, et

al., 1986). were also calculated. Responses were received from 35 patients, representing a crude response rate of 17.50%. Responses with missing data for one or more elements of these measures were excluded from analysis, resulting in a final sample size of 19, representing a 9.50% net response rate.

In an effort to establish test-retest validity of the SPNCS, 100 patients received the SPNCS along with an invitation to complete another survey approximately 10 days after the first survey was returned to the investigator. Sixteen patients returned the agreement to participate in this phase of the study. Of those receiving the second mailing of the SPNCS, 2 patients returned the survey, representing a 2.00% crude response rate. One respondent did not complete the entire SPNCS and this survey was excluded from the data set, resulting in a net response rate of 1.00%. Due to the poor response on this phase of the study, test-retest reliability of the SPNCS could not be tested.

Descriptive statistics of the sample are described briefly in the following paragraphs and summarized in Table 6. Comparisons between the usable responses and the cohort of patients discharged during the study period are presented where data were available for both groups.

Gender

Usable responses to this item were obtained from 633 participants. The usable responses were distributed as 261 (41.20%) males and 372 (58.80%) females. This compares to the gender distribution in eligible participants discharged during the study period of 1,667 (44.10%) males and 2,112 (55.90%) females. The difference in the distribution of males and females between groups was not statistically significant [χ^2 (1, N=4412) = 1.83, p = .17].

Table 6. Demographic Characteristics of Study Participants

	N	%
Gender (n=633)		
Female	372	58.80
Male	261	41.20
Marital Status (n=632)		
Single	115	18.20
Married	373	59.02
Separated	17	2.70
Divorced	79	12.50
Widowed	48	7.60
Ethnicity (n=630)		
White, Non-Hispanic	485	77.00
African American	78	12.40
Hispanic	51	8.10
Asian/Pacific Islander	8	1.20
Native American	5	.80
Other	3	.50
Employed (n=632)		
Yes	210	33.23
No	422	66.77
Employment Status (n=219)		
Full Time	180	82.19
Part Time	39	17.81
Registered Nurse, Licensed Practical Nurse, or Nursing Assistant in Family (n=631)		
Yes	171	27.10
No	460	72.90
Annual Household Income (n=556)		
< \$15,000	147	26.44
\$15,000 - \$34,999	156	28.06
\$35,000 - \$70,000	166	29.85
> \$70,000	87	15.65
Admission Type (n=616)		
Elective/planned	317	51.46
Emergency/unplanned	299	48.54

continued

Table 6. Demographic Characteristics of Study Participants, continued

	N	%
Hospital Service (n=622)		
Medical	136	21.87
Surgical	286	45.98
Cardiac	96	15.43
Obstetric	45	7.24
Pediatric	3	.48
Other	56	9.00
Age (n=626)		
Mean (SD)	51.06 (18.00)	years
Median	52.00	years
Length of Stay (n=626)		
Mean (SD)	7.11 (8.56)	days
Median	5.00	days

Note: numbers in parentheses indicate the number of responses

Marital Status

Usable responses to this item were obtained from 632 participants. The responses were distributed as 115 (18.20%) single, 373 (59.02%) married, 17 (2.70%) separated, 79 (12.50%) divorced, and 48 (7.60%) widowed. The study site uses single, married, divorced and widowed categories for this variable. Statistical testing of the differences in marital status distribution between groups was not completed.

Ethnicity

Usable responses were obtained from 630 participants. The responses were distributed as 485 (77.00%) White, Non-Hispanic, 78 (12.40%) African American, 51 (8.10%) Hispanic, 8 (1.20%) Asian/Pacific Islander, 5 (0.80%) Native American, and 3 (0.50%) other. The other responses included Arabian, Hindu, and White/Hispanic. The study site does not include the Native American demographic category as a data element. Therefore, statistical testing of the differences in ethnic group distribution was not completed.

Employment

Usable responses to this variable were obtained from 632 respondents. The responses were distributed as 210 (33.23%) employed, with 422 (66.77%) not employed. A total of 219 respondents included a response to the question about part time or full time employment. Of those responding, 180 (82.19%) reported full time employment, with 39 (17.81%) reporting part time employment. The study site does not collect employment information in this form so statistical testing of this variable was not completed.

Family Member a Nurse

A total of 631 respondents answered this item. Of those responding, 171 (27.10%) reported a family member being a Registered Nurse, Licensed Practical Nurse, or Nursing Assistant. The remaining 460 (72.90%) reported no Registered Nurse, Licensed Practical Nurse, or Nursing Assistant in their immediate family.

Income

A total of 556 respondents answered this item. Several of those who did not respond marked through the item choices or added messages that this item was inappropriate. Of those providing information for this item, 147 (26.44%) reported incomes of less than \$15,000 per year, 156 (28.06%) reported total household income between \$15,000 and \$34,999 per year, 166 (29.85%) reported total household income between \$35,000 and \$70,000 per year, and 87 (15.65%) reported total household income greater than \$70,000 per year.

Admission Type

A total of 616 participants provided a response to this item. Of those responding, 317 (51.46%) described their admission as elective/planned, with 299 (48.54%) reporting their admission as emergency/unplanned.

Admission Class

A total of 622 participants provided a response to this item. The responses were distributed as 136 (21.87%) medical, 286 (45.98%) surgical, 96 (15.43%) cardiac, 45 (7.24%) obstetric, 3 (0.48%) pediatric, and 56 (9.00%) other. The description provided by many respondents for the other category could be subsumed under one of the existing categories, although responses were preserved under the “other” category. The three patients describing pediatric admissions would not be considered pediatric patients from an age (<18 years) perspective, although they may represent adult patients admitted to the care of a pediatric physician.

Age

A total of 626 respondents provided age information. The mean for this variable was 51.06 years (SD 18.00 years). The median age was 52.00 years. The mean age of the total eligible sample was 48.65 (SD 18.35 years). The age difference between the respondents and total eligible sample was statistically significant ($t = -3.05$, $p = .002$, $df = 4404$).

Length of Stay

A total of 625 respondents provided length of stay information. The mean for this variable was 7.11 days (SD 8.56 days). The median length of stay was 5.00 days. The mean length of stay for the total eligible sample was 5.48 (SD 6.30 days). The length of

stay difference between the respondents and the total eligible sample was statistically significant ($t = -5.65$, $p < .001$, $df = 4403$).

Number of Times Admitted to the Study Site and Any Hospital

This variable provided some difficulty for the respondents. To be considered a valid data element, the response should follow a pattern where the number of times admitted to the study site should equal or be less than the number of times admitted to any hospital. The pattern of responses suggested participants had some difficulty in understanding this question. It was not uncommon to see response patterns where the number of admissions to the study site exceeded the number of admissions to any hospital. Given the variability and questionable accuracy of the responses, descriptive data for these variables were not computed.

Descriptive Statistics of Study Variables

The SPNCS consists of 37 items formatted in a Likert-type scale. Respondents indicated their level of agreement or disagreement with each item by circling the appropriate number. The instrument used in this research is located in Appendix B.

All items showed good variability. The mean scores, after reverse scoring negatively phrased items ranged from 3.22 to 4.08 with standard deviations ranging from .87 to 1.26. Skewness and kurtosis values were calculated and with the exception of items 11, 13, and 24, all items showed kurtosis values of less than 1.5, indicating acceptable levels of kurtosis. None of the 37 items had skewness values exceeding 1.5.

Frequency distributions were examined for the 37 items of the SPNCS to evaluate if any items had excessively high clusters of responses in the strongly agree category indicating the wording of the item may be too weak to register adequate variability.

None of the 37 items had greater than 50% of the scores clustered in the strongly agree category.

Two items added to the instrument asked respondents to indicate the amount of care they received from a licensed nurse (SPNCS38) and Registered Nurse (SPNCS39). As the response categories were ordinal in nature, mean and standard deviation scores were not calculated. Frequency distributions for these items revealed good variability across the response categories. In judging the amount of care provided by a licensed nurse (Licensed Practical Nurse or Registered Nurse), 644 participants provided a response. The highest level of endorsement was for the “most” category ($n = 260$, 40.37%), followed by “not sure” ($n = 170$, 26.40%), “all” ($n = 110$, 17.08%), “some” ($n = 84$, 13.04%), “little” ($n = 19$, 2.95%), and “none” ($n = 1$, .16%). A similar pattern of responses, with the exception of minor variations in the “some” and “all” categories was noted for SPNCS39 in which respondents were asked to judge the amount of care received from solely from Registered Nurses. The highest level of endorsement was for the “most” category ($n = 246$, 38.31%), followed by “not sure” ($n = 203$, 31.62%), “some” ($n = 94$, 14.64%), “all” ($n = 74$, 11.53%), “little” ($n = 24$, 3.74%), and “none” ($n = 1$, .16%).

Four additional items were added to the survey that tapped aspects of overall satisfaction with care (SAT1, SAT2, SAT4) and the extent to which patients were following all their discharge instructions (SAT3). These items were scored using the same Likert-type scale as the 37 items of the SPNCS. Mean values for these items were higher than those reported for the 37 items of the SPNCS, ranging from 4.00 to 4.38 with standard deviations ranging from .71 to 1.16. Frequency distributions for each item did

not reveal a clustering of greater than 50% of the responses in the strongly agree category, indicating the wording of the items was appropriate to illicit adequate variability in responses. The item asking the extent to which patients were following their discharge instructions was the only item with an extreme kurtosis value of 5.19. The remaining items had skewness and kurtosis values below the threshold level of 1.5.

The mean, standard deviations, skewness and kurtosis values for each of the items scored on a Likert-type scale are summarized in Table 7. The frequency distributions for the items asking the amount of care provided by a licensed and Registered Nurse are summarized in Table 8.

Reliability

The items from the SPNCS were subjected to reliability assessment using Cronbach's alpha implemented through SPSS version 10 (SPSS, Inc., 1999). The reliability for the full 37-item scale was .98 using Cronbach's alpha. The Cronbach's alpha for all subscales exceeded the recommended level of .70 for new measures identified by Nunnally and Bernstein (1994) and these results are presented in Table 9. Item intercorrelations in each subscale ranged from .30 to .80 with the exception of two items. In the Seeing the Individual Patient subscale, the item "The nursing staff was mechanical in providing my care" had intercorrelations with other items in the subscale ranging from .20 to .24. The squared multiple correlation for this item was .07, indicating the item accounted for only a small portion of the variability in the subscale. Several respondents added comments to this item, suggesting the word "mechanical" was confounding to the meaning of the item. The clearest participant question regarding

Table 7. Descriptive Statistics of SPNCS and General Satisfaction Items (n=652)*

	Mean	SD	Skewness	Kurtosis
SPNCS1	3.81	1.07	-.920	.412
SPNCS2	3.97	1.04	-1.220	1.062
SPNCS3	3.49	1.21	-.542	-.733
SPNCS4	3.76	1.26	-.853	-.346
SPNCS5	3.42	1.10	-.557	-.405
SPNCS6	3.93	1.02	-1.253	1.321
SPNCS7	3.61	1.23	-.628	-.718
SPNCS8	3.67	1.17	-.855	-.122
SPNCS9	3.54	1.20	-.753	-.380
SPNCS10	3.49	1.20	-.633	-.563
SPNCS11	3.99	.91	-1.247	1.944
SPNCS12	4.08	1.16	-1.297	.775
SPNCS13	3.94	.97	-1.347	1.867
SPNCS14	3.94	.95	-1.221	1.493
SPNCS15	3.94	.96	-1.166	1.414
SPNCS16	3.74	1.04	-.847	.179
SPNCS17	3.48	1.24	-.477	-.958
SPNCS18	3.55	1.26	-.658	-.629
SPNCS19	3.75	1.14	-.953	.141
SPNCS20	3.70	1.08	-.780	.103
SPNCS21	3.79	1.06	-.944	.377
SPNCS22	4.02	1.13	-1.161	.566
SPNCS23	3.78	1.07	-.864	.231
SPNCS24	4.04	.87	-1.318	2.423
SPNCS25	3.96	.94	-1.111	1.411
SPNCS26	3.81	1.19	-.863	-.189
SPNCS27	3.79	.99	-1.005	.748
SPNCS28	3.22	1.19	-.229	-.931
SPNCS29	3.42	1.25	-.432	-.976
SPNCS30	3.94	.98	-1.095	1.172
SPNCS31	3.31	1.20	-.380	-.835
SPNCS32	3.73	1.02	-.874	.427
SPNCS33	3.77	1.02	-.904	.406
SPNCS34	3.82	.96	-1.054	.959
SPNCS35	3.17	1.17	-.210	-.932
SPNCS36	3.49	1.13	-.549	-.476
SPNCS37	3.89	1.03	-1.108	.932
Sat1 *(n=645)	4.05	1.13	-1.139	1.089
Sat2 *(n=644)	4.00	1.16	-1.223	.754
Sat3 *(n=642)	4.38	.71	-1.653	5.188
Sat4 *(n=644)	4.04	1.14	-1.288	.919

Table 8. Frequencies for Items Related to Who Provided Care.

Item and Response Categories	N	%
What amount of your care provided by a licensed nurse (Registered Nurse or Licensed Practical Nurse)? (n=644)		
All	110	17.08
Most	260	40.37
Some	84	13.04
Little	19	2.95
None	1	.16
Not Sure	170	26.40
On the average, how much of your nursing care was provided by a Registered Nurse? (n=642)		
All	74	11.53
Most	246	38.31
Some	94	14.64
Little	24	3.74
None	1	.16
Not Sure	203	31.62

Table 9. Subscale Inter correlations and Cronbach's Alpha

	1.	2.	3.	4.	5.	6.	7.	Cronbach's alpha
1. Knowing the Other								.86
2. Seeing the Individual Patient	.86							.84
3. Knowing What They're Doing	.84	.83						.87
4. Enacting the Caregiver Role	.85	.86	.87					.88
5. Informing	.83	.82	.82	.81				.89
6. Responding	.80	.82	.83	.88	.80			.84
7. Watching Over	.88	.87	.86	.89	.85	.86		.94
Total Scale								.98

Note: all subscale inter correlations $p < .001$

the item asked whether mechanical referred to “like a robot” or “efficient, like a machine.” The Cronbach’s alpha for the Seeing the Individual Patient subscale was .91 with this item removed.

SPNCS9, “The nursing staff did not appear rushed when providing my care” was part of the Responding subscale. The interitem correlations for this statement ranged from .24 to .37, with a squared multiple correlation of .16, indicating the item accounted for little variance in the subscale. The Cronbach’s alpha for the Responding subscale was .89 with this item removed.

Average scores for each subscale were computed and the subscale to subscale correlations were calculated. These correlations ranged from .80 to .89 with all correlations significant at an alpha level of $p < .001$. These high subscale to subscale correlations were larger than normally accepted in exploratory studies, but are acceptable for confirmatory studies (Nunnally & Bernstein, 1994).

Confirmatory Factor Analysis

Prior to examining criterion validity with the PSI (Hinshaw & Atwood, 1982) and the LOPSS (LaMonica, et al., 1986), construct validity was assessed through confirmatory factor analysis implemented using Lisrel 8.31 (Joreskog & Sorbom, 1999). If modifications to the SPNCS were needed, it was appropriate to assess criterion validity and repeat the reliability assessment after construct validity was established. The preparation of the data set for confirmatory factor analysis is presented in the next section, followed by the results of the test of the theoretical structure of the 37-item SPNCS, modifications made to the scale, the results of the tests of those factor structures, and the validation of the final measurement model using a holdout sample.

Data Preparation Prior to Confirmatory Factor Analysis

Modification to measurement models, structural models, or combined measurement and structural models requires validation with an independent sample to establish credibility of the results. The modification process is data driven and the ability to modify a model and obtain good fit indices can capitalize on chance (Joreskog, 1993; Kelloway, 1998). The splitting of the entire sample into two random samples of responses was completed prior to evaluating the fit of the theoretical structure of the SPNCS through confirmatory factor analysis.

The random number generation function in SPSS version 10 (SPSS, Inc., 1999) was used to generate a random record number for each of the valid 652 responses. The data file was then split at the midpoint based on the random record number. As a coarse measure of the equivalency of the split files, independent sample t-tests were completed for each of the seven subscales of the SPNCS. A modified Bonferonni approach was used to control the alpha level. None of the t-tests demonstrated statistically significant differences between the subscales of the split files. As a further measure of the equivalency of the split files, Cronbach's alpha reliability coefficients for each subscale of both files were compared. The reliability coefficient for each subscale was consistent across the split files. These results are summarized in Table 10.

Both randomly split files were submitted to Prelis 2.0 (Joreskog & Sorbom, 1999) for a check of multivariate normality and construction of the covariance matrix used in the confirmatory factor analysis. Multivariate normality was assessed using Mardia's coefficient (Joreskog & Sorbom, 1999). The first subsample revealed a Mardia's coefficient of 1.28, with a value of 1.33 calculated for the second subsample. These

Table 10. Descriptive Statistics and Cronbach's Alpha of Split Samples

Subscale	Mean		t-test (df = 650)	Cronbach's alpha	
	Sample A (n=326)	Sample B (n=326)		Sample A	Sample B
Knowing the Other	21.77	21.73	t = .113 p = .426	.87	.84
Seeing the Individual Patient	18.26	18.51	t = -.738 p = .461	.85	.83
Knowing What They're Doing	18.58	18.95	t = -1.08 p = .28	.88	.86
Enacting the Caregiver Role	15.66	15.82	t = -.548 p = .584	.91	.85
Informing	18.78	18.94	t = -.496 p = .620	.90	.86
Responding	18.76	19.05	t = -.872 p = .383	.86	.83
Watching Over	25.00	25.73	t = -.134 p = .180	.94	.93

values, while suggestive of multivariate non-normality, were not extreme enough to warrant transformation of the variables, especially since the maximum likelihood estimator used in the SEM analysis is relatively robust to small departures from multivariate normality (Chou & Bentler, 1995).

All structural equation analyses were completed using the maximum likelihood estimator, implemented through Lisrel 8.31 (Joreskog & Sorbom, 1999). Consistent with recommendations of Hoyle and Panter (1995), absolute and comparative fit indices were used to evaluate model fit after each analysis.

Absolute fit indices reported for each model include the χ^2 Goodness of Fit test, the Root Mean Square Error of Approximation (RMSEA) and the Standardized Root

Mean Residual (SRMR). The χ^2 Goodness of Fit test represents the discrepancy between the data covariance matrix and covariance matrix implied by the model. A non-significant χ^2 indicates good fit of the model to the data. Problematic areas with this test statistic have been identified, especially with large sample sizes. The test statistic is calculated as $N-1(\text{minimum fit function})$ so as the sample size increases, so does the chi square value (Kelloway, 1998). Kelloway (1998) noted that the chance of obtaining a non-significant chi square value in large samples is highly unlikely.

The SRMR and the RMSEA are absolute fit indices based on the analysis of residuals. The SRMR represents the square root of the mean of the squared differences between the covariance matrix implied by the model and the data. A SRMR value of less than .05 indicates good fit of the model to the data (Kelloway, 1998).

The RMSEA is also based on residual analysis and represents the difference between the implied and data covariance matrices that can be expected in the population (Steiger, 1990). Smaller values indicate a good fit of the model to the data. Values below .10 indicate good fit, with 0.05 representing very good fit of the model to the data (Kelloway, 1998). Confidence intervals and a test if the obtained value is significantly less than .05 (very good fit to the data) are provided in the Lisrel 8.31 (Joreskog & Sorbom, 1999) output.

Comparative fit was assessed using the Comparative Fit Index (CFI) (Bentler, 1990). All comparative fit indices compare the tested model to a model known to have poor fit to the data. Most commonly, the null or independence model is used as a baseline model. The null model specifies no relationships between any variables.

The CFI is based on the non-centrality parameter which is a measure of the discrepancy between the population and implied covariance matrices (Hu & Bentler, 1995). The obtained CFI indicates the extent to which the tested model is improved over the null model. Values of greater than .90, representing a 90% increase in the fit of the tested model over the null model, are indicative of good fit of the model to the data (Kelloway, 1998).

Although not used as a direct indicator of model fit, for each model tested the squared multiple correlation (SMC) value for each variable was examined, along with the individual residual values. The SMC represents the contribution each variable makes to the variance of the latent variable, while the residuals indicate the discrepancy between the implied and data covariance matrix for each pairing of variables.

All confirmatory factor analyses using structural equation modeling were completed using the X measurement model of the full structural equation model. Matrices reported for the X measurement model include the Lambda-X matrix (factor loadings), the Phi matrix (latent variable variances and covariances) and the Theta-Delta matrix (measurement error of the indicator variables). To aid in interpretability of final models, the standardized solution is presented. The standardized solution has variance of the latent variables scaled to 1.0 with the observed variable parameters reported in the original scaled form (Joreskog & Sorbom, 1999).

Results of Confirmatory Factor Analysis

The full 37-item SPNCS model as tested is depicted in figure 1. The analysis converged in 32 iterations. Fit indices included χ^2 (608, N = 326) = 2412.64, $p < .0001$, RMSEA .089, SRMR .045, and CFI .89, indicating suboptimal fit of the model to the

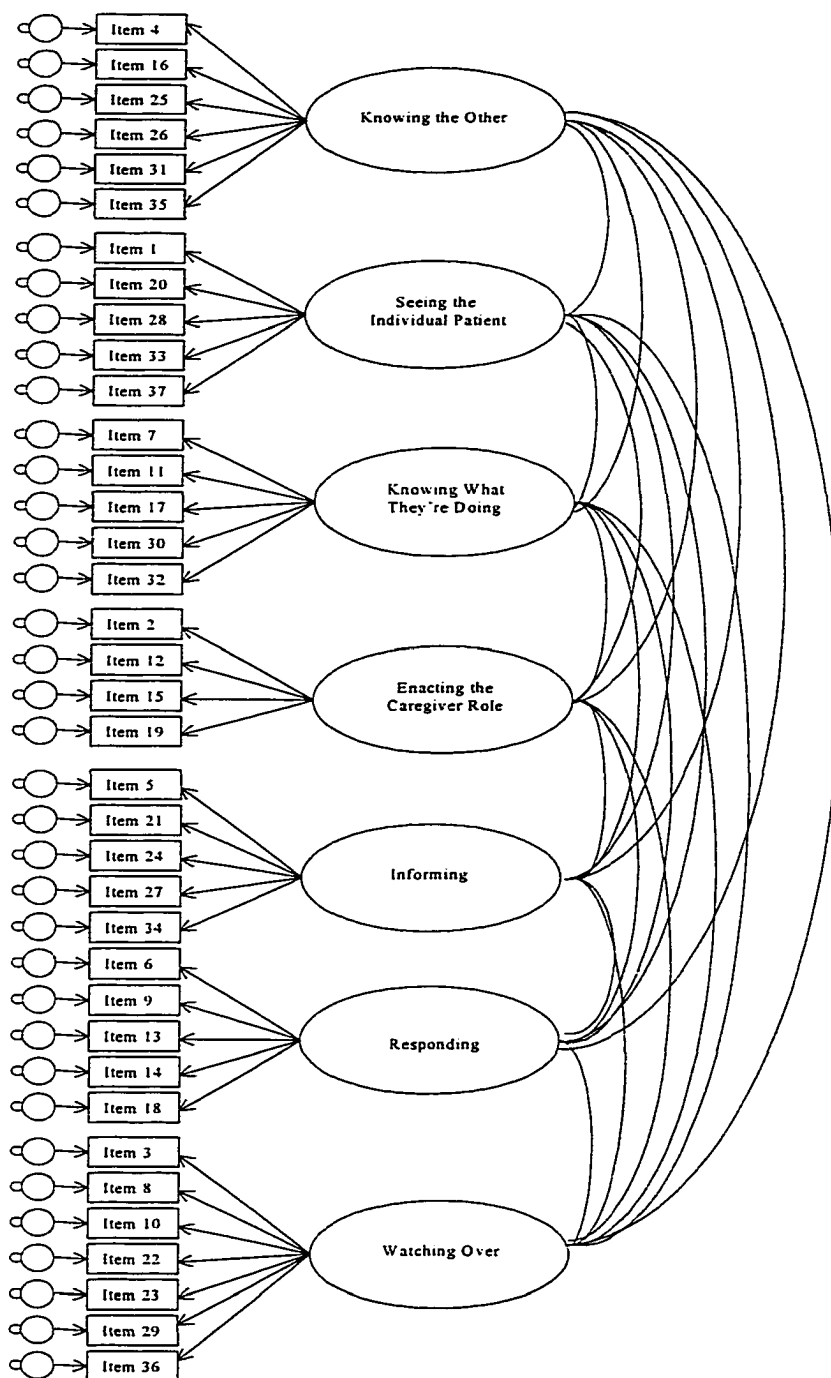


Figure 1. Measurement Model.

data. A warning message received as part of the solution indicated the Phi matrix was not-positive definite. A not-positive definite matrix occurs in instances where the solution produces parameters outside admissible values. The maximum likelihood estimator does not impose restrictions on parameter estimates to constrain those values to admissible boundaries. Therefore, non-admissible parameter estimates may be obtained for solutions that do not fit the data (Wothke, 1993).

Wothke (1993) suggested five causes of non-positive definite model estimates including (a) too little information provided by the data, (b) outliers and nonnormalities in the data, (c) excess parameters, (d) empirical underidentification, and (e) a misspecified model. Each of these reasons was evaluated as a possible cause of the not-positive definite Phi matrix.

Too little information provided by the data can be a function of sample size and the factor loadings of each indicator on the latent variables (Wothke, 1993). As the Phi matrix was the cause of the warning message, this reason seemed highly unlikely, especially with the sample size of 326. Similarly, the evaluation of univariate and multivariate normality did not indicate significant overall departures from normality. Stem and leaf plots did not indicate the presence of outlier values. These findings, combined with the data screening and checking procedures used during data entry, suggested this as an unlikely reason for the warning message.

Overparameterization of a model is partially related to the amount of information supplied in the data. The model as tested did not suggest overparameterization as each indicator was affected by one designated latent variable. As part of the model identification phase, indicators were not allowed to cross load on latent variables.

Empirical underidentification can occur when one of the parameter estimates cannot be uniquely estimated. Wothke (1993) provided an illustrative example that could produce empirical underidentification, especially in confirmatory factor analysis models. If a pair of latent variables are not correlated (correlation = 0), then parameters could not be uniquely estimated. The high correlation between constructs obtained during reliability analysis suggested this was an unlikely cause of the warning message.

Model misspecification was the final reason examined as a possible cause for the warning message. Given the Phi matrix generated the message, this reason seemed to be the most plausible cause of the problem. Wothke (1993) noted that correlations between indicators of different factors could be larger than indicators of the same factor, representing a possible cause of model misspecification.

The model being tested was derived empirically using the grounded theory (Glaser & Straus, 1967) methodology. Modifications to the model to allow indicators to be affected by a different latent variable than originally hypothesized were not theoretically justified. Parameters of the Lambda X matrix in the solution were of sufficient magnitude to suggest appropriate indicator/latent variable association. The maximum modification index, supplied as part of the printed output, suggested the model could be improved by allowing parameters in the Theta Delta matrix to covary. This action would not be theoretically justified under the assumptions of uncorrelated errors in measurement (Joreskog, 1993).

Given the misfit of the model and the not-positive definite Phi matrix, it was decided to test a model that excluded negatively worded (reverse scored) items. Several researchers have provided evidence that negatively worded items can contribute to model

misfit in factor analysis (Schriesheim & Eisenbach, 1995) and several researchers have noted consistent findings of negatively worded items, hypothesized to load on separate factors, loading on one factor, suggestive of method variance (Schiersheim & Eisenbach, 1995; Schriesheim, Eisenbach, & Hill, 1991; Schiersheim & Hill, 1981).

Items were excluded from the model if the phrasing suggested a polar opposite (did vs. did not), a description that could be perceived as a negative instance of the construct (mechanical in providing care as the negative of Seeing the Individual Patient), and those that included a negative word, but did not necessarily convey a negative instance of the construct (unexpectedly). This 7-factor model consisted of 22 items. As with the 37-item model, all latent variables were allowed to covary, indicators were specified as being affected by a single latent variable, and errors were not allowed to covary. Fit indices for this model suggested a slight improvement to model fit with $\chi^2 (188, N = 326) = 751.15, p < .0001$, RMSEA .096, SRMR .033, and CFI .94. The Phi matrix was again reported as not-positive definite. Similar to the full model, the highest modification index was for the Theta Delta matrix, a modification that was not theoretically or psychometrically justified.

Prior to proceeding with further modifications to the model and subsequent testing, the individual SPNCS items were compared to the original interview data and axial codes to verify consistency in the item/construct relationships. Only one item, SPNCS2 (When I needed help from the nursing staff, they were there for me), was judged as possibly representative of a different construct. This item originally appeared under the Seeing the Individual Patient construct. Based on the phrasing of the item, the meaning could also be interpreted as appropriate for the Responding category, as the

meaning conveyed a need on the part of the patient and the nursing staff's response to that need. Moving this item to the Responding scale, while theoretically justified, would not improve model fit substantially or eliminate the cause of the not-positive definite Phi matrix. Therefore, this possible alteration to the structure of the scale was not tested at this time, but rather held as a possible modification in future models.

The items of the Knowing What They're Doing and Enacting the Caregiver Role subscales appeared to tap more abstract evaluations of nursing care when compared to other constructs and indicators. For example, SPNC-S15 (The nursing staff did what they were supposed to for me) could apply to several factors. A positive endorsement of this item could conceivably be a positive endorsement of Knowing the Other, Seeing the Individual Patient, Responding, Informing, or Watching Over. Similar patterns were considered plausible for the majority of the items of the Knowing What They're Doing and Enacting the Caregiver Role subscales. The more abstract nature of the items from these two subscales could therefore, be the cause of the not positive definite Phi matrix, representing collinearities in the data. Consideration was given to combining or eliminating one or both of these subscales as a possible modification to the model.

Inspection of the residuals, standard errors, and SMC values for other indicators in the model suggested other improvements could be made to the model in addition to changes to the Knowing What They're Doing and Enacting the Caregiver Role subscales. Given this information, along with the availability of a separate sample of the data for cross validation and the goal to produce the most parsimonious model with the best fit to the data that was consistent with the underlying theory, a decision was made to follow the recommendations of Joreskog (1993) for model generation. This strategy involves

constructing and testing the measurement model for each construct separately.

Examination of these results focused on the absolute and comparative fit indices, residuals, the SMC value of indicators, the Theta Delta matrix and the factor loadings of the Lambda-X matrix. Any modifications to the model were retested following the same strategy until measurement models demonstrating good fit for each construct were obtained. All models were tested using the maximum likelihood estimator.

Model Generating Results

Knowing the Other construct. The Knowing the Other construct consisted of 6 items, 2 of which were negatively worded (SPNCS4 and SPNCS26). The full model for this construct is presented in figure 2.

The 6-item model did not fit the data at an acceptable level. Fit indices included $\chi^2 (9, N = 326) = 58.13, p < .0001$, RMSEA .13, SRMR .044, and CFI .94. The errors in the Theta Delta matrix were highest for SPNCS4 and SPNCS35 (.83 and .78 respectively), while other values in the Theta Delta matrix ranged from .42 to .53. The SMC values for SPNCS4, SPNCS25, and SPNCS35 were less than those of the other 3 items (.44 to .47 vs. .62 to .67). Examination of the residuals reveals the largest positive (underestimated) value between SPNCS4 and SPNCS26 with the largest negative (overestimated) value between SPNCS4 and SPNCS35.

Based on these results, the model was revised by deleting SPNCS4 (I felt like a room number) and SPNCS35 (I knew the job titles of the nursing staff providing my care). The model consisting of SPNCS16, SPNCS25, SPNCS26, and SPNCS31

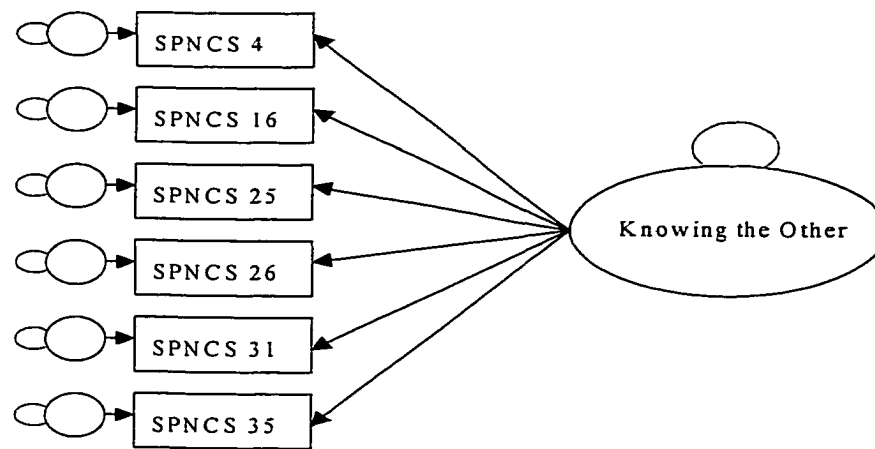


Figure 2. Knowing the Other Measurement Model

demonstrated a good fit to the data. Fit indices included $\chi^2 (2, N = 326) = .79, p = .67$, RMSEA 0.00, SRMR .0064, CFI 1.00. Errors ranged from .39 to .57 representing improvement over the baseline 6-item model. Item SMC values ranged from .51 (SPNCS25) to .65 (SPNCS16). Standardized factor loadings ranged from .69 (SPNCS25) to .93 (SPNCS31). The standardized residuals ranged from -.75 to .79 and followed a 45 degree line on a Q plot.

No further modifications were made to the Knowing the Other Construct. The full parameter information for this model is presented in Table 11.

Table 11. Revised Knowing the Other Construct
Parameter Estimates and Goodness of Fit Indices (n=326)

Item	Lambda X	R ²
16. I knew who to call for when I needed help from the nursing staff	.85	.65
25. The members of the nursing staff understood my diagnosis	.69	.51
26. When I think about my nursing care, I feel like I was in the hands of strangers	.91	.59
31. The nursing staff took time to find out more about me as a person	.93	.63
Goodness of Fit Statistics	$\frac{\chi^2}{2}$.79	$\frac{df}{2}$ 2
	p 0.67	RMSEA 0.00
	SRMR 0.0064	CFI 1.00

Seeing the Individual Patient construct. The Seeing the Individual Patient construct consisted of 5 items with 1 item negatively worded (SPNCS28). The full model as tested is presented in figure 3.

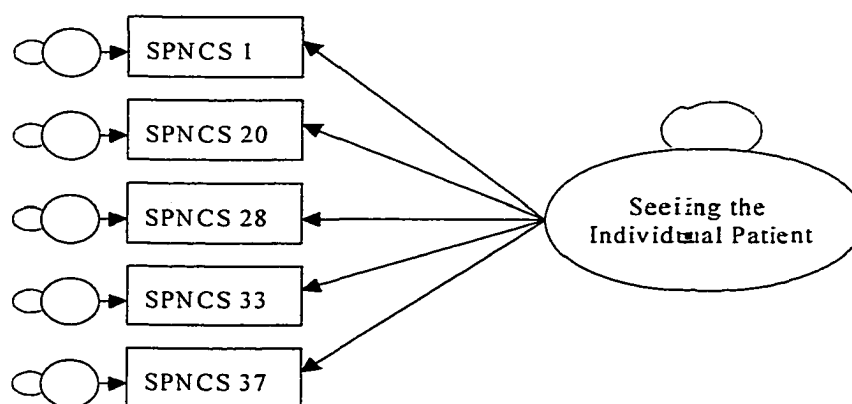


Figure 3. Seeing the Individual Measurement Model.

The 5-item model demonstrated marginally good fit to the data. Fit indices included $\chi^2 (5, N=326) = 17.47, p = .0037$, RMSEA .088, SRMR .024, and a CFI of .99. Inspection of the Theta Delta estimates revealed SPNCS28 (The nursing staff was mechanical in providing my care) had a much higher value (1.27) than the other items. Similarly the SMC value for this variable was .10 compared with values ranging from .66 to .79 for the other items. These findings were not surprising based on comments from several respondents about the wording of SPNCS28. The clearest explanation of the ambiguity in this item came from one respondent who questioned whether “mechanical” referred to “efficient as a robot” or “cold.” Inspection of the residuals did not give specific clues as to the problematic items. The standardized factor loading for SPNCS28 was .37, considerably less than the factor loadings for the other items, ranging from .83 to .95.

The Seeing the Individual Patient factor was re-evaluated after eliminating SPNCS28. This model provided a better fit to the data. Fit indices included $\chi^2 (2, N=326) = 9.43, p = .0009$ with a CFI of .99. Surprisingly, the RMSEA value increased over the baseline model (RMSEA = .107). The SRMR was .015. Theta Delta values were consistent across the items, ranging from .25 to .36, with SMC values ranging from .66 to .78.

Despite the increased RMSEA value, the 4-item model was retained. The full parameter estimates for this model are presented in Table 12.

Table 12. Revised Seeing the Individual Patient Construct
Standardized Parameter Estimates and Goodness of Fit Indices (n=326)

Standardized Parameter Estimates and Goodness of Fit Indices (N = 320)						
Item	Lambda X			R ²		
1. The nursing staff treated me as a unique person	.84			.66		
20. I knew my nursing care was specifically tailored to my needs	.93			.72		
33. When the nursing staff was providing my care, I was at the center of their attention	.95			.78		
37. The nursing staff was warm in their interactions with me	.89			.74		
	<u>χ^2</u>	<u>df</u>	<u>p</u>	<u>RMSEA</u>	<u>SRMR</u>	<u>CFI</u>
Goodness of Fit Statistics	9.43	2	0.009	.11	.015	.99

Knowing What They're Doing construct. The Knowing What They're Doing construct consisted of 5 items, with SPNCS7, SPNCS17 and SPNCS30 negatively worded. The model as tested is presented in figure 4.

The 5-item model did not fit the data at an acceptable level. Fit indices included χ^2 (5, N = 326) = 55.05, $p < .0001$, RMSEA .18, SRMR .045, and a CFI of .95. High Theta Delta parameter estimates were obtained for SPNCS7 and SPNCS17 (.83 and .68 respectively). The SMC values for these items were less than the other items of the subscale. The SMC values included SPNCS7, .48, SPNCS17, .59, SPNCS11, .69, SPNCS30, .68, and SPNCS32, .66. The largest negative residual was -3.96 for the covariance between SPNCS17 and SPNCS11, with the largest positive residual being 6.71 for the covariance between SPNCS7 and SPNCS17.

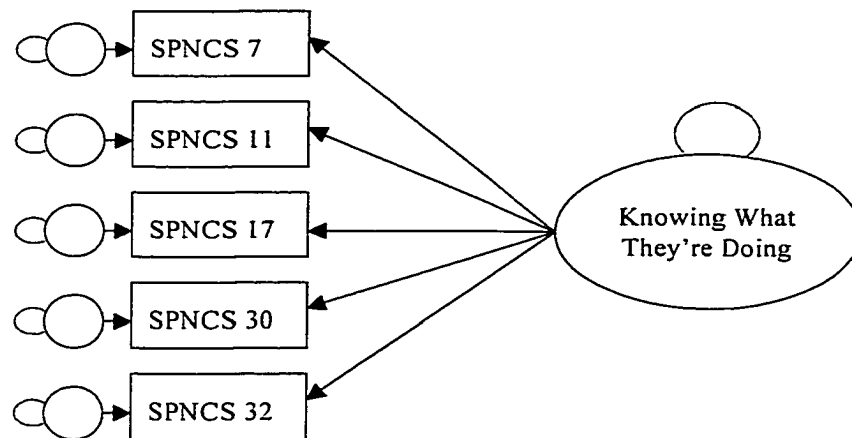


Figure 4. Knowing What They're Doing Measurement Model.

Deletion of SPNCS7 and SPNCS17 would result in a 3-item factor. With 3 indicators, this model would be saturated as there would be 6 unique elements in the covariance matrix and 6 unique parameters to be estimated after the factor loading from the latent variable to one indicator was fixed to a value of 1.0. To achieve overidentification and interpretable fit indices, the parameter estimate for the variance of the latent variable was fixed to a value of 1.0 (Bollen, 1989).

The 3-item model did not provide an acceptable fit to the data. Fit indices included $\chi^2(1, N = 326) = 9.19, p = .0024$, RMSEA .16, SRMR .16, and CFI .98. Based on the findings of suboptimal fit for this model, the previous suggestion of the Knowing What They're Doing and Enacting the Caregiver Role factors contributing to the not-positive definite Phi matrix warning message, and the more abstract nature of the items in these subscales, no further modifications to the Knowing What They're Doing subscale were made at this time. The standardized parameter estimates for this 3-item model are included in Table 13.

Table 13. Revised Knowing What They're Doing Construct
Standardized Parameter Estimates and Fit Indices (n=326)

Item	Lambda X	R ²
11. The nursing staff appeared confident in providing care to me.	1.00	.85
30. The nursing staff did not appear to know what care I needed from them	.89	.69
31. The nursing staff paid attention to detail in providing my care	.92	.69
Goodness of Fit Statistics	χ^2 9.19	df 1
	p .0024	RMSEA .16
	SRMR .16	CFI .98

Enacting the Caregiver Role construct. The Enacting the Caregiver Role construct consisted of 4 items with 1 negatively worded item (SPNCS12). The model as tested is presented in figure 5.

The 4 indicator model provided a good fit to the data. Fit indices included $\chi^2 (2, N = 326) = 4.24, p = .119$, RMSEA .059, SRMR .011, and a CFI of 1.0. The highest Theta Delta estimate (.64) was for the 1 negative item in the model (When I consider the amount of nursing care I received, I might as well have stayed at home). Similarly, the SMC value for this item was .51, considerably less than those in the remainder of the subscale.

The Enacting the Caregiver construct was re-estimated using a 3 indicator model (SPNCS2, SPNCS15, and SPNCS19), achieving overidentification by fixing one Lambda-X path to 1.0 and the variance of the latent variable to 1.0. Fit indices for the revised model included $\chi^2 (1, N = 326) = 1.08, p = .30$, RMSEA .016, SRMR .063, CFI 1.00. The standardized parameter estimates for this model are outlined in Table 14.

Table 14. Revised Enacting the Caregiver Role Construct
Standardized Parameter Estimates and Fit Indices (n=326)

Item	Lambda X			R ²		
2. When I needed help from the nursing staff, they were there for me	1.0			.81		
15. The nursing staff did what they were supposed to for me	.90			.76		
19. The nursing care I received met my expectations	1.11			.87		
Goodness of Fit Statistics	χ^2	df	p	RMSEA	SRMR	CFI
	1.08	1	.30	.016	.063	1.00

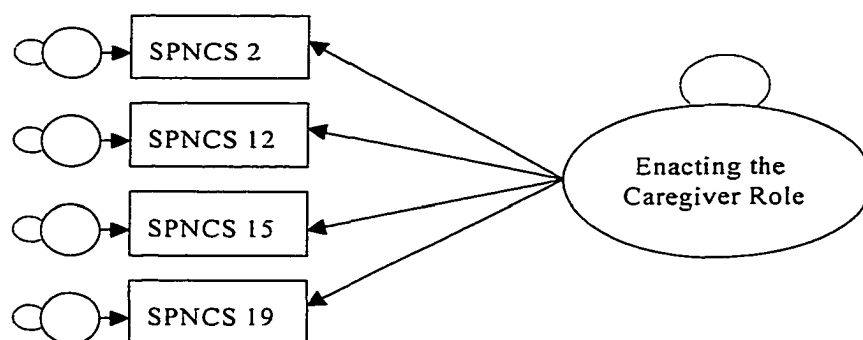


Figure 5. Enacting the Caregiver Role Measurement Model

Informing construct. The Informing construct consisted of 5 items, one of which was negatively worded (SPNCS21). The model as tested is presented in figure 6.

The 5-item model fit the data at an acceptable level. Fit indices included $\chi^2 (5, N = 326) = 17.37, p = .0040, RMSEA .087, SRMR .023$, and a CFI of .99. Inspection of the Theta Delta estimates revealed SPNCS5 and SPNCS21 with higher parameter estimates than the other items of the subscale. The largest positive residual was represented in the covariance between SPNCS5 and SPNCS24.

Based on the information related to SPNCS5 (The members of the nursing staff provided the information I needed without me having to ask questions), this item was deleted and the model reestimated. SPNCS5 represented an item conveying a positive message with negative wording, possibly representing some difficulty for the respondents. This model provided a good fit to the data. The full parameter information for this model is presented in Table 15.

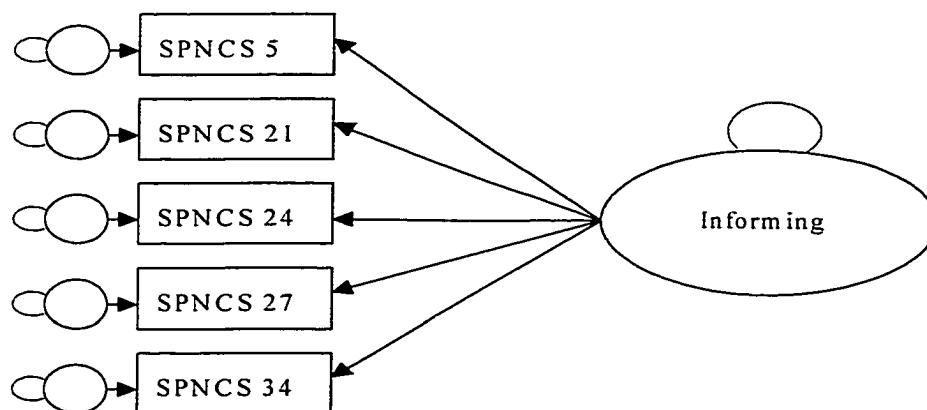


Figure 6. Informing Measurement Model

Table 15. Revised Informing Construct
Standardized Parameter Estimates and Goodness of Fit Indices (n=326)

Item	Lambda X	R ²				
21. When a member of the nursing staff would come into my room to provide care, they did not explain what they were doing	.77	.52				
24. The nursing staff answered the questions I asked them	.63	.54				
27. When the nursing staff provided care, they explained why they were doing something	.85	.72				
34. When the nursing staff was providing care, they would explain what they were doing	.90	.82				
Goodness of Fit Statistics	χ^2 2.48	df 2	p .29	RMSEA .027	SRMR .01	CFI 1.00

Responding construct. The Responding construct consisted of 5 items with 1 item negatively worded (SPNCS18). The model as tested is presented in figure 7.

The 5-item model fit the data at an acceptable level. Fit indices included

χ^2 (5, N=326) = 8.36, p = .13, RMSEA .045, SRMR .015, and a CFI of 1.00, although parameter estimates suggested the model could be improved. Inspection of the Theta Delta estimates revealed a high error variance for SPNCS9 (1.21) and SPNCS18 (.88). SPNCS9 conveyed a positive instance of Responding, but used a negative wording. SPNCS18 was a negatively worded item conveying a negative instance of Responding.

The SMC values for these items followed a similar pattern when compared to other items of the subscale.

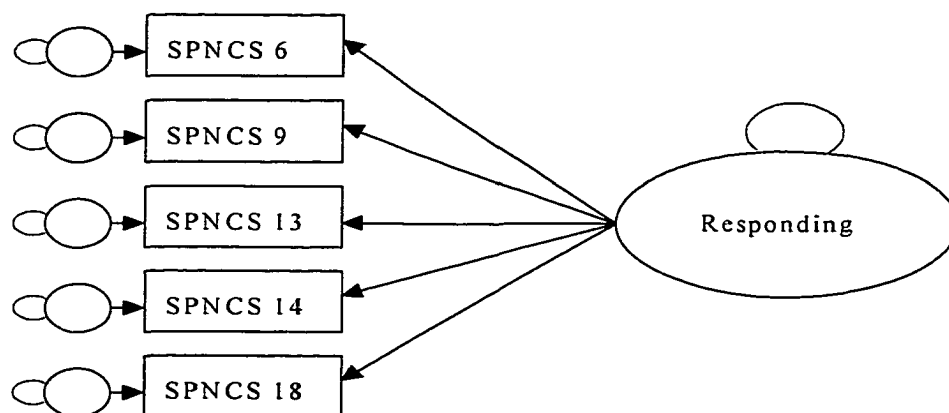


Figure 7. Responding Measurement Model

Several modifications to the Responding model were tested. First, SPNCS2 was moved from the Enacting the Caregiver Role factor and included in the Responding factor. As noted previously, based on the wording and context of data giving rise to this item, the movement of SPNCS2 to the Responding factor was theoretically justified. Secondly, a comparison of the phrasing for SPNCS9 with other items in the subscale revealed some dissimilarities in meaning, making this item a possible candidate for deletion from the scale. Finally, the high Theta Delta estimate combined with a low SMC for SPNCS18 suggested deletion of this item might also improve model fit.

A revised Responding model was testing using SPNCS2, SPNCS6, SPNCS13, and SPNCS14. This model did not fit the data at an acceptable level. Fit indices included $\chi^2 (2, N = 326) = 54.56, p < .0001$, RMSEA .284, SRMR .029, and a CFI of .96. Inspection of the Theta Delta estimates revealed consistent parameter estimates. Similarly, the SMC values were consistent across items, ranging from .72 (SPNCS2) to .84 (SPNCS13). The highest residual was represented by the covariance between SPNCS13 and SPNCS14. A reinspection of the item content revealed similarity in meaning. SPNCS13 was phrased as “The nursing staff responded to my requests” while SPNCS14 was phrased as “The nursing staff responded appropriately to my requests.” SPNCS14 appeared to offer more information, so a decision was made to re-estimate the Responding factor after deleting SPNCS13.

To achieve overidentification, one factor loading was fixed to a value of 1.0 and the variance of the latent variable was fixed to 1.0. With these restrictions, the 3 indicator model fit the data at an acceptable level. Fit indices included

$\chi^2 (1, N=326) = 2.13, p = .14, RMSEA .059, SRMR .086, CFI 1.00$. The parameter estimates for this model are presented in Table 16.

Table 16. Revised Responding Construct
Standardized Parameter Estimates and Goodness of Fit Indices (n=326)

Item	Lambda X	R ²
2. When I needed help from the nursing staff, they were there for me	1.0	.78
6. The nursing staff provided the help that I needed.	1.03	.90
14. The nursing staff responded appropriately to my requests	.88	.71
Goodness of Fit Statistics	χ^2 2.13	df 1
	p .14	RMSEA .059
	SRMR .086	CFI 1.00

Watching Over construct. The Watching Over construct consisted of 7 items, with 2 items negatively worded (SPNCS22 and SPNCS29). The model as tested is displayed in figure 8.

The 7-item model produced a marginally acceptable fit to the data. Fit indices included $\chi^2 (14, N = 326) = 48.69, p < .0001, RMSEA .087, SRMR .024$, and a CFI value of .98. Theta Delta estimates ranged from .18 (SPNCS36) to .61 (SPNCS29), with SMC values ranging from .58 (SPNCS22) to .86 (SPNCS36). Inspection of the residuals revealed large positive and negative residuals primarily involved SPNCS22 and SPNCS29. SPNCS29 was eliminated and the model re-estimated.

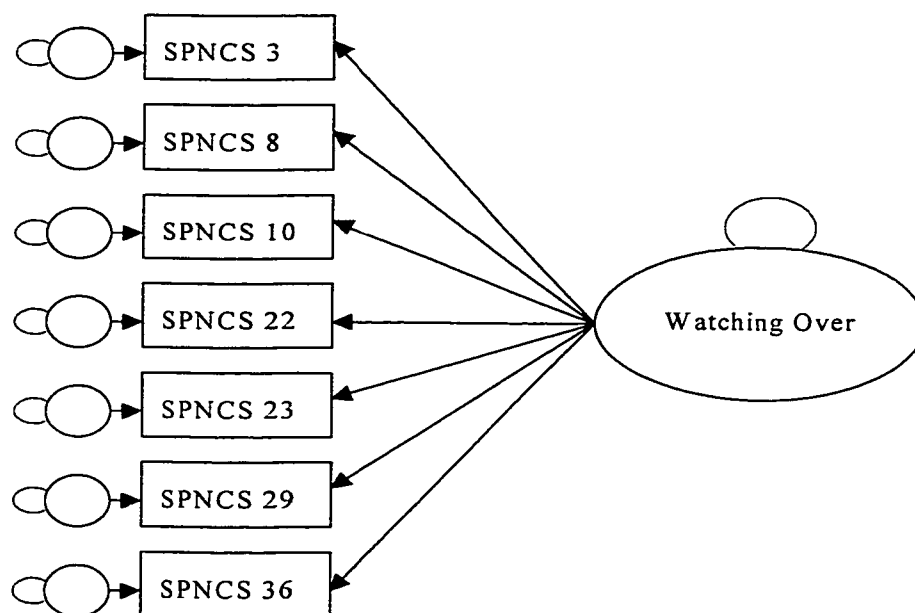


Figure 8. Watching Over Measurement Model

The 6-item model revealed somewhat better fit of the model to the data. Fit indices included $\chi^2 (9, N = 326) = 28.54, p = .00078$, RMSEA .082, SRMR .020, and CFI .99. Inspection of the parameter estimates revealed a high Theta Delta and low SMC value for SPNCS22. The largest residual involved the covariance between SPNCS22 and SPNCS23, with SPNCS22 involved in several residual estimates that were higher than others in absolute value. The model was therefore re-estimated after deleting SPNCS22.

The 5-item model provided a good fit of the model to the data with $\chi^2 (5, N = 326) = 3.79, p = .579$, RMSEA 0.00, SRMR .0065, and CFI 1.00. The 5-item model parameter estimates are presented in Table 17.

Table 17. Revised Watching Over Construct
Standardized Parameter Estimates and Goodness of Fit Indices (n=326)

Item	Lambda X			R ²		
3. Someone from the nursing staff was around all the time	1.06			.71		
8. The nursing staff checked on me frequently	1.07			.78		
10. A member of the nursing staff would stop by my room unexpectedly to check on me	1.01			.67		
23. I felt safe knowing the nursing staff was watching out for me	.98			.78		
36. The nursing staff watched me closely	1.05			.85		
Goodness of Fit Statistics	χ^2 3.79	df 5	p .58	RMSEA 0.00	SRMR .0065	CFI 1.00

Knowing What They're Doing and Enacting the Caregiver Role combined factor.

SPNCS2 was moved to the Responding scale, resulting in the Enacting the Caregiver Role factor containing 2 items. As noted in the previous section, the Knowing What They're Doing factor did not provide acceptable fit to the data. During substantive validity and content adequacy assessments, items from these two subscales did not load uniquely on the hypothesized factor, possibly representing some ambiguity in the content domain of the constructs. Examination of item content suggested that these subscales were tapping a more global construct than other subscales of the SPNCS. Given this finding, and the content validity and substantive validity assessment results, it was decided to combine the items into one subscale.

The combined subscale consisted of SPNCS7, SPNCS11, SPNCS12, SPNCS15, SPNCS17, SPNCS19, SPNCS30 and SPNCS32. This model is depicted in figure 9. The model did not fit the data at an acceptable level. Fit indices included χ^2 (20, N = 326) = 113.44, $p < .0001$, RMSEA .12, SRMR .041 and CFI .95. Inspection of the stem and leaf plot of the residuals revealed the covariance between SPNCS7 and SPNCS17 as an outlier. SPNCS7 (The nursing staff didn't follow through on some aspects of my care) had a Theta Delta estimate of .87 and a SMC value of .45. SPNCS17 (I had to remind the nursing staff to give part of my care) had a Theta Delta estimate of .76 with a SMC value of .54. These items were deleted and the model re-estimated.

The 6-item subscale demonstrated improved fit over the 8-item baseline model, although the model did not fit the data at an acceptable level. Fit indices included χ^2 (9, N = 326) = 39.64, $p < .0001$, RMSEA .102, SRMR .025 and CFI .98. The largest Theta

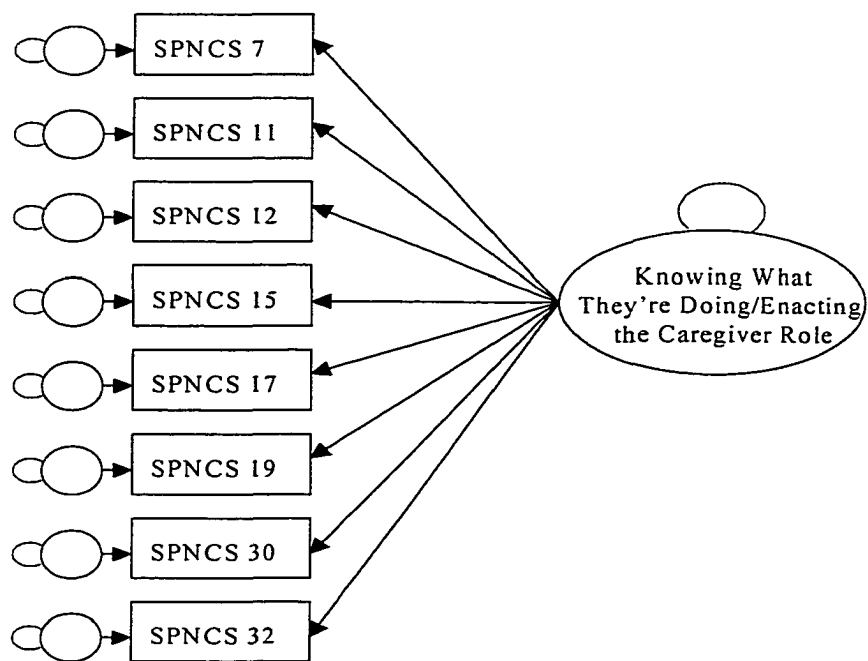


Figure 9. Combined Knowing What They're Doing/Enacting the Caregiver Role Measurement Model

Delta estimate was .62 for SPNCS12, a value inconsistent with the other items.

Similarly, the SMC value for SPNCS12 was .53, considerably less than the SMC for the other items. The largest negative and positive residuals involved SPNCS12. Therefore, SPNCS12 was deleted and the model re-estimated.

The 5-item model provided what was judged an acceptable fit to the data. Fit indices included $\chi^2 (5, N = 326) = 13.95, p = .015$, RMSEA .074, SRMR .014 and CFI .99. Theta Delta and SMC estimates were consistent across items. No further modifications were made to this subscale. The final subscale parameter estimates for this model are displayed in Table 18.

Table 18. Combined Knowing What They're Doing/Enacting the Caregiver Role Construct Standardized Parameter Estimates and Goodness of Fit Indices (n=326)

Item	Lambda X			R ²		
11. The nursing staff appeared confident in providing care to me	.84			.76		
15. The nursing staff did what they were supposed to for me	.88			.77		
19. The nursing care I received met my expectations	1.05			.83		
30. The nursing staff did not appear to know what care I needed from them	.78			.61		
32. The nursing staff paid attention to detail in providing my care	.86			.69		
Goodness of Fit Statistics	χ^2 13.95	df 5	p .015	RMSEA .074	SRMR .014	CFI .99

Confirmatory Factor Analysis Using Revised Constructs

Based on the revision to the individual construct measurement models, a revised 6-factor model was tested with the Knowing What They're Doing and Enacting the Caregiver Role factors combined into one subscale. Additionally, the Informing construct was renamed to Explaining to achieve consistency with the item content of that subscale.

The 6-factor model provided an improved fit to the data over the 7-factor, 37-item model. Fit indices included $\chi^2 (284, N = 326) = 928.06$ $p < .0001$, RMSEA .084, SRMR .032, and CFI .94. The Phi matrix was again reported as not positive definite. Inspection of the standardized solution for the Phi matrix revealed a correlation of 1.0 between the combined factor and the Responding factor, again possibly representing collinearity.

Given the improved fit with the possibility of collinearity between two factors, the model was re-estimated after eliminating the combined factor. This action could be theoretically justified as the item content for the combined factor appeared to tap more global aspects of the care experience, rather than more discrete aspects of the nursing care experience. The 5-factor model as tested is displayed in Figure 11.

The 5-factor model provided additional improvements in the fit of the model to the data. Fit indices included $\chi^2 (179, N = 326) = 552.41$, $p < .001$, RMSEA .08, SRMR .032, and CFI .95. Theta Delta estimates ranged from .15 (SPNCS21) to .58 (SPNCS26) with SMC values ranging from .51 (SPNCS21) to .85 (SPNCS6). The stem and leaf plot of the standardized residuals approximated the normal curve. The standardized parameter estimates for the 5-factor model are presented in Table 19, with interfactor correlations presented in Table 20.

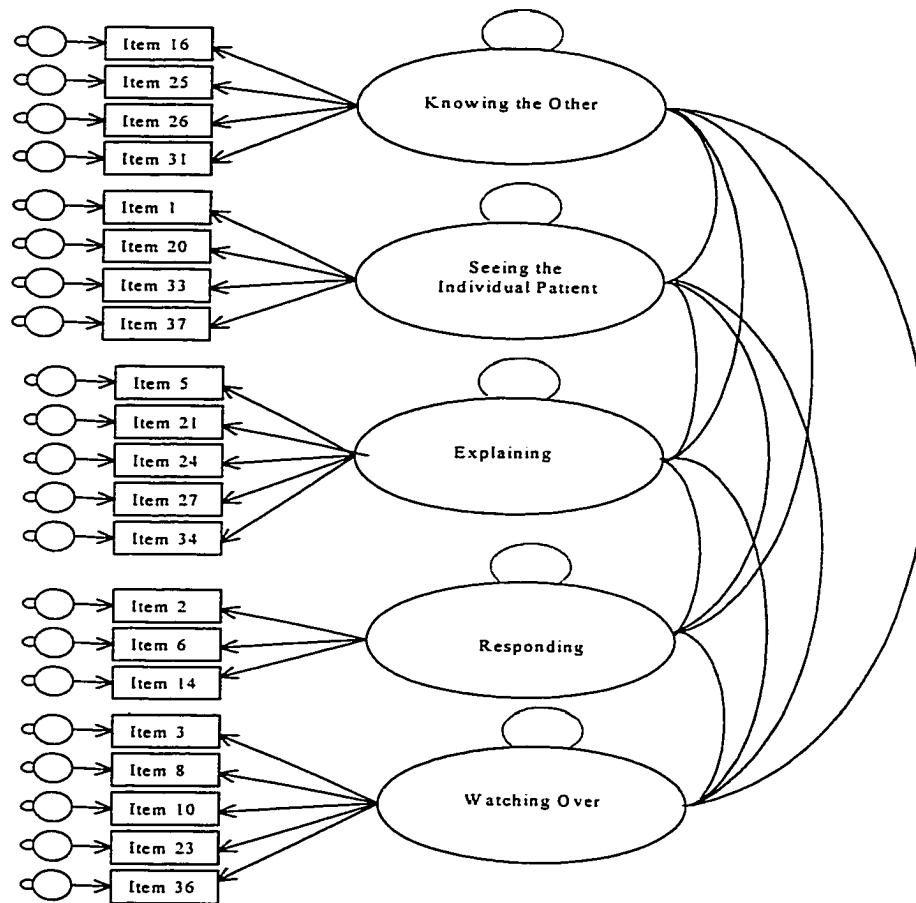


Figure 10. 5-Factor Measurement Model

Table 19. 5-Factor Model
Standardized Parameters Estimates and Goodness of Fit Indices (n=326)

Item	Knowing the Other	Seeing the Individual Patient	Explaining	Responding	Watching Over	R ²	
16	.80					.58	
25	.75					.60	
26	.90					.58	
31	.92					.61	
1		.84				.67	
20		.95				.75	
33		.93				.76	
37		.87				.71	
5			.90			.66	
21			.76			.51	
24			.68			.63	
27			.81			.64	
34			.86			.75	
2				.94		.77	
6				.96		.85	
14				.85		.72	
3					1.06	.70	
8					1.04	.74	
10					.99	.66	
23					1.02	.84	
36					1.04	.84	
Goodness of Fit Statistics		χ^2 552.41	df 179	p <.001	RMSEA .08	SRMR .032	CFI .95

Table 20. Interfactor Correlations, 5-Factor Model (n=326)

	1.	2.	3.	4.	5.
1. Knowing the Other					
2. Seeing the Individual Patient	.98				
3. Explaining	.95	.93			
4. Responding	.93	.94	.89		
5. Watching Over	.95	.95	.90	.96	

Inspection of the standardized solution revealed reasonable estimates of factor loadings in the Lamda-X matrix. The Phi matrix revealed high latent variable correlations, ranging from .89 between Informing and Responding to .98 between Knowing the Other and Seeing the Individual Patient.

While the 5-factor model provided acceptable fit to the data and was consistent substantively with the originally proposed theoretical model, the high correlation between the Knowing the Other and Seeing the Individual Patient factors suggested the possibility that these factors could be combined into one factor. Inspection of the item content revealed some similarities. Additionally, during the substantive and content validity assessments, considerable overlap in the rating of items between these scales was present. Based on these findings, a decision was made to combine the Knowing the Other and Seeing the Individual Patient subscales into one factor, following Joreskog's (1993) model generating strategy, followed by a re-estimation of a 4-factor model. These results are presented in the next section.

Knowing the Other and Seeing the Individual Patient Combined Factor

The items were combined into one subscale and examined for consistency in item content and meaning. SPNCS16 and SPNCS26 were not conceptually similar to other items in the combined scale. These items from the Knowing the Other subscale referred to the patient knowing the nursing staff. The remaining items tapped content suggestive of the nursing staff knowing the patient. SPNCS16 and SPNCS26 were deleted from the scale to maintain the unidimensional nature of the construct and consistency of this construct with the other constructs of the scale.

The 6-item scale provided a good fit of the model to the data. Fit indices included $\chi^2 (9, N = 326) = 24.32$ $p = .00395$, RMSEA .072, SRMR .019, and CFI .99. Theta Delta estimates ranged from .26 to .40 with the exception of SPNCS31 which had a parameter estimate of .57. SMC values ranged from .58 (SPNCS25) to .77 (SPNCS33). The stem and leaf plot of the residuals followed a normal curve. Factor loadings of the standardized Lambda-X matrix were consistent, ranging from .74 (SPNCS25) to .94 (SPNCS33). This revised construct was renamed Seeing the Individual Patient. The measurement model for this factor is presented in Figure 11, with standardized model parameters estimated detailed in Table 21.

Test of the 4-Factor Model

A 4-factor, 19-item model was constructed using the revised Seeing the Individual factor and the previously constructed Informing, Responding and Watching Over factors. This model as tested is displayed in Figure 12.

The model converged in nine iterations and provided a good fit to the data. Fit indices included $\chi^2 (146, N = 326) = 473.08$, $p < .001$, RMSEA .083, SRMR .033, and CFI .95. Examination of the residual stem and leaf plot revealed a normal curve with one outlier, the residual for the covariance between SPNCS24 and SPNCS25. The full parameters estimates for this model are displayed in Table 22 with factor intercorrelations displayed in Table 23.

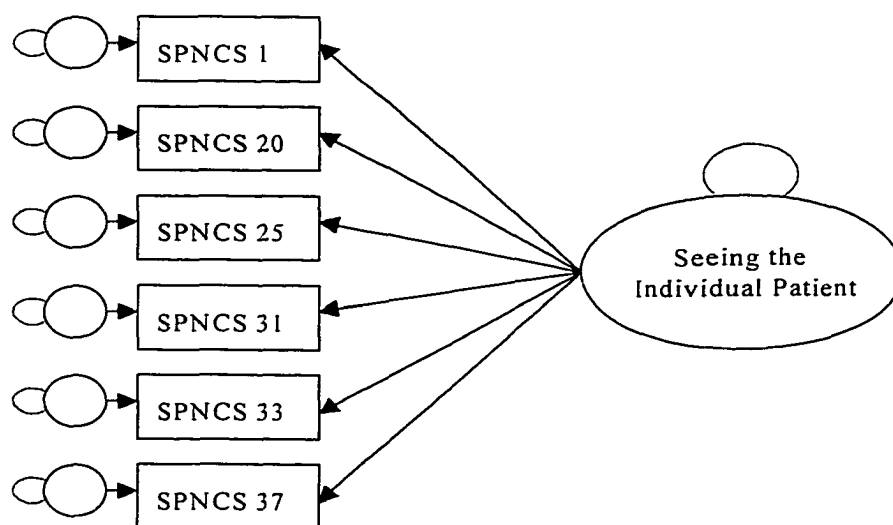


Figure 11. Seeing the Individual Patient Measurement Model.

Table 21. Revised Seeing the Individual Patient Construct
Standardized Parameter Estimates and Goodness of Fit Indices (n=326)

Item	Lambda X			R ²		
1. The nursing staff treated me as a unique person	.84			.66		
20. I knew my nursing care was specifically tailored to my needs	.94			.73		
25. The members of the nursing staff understood my diagnosis	.74			.58		
31. The nursing staff took time to find out more about me as a person	.91			.59		
33. When the nursing staff was providing care, I was at the center of their attention	.94			.77		
37. The nursing staff was warm in their interactions with me	.89			.74		
Goodness of Fit Statistics	χ^2 24.23	df 9	p .00040	RMSEA .072	SRMR .019	CFI .99

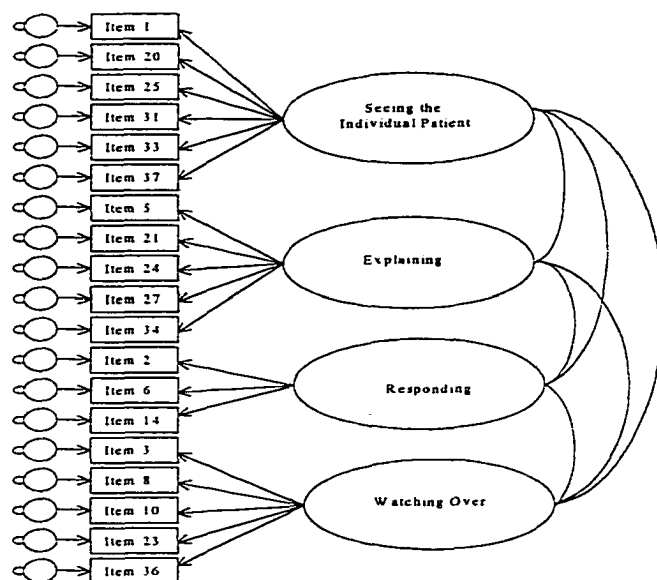


Figure 12. 4-Factor Measurement Model

Table 22. 4-Factor Model
Standardized Parameters Estimates and Goodness of Fit Indices (n=326)

Item	Seeing the Individual	Explaining	Responding	Watching Over	R ²		
1	.84				.66		
20	.95				.75		
25	.75				.60		
31	.91				.60		
33	.93				.76		
37	.87				.71		
5		.90			.66		
21		.75			.50		
24		.68			.63		
27		.81			.64		
34		.86			.76		
2			.94		.77		
6			.96		.85		
14			.85		.72		
3				1.06	.70		
8				1.04	.74		
10				.99	.66		
23				1.02	.84		
36				1.04	.84		
Goodness of Fit Statistics		χ^2 473.08	df 146	p <.001	RMSEA .083	SRMR .033	CFI .95

Table 23. 4-Factor Model, Factor Intercorrelations (n=326)

	1.	2.	3.	4.
1. Seeing the Individual				
2. Explaining	.94			
3. Responding	.94	.89		
4. Watching Over	.95	.90	.96	

Summary of Model Generating Strategies

The goal of this portion of the current study was to test an empirically derived measure of patient satisfaction with nursing care using confirmatory factor analysis. The 4-factor, 19-item model provided good fit to the data based on the fit indices (Table 22). All items were retained on the originally hypothesized subscales with the exception of SPNCS2 which was relocated to the Responding subscale. This action was theoretically justified based on the item wording and implied meaning of that item.

Once a model representing good fit to the data was obtained, further model modifications were undertaken to achieve parsimony of the SPNCS. These modifications are outlined in the next section.

Model Modifications to Achieve Parsimony

The primary goal of instrument development is to obtain a measure that represents the theoretically based content domain for each construct. A secondary goal is to obtain a measure that is parsimonious while providing adequate representation of the content domain of each construct (Hinkin, 1998).

Kelloway (1998) suggested that models of interest be tested against alternative models that represent theoretically plausible models of the data. Given this recommendation and the availability of a second sample for validation, a decision was made to undertake further model modification procedures to improve the parsimony of the 4-factor, 19-item model. Several principles guided the modification process. First, each construct must be represented by a minimum of three items representing different aspects of the content domain. Second, models modified by deleting items must demonstrate good fit to the data as evidenced by fit indices. Third, the Theta Delta, SMC

values, and standardized solution should be consistent with the item and total scale content, with the stem and leaf plot of the residuals following a normal curve without outliers. Finally, modifications must be justified on theoretical grounds.

Items were deleted from one construct at a time, with models being re-estimated after each modification. Using this modification strategy, several theoretically plausible models were obtained. These models were retained for cross validation with the holdout sample of data. The model demonstrating the best fit in both samples was retained as the final measurement model.

In addition to the absolute and comparative fit indices used in previous evaluations of model fit, two additional measures were added to assess fit. The goodness of fit index (GFI) provides an estimate of the amount of variance and covariance explained by the model, somewhat analogous to the R^2 statistic in regression (Hoyle & Panter, 1995). Values for the GFI range from 0 to 1. The Expected Cross Validation Index (ECVI) developed by Browne and Cudeck (1993) is an information index that describes the difference between implied and sample covariance matrices in all possible calibration samples using data from one sample. The ECVI is useful as a indicator of the expected reproducibility of the model using another sample of data. Lower values are indicative of better fitting models (Kelloway, 1998). Confidence intervals of the ECVI are also provided in the output. The range of the confidence interval was also used as a decision criterion for the final model.

Four theoretically plausible models of varying parsimony were tested in both samples of data. Based on absolute, comparative, and informational fit indices, the final retained model consisted of 4 factors and 15 items. This model is displayed in figure 13.

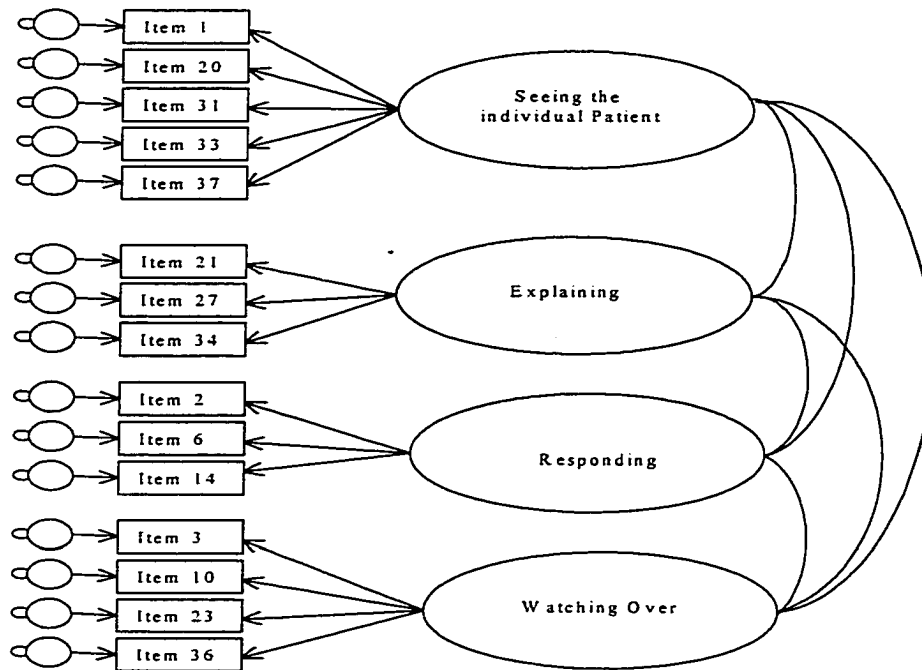


Figure 13. Final Measurement Model.

Full standardized parameter estimates for this model using the second sample of data outlined in Table 24 and factor intercorrelations in Table 25. The fit indices for all models tested in this phase are presented in Table 26.

Table 24. Final 4-Factor Model

Standardized Parameter Estimates and Goodness of Fit Indices (n=326)						
Item	Seeing the Individual	Explaining	Responding	Watching Over	R ²	
1	.93				.72	
20	.90				.72	
31	.87				.51	
33	.82				.69	
37	.91				.77	
21		.62			.34	
27		.81			.70	
34		.85			.83	
2			.91		.82	
6			.91		.82	
14			.79		.76	
3				.94	.67	
10				.94	.65	
23				.92	.80	
36				1.00	.79	
Goodness of Fit Statistics		χ^2 236.25	df 84	p <.001	RMSEA .075	SRMR .027
						CFI .97

Note: Estimated from holdout sample of data

Table 25. Factor Intercorrelations (Lisrel output) (n=326)

	1.	2.	3.	4.
1. Seeing the Individual				
2. Explaining	.89			
3. Responding	.93	.79		
4. Watching Over	.99	.87	.92	

Note: Estimated from holdout sample of data (N=326).

Table 26. Fit Indices of Competing 4-Factor Models

Model 1, 19 items								
Seeing the Individual	<u>Sample A</u>							
1,20,25,31,33,37	χ^2	df	p	RMSEA	SRMR	CFI	GFI	ECVI
	473.08	146	0.00	.083	.033	.95	.87	1.73
Explaining								(1.54-1.94)
5,21,24,27,34								
Responding	<u>Sample B</u>							
2,6,14	χ^2	df	p	RMSEA	SRMR	CFI	GFI	ECVI
Watching Over	514.54	146	0.00	.088	.033	.94	.86	1.85
3,8,10,23,36								(1.68-2.08)
Model 2, 17 items								
Seeing the Individual	<u>Sample A</u>							
1,20,31,33,37	χ^2	df	p	RMSEA	SRMR	CFI	GFI	ECVI
	330.30	113	0.00	.077	.032	.96	.89	1.26
Explaining								(1.11-1.44)
5,21,27,34								
Responding	<u>Sample B</u>							
2,6,14	χ^2	df	p	RMSEA	SRMR	CFI	GFI	ECVI
Watching Over	327.25	113	0.00	.076	.031	.96	.89	1.25
3,8,10,23,36								(1.10-1.43)
Model 3, 16 Items								
Seeing the Individual	<u>Sample A</u>							
1,20,31,33,37	χ^2	df	p	RMSEA	SRMR	CFI	GFI	ECVI
	253.44	98	0.00	.070	.025	.97	.91	1.01
Explaining								(.088-1.17)
21,27,34								
Responding	<u>Sample B</u>							
2,6,14	χ^2	df	p	RMSEA	SRMR	CFI	GFI	ECVI
Watching Over	271.42	98	0.00	.074	.027	.97	.91	1.07
3,8,10,23,36								(.93-1.23)
Model 4, 15 items								
Seeing the Individual	<u>Sample A</u>							
1,20,31,33,37	χ^2	df	p	RMSEA	SRMR	CFI	GFI	ECVI
	204.14	84	0.00	.066	.024	.98	.92	.85
Explaining								(.73-.99)
21,27,34								
Responding	<u>Sample B</u>							
2,6,14	χ^2	df	p	RMSEA	SRMR	CFI	GFI	ECVI
Watching Over	236.25	84	0.00	.075	.027	.97	.91	.95
3,10,23,36								(.82-1.10)

Given the high factor intercorrelations noted in Table 25, the items of the SPNCS might be representing a single latent variable. To test this possibility, a 1-factor, 15-item model was tested. The fit indices for that model included χ^2 (90, N = 326) = 388.58, $p < .001$, RMSEA .11, SRMR .037, CFI .94. These indices did not indicate a substantially better fit over the 4-factor, 15-item model. Therefore, the 4-factor, 15-item model was retained as the final model. The factor structure for this model is located in Appendix F.

The items of the final model were compared to the factor analysis results of the content adequacy assessment (Schiersheim, et al., 1993) described in Chapter III. The varimax and promax solutions were examined, with the promax solution offering the clearest pattern of factor loadings consistent with the final version of the SPNCS. The factor loadings for the four factors of the final model have been reproduced in Table 27. Underlined factor loadings indicate those items that were retained in the final version of the SPNCS. SPNCS34 is not included in this table as that item was deleted and replaced with a different item after the content adequacy and substantive validity assessments were completed.

The factor loading values for the retained items are consistent (.87 or greater) for the Seeing the Individual Patient, Responding, and Watching Over subscales. The values for the Explaining subscale (excluding SPNCS34) are considerably lower (.48 and .57), although the items for this subscale still load on the originally conceptualized factor.

Table 27. Promax Rotation of Response Totals for Final 4-Factor, 15-item Model (n=31)

Item	Factor			
	Seeing the Individual Patient	Explaining	Responding	Watching Over
SPNCS4	.92	-.74		
SPNCS16				
SPNCS25		-.92		
SPNCS26		-.52		
SPNCS31	<u>.88</u>	-.76		
SPNCS35				
SPNCS1	<u>.88</u>			
SPNCS20	<u>.87</u>			
SPNCS28	.91	-.45		
SPNCS33	<u>.86</u>			
SPNCS37	<u>.95</u>			
SPNCS7				
SPNCS11				
SPNCS17				
SPNCS30				
SPNCS32	.73	-.51		
SPNCS2			<u>.95</u>	
SPNCS12				
SPNCS15				
SPNCS19				
SPNCS5	-.61	.59	-.56	-.61
SPNCS21	-.62	<u>.48</u>	-.57	-.62
SPNCS24	-.72	<u>.67</u>		-.72
SPNCS27	-.54	<u>.57</u>	-.48	-.54
SPNCS34				
SPNCS6			<u>.95</u>	
SPNCS9	.70			.50
SPNCS13			.92	
SPNCS14			<u>.94</u>	
SPNCS18			.90	
SPNCS3				<u>.91</u>
SPNCS8				.91
SPNCS10				<u>.91</u>
SPNCS22	.59			.62
SPNCS23				<u>.89</u>
SPNCS29				.90
SPNCS36				<u>.90</u>

Note: Factor loadings of $< \pm .30$ are not included in table

With the modification of the SPNCS complete, reliability statistics using Cronbach's alpha were recalculated, followed by the assessment of criterion validity using the PSI and LOPSS scales. Finally, the discriminant validity of the SPNCS was tested using ANOVA and descriptive discriminant function analysis. These findings are presented in the following sections.

Reliability of the Revised SPNCS

Cronbach's alpha was recalculated for the four revised subscales and the total SPNCS scale using SPSS version 10 (SPSS, Inc., 1999). These results are presented in Table 28 and summarized below.

Table 28. Factor Correlations and Cronbach's Alpha (n=652)

	1.	2.	3.	4.	Cronbach's alpha
1. Seeing the Individual Patient					.92
2. Explaining	.77				.84
3. Responding	.85	.71			.92
4. Watching Over	.75	.75	.87		.92
Total Scale					.96

The Seeing the Individual Patient subscale consists of 5 items, all positively worded. The Cronbach's alpha for this scale was .92. Interitem correlations ranged from .61 to .76. The subscale mean was 18.46 (SD 4.68) representing good variability in the items.

The Explaining subscale consists of three items, with one negatively worded item (SPNCS21). The Cronbach's alpha for this scale was .84 with interitem correlations ranging from .53 to .76. The subscale mean was 11.40 (SD 2.62).

The Responding subscale consists of three items, all positively worded. The Cronbach's alpha for this subscale was .92. Interitem correlations ranged from .75 to .83. The subscale mean was 11.84 (SD 2.79).

The Watching Over subscale consists of four items, all positively worded. The Cronbach's alpha for this subscale was .92, with interitem correlations ranging from .67 to .80. The subscale mean was 14.25 (SD 4.14).

The full 15-item SPNCS scale had a Cronbach's alpha of .96. Interitem correlations ranged from .64 to .80. The scale mean was 55.97 (SD 13.25).

Criterion Validity and Additional Construct Validity

Criterion validity was assessed by examining the correlations between the subscales of the SPNCS and the subscales of the PSI (Hinshaw & Atwood, 1982) and the LOPSS (LaMonica, et al, 1986). It was predicted that SPNCS subscales would correlate positively and significantly with all subscales of the PSI and the LOPSS Satisfaction subscale, with significant negative correlations between the SPNCS subscales and the LOPSS Dissatisfaction subscale.

As a further assessment of construct validity, the subscales of the SPNCS were correlated with the general satisfaction items included in the survey. A 3-item general satisfaction value (SAT1, SAT2, SAT4) was constructed. This 3-item scale had an acceptable Cronbach's alpha of .96. Mean scores for the SPNCS subscales and general satisfaction scale were used in the analysis.

The obtained correlations were consistent with predictions. These results are summarized in Table 28.

The extent to which patients follow discharge instructions was identified in the literature review as a correlate of general patient satisfaction. One item was included in the survey that asked respondents to rate their level of agreement with the statement, "I am following all of the discharge instructions that were given to me." Although single item measures may be considered unreliable due to measurement error (Nunnally & Bernstein, 1994), the subscales of the SPNCS and the total SPNCS scale were correlated to this single item. It was predicted that all SPNCS subscales would correlate positively and significantly with this item. These results are also displayed in Table 29.

Table 29. Subscale Correlations Between SPNCS, PSI, LOPSS, and General Satisfaction

	Seeing the Individual Patient	Explaining	Responding	Watching Over
<u>PSI</u> (n=19)				
Trust	.84	.52	.80	.78
Educational Relationship	.92	.70	.83	.89
Professional Relationship	.81	.49	.74	.77
<u>LOPSS</u> (n=19)				
Satisfaction	.96	.72	.91	.94
Dissatisfaction	-.86	-.60	-.85	-.84
General Satisfaction (n=643)	.76	.60	.76	.75
Following Discharge Instructions (n=640)	.31	.27	.30	.30

All results were of the direction and magnitude predicted, although the obtained correlations between the extent to which patients were following all discharge instructions and the SPNCS subscales were less than those obtained with the three 3-item satisfaction scale. The Pearson Product Moment Correlation between the single item about following discharge instructions and the Seeing the Individual Patient subscale was .31, $p < .001$. Correlations between the Explaining, Responding and Watching Over

subscale and this single item were .27, .30, and .30 respectively. All obtained correlations were significant at $p < .0001$.

Based on the results of these analyses, the SPNCS was judged to possess acceptable construct and criterion validity. Significant correlations in the predicted direction were obtained between the SPNCS subscales and the subscales of the PSI, LOPSS, a measure of general satisfaction with the hospital experience, and a single item measure tapping the extent to which discharge instructions were being followed.

Discriminant Validity of the SPNCS

A desirable property of attitude scales is the ability of the scale to discriminate among groups, depending on the intended usage of the scale (Ferketich, 1991). The SPNCS was constructed as a measure of patient perception of the nursing care experience in an inpatient setting. Based on this intended usage, it would be desirable for the SPNCS subscales to discriminate among groups based on general satisfaction. As the focus of the SPNCS is nursing care, a desirable property would include a positive relationship between the amount of care given by the nursing staff (Licensed Practical Nurses and Registered Nurses and solely by Registered Nurses) and the scores on the SPNCS subscales. Given the intended target population, another desirable property would include the inability of the SPNCS subscales to demonstrate significant differences among groups based on the type of admission (emergency vs. elective) or hospital service (eg. medical, surgical, obstetric, cardiac). Exploratory analyses were conducted to assess these properties of the SPNCS using univariate ANOVA with post hoc tests where appropriate and Pearson Product Moment Correlations.

Pearson Product Moment Correlations were calculated between the SPNCS subscales and survey items tapping the amount of care delivered by licensed nurses (Licensed Practical Nurses and Registered Nurses and solely by Registered Nurses). For these items, the response category of “not sure” was excluded from the analysis. The exclusion of this response category placed the response categories on what could be considered an interval level of scaling. Additionally, these items were reversed scored so a higher score indicated a higher amount of care given by the licensed or Registered Nurse.

All subscales of the SPNCS demonstrated significant positive correlations with the amount of care given by a licensed nurse as well as the amount of care given solely by Registered Nurses, indicating that higher scores on the SPNCS subscales were associated with higher amounts of care given by a licensed nurse. These results are outlined in Table 30 below.

Table 30. Correlations Between SPNCS Subscales and Amount of Care Given

	Licensed Nurse (Licensed Practical Nurse or Registered Nurse) (n=475)	Registered Nurse (n=439)
Seeing the Individual Patient	.46	.46
Explaining	.39	.40
Responding	.42	.45
Watching Over	.48	.46

Note: all values $p < .0001$

Univariate ANOVA results for the type of admission (emergency/unplanned vs. elective/planned) were not significant. These results included Seeing the Individual Patient $F(1,614) = 1.68, p = .19$; Explaining $F(1, 614) = .042, p = .84$; Responding $F(1,614) = .03, p = .86$; Watching Over $F(1,614) = 1.11, p = .293$. Similarly, the univariate ANOVA results using the type of hospital service as a grouping variable were

not significant. These results included Seeing the Individual Patient $F(5,616) = 2.19$, $p = .05$; Explaining $F(5,616) = .46$, $p = .81$; Responding $F(5,616) = 1.63$, $p = .15$; Watching Over $F(5,616) = 1.66$, $p = .14$. Both findings suggest the SPNCS could be used in a general inpatient population without concerns for scores being artificially inflated or deflated based on the type of admission or hospital service.

To assess group differences based on general satisfaction, two groups were created based on scores obtained for the 3-item general satisfaction measure (SAT1, SAT2, and SAT4). This variable demonstrated a high level of skewness. Therefore, the mean extreme responses were used to create “high” and “low” satisfaction groups. The low satisfaction group consisted of respondents with a mean score of 1.0. The high satisfaction group consisted of respondents with a mean score of 5.0. A total of 516 survey responses were included in this analysis.

Univariate ANOVA results were significant for the Seeing the Individual Patient [$F(1,514) = 472.84$, $p < .0001$], Explaining [$F(1,514) = 212.63$, $p < .0001$], Responding [$F(1,514) = 529.07$, $p < .0001$] and the Watching Over [$F(1,514) = 424.54$, $p < .0001$] subscales. The mean difference between groups was 1.99 for Seeing the Individual, 1.45 for Explaining, 2.08 for Responding, and 2.13 for Watching Over. As expected mean scores for each subscale were higher in the “high” group when compared to the “low” group.

As a further test of the ability of the SPNCS to discriminate between groups based on general satisfaction, the average score for the 3-item general satisfaction scale was used to create 4 satisfactions groups. Group 1 consisted of respondents with an average satisfaction score of 1.00 to 1.99. Similarly, Groups 2, 3, and 4 consisted of respondents

with an average general satisfaction score of 2.00-2.99, 3.00-3.99, and 4.00 to 5.00 respectively. A total of 639 respondents had valid scores for the general satisfaction variable.

Univariate ANOVA using the average SPNCS subscale scores and the grouping as outlined above revealed significant group effects for all subscales [Seeing the Individual Patient, $F(3,635) = 194.65, p < .0001$; Explaining, $F(3,635) = 87.90, p < .0001$; Responding, $F(3,635) = 203.74, p < .0001$; Watching Over, $F(3,635) = 187.99, p < .0001$]. Tukey's HSD test was used in post hoc comparisons to further isolate group differences. The post hoc test results revealed significant differences between all groups for all subscales except the Explaining subscale. The mean difference (absolute value .29) between the 2.00-2.99 and 3.00-3.99 groups was not significant for this factor. The findings of this analysis provide further evidence of the appropriate sensitivity of the SPNCS.

Post Hoc Data Analyses

Post hoc data analyses included Pearson Product Moment Correlations, univariate ANOVA and descriptive discriminant function analysis. These exploratory analyses (Polit & Hungler, 1991) were undertaken to provide additional information about the relationship between the SPNCS subscales and demographic items.

Pearson Product Moment Correlations

For the age variable, small, significant positive correlations were noted for the Seeing the Individual Patient subscale ($r = .14, p < .001$) and the Watching Over subscale ($r = .095, p = .017$). Correlations between age and the Explaining ($r = .05$) and Responding ($r = .06$) subscales were not significant.

For the length of stay variable, significant negative correlations were noted between length of stay and Explaining ($r = -.11$, $p = .006$) and Responding ($r = -.11$, $p = .006$) subscales. These low but significant correlations indicate that patients with a shorter length of stay had higher scores on the Explaining and Responding subscales. Correlations between length of stay and Seeing the Individual Patient ($r = -.05$) and Watching Over ($r = .07$) were not significant.

ANOVA

Univariate ANOVAs were completed for the SPNCS subscales and categorical variables of the demographic information. A modified Bonferroni approach was used to control for Type I error.

The univariate ANOVA using gender as a grouping variable produced significant results for the Seeing the Individual Patient [$F(1, 631) = 11.37$, $p = .001$], Explaining [$F(1, 631) = 7.41$, $p = .007$], Responding [$F(1, 631) = 12.30$, $p < .0001$] and Watching Over [$F(1, 631) = 12.25$, $p < .0001$] subscales. Examination of the mean scores for each subscale by gender revealed that males scored items higher than females on each subscale.

For the marital status variable, no significant findings were obtained [Seeing the Individual Patient $F(4,627) = .62$, $p = .65$; Explaining $F(4,627) = 1.25$, $p = .29$, Responding $F(4,627) = 1.88$, $p = .11$; Watching Over $F(4,627) = .78$, $p = .53$] Similarly, no significant results were obtained for the ethnicity grouping variable after excluding the “other” category [Seeing the Individual Patient $F(4,622) = .48$, $p = .75$; Explaining $F(4,622) = 1.66$, $p = .16$; Responding $F(4,622) = .74$, $p = .57$; Watching Over $F(4,622) = 1.74$, $p = .14$].

For the employment variable, significant univariate ANOVA results were obtained for the Seeing the Individual Patient [$F(1,630) = 8.19, p = .004$], Explaining [$F(1,630) = 8.99, p = .003$], and Watching Over [$F(1,630) = 9.87, p = .002$] subscales. The results for the Responding subscale were not significant [$F(1,630) = 2.95, p = .09$]. The pattern of means where significant results were obtained revealed employed individuals scored lower on the subscales than those who did not report being employed. Univariate ANOVA results were not significant for the part time vs. full time employment variable [Seeing the Individual Patient $F(1,217) = .02, p = .88$; Explaining $F(1,217) = .71, p = .40$; Responding $F(1,217) = .07, p = .79$; Watching Over $F(1,217) = .60, p = .44$].

One item in the demographic section asked respondents if anyone in their immediate family was a nurse (Registered Nurse, Licensed Practical Nurse, or Nursing Assistant). Univariate ANOVA results for this variable were initially reported as significant for the Seeing the Individual Patient and Responding subscales. After applying the modified Bonferroni correction to control for Type I error, these results were not significant.

The income variable had significant univariate ANOVA results for the Responding and Watching Over subscales. After application of the modified Bonferroni correction, these results were not significant.

Descriptive Discriminant Function Analyses

Descriptive discriminant function analyses (DFA) were completed for demographic variables with significant group difference results obtained through univariate ANOVA. For all DFA, Box's M test was used to test the homogeneity of the

covariance matrices. This test has implications in the interpretation of DFA results. Results of DFA must be interpreted cautiously where the test of the homogeneity of covariance matrices is significant, with consideration given to group sizes (Stevens, 1996). Consistent with the recommendations of Huberty (1994), structure coefficients were used for the substantive interpretation of the functions.

One function separated the male and female respondents (Wilks Lambda .98, DF 4, $p = .011$). The structure matrix revealed this function was primarily defined by a composite of the Responding (.96), Watching Over (.96), and Seeing the Individual Patient (.92) variables. A plot of the functions revealed that females scored lower on this function than males (-.121 vs. .173)

Using the employment variable as a grouping factor, one significant function was identified (Wilks Lambda .98, df 4, $p = .003$). The structure matrix revealed this function was defined primarily as a combination of Watching Over (.78), Explaining (.75) and Seeing the Individual Patient (.71). A plot of the function revealed those employed scored lower on this function than those reported not being employed (-.23 vs. .11).

Analysis of Comments from Participants

One section of the mailout survey invited participants to offer additional comments related to the nursing care they had received. Comments were transcribed verbatim, with all identifying information deleted. As expected, comments related to other aspects of the hospitalization were received in addition to those relating to nursing care.

Mean scores for the four subscales of the SPNCS were calculated and compared to comments from participants to assess the validity of the data obtained in the interviews

of the grounded theory study that served as a basis for the SPNCS. The content of written comments was compared to mean subscale scores to provide further evidence of construct validity.

For the Seeing the Individual Patient factor, several participants offered comments that were consistent with their mean subscale score. One participant, scoring 4.0 on the Seeing the Individual Patient scale, remarked

In the last 2 ½ years, I have been hospitalized in different units of _____. I at no time felt uncomfortable with any of the nursing staff. I am very grateful to all the nurses who cared for me with professionalism and I felt they truly cared for me as a person.

Another patient, scoring 4.40 on the Seeing the Individual Patient subscale remarked

The hospital care I received really exceeded my expectations. I was expecting to be treated like a hospital number, but instead I was treated like a person with severe needs. I would recommend _____ to anyone.

Similar sentiments were expressed by a patient that scored 4.0 on the Seeing the Individual Patient subscale. That patient remarked

I have been coming to _____ since my transplant. The transplant [unit] is staffed by devoted and loving staff. They are very attuned to you. They have been through a lot with me and meet psychological, health, and emotional needs (the last which is very important). They deserve an A+.

Comments related to low instances of Seeing the Individual Patient were also evident. One patient, with a subscale score of 1.80 remarked

...At discharge, I was told, "OK, just walk out." I was an organ transplant on the 8th floor of a large hospital. Some sort of wheelchair assistance should have been offered to the front door.

Reflecting on being perceived as important, one patient scoring 2.40 remarked

...The only drawback I had was with the nursing staff. After the first day I got out of ICU the staff was really helpful and kind. After the second day, it seemed like I was no longer important.

Another patient, scoring 2.0 on the Seeing the Individual Patient subscale remarked, "...And it was apparent that no one cared about me."

Similarly, another patient, scoring 1.0 remarked

The doctors were wonderful including the students and extremely professional and caring. The nurses, on the other hand, acted like they were doing you a favor and were not tuned into my needs other than meds. I was extremely disappointed.

Patients also described instances of feeling like a number or being cared for in a mechanical fashion. One patient, scoring 1.40 remarked, "The nurses treated me like I was a number."

Another, scoring 1.60 remarked, "...but made you feel like a piece of machinery on an assembly line and you better not ring that bell unless it was absolutely necessary."

Comments related to Explaining were received from patients, although these were less prevalent. High scores for Explaining were accompanied by comments similar in content to this participant, scoring 5.0 on the Explaining subscale, who wrote, "...They took the time to sit with me and explain what was happening."

Another patient, scoring 4.33 on the Explaining subscale, remarked, "I wasn't prepared to go through the angioplasty and aneurysm, but they explained things, comforted me, and made me feel special."

Another patient offered similar comments. Scoring 5.0 on the Explaining subscale, this patient remarked, "...They were very attentive to my needs and answered all my questions."

Instances of low explaining were not common in the comments. One patient, scoring 2.0 on the Explaining subscale remarked, "...I had to ask some nurses what medicines they would be administering to me because they would just come into the room and proceed without explanation."

Comments about Responding were prevalent. As expected, the majority of comments related to the amount of time spent waiting. Several positive instances of Responding were identified, although the negative comments were more prevalent. One patient, scoring 4.67 on the Responding subscale remarked, "They were prompt and professional about all they did for me."

Another patient echoed the idea of promptness. Scoring 5.0 on the Responding subscale, this patient remarked, "He was very caring whatever I wanted he got and done right away it was no waiting."

The idea of the nursing staff being there for the patient was evident in a positive comment related to responding. One patient, scoring 5.0 on the Responding subscale noted, "While I was there I felt good because they took good care of me and the baby. And you guys were there for me when I needed it."

Low instances of Responding were primarily related to the timeliness of a response. As one patient, scoring 1.00 on the Responding subscale noted, "...The evening of my surgery my IV bag had gone dry and it began to beep. It took over an hour for someone to come in and turn it off."

Another patient, scoring 1.00 on the Responding subscale remarked

My roommate and myself were very upset by the care given while at _____. We both were in for back surgery and when we called the nurses' station it would take at least 30-45 minutes for anyone to come. I would call for help to go to the restroom and no one would come.

The character of the nursing staff's response was also evident in several comments. One patient, scoring 1.33 on the Responding subscale, offered two comments related to this aspect of Responding

At one point, my foley wasn't working right and I had to urinate. She told me she would take care of it. Finally, the next day, I convinced a nurse that I was very uncomfortable and she flushed it for me, what relief...

One of the side effects of my operation was severe heartburn and nausea. Medication was ordered for it for me. One night, I rang and a young man answered. I told him what was wrong. A half hour later, I rang again. Same man answered. Still no help. I waited another half hour, rang again and told them I was going to throw up. A nurse came in and handed me a styrofoam coffee cup to use. I was finally given my medication.

Evidence of positive and negative instances of Watching Over appeared in written patient comments. Comments related to high instances of Watching Over were consistent with the items on the SPNCS. One patient, scoring 5.0 on the Watching Over subscale remarked, "During my stay on the 9th floor, I couldn't have asked for a better staff of nurses. They made me feel safe knowing they were taking care of me..."

Another patient, scoring 5.0 on the Watching Over subscale reported, "During my labor, my nurse hardly ever left the room. She was concerned about how I was feeling and my well being."

Similar to the other categories, negative instances of Watching Over were more prevalent. Scoring 2.25 on the Watching Over subscale, one patient remarked, "The nursing staff on the weekdays seem to look out for me more than the weekend staff."

Another patient, scoring 1.50 noted, "... I never saw a nurse."

Another patient, scoring 2.50 remarked

Infrequent visit by anyone. Person took vitals but left without any comment. People at nursing station talking and laughing late at night, but not looking in on me.

Another patient gave a more concrete explanation of not feeling watched. This patient, scoring 2.50 noted, "Had kidney stents put in. My urine was not monitored in the beginning."

Scoring 2.0, another patient remarked, "The nurses never just came by and asked how I was doing or did I need something."

Finally, another patient, scoring 2.0 for Watching Over, remarked, "At times I felt unsafe at this hospital."

In summary, comments from patients who opted to provide additional information about their nursing care experience were consistent with the constructs of the SPNCS. The original grounded theory study that was the basis for the SPNCS was completed approximately one year prior to testing the SPNCS. Comments received on the SPNCS were similar in nature to those received during patient interviews and were consistent with the theoretical definitions of each construct. This consistency provides further evidence of the validity of the SPNCS as a measure of patient perception of the nursing care experience.

Summary of Results

The initial 37-item SPNCS was subjected to reliability and construct validity assessments. While demonstrating acceptable reliability based on Cronbach alpha coefficients, a confirmatory factor analysis of the 37-item SPNCS did not provide acceptable fit of the model to the data. Several model modifications were undertaken

following the model generating strategy outlined by Joreskog (1993). With the exception of one item, all SPNCS statements were retained on the originally hypothesized subscale. Although model modifications were theoretically justified, the modifications were also data driven, a situation that can capitalize on chance. A holdout sample was retained for validation of model modifications.

After model modification, four theoretically plausible models were validated with a holdout sample of patient responses. All models demonstrated acceptable fit. The final model, a 4-factor, 15-item measure, demonstrated acceptable fit in both samples.

Criterion validity was assessed by correlating the subscales of the revised SPNCS with subscales of the PSI and LOPSS. Significant correlations in the predicted direction were obtained. The correlation between SPNCS subscales and a general measure of patient satisfaction was also positive and significant as were the correlations between the SPNCS subscales and the extent to which patients were following their discharge instructions.

Univariate ANOVA results indicated the SPNCS was not sensitive to the type of admission (emergency vs. elective) or admission classification (e.g. medical, surgical, obstetric, cardiac). This finding provides support for the use of the SPNCS in the general inpatient population without concern for inflated scores based on the type of admission or hospital service. Univariate ANOVA results were also significant for two separate groupings based on general satisfaction scores. Significant differences were noted on all SPNCS subscales when a subset of the entire sample was coarsely grouped into the extremes of the satisfaction scale. When respondents were grouped in more narrowly defined categories of general satisfaction, ANOVA results were significant for all

subscales. Post hoc tests revealed all subscales were significantly different among all groups with the exception of the Explaining subscale in the mid satisfaction groups. The univariate ANOVA findings provide evidence of the sensitivity of the SPNCS. Scores on the SPNCS were also positively correlated with patient assessments of the amount of care given by a licensed nurse and a Registered Nurse, providing further evidence of the utility of the SPNCS as a measure of perception of nursing care.

Post hoc analyses were completed to provide further information related to the demographic variables and the subscales of the SPNCS. These results are discussed further in the next chapter.

CHAPTER VI

DISCUSSION

The current study was undertaken to develop a measure of patient satisfaction with nursing care that was grounded in the experience of experts, the patients who had received nursing care in a hospital setting. The most widely used existing measures of patient satisfaction with nursing care, the PSI (Hinshaw & Atwood, 1982) and the LOPSS (LaMonica, et al., 1986) are based on Risser's (1975) conceptualization of patient satisfaction with nursing care. Risser's (1975) measure was originally developed for use in the outpatient setting. The measure has been adapted for use in the inpatient setting through changing the wording of one item (Hinshaw and Atwood, 1982). LaMonica, et al. (1986) added additional items to the measure in an effort to reflect inpatient care. The factor structure of the original measure has not been consistent, with LaMonica et al. (1986) identifying Satisfaction and Dissatisfaction factors, with all negatively worded items loading on the Dissatisfaction factor. Lin (1996) noted that existing measures of patient satisfaction with nursing care lack a strong theoretical basis and adequate construct validity.

The current study was undertaken to address several of the conceptual and methodological weaknesses associated with measuring patient satisfaction with nursing care. First a grounded theory (Glaser & Strauss, 1967) study was undertaken to construct a theory of patient satisfaction with nursing care. Using interview data from 8 patients discharged from an acute care facility, a theory of patient satisfaction with nursing care was constructed.

A measure of patient satisfaction with nursing care was constructed that reflected the content domain of the theoretical categories of this theory. This measure was tested using a sample of 652 medical, surgical, and obstetric patients discharged from an acute care facility. Reliability was assessed using Cronbach's alpha (Cronbach & Meehl, 1995). Construct validity was assessed through confirmatory factor analysis using structural equation modeling. The original 7-factor structure was not supported as evidenced by the fit indices of the theoretical model. Model generating strategies (Joreskog, 1993) were undertaken in an effort to improve the fit of the theoretical model to the data. The final, 4-factor, 15-item model contains the constructs of Seeing the Individual Patient, Informing, Responding, and Watching Over. The items for each factor are consistent with the theory constructed from the interview data and the 4-factor, 15-item model demonstrated good fit to the data. The factor structure of the model was subsequently tested using a holdout sample from the dataset. The model demonstrated good fit to this sample, providing further evidence of the construct validity of the measure.

Criterion validity was assessed by examining the correlations between the subscales of the SPNCS and the PSI (Hinshaw & Atwood, 1982) and LOPSS (LaMonica et al., 1986). All correlations were significant and consistent with predictions. Additionally, all subscales correlated positively with a measure of general satisfaction with the care experience and a single item measure of the extent to which patients were following their discharge instructions.

This chapter is a discussion of the findings obtained during the development and testing of the SPNCS. Results are presented related to the overall structure and use of the

SPNCS, the specific subscales of the measure, and methodologic issues of instrument development. The chapter concludes with a discussion of the implications of the SPNCS for nursing practice, education, administration, and research with suggestions of opportunities for future research.

SPNCS

The results obtained from testing the reliability and validity of the SPNCS provide supportive evidence of the validity of the theory of patient satisfaction with nursing care outlined in chapter III. That theory was empirically derived using the grounded theory methodology (Glaser & Strauss, 1967) and interview data from a sample of medical surgical patients discharged from an acute care facility. As a further check of the validity of the theory, comments from the organizational patient satisfaction survey spanning several months were examined for consistency with the content of the theory. These comments provided additional evidence of the validity of the theory.

The SPNCS was constructed as a measure of the theory of patient satisfaction with nursing care. Formatted as a Likert-type scale, the SPNCS items are representative of data elements that gave rise to the categories of the theory. The theory provides a patient centered description of the aspects of a satisfactory nursing care experience. The SPNCS items were derived from patient comments further attesting to the link between the theory and instrumentation for testing the theory. The SPNCS therefore, is adjudged as a measure of a satisfactory nursing care experience.

The satisfactory nature of the nursing care experience has important implications for outcome assessment. Donebedian (1966) defined patient satisfaction as an important outcome variable. Several years later, researchers (Abramowitz, et al., 1988; Lemke,

1987; Woodside, et. al, 1989) described nursing care as the most significant predictor of overall patient satisfaction with the care experience. The findings from this study provide added support for the relationship between patient satisfaction with nursing care and satisfaction with the overall hospital experience. The correlation between subscales of the SPNCS and a general measure of general satisfaction were significant and positive, with shared variance ranging from 36-57.80%. These findings attest to the strong relationship between satisfaction with nursing care and overall satisfaction with the care experience.

The initial 37-item SPNCS demonstrated acceptable reliability using Cronbach's alpha. Construct validity was assessed using confirmatory factor analysis techniques implemented through Lisrel 8.31 (Joreskog & Sorbom, 1999). The use of confirmatory factor analysis represents an additional strength of this research as the analysis provided a direct test of the theory of patient satisfaction with nursing care through specification of an a priori model and a direct test of the ability of that model to be reproduced in data. Model modifications were undertaken based on fit indices and residual and measurement error examination. The final model represents a parsimonious measure of patient satisfaction with nursing care that is consistent with the substantive theory. All model modifications, although data driven, were justified on theoretical grounds. Several theoretically plausible models of varying length were tested using a holdout sample of responses. All models demonstrated acceptable fit. Selection of the final model was driven by the ability of the model to be reproduced in the original sample of data and the holdout sample.

Prior to the current research, the widely used measures of patient satisfaction with nursing care included the PSI (Hinshaw & Atwood, 1982) and the LOPSS (LaMonica, Oberst, et al, 1986). The PSI was originally developed for use in an ambulatory setting, with a minor wording change in one item completed as justifying use of the measure with inpatients. The PSI has demonstrated acceptable reliability and validity over time, although several aspects of the PSI are problematic. The wording of several items suggests actions specifically within the domain of Registered Nurses. Use of the PSI in settings where the care delivery system includes Licensed Practical Nurses and Unlicensed Assistive Personnel introduces a possible contaminant to findings. Additionally, over the past 18 years, the PSI has not been revised, despite the fact that nursing and health care systems have undergone dramatic changes during this time period.

Similarly the LOPSS has demonstrated acceptable reliability and validity in several studies, although methodological problems with this measure also exist. The LOPSS was derived from the PSI, with additional items added that were judged to be more reflective of inpatient care. The factor structure of the LOPSS consists of a Satisfaction scale and Dissatisfaction scale. Negatively worded items comprise the Dissatisfaction scale, possibly representing an artifact of item wording rather than dissatisfaction. The broad categories of satisfaction and dissatisfaction provide little guidance for users of the measure. Without more discrete constructs, users of the LOPSS are left with little direction on how to proceed toward improving patient satisfaction with nursing care.

The SPNCS overcomes several of the weaknesses associated with the PSI and LOPSS. First, the SPNCS is current and was derived from empirical data rather than expert opinion. The constructs of the SPNCS are grounded in the expert experience of patients who have received nursing care in the inpatient setting.

Second, items of the SPNCS do not represent activities that are within the specific domain of Registered Nurses, making this measure possibly appropriate for use under a variety of nursing care delivery systems. The confirmatory techniques used to test and refine the SPNCS represent clear advantages over the exploratory techniques used in the development of the PSI and LOPSS. For both the PSI and LOPSS, findings from a broad range of studies indicate that patients are highly satisfied with the nursing care experience. Yet, the findings of Minnick et al., (1995) and O'Connell, et al. (1999) suggest that patients experience significant, dissatisfying experiences in their care.

The qualitative data from the patient interviews and patient comments included in the survey revealed similar findings. The PSI and LOPSS therefore, may not possess adequate sensitivity to detect dissatisfaction with the nursing care experience. In contrast, the SPNCS demonstrated good sensitivity in detecting differences in patient satisfaction when overall satisfaction was used as a grouping variable and differences in subscale means were examined. With the exception of the Explaining subscale in two of four groups of varying levels of overall satisfaction, all subscales had significant differences in mean scores across levels of satisfaction. This finding provides evidence of the appropriate sensitivity of the SPNCS.

Webb, et al. (1997) identified service specific factors contributing to elevated patient satisfaction with nursing care scores using the PSI. Results using hospital

service as a grouping variable did not indicate significant mean differences in any of the SPNCS subscales. These findings provide evidence of the utility of the SPNCS as a general measure of patient satisfaction with nursing care that will not be biased by the type of hospital service where a patient receives care.

A subset of the sample of patients surveyed in this study was unable to identify the amount of care received from a licensed nurse (Registered Nurse or Licensed Practical Nurse or Registered Nurse only). This finding provides evidence that measures of patient satisfaction with nursing care that contain statements specific to the role of the Registered Nurse may not be appropriate for general use. If respondents are unable to identify the professional level of the caregiver, their responses may be “best guesses” or a generalization to all caregivers, representing a contaminant to the data. The SPNCS does not include statements that are role specific, attesting to the utility of the measure as appropriate for use in varying nursing care delivery systems.

The positive, significant correlations between the amount of care received from a licensed nurse (Licensed Practical Nurse or Registered Nurse) or solely from a Registered Nurse and the SPNCS subscales provide support for the work of Scott, Sochalski and Aiken (1999) who described a positive relationship between nurse staffing and several patient outcomes. Interestingly, this finding is also consistent with the findings of Abdellah and Levine (1957) completed 44 years ago. The finding that the correlations were not all that dissimilar for the licensed nurse and Registered Nurse categories requires further exploration. The study site has a small number of Licensed Practical Nurses, so it is unclear if this is a factor in the similarity of the correlations.

Several significant findings for the SPNCS subscales were obtained using demographic variables as grouping variables. A significant positive relationship was found between age and the Seeing the Individual Patient and Watching Over subscales, indicating that older patients scored these scales higher. A significant negative relationship was found between length of stay and the Explaining and Responding subscales. For the gender variable, males scored higher than females on all subscales. Descriptive discriminant function analysis revealed the male and female groups were separated by primarily a composite of Seeing the Individual Patient, Responding and Watching Over with females scoring lower on this composite variable than males. Gender effects for patient satisfaction with nursing care are not regularly reported in the literature. Rather, gender is routinely reported only as part of the overall demographics of the sample. Lucas, Morris, and Alexander (1988) did not find a statistically difference in scores when using the PSI (Hinshaw & Atwood, 1982). Similarly, Jacox, Bausell, and Mahrenholz (1997) did not find gender based differences in patient satisfaction with nursing care scores. Ferrans, Powers, and Kasch (1987) did not find gender to be a significant predictor of overall satisfaction with care in a sample of hemodialysis patients. Larson, Nelson, Gustafson, and Batalden (1996) found females scored higher in an assessment of global satisfaction with the hospital experience although these findings were not statistically significant. The finding in the current study that females scored significantly lower on all subscales of the SPNCS warrants further study.

Using employment as a grouping variable, significant group differences were found for the Seeing the Individual, Explaining and Watching Over subscales. Employed respondents scored these subscales lower than those who were not employed.

Descriptive discriminant function analysis revealed the employed and unemployed groups were separated primarily by a composite variable consisting of Seeing the Individual Patient, Explaining and Watching Over. Employed respondents tended to score lower on the function than unemployed respondents. As with gender, this finding deserves further exploration in subsequent study.

Seeing the Individual Patient Factor

The Seeing the Individual Patient factor represents the expectation of individualized care. Individualized care has long been a standard for nursing practice and the presence of this factor in interview data and the findings from the current study attest to the importance of this factor from the patient perspective. Patients expect to be taken care of as an individual with specific needs, rather than being viewed as a diagnosis or room number. Walker (1996) described individualized care as consistent with expert nursing practice. Benner's (1984) classic work provided evidence of individualized care in expert nursing practice as nurses being able to see the whole rather than discrete parts of the care situation. A concept analysis of care (Schmidt, 2000) identified aspects of individualized care as attributes and empirical referents of care. van Servellen (1982) described individualized care as unique, congruent with the patient, directed at meeting specific and comprehensive needs, and requiring knowledge of the individual. These ideas are reflected in the Seeing the Individual Patient subscale. Recently, Whittemore (2000) described the consequences of knowing and not knowing the patient, providing evidence of the importance of individualized care.

These findings are consistent with the work of the caring theorists. Watson (1988) defined a caring person as sensitive to the uniqueness of another individual,

perceptive of another's feelings, and able to distinguish people from each other in significant ways. In a discussion of transpersonal caring, Watson (1988) noted the nurse and patient enter the experience of each other, allowing unknowns to emerge in the presence of caring.

Leininger (1991) noted that care does not involve reinterpretation of the world of the patient. Rather, in delivering care, the nurse must consider the meanings each person's individual experiences hold for him or her. Leininger (1991) cautions that without a knowledge of culture and care values, stresses, conflicts, and imposing practices may be unavoidable.

Although their work is less prominent than the other caring theorists, Paterson and Zderad (1976) emphasized the individual nature of each patient in the nursing act. They stated, "Nursing is concerned with how this particular man [sic], with his particular history, experiences being labeled with this general diagnosis and being admitted, discharged and living out his life with his condition as he views it in his world" (p. 5). Several items of the SPNCS reflect this philosophy.

Through model testing and model generation in the current research, the categories of Knowing the Other and Seeing the Individual Patient were collapsed into one category, Seeing the Individual Patient. SPNCS items for this factor sample the content domain of individualized care. For example, SPNCS1, "The nursing staff treated me as a unique person," suggests the idea of patients having individual wants, needs and desires as a product of their life experiences. It is expected that members of the nursing staff take these individualities into consideration when interacting with and providing care to patients. SPNCS20, "I knew my nursing care was specifically tailored to my

needs” provides support for taking individual needs into account in the provision of care. Rather than approaching care from an assembly line mentality, patients expect their care to be individualized to their specific needs. SPNCS31, “The nursing staff took time to find out more about me as a person” provides additional support for the need for individualized care. These items are consistent with the assertions of Leininger (1991) and Watson (1988). It is only through taking this time to find out about each patient as a person that the nursing staff can then plan and implement individualized care. SPNCS33, “When the nursing staff was providing my care, I was at the center of their attention” provides important information about individualizing care. Patients expect the nursing staff to be focused on them, and only them during the care experience. During the interviews several patients attempted to provide excuses for deficiencies in their care by stating the nursing staff members were busy with sicker patients. While this may or may not be true, SPNCS33 attests to the fact that while receiving care, patients expect to receive undivided attention. Finally, SPNCS37, provides further evidence of individualized care. That item, “The nursing staff was warm in their interactions with me,” provides the link between seeing patients as individuals and the actions of the nursing staff. Warm in this context refers not only to matters of speech, but also how nursing care is approached. Walker (1996), in a qualitative study of discharged patients, described pleasant responses as components of a positive evaluation of the nursing care experience.

Explaining Factor

The Explaining factor was renamed from Informing during the model testing and generation process to apply a label more consistent with the content of the items. The

three items of the subscale describe different aspects of the nursing staff explaining to the patient. One item (SPNCS12) of the subscale is negatively worded, although the meaning is clearly consistent with other subscale items. The different aspects of Explaining as reflected in the items include the nursing staff's entry into the patient's room and explaining what they're doing, explaining what is being done while providing care, and explaining why things are being done while providing care.

The hospital environment can be a foreign experience to patients, one that evokes feelings of fear (Moloney & Paul, 1993). The nursing staff can allay many of these fears by offering explanations as to what is being done and why it is being done. Patients can also lose a great deal of their self identity in the hospital setting. Entry into the patient's space (the room) by someone unknown to the patient can evoke further fears and anxiety. A simple explanation on the part of the nursing staff may be beneficial in allaying many of these fears.

While the content of the Explaining items is similar in nature, distinct aspects of Explaining are being evaluated. Consider the following hypothetical example, constructed as a model case (Walker & Avant, 1995) of Explaining:

The nurse entered the room, stating she was coming into the room to change the patient's surgical dressing (explaining what upon entry). As she was preparing the supplies for the dressing change, she informed the patient that she would be removing the dressing and assessing the surgical site for signs of beginning infection such as redness or drainage. She would then cleanse the wound and apply a clean sterile dressing to the site (explaining why). As she prepared to

remove the dressing, she informed the patient she was about to remove the tape and some pulling on the skin might be felt (explaining what).

From this brief description, all aspects of Explaining represented by the items of the SPNCS Explaining subscale are illustrated. Living in the information age of today, patients have a right to explanations of their care including what is going to be done and the rationale for actions taken. This right to information is also clearly outlined in the Patient Bill of Rights (American Hospital Association, 1992). The Explaining items represent this content domain.

Walker (1996) found explaining was one criterion for evaluating the nursing care experience in a qualitative study of discharged medical-surgical patients. In a Delphi study of Registered Nurses aimed at identifying the domains of nursing practice, Wolf and Smith (1997) identified explaining as a domain of direct nursing practice

Responding

The Responding subscale consists of three items, all worded positively. The items of this subscale tap the character of the response more than the timeliness of the response. While it is acknowledged that part of responding is the time patients spend waiting, this aspect of responding would be difficult to measure. Some patients may expect a shorter response time than others. Given the wide variety of patient needs that would require a response on the part of the nursing staff, it would be difficult use quantitative measures of response time as an indicator of Responding. Rather, items tapping the character of the response are more well suited to this measure. The timeliness of the response can be subsumed under the Responding items.

SPNCS2 “When I needed help from the nursing staff, they were there for me” describes a need on the part of the patient and the response of the nursing staff to that need. The stimulus in this item is the patient. SPNCS6, “The nursing staff provided the help that I needed” taps a different aspect of Responding. In this item, the stimulus could be the patient, or it could be a judgment of the nursing staff as to the type of help a patient needs. SPNCS14, “The nursing staff responded appropriately to my requests” taps the character of the response. Timeliness could be considered one aspect of an appropriate response, as could the verbal and non verbal response. Walker (1996) identified similar attributes in that patients equated responding in a prompt and pleasant manner as an attribute of a satisfactory evaluation of the nursing care experience.

Watching Over Factor

The Watching Over subscale consists of 4 items, all positively worded. Watching Over has not received significant attention in the nursing literature. Hupcey (2000) described feeling safe as a core variable in the psychosocial needs of intensive care patients. The nursing staff’s actions of watching over the patients through close monitoring of their condition and caring about them facilitated feelings of being safe. Watching Over did appear in a concept analysis of care (Schmidt, 2000), although this attribute was more prevalent in the philanthropic literature. In the fieldwork phase of the concept analysis, watching over was clearly evident. Watching Over was clearly described in the grounded theory study. Patients described both positive and negative instances of Watching Over by the nursing staff. Of all the subscales and items of the original SPNCS, this subscale had the most consistent performance. Comments related to Watching Over were also evident in the comments patients included on the SPNCS.

The Watching Over items tap the domain of providing for safety while in the hospital. SPNCS10, “Someone from the nursing staff was around all the time” conveys the idea that even though they are not physically present with the patient, members of the nursing staff are there if the patient needs them. SPNCS10, “A member of the nursing staff would stop by my room unexpectedly to check on me” conveys Watching Over in terms of surveillance. Checking on the patient is part of assuring safety. Feeling safe is conveyed by SPNCS23, “I felt safe knowing the nursing staff was watching out for me.” Moloney and Paul (1993) described this aspect of the patient experience. They noted that patients enter the hospital at “...the most vulnerable time in life, life itself becomes unfamiliar and beyond control” (p.293). Recent publicity of the findings of the Institute of Medicine (Kohn, Corrigan, & Donaldson, 2000) report outlining the significance of deaths in hospitals attributed to errors serve to increase the public’s need for watchful oversight. The nursing staff, because of their twenty four hour presence, is pivotal in allaying these fears of vulnerability and protecting patients from harm. SPNCS36, “The nursing staff watched me closely,” taps another aspect of surveillance. By watching the patient closely, the nursing staff can allay fears arising from the vulnerable nature of the hospital experience.

Barnum (1998) noted that caring has three discrete dimensions including physical acts, affective concern for the patient, and protective nurse behaviors. The items of the Watching Over subscale reflect the protective nature of nursing care.

Knowing What They’re Doing and Enacting the Caregiver Role

These two subscales are not part of the final version of the SPNCS. During model testing and generation procedures, items from these subscales contributed to a

not-positive definite Phi matrix. Collinearities between these items and other SPNCS subscale items were postulated as the cause of this anomaly. On closer examination, items from the Knowing What They're Doing and Enacting the Caregiver Role subscales appeared to tap more abstract aspects of the care experience. As noted in the results section, the meaning attached to several of the items comprising these subscales could conceivably apply to the other subscales. The psychometrics of these subscales and the relationship of the constructs of Knowing What They're Doing and Enacting the Caregiver Role should be explored in further research.

Methodological Issues of Instrument Development

The findings of this research provide important guidelines for instrument development. The rational form of instrument development, relying on literature and expert opinion, does not necessarily ensure congruency between the measure and reality. In contrast, the empirical form of instrument development, using expert data from those who have experienced the phenomenon of interest, suggests a closer approximation between the measure and reality. The SPNCS was derived from empirical data and is grounded in the experiences of discharged adult inpatients. The content domains of the SPNCS are focused on the nursing staff's approach to caring for the patient. This focus contrasts with the factor structure of the PSI that focuses primarily on dimensions of professional nursing practice.

Exploratory factor analysis is a common data reduction strategy in instrument development and testing. Traditionally, items are generated and submitted to a sample of respondents. These items are then subjected to exploratory factor analysis where the data determine the final factor structure. In contrast, confirmatory factor analysis requires the

a priori specification of the measurement model. If the model is valid, then the variable relationships in the model should be reproducible in data (Kelloway, 1998). In this regard, a test of the factor structure of a measure is more akin to theory and hypothesis testing, a significant strength over data driven item reduction techniques.

Despite the obvious benefits of confirmatory factor analytic techniques, several methodological issues persist. Several of those issues were present in this study and warrant discussion.

The maximum likelihood estimator is based on an assumption of multivariate normality of the data. When dealing with real data, the assumption of multivariate normality is routinely violated (West, Finch & Curran, 1995). Such was the case in this study. The items of the SPNCS exhibited departures from multivariate normality, although these departures were not considered of a significant magnitude to warrant score transformation. Violation of the assumption of multivariate normality commonly manifests as an inflated chi square goodness of fit and a reduction in the CFI (West, Finch, & Curran, 1995). Given the small degree of nonnormality of the SPNCS items, the CFI reduction would not be terribly large. The sample size of 326 in each sample suggested the chance of obtaining a non-significant chi square statistic was unlikely due to the method of computation of that statistic.

The model generation strategies used to arrive at the final SPNCS model were data driven, a situation that capitalizes on chance. Exploratory factor analyses are also data driven, although the modifications to a measurement model using exploratory factor analyses are usually directed at identifying items that load on a specific factor of a sufficient magnitude. In confirmatory analyses, the data from model testing provide full

information in terms of factor loadings, indicator variance accounted for, measurement error, and relationships between factors. Using all available information obtained from confirmatory analyses, model modifications are more readily justified.

Model modification and generation techniques require validation using an independent sample of data. A holdout sample of the original response set was used to cross validate the modifications of the SPNCS. Findings of independent t-tests on the subscales between samples did not reveal statistically significant findings and the Cronbach's alphas for subscales in each sample were consistent. While the model was cross validated with the holdout sample, these results may not be replicated in data from another sample of discharged patients.

The inclusion of negatively worded items in the SPNCS was based on comments received from patients during the grounded theory study as well as the tradition in scale development of including negatively worded items as a guard against response bias (Nunnally & Bernstein, 1994). The work of several researchers (Schriesheim & Eisenbach, 1995; Schriesheim, Eisenbach, & Hill, 1991; Schriesheim & Hill, 1981) has suggested that negatively worded items may introduce a method variance, yielding higher measurement error and less precise responses. Examination of the Theta Delta estimates for the full 37-item SPNCS revealed some consistency with those findings. SPNCS28, "The nursing staff was mechanical in providing my care," was both a negatively worded item and an item that was ambiguous in meaning to a number of responses. The Theta Delta estimate for this item was the higher than the other 36 items. Examination of the Theta Delta estimates for the remaining negatively worded items yielded a general pattern of higher Theta Delta estimates than items worded positively with the exception

of SPNCS22 (I felt like I was placed in a room and forgotten) and SPNCS30 (The nursing staff didn't appear to know what care I needed).

The negatively worded items of the SPNCS were not created but rather taken from the comments made by patients during the grounded theory study. This differs from the creation of negative items by including negative wording (e.g. did vs. did not) or negation (felt like a room number vs. treated like a unique person) in rationally derived measures. The use of negatively worded items in empirically derived measures is an area for further research to determine if the results similar to those from the current study are obtained.

One negatively worded item is included in the final version of the SPNCS. Schriesheim, Eisenbach, and Hill (1991), in an examination of item wording noted that negated regular items tended to have the lowest degree of bias introduced by item wording. The wording of SPNCS21, "When a member of the nursing staff would come into my room to provide care, they did not explain what they were doing," has a clear meaning and reverse scoring produces a positive endorsement of "explaining what they were doing." The inclusion of only one negatively worded item in the SPNCS requires instructions that clearly inform respondents some items may be negatively worded. It is recommended this item be reworded as a positive statement and the model re-estimated in future studies.

Ferketich (1991) noted the validity of a measure is a function of the adequacy of the measurement of the attributes. Negatively worded items do not necessarily measure the same attribute as positively worded items. No studies were located that examined negative and positive items as separate dimensions of a construct with the differential

between those dimensions forming the scale score for the construct. This may be an area for further inquiry. Given that average subscale scores provide more information and offer easier comparisons to other subscales measured on the same scale, a measure would not necessarily need a balanced number of negatively and positively worded items to arrive at a differential value. Rather, mean scores could be used to calculate a differential value for the construct.

Several assessments of the items of the SPNCS were undertaken prior to testing in the target population. The proportion of substantiative agreement (PSA) and substantiative validity coefficient (SVC) provided useful information during the model modification process. Similarly, the factor analysis of content adequacy (Schriesheim, et al., 1993) provided additional support for combining the Knowing the Other and Seeing the Individual Patient subscales and provided guidance during the evaluation of individual construct measurement models. A comparison of the results from the content adequacy procedure and the items of the final version of the SPNCS revealed a high degree of consistency between the content adequacy factor loadings and the items retained in the final version of the SPNCS. The content adequacy procedure provides a useful adjunct to determine the consistency between the theoretical definition of a factor and individual items. Researchers involved with instrument development should consider including the content adequacy procedure in the development plan.

Implications for Nursing Practice

The SPNCS provides a description of the attributes of a satisfactory nursing care experience from the perspective of the patient. As DeSouza (1989) and Luther (1996) have stated, the patient perspective is most important from a quality standpoint. The

items of the SPNCS give important insights into how members of the nursing staff can structure and provide care. Patients expected to be treated as an individual person with specific needs, wants, and desires. The nursing staff must spend time with the individual patient to identify those unique characteristics and structure the implementation of care accordingly. When receiving care, patients expect the undivided attention of the nursing staff.

Patients expect a prompt and appropriate response from the nursing staff. When patients are in need of help, they expect the nursing staff to respond and to respond in an appropriate manner. Similarly, when patients make a request, they expect the nursing staff to respond, again in an appropriate manner.

Explaining is an important component of satisfactory nursing care. Patients enter the hospital and submit to the care of strangers, care that may involve very intimate aspects. When entering the patient's personal space, patients want to know what is going to be done. Given the prevalence of information that surrounds us each and every day, it is not surprising that patients want to know what is being done when care is being provided as well as why certain actions are being taken.

Watching Over is another important component of a satisfactory nursing care experience. The concept of being vulnerable, coupled with the recent publicity of errors in hospitals and the current nursing shortage, supply many unknowns to the patient in the hospital setting. Will an error occur that could result in injury, disability, or even death? The nursing staff is the one constant presence in the hospitalization experience and watching over and protecting the patient at this vulnerable point in their life is important. The items of the Watching Over subscale provide useful guidance. Patients expect to be

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checked on and watched closely as one method of protecting their safety. Activities in the hospital setting sometimes follow a very routine schedule (e.g. medication administration, vital signs). Patients may be aware and expect that someone from the nursing staff will be checking on them during those times. Between these periods of routine activity, patients find comfort when members of the nursing staff check on them.

Implications for Nursing Education

The findings of this research have significant implications for nursing education. During the grounded theory study, patients did not give a great deal of emphasis to the competency of the staff caring for them. Rather, descriptors such as confident, detailed, or knew what they were doing were used in describing the more technical aspects of care. In contrast, the individualized nature of care, explaining, responding and watching over were key elements of the nursing care experience. While the technical aspects of care are important, the findings of the current study has provide a description of what patients consider as a quality nursing care experience. Nursing curricula therefore, should emphasize these aspects of care in concert with technical skills.

The individualized nature of the nursing care experience requires the nursing staff to find out and know about the patient as an individual person. These findings then transcend all phases of the nursing process. These are key concepts that must be reinforced throughout the nursing education experience. How does the patient's current health state affect them as a person? What changes are they experiencing or anticipating?

Patients are clearly able to discriminate between care that focuses on them as an individual and care that is more impersonal. The negatively worded items, although not part of the final SPNCS, provide important insights into this important aspect of care.

Teaching technical skills in a laboratory setting is common to nursing education. Very realistic mannequin models exist that portray many of the physiologic responses patients may exhibit. While useful adjuncts to the nursing education experience, these laboratory simulations cannot and should not replace clinical experience. It is only through the clinical experience that nursing students will learn the key concepts of individualizing care to the person. The theory of patient satisfaction with nursing care could be used as an organizing framework for the clinical experiences of nursing students.

Equally important, explaining, responding, and watching over cannot be taught in a laboratory setting. The strong positive relationships between these concepts and the individualized nature of the care experience attest to the need to individualize all aspects of the care experience. While content related to patient educational experiences can be taught in the classroom setting, the delivery of content, both as formal patient education and informal incidents of explaining require modification based on the individual patient.

Similarly, watching over is a very individualized experience. Certainly the physiologic state of the patient gives some indication of the importance of watching over. However, physiological states cannot be the driving force. Rather, the whole patient must be considered. This focus must include the physiologic needs, fears, and the past care experiences of the patient. These are aspects of watching over that cannot be taught or learned in a laboratory simulation. Clinical experiences should focus on the important dimensions of care identified in this study in order to better prepare nurses to meet the needs of patients.

Implications for Nursing and Hospital Administration

The results of this study provide valuable insights and important implications for the administrative structures of hospitals. Hospitals are in the business of providing quality care to patients. As patient care represents a primary source of revenue, hospitals can be particularly prone to unfavorable financial outcomes if a large cohort of patients receives care elsewhere. A focus of hospitals therefore, is maintenance of a steady census of patients that will provide a revenue stream allowing the organization to meet current and future financial obligations. Without patients, hospitals face demise.

Three dimensions of overall patient satisfaction comprised the 3-item general satisfaction scale. These dimensions included recommending the hospital to others, a general overall evaluation of satisfactory services, and a willingness to use the hospital in the future if needed. The high reliability of the 3-item general satisfaction scale supports these interrelated dimensions of patient perception of their care experience. The strong positive relationship between the SPNCS subscales and the general satisfaction variable attest to the impact nursing care has on patient satisfaction ratings overall.

The constructs of the SPNCS can only be operationalized in an environment supportive of those constructs. Hospital and nursing administrators must take a leadership role in providing an environment that allows for Seeing the Individual Patient, Explaining, Responding, and Watching Over to be operationalized.

Nurse staffing has traditionally been calculated based on the visible aspects of the care experience. These aspects of care have been broadly categorized as direct and indirect care. Direct care consists of those activities completed in the patient's vicinity, while indirect care comprises those activities done on behalf of the patient (Wolf &

Smith, 1997). Time and motion studies, adopted from the industrial model are the traditional methods of evaluating the resource requirements for nursing care. Time and motion studies do not however, comprehensively account for the less visible aspects of nursing care – Seeing the Individual Patient and Watching Over. Administrators who adopt the industrial model approach to determining nursing resource requirements, may be seriously underestimating patients' nursing care needs. Staffing standards must account for these less visible aspects of care. Nursing personnel requirements based on the total definition of care from the perspective of the patient have a higher probability of meeting patient care needs, ultimately resulting in patients who are generally satisfied with their experience. These patients then, become the champions of the organization, returning for care in the future and relaying their positive experience to others who may need care in the future. Satisfied patients can therefore become valuable marketers for a hospital. Ultimately, a positive care experience will serve to enhance the revenue stream for the organization.

Nursing administrators should have particular interest in the findings of this research. Nursing is the one constant in the patient's care experience. While other professions may interact and deliver selected aspects of the patient's total care, nursing personnel are in attendance 24 hours per day, 7 days per week. The environment for operationalizing the constructs of the SPNCS must exist at not only the organizational level, but also the nursing unit level. Like the technical aspects of care, Seeing the Individual Patient, Explaining, Responding, and Watching Over must be operationalized 24 hours per day, 7 days per week. Failure to do so jeopardizes the patient perception of the nursing care experience.

The strong relationship between the nursing care experience and overall satisfaction with the hospital experience suggest that patient's perceptions of nursing care are important quality indicators. Existing quality initiatives in hospitals should evaluate the extent that the constructs of the SPNCS are evident in monitoring activities. The SPNCS provides one method for gathering data related to quality.

Several decades ago, Donebedian (1966) asserted that patient satisfaction with care was a key outcome indicator, and perhaps an element of overall health of the individual. The findings of a strong positive relationship between the SPNCS constructs and the single item addressing the extent to which patients are following discharge instructions suggests that a satisfactory care experience will result in higher adherence to elements of the discharge plan. This finding has important implications for the health of the members of society.

Despite the cross sectional and nonrandom nature of these data, the relationship between the SPNCS constructs and the extent to which patients are following their discharge instructions suggests a causal relationship. Administrators that support an environment where the constructs of the SPNCS can be operationalized, are contributing to the likelihood that patients will follow their discharge care instructions, facilitating their return to optimal health and functioning.

The most recent standards of the Joint Commission for Health Care Organizations (2001) require organizations to routinely evaluate patient perception of care as part of the overall performance improvement process. The SPNCS, as a reliable and valid measure of patients' perception of their nursing care experience, could easily fulfill a portion of the Joint Commission requirement. The 15 items of the SPNCS could be incorporated to

existing post discharge surveys, either as a replacement to or augmentation of nursing care content without placing undue response burden on those being surveyed.

Implications for Nursing Research

The findings from this study suggest several implications for nursing research. A significant portion of nursing research is outcome oriented in nature. For studies using patient satisfaction with nursing care as an outcome measure, the SPNCS provides a parsimonious method of collecting data about patients' perception of the nursing care they have received. The SPNCS represents the care experience from the perspective of the recipients of care, the patients, and is therefore particularly useful as an outcome measure. The findings that the type of admission or hospital service did not have a relationship to the SPNCS subscale scores suggest this measure is appropriate for use in nursing research involving hospital inpatients in general. The SPNCS items are not specific to the domain of Registered Nurses, making the measure especially useful in settings that may use different nursing skill mixes for providing nursing care.

The findings of this study also have important implications for instrument development focused on measuring nursing phenomena. The dominant form of instrument development is rationally based, relying on expert clinical or academic opinion. The reliability and validity of measures rationally constructed can therefore be only as good as the opinions that serve as a foundation. In contrast, the empirical method of instrument development relies on data from experts who have experienced the phenomenon of interest. A fundamental shift in instrument development methodology from the rational to the empirical approach will offer better assurances that measures are

grounded in experience rather than opinion, resulting in a higher degree of validity (Hogan, Greenfield, & Schmidt, 2001).

Measures of a phenomenon should be based in theory of that phenomenon. Using a qualitative approach to theory generation ensures a higher degree of theoretical validity as the data are grounded in the phenomenon. Deriving items from a qualitatively constructed theory ensures a higher degree of congruency between the theory and empirical referents of that theory, ultimately serving to narrow the theory-practice-research gap.

The use of structural equation modeling as a theory testing strategy offers significant benefits to more traditional methods such as path analysis, multiple regression, and correlation matrices. Dubin (1969) defined a theory as a closed system, noting that if the theory is an accurate representation of the empirical world, the theory will predict the values of the components of the system as well as the interaction among those components. Structural equation modeling, as a full information technique, allows for more comprehensive testing of theoretical models as closed systems. The simultaneous nature of this approach is more consistent with Dubin's (1969) definition. Given appropriate empirical referents, a structural equation modeling analysis will provide comprehensive evidence of the validity of the theory being tested. In this way, researchers are more clearly able to describe, explain, predict, and control the interaction of theoretical constructs.

The model generation process used in modification of the original 37-item SPNCS provides valuable guidance for theoretical model testing. Researchers should adopt a similar approach in testing theoretical models. Ensuring adequate measurement

of theoretical constructs is an essential precursor to testing the relationships between constructs. Measures must be adequate empirical referents of constructs. If not, the relationships between constructs becomes an educated, best guess.

Limitations

While the strengths of this study have been outlined, several limitations warrant discussion. The findings from this study must be interpreted within the context of those limitations.

The grounded theory study and testing of the SPNCS used patients discharged from multiple nursing units in the same institution. While the categories of the theory and items from the SPNCS appear to be general enough to apply to all inpatient settings, the results of this study may not be generalizable to all inpatient settings or groups of a different cultural makeup.

The SPNCS was constructed from a grounded theory study using discharged adult inpatients as participants. The SPNCS items therefore, may not be applicable to parents who respond to patient satisfaction surveys as evaluators of their child's nursing care or proxies who provide responses for cognitively impaired adults.

Similarly, the SPNCS was constructed with the intention of being completed by the patient rather than a proxy. Items asking who was actually providing the responses for this study were not included. While it is assumed that the responses came from the actual patients, there is no clear evidence as to what differences in the findings, if any, would be obtained if someone other than the patient provided the responses.

Suggestions for Future Research

The findings and limitations noted above suggest several opportunities for additional research involving the SPNCS. These include:

- (a) Testing the reliability and validity of the SPNCS using cognitively intact adult inpatients representing different geographical areas of the country as with different cultural groups.
- (b) Altering the items of the SPNCS to reflect the parent perspective of nursing care and testing this version with parents as evaluators of their child's nursing care. If the measure does not demonstrate acceptable reliability and validity, the processes outlined in this research to develop a measure of parent perception of nursing care should be completed.
- (c) Altering the items of the SPNCS to reflect the caregiver's perspective of nursing care delivered to cognitively impaired adults. If acceptable reliability and validity is not obtained, the process outlined in this research should be used to develop a measure of caregiver perception of nursing care for cognitively impaired patients.
- (d) Using the procedures outlined in this study, generate a measure of the perception of nursing care in the outpatient setting.
- (e) Exploring different scaling options such as the extent to which the items reflect the patient's experience with nursing care or the extent to which the item describes patient expectations of nursing care being met.
- (f) Studying the use of negatively worded items. Exploring the reliability and validity of using separate constructs to measure positive and negative

aspects of the more general construct, using the differential score between the positive and negative constructs as an overall measure of the construct.

- (g) Exploring the validity of the SPNCS using the multi-method multi-trait approach (Campbell & Fiske, 1959).
- (h) Using the SPNCS as an outcome measure of different nursing care delivery systems in an effort to identify the most appropriate skill mix for different patient populations.

Summary

Patient satisfaction has been heralded as an important outcome of the care experience, with the experience of receiving nursing care a significant predictor of overall patient satisfaction. Despite this importance, the theoretical basis of patient's perception of nursing care has not been adequately developed or tested. The widely used measures of patient satisfaction with nursing care are rationally derived and based on a measure originally intended for use in the outpatient setting.

A qualitative approach was used to generate a theory of patient satisfaction with nursing care using the grounded theory methodology. The emergent theory consisted of seven constructs including Knowing the Other, Seeing the Individual Patient, Knowing What They're Doing, Enacting the Caregiver Role, Responding, Informing, and Watching Over. A 37-item instrument was constructed that included items representative of the content domain for each of these constructs.

The items of the measure were pretested for content adequacy using a sample of undergraduate nursing students enrolled in RN to BSN programs. The findings of these

assessments were used to make minor alterations to the instrument and served as a basis for modification of the instrument.

The construct validity of the measure was tested using the measurement model of the full structural equation model in a randomly selected split sample of the total sample. Initially, the 37-item model did not fit the data at an acceptable level. The model was modified using parameter estimates, fit indices, and the results of content adequacy as a guide. The final model consisted of four factors – Seeing the Individual Patient, Explaining, Responding, and Watching Over. Competing measurement models of varying degrees of parsimony were tested using a holdout sample of 326 patients from the original respondents. The model with the best fit in both samples consisted of 15 items.

The 15-item measure was further tested using a sample discharged adult inpatients. Analyses included reliability using Cronbach's alpha, correlations between the subscales of the measure and the subscales of the two widely used patient satisfaction with nursing care measures, a 3-item measure of overall patient satisfaction with the hospital experience, and one item tapping the extent to which patients were following their discharge instructions. All correlations were significant and in the predicted direction.

Significant group differences were noted for all subscales on groups constructed based on general satisfaction scores, providing evidence of the sensitivity of the measure. Significant group differences were not found on any subscales for groups based on the type of hospital admission or hospital service. These findings suggest the measure is appropriate for use in the general inpatient population.

Based on the findings of this study, the SPNCS is judged as a reliable, valid measure of patient perceptions of their nursing care experience. Several implications for nursing practice, education, administration, and research were identified that suggest future areas of inquiry.

Appendix A
SPNCS Factor Structure

SPNCS Factor Structure

Knowing the Other

- 4. I felt like a room number*
- 16. I knew who to call for when I needed help from the nursing staff
- 25. The members of the nursing staff understood my diagnosis
- 26. When I think about my nursing care, I feel like I was in the hands of strangers*
- 31. The nursing staff took time to find out more about me as a person
- 35. I knew the job titles of the nursing staff providing my care

Seeing the Individual Patient

- 1. The nursing staff treated me as a unique person
- 20. I knew my nursing care was specifically tailored to my needs
- 28. The nursing staff was mechanical in providing my care*
- 33. When the nursing staff was providing my care, I was at the center of their
Attention
- 37. The nursing staff was warm in their interactions with me

Knowing What They're Doing

- 7. The nursing staff did not follow through on some aspects of my care*
- 11. The nursing staff appeared confident providing care to me
- 17. There were times when I had to remind the nursing staff to give part of my care*
- 30. The nursing staff did not appear to know what care I needed from them*
- 32. The nursing staff paid attention to detail in providing my care

Enacting the Caregiver Role

- 2. When I needed help from the nursing staff, they were there for me
- 12. When I consider the amount of nursing care I received, I might as well have
stayed home*
- 15. The nursing staff did what they were supposed to do for me
- 19. The nursing care I received met my expectations

Informing

- 5. The members of the nursing staff provided the information I needed without me
having to ask questions
- 21. When a member of the nursing staff would come into my room to provide care,
they did not explain what they were doing*
- 24. The nursing staff answered the questions I asked of them
- 27. When the nursing staff provided care, they explained why they were doing
Something
- 34. When the nursing staff was providing care, they would explain what they were
doing.

Continued

Factor Structure, continued

Responding

- 6. When I needed something from the nursing staff, they provided it
- 9. The members of the nursing staff spent time with me
- 13. When I requested something, the nursing staff responded
- 14. The nursing staff responded appropriately to my requests
- 18. I had to wait too long for the nursing staff to respond to my requests*

Watching Over

- 3. Someone from the nursing staff was around all the time
- 8. The nursing staff checked on me frequently
- 10. A member of the nursing staff would stop by unexpectedly to check on me
- 22. I felt like I was placed in a room and forgotten*
- 23. I felt safe knowing the nursing staff was watching out for me
- 29. The nursing staff came around only when they had to*
- 36. The nursing staff watched me closely

* negatively word

Appendix B
Mailout Survey Packet

Dear «SALUT» «LAST_NAME»:

I am a Registered Nurse doing research into what patients think about the nursing care they receive during their hospital stay. I would like to invite you to participate in this study. Your participation will involve filling out the enclosed survey and returning it to me in the enclosed postage paid envelope.

It should take you about 15 to 20 minutes to complete the survey. Your participation in this research is voluntary and you are under no obligation to participate. Your decision about participation will not affect the care you have received or any care you may receive in the future.

If you choose to participate, you should provide your true feelings about the nursing care you received during your recent hospitalization at Tampa General Hospital. Your responses are anonymous. No names or other information that could identify you personally are being collected and you should not include any identifying information in your responses.

There is no known benefit to you for your participation in this study. Information from this study will provide important information about how patients view the nursing care they receive while in the hospital. You may experience some unpleasant feelings if the questions bring back memories of any negative experiences you may have had with your nursing care.

By completing and returning the enclosed survey information, you are giving your consent to participate in this study.

You should feel free to ask questions about this study or your participation by contacting Lee Schmidt at (██████████). If you have questions about your rights as a participant, please call Maria Arnold, IRB Director of the University of Miami Behavioral Science Subcommittee at ██████████

Once this study is completed and the results are available, I will post a notice in the classified section of the Tampa Tribune and St. Petersburg Times for seven consecutive days. The notice will identify where you can call or write for a summary of the results of this study if you are interested in doing so.

Thank you very much for your time and consideration.

Sincerely,

Lee Schmidt, RN, MSN
 Doctoral Candidate
 University of Miami, School of Nursing

**TAMPA GENERAL HEALTHCARE***Affiliated with the USF College of Medicine*

Dear Patient:

Thank you for choosing Tampa General Hospital for your recent care.

In addition to providing quality patient care, our mission includes participating in research activities that seek to improve the quality of health care services. We are currently assisting Lee Schmidt, RN, MSN, a Doctoral Candidate in Nursing at the University of Miami, with his research on patient's experiences with receiving nursing care. We believe this research will make a valuable contribution in better understanding nursing care from the patient's perspective.

Your responses to the enclosed survey will assist Mr. Schmidt and Tampa General Hospital with this important project. We encourage your participation and thank you for taking the time to share your thoughts.

Sincerely,



Deana Nelson, RN, MHA
Senior Vice President for Patient Care Services



Instructions: The following items describe various aspects of your experience with nursing care during your recent hospitalization. For each item, indicate your level of agreement or disagreement by circling the appropriate number. When you consider the care you received from the nursing staff, you should consider all members of the nursing staff (Registered Nurses, Licensed Practical Nurses, Nursing Assistants).

		Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
1.	The nursing staff treated me as a unique person	1	2	3	4	5
2.	When I needed help from the nursing staff, they were there for me	1	2	3	4	5
3.	Someone from the nursing staff was around all the time	1	2	3	4	5
4.	I felt like a room number	1	2	3	4	5
5.	The members of the nursing staff provided the information I needed without me having to ask questions	1	2	3	4	5
6.	The nursing staff provided the help that I needed	1	2	3	4	5
7.	The nursing staff did not follow through on some aspects of my care	1	2	3	4	5
8.	The nursing staff checked on me frequently	1	2	3	4	5
9.	The members of the nursing staff did not appear rushed when providing my care	1	2	3	4	5
10.	A member of the nursing staff would stop by my room unexpectedly to check on me	1	2	3	4	5
11.	The nursing staff appeared confident in providing care to me	1	2	3	4	5
12.	When I consider the amount of nursing care I received, I might as well have stayed home	1	2	3	4	5

		Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
13.	When I requested something, the nursing staff responded	1	2	3	4	5
14.	The nursing staff responded appropriately to my requests	1	2	3	4	5
15.	The nursing staff did what they were supposed to for me	1	2	3	4	5
16.	I knew who to call for when I needed help from the nursing staff	1	2	3	4	5
17.	There were times when I had to remind the nursing staff to give part of my care	1	2	3	4	5
18.	I had to wait too long for the nursing staff to respond to my requests	1	2	3	4	5
19.	The nursing care I received met my expectations	1	2	3	4	5
20.	I knew my nursing care was specifically tailored to my needs	1	2	3	4	5
21.	When a member of the nursing staff would come into my room to provide care, they did not explain what they were doing	1	2	3	4	5
22.	I felt like I was placed in a room and forgotten	1	2	3	4	5
23.	I felt safe knowing the nursing staff was watching out for me	1	2	3	4	5
24.	The nursing staff answered the questions I asked them	1	2	3	4	5
25.	The members of the nursing staff understood my diagnosis	1	2	3	4	5
26.	When I think about my nursing care, I feel like I was in the hands of strangers	1	2	3	4	5
27.	When the nursing staff provided care, they explained why they were doing something	1	2	3	4	5

		Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
28.	The nursing staff was mechanical in providing my care	1	2	3	4	5
29.	The nursing staff came around only when they had to	1	2	3	4	5
30.	The nursing staff did not appear to know what care I needed from them	1	2	3	4	5
31.	The nursing staff took time to find out more about me as a person	1	2	3	4	5
32.	The nursing staff paid attention to detail in providing my care	1	2	3	4	5
33.	When the nursing staff was providing my care, I was at the center of their attention	1	2	3	4	5
34.	When the nursing staff was providing care, they would explain what they were doing	1	2	3	4	5
35.	I knew the job titles of the nursing staff providing my care	1	2	3	4	5
36.	The nursing staff watched me closely	1	2	3	4	5
37.	The nursing staff was warm in their interactions with me	1	2	3	4	5

38.	What amount of your care was provided by a licensed nurse (Registered Nurse or Licensed Practical Nurse)?	All	Most	Some	Little	None	Not Sure
39.	On the average, how much of your nursing care was provided by a Registered Nurse?	All	Most	Some	Little	None	Not Sure

When answering the next four questions, you should consider your *entire* hospital experience, and not only the nursing care you received. For each item, indicate your level of agreement or disagreement by circling the appropriate number.

		Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
1.	I would recommend this hospital to others	1	2	3	4	5
2.	If I have a choice, I will use this hospital in the future	1	2	3	4	5
3.	I am following all of the discharge instructions that were given to me	1	2	3	4	5
4.	All things considered, I was satisfied with the hospital services	1	2	3	4	5

In the space below, you are invited to share any comments about the nursing care you received during your recent hospitalization.

This final section asks for some general information about you. This information will help interpret the results of this study. Please circle the appropriate number or fill in the blank to provide your answer.

- | | |
|---|--|
| <p>1. Your sex</p> <p>1 Male
2 Female</p> <p>2. Your current marital status</p> <p>1 Single, never married
2 Married
3 Separated
4 Divorced
5 Widowed</p> <p>3. Your ethnic group</p> <p>1 White/Caucasian
2 Black/African American
3 Hispanic
4 Asian/Pacific Islander
5 Native American
6 Other _____
(please specify)</p> <p>4. Are you currently employed?</p> <p>1 Yes
2 No</p> <p>5. If you are currently employed, do you work</p> <p>1 Full time
2 Part time</p> <p>6. Are you or any member of your immediate family a Registered Nurse, Licensed Practical Nurse, or Nursing Assistant?</p> <p>1 Yes
2 No</p> | <p>7. What is your total household income per year, before taxes?</p> <p>1 Less than \$15,000
2 \$15,000 to \$34,999
3 \$35,000 to \$70,000
4 Greater than \$70,000</p> <p>8. What type of admission was this?</p> <p>1 Elective/Planned
2 Emergency/Unplanned</p> <p>9. Your most recent admission would best be described as</p> <p>1 Medical
2 Surgical
3 Cardiac
4 Obstetric
5 Pediatric
6 Other _____
(please specify)</p> <p>10. What is your current age?
_____ years</p> <p>11. How many days were you in the hospital during this last admission?
_____ days</p> <p>12. How many times have you been admitted to this hospital?
_____ times</p> <p>13. How many times have you been admitted to any hospital?
_____ times</p> |
|---|--|

Thank you for taking time to complete this survey. Please return it in the enclosed postage paid envelope.

Appendix C

Patient Satisfaction Instrument

Instructions: Below are some statements about the nurses who cared for you. There are no right or wrong answers. Please give your honest opinion for each statement by circling the number that best describes the nurses who cared for you during your most recent hospital admission.

		Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
1.	The nurse should be more attentive than he/she is.	1	2	3	4	5
2.	Too often, the nurse thinks you can't understand the medical explanation of your illness, so he/she doesn't bother to explain	1	2	3	4	5
3.	The nurse is pleasant to be around	1	2	3	4	5
4.	A person feels free to ask the nurse questions	1	2	3	4	5
5.	The nurse should be more friendly than he/she is	1	2	3	4	5
6.	The nurse is a person who can understand how I feel	1	2	3	4	5
7.	The nurse explains things in simple language	1	2	3	4	5
8.	The nurse asks a lot of questions, but once he/she finds the answers, he/she doesn't seem to do anything	1	2	3	4	5
9.	When I need to talk to someone, I can go to the nurse with my problems	1	2	3	4	5
10.	The nurse is too busy at the desk to spend time talking with me	1	2	3	4	5
11.	I wish the nurse would tell me about the results of my tests more than he/she does	1	2	3	4	5

		Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
12.	The nurse makes it a point to show me how to carry out the doctor's orders	1	2	3	4	5
13.	The nurse is often too disorganized to appear calm	1	2	3	4	5
14.	The nurse is understanding in listening to a patient's problems	1	2	3	4	5
15.	The nurse gives good advice	1	2	3	4	5
16.	The nurse really knows what he/she is talking about	1	2	3	4	5
17.	It is always easy to understand what the nurse is talking about	1	2	3	4	5
18.	The nurse is too slow to do things for me	1	2	3	4	5
19.	The nurse is just not patient enough	1	2	3	4	5
20.	The nurse is not precise in doing his/her work	1	2	3	4	5
21.	The nurse gives directions at just the right speed	1	2	3	4	5
22.	I'm tired of the nurse talking down to me	1	2	3	4	5
23.	Just talking to the nurse makes me feel better	1	2	3	4	5
24.	The nurse always gives complete enough explanations of why tests are ordered	1	2	3	4	5
25.	The nurse is skillful in assisting the doctor with procedures	1	2	3	4	5

Thank you for taking the time to complete this questionnaire. Please return it with your other completed surveys in the enclosed postage paid envelope.

THE UNIVERSITY OF MICHIGAN
SCHOOL OF
NURSING

April 5, 2000

Lee Schmidt, RN, MSN

[REDACTED]
Tampa, FL [REDACTED]

Dear Ms. Schmidt:

Thank you for your recent letter in which you requested information about instruments. We are pleased to be able to share this information with you.

Enclosed please find the *Patient Satisfaction Instrument* along with the scoring key, validity and reliability estimates obtained on our samples. Since Nancy Risser published the longer form of this scale in *Nursing Research* (1975), the instrument is in public domain and our permission for use is not applicable. We trust this information will be helpful to you. We wish you much success in your research.

If we can be of any other assistance to you, please let us know: [REDACTED]
Also, we would request that you share any information regarding the process of using the instrument and the results or outcomes of its use. We wish you much success in your research.

Sincerely,

[REDACTED]

Ada Sue Hinshaw, PhD, RN, FAAN
Dean and Professor

ASH:co

Enclosures

o:carol/instruma/LeeSchmidt4-2000

cc: Jan R. Atwood, PhD, FAAN
Co-Principal Investigator

OFFICE OF THE DEAN

Appendix D
LaMonica Oberst Patient Satisfaction Scale

La Monica/Oberst Patient Satisfaction Scale

by Elaine L. La Monica, Ed.D., J.D.
Marilyn T. Oberst, Ed.D.

Instructions to the Client

The following are forty-one statements about nurses. In the columns next to the statements are seven possible responses. For each statement, decide how much you agree or disagree with the view expressed and circle the number under the response that comes closest to your opinion. "Strongly Disagree" and "Strongly Agree" are reserved for those opinions on which you have no exceptions. "Neutral" means equally "yes" and "no."

There are no right or wrong answers. Since people differ in their views, your response should be your personal opinion. Form your opinions based upon your general impression of all the nurses with whom you are in contact at the present time. It is extremely important that your responses are honest.

Please try these two examples:

	Item	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neutral	Slightly Agree	Moderately Agree	Strongly Agree
A.	The nurse has a neat appearance.	1	2	3	4	5	6	7
B.	The nurse is always too busy to talk with me.	1	2	3	4	5	6	7

The staff at this agency know that your help is being requested, and they support this study. However, the information you provide will be strictly confidential and under no circumstances will your responses be shared with the staff.

The very reason for your participation in this study is to help us to make nursing care more satisfactory for your needs.

SOURCE:

La Monica, E., Oberst, M., Madea, A., & Wolf, R. (1986). Development of a patient satisfaction scale. *Research in Nursing & Health*, 9, 43-50.

THIS INSTRUMENT MAY NOT BE DUPLICATED OR CHANGED WITHOUT THE WRITTEN PERMISSION OF DR. ELAINE LA MONICA RIGOLSI, [REDACTED] PARAMUS, NEW JERSEY [REDACTED]

La Monica/Oberst Patient Satisfaction Scale

Page 2

No.	Item	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neutral	Slightly Agree	Moderately Agree	Strongly Agree
1.	The nurse is not as attentive as she or he should be.	1	2	3	4	5	6	7
2.	The nurse appears to be skillful in doing his or her work.	1	2	3	4	5	6	7
3.	The nurse makes helpful suggestions.	1	2	3	4	5	6	7
4.	The nurse does not seem to do anything with the information I give to her or him.	1	2	3	4	5	6	7
5.	The nurse treats me with respect.	1	2	3	4	5	6	7
6.	The nurse seems more interested in getting the tasks finished than in listening to my concerns.	1	2	3	4	5	6	7
7.	The nurse does not follow through quickly enough on his or her care for me.	1	2	3	4	5	6	7
8.	When I need physical assistance the nurse sees to it that I receive it.	1	2	3	4	5	6	7
9.	The nurse is not as friendly as he or she should be.	1	2	3	4	5	6	7
10.	The nurse explains things in a manner that is easy to understand.	1	2	3	4	5	6	7
11.	The nurse appears to enjoy caring for me.	1	2	3	4	5	6	7
12.	The nurse gives the impression that my care is his or her top priority while he or she is with me.	1	2	3	4	5	6	7
13.	The nurse is impatient.	1	2	3	4	5	6	7
14.	I feel free to ask the nurse questions.	1	2	3	4	5	6	7
15.	The nurse gives complete explanations.	1	2	3	4	5	6	7
16.	I feel more like a "case" than an individual with the nurse.	1	2	3	4	5	6	7
17.	The nurse talks down to me.	1	2	3	4	5	6	7
18.	If I had the same or another problem that required nursing care, I would gladly come back to this agency.	1	2	3	4	5	6	7

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La Monica/Oberst Patient Satisfaction Scale

Page 3

No.	Item	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neutral	Slightly Agree	Moderately Agree	Strongly Agree
19.	The nurse does not answer my call signal promptly enough.	1	2	3	4	5	6	7
20.	The nurse tells me all he or she can about what effects to expect from my treatment and drugs.	1	2	3	4	5	6	7
21.	The nurse tells me things that conflict with what the doctor tells me.	1	2	3	4	5	6	7
22.	The nurse is pleasant to have around.	1	2	3	4	5	6	7
23.	The nurse tells me he or she will return to do something for me and then does not keep his or her promise.	1	2	3	4	5	6	7
24.	I am confident that the nurse would know what to do in an emergency.	1	2	3	4	5	6	7
25.	The nurse shows me how I can follow my treatment program.	1	2	3	4	5	6	7
26.	When I need to talk with someone, I can share my feelings with the nurse.	1	2	3	4	5	6	7
27.	The nurse does things that make me more comfortable.	1	2	3	4	5	6	7
28.	I would like the nurse to be more thorough.	1	2	3	4	5	6	7
29.	The nurse seems disorganized and flustered.	1	2	3	4	5	6	7
30.	The nurse neglects to make sure that I understand the importance of my treatments and medications.	1	2	3	4	5	6	7
31.	Just talking to the nurse makes me feel better.	1	2	3	4	5	6	7
32.	The nurse helps me to understand my illness.	1	2	3	4	5	6	7
33.	The nurse is available when I need support.	1	2	3	4	5	6	7
34.	The nurse really seems to know what he or she is talking about.	1	2	3	4	5	6	7
35.	The nurse acts like I cannot understand the medical explanation of my illness when, in fact, I really can.	1	2	3	4	5	6	7
36.	The nurse fails to consider my opinions and preferences regarding my plan of care.	1	2	3	4	5	6	7

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La Monica/Oberst Patient Satisfaction Scale

Page 4

No.	Item	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neutral	Slightly Agree	Moderately Agree	Strongly Agree
37.	The nurse is gentle in caring for me.	1	2	3	4	5	6	7
38.	The nurse seems reluctant to give me assistance when I need it.	1	2	3	4	5	6	7
39.	The nurse gives directions at just the right speed.	1	2	3	4	5	6	7
40.	The nurse understands me when I share my problems.	1	2	3	4	5	6	7
41.	I feel secure when the nurse is giving direct care to me.	1	2	3	4	5	6	7

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Elaine L. Rigolosi, Ed.D., J.D.
Health Care and Legal Consultant

16 June 2000 ADMITTED TO PRACTICE LAW IN
 NEW YORK, NEW JERSEY AND THE DISTRICT OF COLUMBIA

Elaine L. Rigolosi, Ed.D., J.D.

Lee Schmidt, RN, MSN
 Doctoral Candidate

Dear Colleague:

Please be advised that you have permission to edit the exact La Monica Oberst Patient Satisfaction Scale as presented in your letter of 5 June 2000, and to duplicate no more than 200 copies during the entire process of editing or research. All requirements identified in all previous correspondence concerning your request must be honored. I am in receipt of \$200.00 to cover permission fees. The edited version will remain my property and your name shall not be placed anywhere on the instrument itself.

Another condition for permission is receipt of a copy of any finished manuscript(s) and/or article(s) reporting on your above titled investigation. The instrument shall not be duplicated or reproduced in any of your resultant publications. All duplicated manuscripts, publications, and work emanating from research using the above titled instrument must contain the following credit:

La Monica, E., Oberst, M., Madea, A., & Wolf, R. (1986). Development of a patient satisfaction scale. Research in Nursing and Health, 9, 43-50. Translated and reproduced with written permission of Dr. Elaine La Monica Rigolosi.

Thank you again for your interest in my instrument and I wish you the best of luck in your research endeavors. Should you wish to use the instrument in a subsequent investigation or should you need more than 200 copies, another letter of request and fee are required.

Sincerely,

Elaine La Monica Rigolosi, Ed.D., J.D.

ELL:e

Appendix E
Test-Retest Request

Dear Study Participant:

We are asking a number of people to complete this same survey about 10 days after they returned this completed survey to me. You are one of those patients.

If you are willing to do this, please provide your mailing information below. Once I receive this information and address the second survey, this information will be destroyed. There will be a number and letter on the second survey you receive so that your answers can be compared. That number and letter are not associated with any identifying information about you.

Name: _____

Street Address: _____

City: _____ State: _____ Zip Code: _____

Thank you for considering this request.

Lee Schmidt, RN. MSN
Doctoral Student
University of Miami, School of Nursing

Appendix F

Factor Structure of the Revised SPNCS

Factor Structure of the Revised SPNCS

Seeing the Individual Patient

- The nursing staff treated me as a unique person
- I knew my nursing care was specifically tailored to my needs
- The nursing staff took time to find out more about me as a person
- When the nursing staff was providing my care, I was at the center of their attention
- The nursing staff was warm in their interactions with me

Explaining

- When a member of the nursing staff would come into my room to provide care, they did not explain what they were doing*
- When the nursing staff provided care, they explained why they were doing something
- When the nursing staff was providing care, they would explain what they were doing.

Responding

- When I needed help from the nursing staff, they were there for me
- When I needed something from the nursing staff, they provided it
- The nursing staff responded appropriately to my requests

Watching Over

- Someone from the nursing staff was around all the time
- A member of the nursing staff would stop by unexpectedly to check on me
- I felt safe knowing the nursing staff was watching out for me
- The nursing staff watched me closely

*negatively worded item that is reverse scored

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