

Dimensions of Caring

Psychometric Evaluation of the Caring Assessment Tool

**Joanne R. Duffy, PhD, RN, CCRN; Lois Hoskins, PhD, RN, FAAN;
Rita Furst Seifert, PhD**

The increase in relationship-centered professional practice models has expanded the interest in the measurement of caring. Using a cross-sectional descriptive study of 557 adults from 5 acute care institutions, a factor analysis and reliability statistics were used to revise the Caring Assessment Tool. Eight independent factors (mutual problem solving, attentive reassurance, human respect, encouraging manner, appreciation of unique meanings, healing environment, affiliation needs, and basic human needs) explained 62.6% of the variance in caring. The findings provide insight into patients' assessment of caring in nursing and offer a baseline evaluation of the psychometric properties of the Caring Assessment Tool. **Key words:** *caring, instruments, psychometric evaluation, relationship-centered care, tools*

THE implementation of professional practice models in healthcare institutions has proliferated in recent years as hospitals have rushed to obtain Magnet status.¹ Relationship-centered approaches, particularly those that focus on caring such as the Theory of Human Caring² and the Quality-Caring Model,³ are increasingly popular.^{4,5} In fact, caring relationships have been preliminarily tied to selected patient outcomes.^{6–9} Despite this surge in caring-based professional practice, efficient, theoretically sound evaluation of caring remains problematic. Although many instruments have been developed to measure caring,¹⁰ few measure caring from the patient's point of view are efficient, and have established psychometric properties.

This research has 2 major purposes: (1) to identify how many theoretical constructs or factors are needed to accurately explain the concept, caring, and (2) to develop a short instrument that reliably measures caring from the patient's point of view.

BACKGROUND

It is important to understand caring relationships: they are elusive and evolving concepts that are pertinent to nursing. Caring as a central or dominant construct in nursing has been theoretically described by Leininger,¹¹ Watson,² Boykin and Schoenhofer,¹² Roach,¹³ Swanson,¹⁴ and Duffy and Hoskins,³ to name a few. Commonalities among these conceptual approaches to caring involve human interaction, mutuality, appreciating the uniqueness of individuals, and improving the welfare of patients and families. Watson² spoke to the essence of nursing as caring and characterized caring relationships as distinct but complementary to medicine. Furthermore, she has suggested 10 specific elements or factors that comprise caring.

The American Nurses Association's Agenda for the Future states, "Nursing is *the* pivotal healthcare profession highly valued for

Author Affiliations: School of Nursing, The Catholic University of America, Washington, DC, and Kappa chapter of Sigma Theta Tau (Drs Duffy and Hoskins); and The Lewin Group, Fall Church, Virginia (Dr Seifert).

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Corresponding Author: Joanne R. Duffy, PhD, RN, CCRN, School of Nursing, The Catholic University of America, Gowan Hall, Washington, DC 20064 (duffy@cua.edu).

its specialized knowledge, skill, and *caring* in improving the health status of the public. . . .^{15(p7)} The American Organization of Nurse Executives in its *Guiding Principles for Patient Care Delivery Toolkit*¹⁶ speaks on the "core of nursing as knowledge and *caring*" with "*caring* . . . as a key component of what the nurse brings to the overall patient experience." Furthermore, recommendation 4 cited in *Crossing the Quality Chasm*, "creating continuous healing relationships . . . that are customized based on patient needs. . . where patients are the source of control. . . knowledge is shared . . . and patients' needs are anticipated. . . ,"^{17(p8)} is a hallmark of caring, relationship-centered nursing practice. Recently, the Health Resources and Services Administration has funded large demonstration projects aimed at enhancing patient care by implementing nursing practices in caring.¹⁸ Other initiatives in relationship-centered caring are being launched daily in many US healthcare institutions.^{4,19}

Since the late 1980s, assessing patient's views of caring has become an interest of many, especially among those who have implemented a caring or relationship-centered practice model and/or curriculum.²⁰ In a review of caring instruments, Beck²¹ recommended additional evaluation including measuring construct validity. Of the 20 instruments measuring caring in the publication, *Assessing and Measuring Caring in Nursing and Health Sciences*,¹⁰ only 7 measured caring from the patient's perspective. Of these, 2 were inductively developed, while the remaining tools used items derived from Watson's² conceptual definition(s) of caring. Few focused on the degree of caring or specifically assessed the interpersonal behaviors associated with caring. Content validity and internal consistency reliability were satisfactory; however, the instruments suffered from small convenient samples at 1 site, and few completed a thorough psychometric evaluation.

In addition, 2 recent tools were found that used factor analysis to determine the elements

unique to caring. The *Caring Behaviors Inventory for Elders* of Wolf et al²² was developed to measure caring from the point of view of elders and their caregivers. A convenient sample of 215 elders and 138 nurses from independent and assisted living facilities comprised the sample. Combined internal consistency was reported as .936. Five factors emerged from the data: attending to individual needs, showing respect, practicing knowledgeably and skillfully, respecting autonomy, and supporting religious/spiritual needs. The final 28-item instrument, limited by the convenient sample of elders and caregivers has utility in this restricted population.

The *Caring Nurse-Patient Interaction Scale (Short Scale)* of Cossette et al²³ used 377 baccalaureate students from one school to explore attitudes and behaviors associated with caring. Four factors, relational care, clinical care, comforting care, and humanistic care, emerged with a 23-item solution. Internal consistency reliability varied from .61 to .94. The benefit of this tool for the measurement of caring through the eyes of the patient is not known. Support for a more universal instrument is warranted.

Although a growing knowledge base regarding caring relationships is emerging, its measurement has been challenging. Limited sample sizes and populations, subject burden, and differing conceptual approaches have hampered instrument development. Furthermore, the structural dimensions of caring have not been adequately validated. It is the authors' contention that the measurement of caring relationships must be psychometrically sound and be assessed from the perspective of the recipient allowing for a better understanding of patient experiences and needs.

DEVELOPMENT OF THE CARING ASSESSMENT TOOL

The Caring Assessment Tool (CAT)²⁴ was initially developed in 1990 to assess patients' perceptions of nurse caring behaviors. Using Watson's Theory of Human Caring,² items

were designed that corresponded to each "carative factor"; several items taken together were intended to reflect a whole factor. Items were written in simple, easy-to-understand English language, and at the eighth-grade level of reading comprehension. A closed-response, 5-point Likert-type scale²⁵ was used to measure the frequency with which each behavior occurred during a patient's hospital experience. Individual items were scored from 1 (never) to 5 (always). The items were summed for a total score, with a possible range of 100 to 500 interpreted as low caring to high caring. Several items (19) were worded negatively and/or overlapped with other items; they were intentionally designed to minimize the chance of error. The total score best represented the degree of nurse caring present in the nurse-patient relationship as perceived by the patient.

An item pool of 130 items was developed using the theory as a guide. An 8-member panel of experts, all those who had theorized or investigated the construct, caring, supported content and face validity. Panelists were instructed to comment on 3 areas: (a) appropriateness of each item as a nurse caring behavior; (b) the representativeness of each item to the carative factors²; and (c) general clarity of each item. Each item was assigned a score from 1 (very low caring) to 5 (very high caring) from which the panelists used to rate their responses. Cut points of means 3.5 or above and 1.5 or below for recoded items were established. Means were calculated for each item; those items meeting the criteria 3.5 or above were retained. One hundred items met the retention criteria. Three recommendations were made (all within one domain of caring) for wording changes. Using these recommendations, the tool was revised and re-submitted to the panel for a second review. All panelists responded in support of content validity for the 100-item tool.

Internal consistency reliability was measured using 86 randomly selected hospitalized medical-surgical patients.²⁶ The Cronbach α was .97. The wording of some items (8) were slightly revised in 2000 to capture the real-

ities of out-patient healthcare; internal consistency reliability remained high.²⁷ Although the tool had established face and content validity and was overall reliable, empirical validation of its structural components was not completed and the length of the tool limited its usefulness. To meet the increasing demands of relationship-centered professional practice, a shorter instrument that decreased subject burden while accurately and reliably measuring caring was needed.

METHOD

Participants

After approval by The Catholic University of America Human Subjects Committee and 5 US hospitals' internal review boards, a convenient sample of hospitalized adults was recruited. The hospitals were urban/suburban in Virginia, Maryland, Illinois, New Jersey, and the District of Columbia. All hospitals had teaching relationships with local universities, but none were traditional academic institutions. All of the hospitals provided care to diverse patients consisting mostly of white, African American, Hispanic, and Asian populations. Given the declining length of stay in American hospitals, the targeted participants were adults who were hospitalized at least 2 days to ensure that some interaction with professional nurses had occurred. Although the intended participants were hospitalized medical-surgical patients, none were critical or unstable. For instance, those participants were included who were patients on medical, orthopedic, surgical, and telemetry units. Inclusion criteria for participants were hospitalized adults who were alert and oriented, could understand English, were hospitalized at least 2 days, and who were willing to participate in the study. Registered nurses (RNs) from the 5 hospitals were trained in the use of the CAT and informed consent procedures by attending a 30-minute educational offering provided by the principal investigator. After informed consent was obtained, patients were instructed to consider their overall

hospital experience with nurses (RNs) and complete the questionnaire. The questionnaire was left with the patient to allow adequate time for completion and picked up by the RN data collectors within 24 hours. Occasionally, patients who met inclusion criteria, but were more acutely ill, were read the questions at their request and the RN data collector recorded their answers. All RN data collectors followed the same protocol. In most cases, questionnaires were completed within 8 hours. Data were collected over a period of 1 year (2005–2006).

Conflicting opinions exist concerning the number of participants required for factor analysis; however, it is generally accepted that the number of cases must exceed the number of variables. Another view is that because sample size is based on correlation, 100 to 200 subjects are adequate.²⁸ Since the number of variables in this study was large (100 items), data from the 5 hospitals was merged to form the largest data set possible for analysis. The total sample size was 557. Included were adults from all diagnostic, socioeconomic, gender, and ethnic groups.

DATA ANALYSIS

The Cronbach α was used to assess the internal consistency reliability of the 100-item tool for this sample, and item-total correlations were examined. Factor analyses were used to evaluate the construct validity of the tool. An initial factor analysis using principal component analysis with varimax rotation was performed. The number of factors was determined by examining the eigenvalues and the scree plot. To reduce the number of items in the tool, items with corrected item-total correlations below .40 and items that loaded less than .50 on all factors were dropped from the instrument. The remaining items were factor analyzed using principal component analysis with varimax rotation and α -factoring with equamax rotation. In addition to the eigenvalues and the scree plot, interpretability of the factors was considered in determining the

best factor solution. Finally, only items that loaded at least .50 on any factor of the best factor solution were maintained for the final questionnaire. Internal consistency reliability was computed for this final and shortened questionnaire.

RESULTS

The Cronbach α for the 100-item tool was .97. An initial principal component analysis with varimax rotation of the 100-item tool identified 6 factors with a large general first factor. After eliminating items with corrected item-total correlations below .40 and items that loaded less than .50 on all factors, 64 items remained in the instrument.

The best factor solution for the 64 items was using α -factoring with equamax rotation. Examination of the eigenvalues and the scree plot identified 9 factors. Additional criteria for choosing these factors were that the items within each factor had a succinct and demonstrable pattern that could easily be interpreted and be related to caring. These factors accounted for 62.6% of the variance, with each factor accounting for 6.2% to 7.6% of the variance. Each item loaded only on a single factor. There was 1 factor that had 6 items; these items were interpreted and labeled as noncaring. They were deleted, leaving 36 items and 8 factors as the final solution for the construct *caring*. The 36 items, 8 factors, and their factor loadings are listed in Table 1.

The 36-item tool was tested for reliability using the data of 365 patients who had completed all 36 items. The Cronbach α was .96, validating the internal consistency of the shortened instrument. The scale mean was 141.20 (SD = 28.41). The mean of the item means was 3.92, with a minimum of 3.02 and a maximum of 4.63. Using mean substitution for patients who had 1 to 3 items missing (<10%), reliability for 522 patients was also found to be .96. The scale mean was 142.64 (SD = 27.70).

To test the internal consistency of the independent factors, subscale analysis was

Table 1. Items, factors, and factor loadings of the Caring Assessment Tool^a

Item stem: Since I have been a patient here the nurse(s)	Loading
Factor I: Mutual problem solving (7.6% of the variance)	
Help me understand how I am thinking	.63
Ask me how I think treatment is going	.52
Help me explore alternate ways of dealing	.61
Ask me what I know	.65
Help me figure questions to ask	.59
Factor II: Attentive reassurance (7.36% of the variance)	
Are available	.81
Seem interested	.81
Support sense of hope	.79
Help me believe in self	.72
Anticipate my needs	.64
Factor III: Human respect (7.29% of variance)	
Listen to me	.72
Accept me	.71
Treat me kindly	.76
Respect me	.73
Pay attention to me	.50
Factor IV: Encouraging manner (7.12% of variance)	
Support my beliefs	.56
Encourage to ask questions	.54
Help me to see some good	.54
Encourage me to go on	.61
Allow me to choose time to	.57
Help me deal with bad feelings	.52
Factor V: Appreciation of unique meanings (6.88% of variance)	
Concerned how I view things	.61
Know what is important to me	.69
Acknowledge my inner feelings	.61
Show respect for things having meaning	.55
Factor VI: Healing environment (6.53% of variance)	
Check up on me	.51
Pay attention to me when I am talking	.55
Make me feel comfortable	.59
Respect my privacy	.55
Treat my body carefully	.53
Factor VII: Affiliation needs (6.23% of variance)	
Responsive to my family	.70
Talk openly to my family	.65
Allow my family to be involved	.64
Factor VIII: Basic human needs (6.18% of variance)	
Make sure I get food	.56
Help me with routine needs for sleep	.56
Help me feel less worried	.51

^aRotated factor matrix using α factoring equamax analysis of 64 items.

Table 2. The Cronbach α for total scale and subscales

	Number of items in scale	Cronbach α
Total	36	.963
Mutual problem solving	5	.893
Attentive reassurance	5	.915
Human respect	5	.897
Encouraging manner	6	.917
Appreciation of unique meanings	4	.898
Healing environment	5	.864
Affiliation needs	3	.817
Basic human needs	3	.757

performed. As seen in Table 2, coefficient α values for the subscales ranged from .757 to .917, including those with fewer items. These results demonstrate that for each subscale, the items work sufficiently well together to provide a good estimate of the factor they claim to measure.

DISCUSSION

Analysis of items that loaded on the 8 factors was completed in terms of their theoretical and empirical consistency. A revised "factor labeling" scheme was created by expert panel and made comparison with the existing nursing theory and research to provide a clear representation of what it means to be caring as perceived by the patients in this sample (Table 3).

Mutual problem solving

This study revealed that hospitalized adults viewed nurses who cared as instrumental in helping them understand how to think about their health and illness, figure out questions to ask, explore alternative ways of dealing with health problems, and periodically check in with them to ascertain what they know. This factor explained the largest percentage

of variance (7.6%). Implicit in this factor is providing information, teaching and learning, as well as using best evidence. This factor represents nurses as "knowledge workers"^{41,42} who regularly evaluate their practice as well as access and synthesize the professional literature. In this manner, nurses are continuously learning and engaging patients and families in mutual discussions of their health problems. This factor is consistent with Swanson's¹⁴ *enabling factor*, Watson's² *creative problem-solving and teaching-learning* factors, and relates somewhat to Peplau's²⁹ *nursing roles*. To some extent, it is also linked to the factor of Wolf et al,²² *practicing knowledgeably and skillfully*.

Attentive reassurance

This factor refers to the availability, interest, and hopeful outlook on the part of the nurse. Patients in this sample viewed nurses as caring when they were accessible and optimistically able to look forward to the future (whatever that may be). Being able to foresee and confidently express possibilities provided patients in this sample something to look forward to. This factor clearly represents overlap of several of Watson's² factors (faith-hope, sensitivity, helping-trust relationships), is consistent with Swanson's¹⁴ *maintaining belief dimension*, and somewhat relates to Roach's¹³ *confidence in patients* attribute (see Table 3).

Human respect

The items loading on this factor reflect being able to appreciate the value of human beings and displaying behaviors that demonstrate that value. For example, *accept me* or *pay attention to me* honor the worth of individuals and are congruent with Watson's² first carative factor, *formation of a humanistic-altruistic value system*. She viewed this factor as the first and most basic, while Boykin and Schoenhofer¹² viewed *unconditional acceptance* as a caring characteristic. In this study, the factor accounted for 7.4% of the

Table 3. Consistencies among the 8 caring factors, existing nursing theory, and research

Factors	Factor labels	Theoretical consistencies	Empirical evidence
I	Mutual problem solving	Creative problem solving—Watson ² Teaching-learning—Watson ² Enabling—Swanson ¹⁴ Teacher, resource, counselor—Peplau ²⁹	Practicing knowledgeably and skillfully—Wolf et al ²²
II	Attentive reassurance	Sensitivity to self and others—Watson ² Helping-trust relationships—Watson ² Faith-hope—Watson ² Maintaining belief—Swanson ¹⁴ Confidence in patients—Roach ¹³	
III	Human respect	Human-altruistic value system—Watson ² Unconditional acceptance—Boykin and Schoenhofer ¹²	Showing respect—Wolf et al ²²
IV	Encouraging manner	Comportant—Roach ¹³ Helping-trust relationship—Watson ²	Humanistic care—Cossette et al ²³
V	Appreciation of unique meanings	Allowing for existential-phenomenal forces—Watson ² Knowing—Swanson ¹⁴ Transcultural care—Leininger ³⁰	
VI	Healing environment	“Right environment”—Nightingale ³¹ Totality of event—Leininger ³⁰ Supportive-protective-corrective environment—Watson ² Doing for—Swanson ¹⁴	Clinical care—Cossette et al ²³ Attending to individual needs—Wolf et al ²²
VII	Affiliation needs	Subsystem—Johnson ³² Social systems—King ³³	Family involvement—Boudreaux et al, ³⁷ Campbell and Rudisill, ³⁸ Paul et al, ³⁹ Mangurten et al ⁴⁰
VIII	Basic human needs	Human needs—Watson ² Essential human need—Leininger ¹¹ Self-care requisites—Orem ³⁴ Subsystems—Johnson ³² Components of nursing care—Henderson ³⁵ Physiological mode—Roy ³⁶	Attending to individual needs—Wolf et al ²² Comforting care—Cossette et al ²³

variance in caring. It is also congruent with the findings of Wolf et al²² where *showing respect* explained 7.9% of the variance in caring.

Encouraging manner

Patients perceived nurses to be caring when they were poised, cheerful, could point out good aspects of a situation, and helped

them deal with bad feelings. This factor has an affective dimension because it refers to the attitudes and mannerisms of nurses; it is consistent with Roach's¹³ *comportment* attribute. Watson² also spoke to being congruent or genuine, demonstrating empathy, and displaying nonpossessive warmth. Furthermore, *humanistic care*, the factor of Cossette et al, refers “to a nurses’ attitude...

and implies an attitude of empowerment and encouragement.^{23(p211)}

Appreciation of unique meanings

The items comprising this factor are concerned with how patients view things: knowing what is important and respecting what has meaning to them. It implies a personal knowing of patients and families that occurs only when nurses cultivate relationships.³ The increased diversity, chronicity, and unique life experiences of today's hospitalized patients makes this dimension especially pertinent. The factor is consistent with Watson's² *allowing for existential-phenomenal forces* and it shares meaning with Swanson's¹⁴ *knowing* dimension where nurses attempt to understand the lived experiences of patients. Boykin and Schoenhofer¹² speak on *nursing as a shared lived experience* that enhances personhood, while Leininger's¹¹ culturally based views on caring stress the importance of meanings.

Healing environment

Watson² spoke to providing a *supportive-protective-corrective environment* as have other nursing theorists. Nightingale,³¹ in particular, is known for her views on the environment as a major component of nursing. Leininger views environment as the "totality of the event. . ."^{30(p106)} that includes not just the immediate situation but also the larger cultural context. Watson² viewed this carative factor holistically to include the mental, physical, sociocultural, and spiritual elements in a setting, while Swanson¹⁴ spoke to *doing for*. The items that loaded on this factor reflect aspects such as comfort, privacy, careful treatment of the physical body, and surveillance activities or frequent monitoring. Safeguarding patients from harm including rescuing those who are near life-threatening situations is a national priority⁴³ and one that is nursing sensitive. This factor is congruent with the findings of others, namely, *clinical care*²³ and *attending to individual needs*.²² Environments that

support these aspects during an illness lead to a sense of security, decreased anxiety, enhanced dignity, and protection from harm.

Affiliation needs

Affiliation refers to belonging or membership, and in this case, patients perceived nurses as caring when they were responsive to patients' families and allowed them to be engaged in the healthcare situation. Family involvement has not been viewed in any of the prior theoretical or empirical work on caring as a separate, unique element. Rather, Watson² included affiliation in the human needs factor. However, Johnson³² included affiliation as 1 of the 7 subsystems, and King³³ refers to social systems including families as a foundational assumption to her Theory of Goal Attainment. Preliminary evidence does exist in the recent literature demonstrating the importance of family involvement with hospitalized patients.³⁷⁻⁴⁰ This factor explained 6.2% of the variance in caring for this sample.

Basic human needs

Making sure hospitalized patients' basic needs for ventilation, food and fluid, elimination, sleep, and rest are met seem almost counterintuitive; yet, the current acute care environment is so obsessed with technology, medications, and treatments that these basic needs can often get overlooked. Patients in this sample viewed nurses as caring when they made certain that their basic human needs were met. This factor is consistent with Watson's² *human needs* factor, Leininger's¹¹ views on caring, and the findings of Wolf et al²² and Cossette et al.²³ They are also consistent with other nursing theorists who speak to humans as having specific requirements or modes.³⁴⁻³⁶ Attending to basic human needs during hospitalization has in recent years been relegated to unlicensed assistive personnel and is frequently considered lower in importance. Yet, the patients in this sample viewed nurses as caring when they took their basic needs into account.

The renewed interest in relationship-centered, caring practice models prompted this comprehensive evaluation. Patterns found to be consistent with others' findings provide additional evidence of their authenticity and advance theory. The 10 carative factors² served as theoretical support for item development; however, using empirical results and a multisite convenient sample of hospitalized adults, we found caring to be a multidimensional concept comprising 8 independent factors.

Assuring that all variables that clustered together with high loadings were included on a factor, examination provided some validation for Watson's² original theoretical underpinnings. For example, factor III on Table 2 clearly relates to Watson's first factor, *formation of a humanistic-altruistic value system*.^{2(p10)} However, factors I and II represent a combination of Watson's² theoretical factors. Of the 8 factors, 4 directly relate to Watson's original carative factors²—factors III, V, VI, and VIII. The evaluation is also theoretically consistent with Swanson's¹⁴ mid-range theory of caring, although some of the factors emerging from this analysis did not appear in that earlier work. Furthermore, many of the factors emerging from the data are theoretically linked to other nursing theorists.* Finally, empirical support for some of the factors can be found by the comparison with 2 prior attempts to operationalize caring.^{22,23}

What is apparent from the analysis is that mutual problem solving, human respect, encouraging manner, healing environment, affiliation needs, and basic human needs hold up both theoretically and empirically as components of caring. This demonstrates a steady pattern of scholarly opinion and preliminary empirical evidence that may better explain the work of nursing. Attentive reassurance and appreciation of unique meanings appear consistent with theory but need additional empirical validation.

LIMITATIONS

There are several limitations to this analysis. First, the convenient sample limits generalizability to the 5 organizations from which the data was collected. A description of the sample's demographic characteristics would have added important information about the nature of the participants including any bias in the sample. However, it should be noted that the overall characteristics of the patient populations in the 5 hospitals are similar, that is, urban/suburban individuals from diverse ethnic backgrounds. The focus of this study was the psychometric assessment of the CAT and did not include institution-specific characteristics that could have altered patient responses. For example, nurse practice patterns, staff mix, and leadership practices could have affected the results. Finally, not all patients completed every item on the questionnaire and subsamples were used for some analyses.

CONCLUSIONS

This analysis provided some insight into patients' assessment of caring in nursing and a baseline evaluation of psychometric properties. Dimensions of caring were explored and theoretical/empirical support for the identified factors was presented. The findings inform conceptual approaches to caring relationships by validating some theoretical factors, collapsing others into new categories, and preliminarily identifying a unique factor, affiliation needs, as a component of caring.

On the basis of this continued evaluation of the CAT (Version IV), a valid and reliable instrument that can be easily administered is presented. Furthermore, the reduction of items to a total of 36 while maintaining high overall internal consistency creates a more efficient method for assessing caring. The independent subscales, along with acceptably high internal consistency reliability, allow for

*References 16, 17, 29, 32, 34, 35, 40, 42, 43.

more in depth analysis of the components of caring. The final tool determines the degree of nurse caring as perceived by patients. Questions are directed at how often nurses perform specific activities within the healthcare situation, are designed to be completed by the recipient, and are printed in 14-point font. Responses indicate how frequently an activity occurs. It is designed to be administered *after* some experience with nurses has occurred, for example, in the acute care setting, at least 24 hours after admission. The overall score, which represents a summation of the scores from individual items, ranges from 36 to 180. In general, higher total scores indicate a greater degree of caring.

Further multisite research is needed with probability samples to confirm the factors comprising caring and to better understand the administrative issues associated with the CAT. Altered forms of reliability, for example, test-retest reliability, would add to the usefulness of the instrument. Translation of the scale into additional languages and testing in a variety of settings would further add to the utility of the instrument. Finally, further ev-

idence of the CAT's validity can be attained through known groups and convergent validity testing.

The implementation of caring-based professional practice models, although noteworthy, will reveal the value of nursing only if results are demonstrated. The empirically validated CAT can assist in demonstrating the results of such practice by its easily understood language and ease of administration. To assess the caring practices of nurses, the total score of the CAT can be used to determine the degree of nurse caring as perceived by patients. Subscale scores can also be computed to assess how well each factor contributes to caring and can be used to educate nurses and/or make recommendations for practice changes. In addition, the CAT can be used to measure nurses' "caring competence," to monitor improvements in nursing practice, or to correlate nurse caring with nursing-sensitive patient outcomes. Finally, the unique factors emerging from this analysis add to the knowledge base of nursing by their theoretical and empirical consistencies and provide a more explicit understanding of the concept, caring.

REFERENCES

1. American Nurses Association. ANCC Magnet Recognition Program®—recognizing excellence in nursing services. www.nursecredentialing.org/magnet/goals.html. Accessed June 12, 2006.
2. Watson J. *Nursing: Human Science and Human Care: A Theory of Nursing*. Norwalk, CT: Appleton-Century-Crofts; 1985.
3. Duffy J, Hoskins L. The Quality-Caring Model©: blending dual paradigms. *Adv Nurs Sci*. 2003;26(1):77-88.
4. Watson J. Caring theory as an ethical guide to administrative and clinical practices. *Nurs Admin Q*. 2006;30(1):48-55.
5. Duffy J, Baldwin J, Mastorovitch MJ. Using the Quality-Caring Model© to organize patient care. *J Nurs Admin*. 2007;37(12).
6. Dingman S, Williams M, Fosbinder D, Warnick M. Implementing a caring model to improve patient satisfaction. *J Nur Admin*. 1999;29(12):30-37.
7. Latham C. Predictors of patient outcomes following interactions with nurses. *West J Nurs Res*. 1996;18(5):548-564.
8. Minick P. The power of human caring: early recognition of patient problems. *Schol Inq Nurs Pract*. 1995;9(4):303-315.
9. Swan B. Postoperative nursing care contributions to symptom distress and functional status after ambulatory surgery. *Medsurg Nurs*. 1998;7(3):148-158.
10. Watson J. *Instruments for Assessing and Measuring Caring in Nursing and Health Sciences*. New York: Springer; 2003.
11. Leininger MM. Leininger's theory of nursing: cultural care diversity and universality. *Nurs Sci Q*. 1998;1:152-160.
12. Boykin A, Schoenhofer S. *Nursing as Caring: A Model for Transforming Practice*. New York: National League for Nursing Press; 1993.
13. Roach S. *Caring: The Human Mode of Being*. Toronto, Canada: University of Toronto; 1984.
14. Swanson KM. Empirical development of a middle range theory of caring. *Nurs Res*. 1991;40(3):161-166.
15. American Nurses Association. Nursing's agenda for the future. www.nursingworld.org/naf/Nafbf.pdf. Published 2002. Accessed June 12, 2006.
16. American Organization of Nurse Executives.

- Guiding principles for Patient Care Delivery Toolkit. www.aone.org/resource/guidingprinciples/html. Published 2005. Accessed May 11, 2006.
17. Institute of Medicine. *Crossing the Quality Chasm: A New Health System for the 21st Century*. Washington, DC: Institute of Medicine; 2001.
 18. Health Resources and Services Administration. Nurse education, practice, and retention. <http://granteefind.hrsa.gov/searchbyprogram.aspx?select=D66&index=133>. Published 2005. Accessed June 13, 2006.
 19. Malloch K, Shluyter D, Moore, N. Relationship centered care: achieving true value in healthcare. *J Nurs Admin*. 2000;30(7-8):379-385.
 20. Duffy J. Want to graduate nurses who care? Assessing nursing students' caring competencies. *Annu Rev Nurs Ed*. 2004;3:73-97.
 21. Beck CT. Quantitative measurement of caring. *J Adv Nurs*. 1999;30(1):24-32.
 22. Wolf ZR, Zuzelo PR, Goldberg E, Crothers R, Jacobson N. The Caring Behaviors Inventory for Elders: development and psychometric characteristics. *Int J Human Caring*. 2006;10(1):49-59.
 23. Cossette S, Cote JK, Pepin J, Ricard N, D'Aoust LX. A dimensional structure of nurse-patient interactions from a caring perspective: refinement of the Caring Nurse-Patient Interaction Scale (CNPI-Short Scale). *J Adv Nurs*. 2005;55(2):198-214.
 24. Duffy J. An analysis of relationships among nurse caring behaviors and selected outcomes of care in hospitalized medical and/or surgical patients [dissertation]. *Dissertation Abstr Int*. 1990;AAT 9027657.
 25. Likert R. A technique for the measurement of attitudes. *Arch Psychol*. 1932;140:140-155.
 26. Duffy J. The impact of nurse caring on patient outcomes. In: Gaut D, ed. *The Presence of Caring in Nursing*. New York: National League for Nursing; 1992.
 27. Duffy J. Caring assessment tools. In: Watson J, ed. *Instruments for Assessing and Measuring Caring in Nursing and Health Sciences*. New York: Springer; 2003:125-138.
 28. Munro B. *Statistical Methods for Healthcare Research*. Philadelphia: Lippincott; 1997.
 29. Peplau HE. *Interpersonal Relations in Nursing*. New York: Springer; 1988. Originally published by: New York: GP Putnam's Sons; 1952.
 30. Leininger MM. *Transcultural Nursing: Concepts, Theories, Research and Practices*. 2nd ed. New York: McGraw-Hill; 1995.
 31. Nightingale FN. *Notes on nursing: What It Is and What It Is Not*. Com ed. Philadelphia: Lippincott; 1992. Originally published in: 1859.
 32. Grubbs J. An interpretation of the Johnson behavioral system model for nursing. In: Richl JP, Roy C, eds. *Conceptual Models for Nursing Practice*. 2nd ed. New York: Appleton-Century-Crofts; 1980:168-197.
 33. King I. A systems framework for nursing. In: Frey MA, Seiloff CL, eds. *Advancing King's Systems Framework and Theory of Nursing*. Thousand Oaks, CA: Sage; 1995:14-22.
 34. Orem D. *Nursing: Concepts of Practice*. 6th ed. St. Louis: Mosby; 2001.
 35. Henderson V. Nursing—yesterday and tomorrow. *Nurs Times*. 1980;76:905-907.
 36. Roy C Sr, Andrews HA. *The Roy Adaptation Model*. 2nd ed. Stamford, CT: Appleton & Lange; 1999.
 37. Boudreaux ED, Francis JL, Loyacano T. Family presence during invasive procedures and resuscitations in the emergency department: a critical review and suggestions for future research. *Ann Emerg Med*. 2002;40:193-205.
 38. Campbell P, Rudisill P. Psychosocial needs of the critically ill obstetric patient: the nurse's role. *Crit Care Nurs Q*. 2006;29(10):77-80.
 39. Paul F, Hendry C, Cabrelli L. Meeting patient and relatives' information needs upon transfer from an intensive care unit: the development and evaluation of an information booklet. *J Clin Nurs*. 2004;13:396-405.
 40. Mangurten J, Scott S, Guzzetta C, et al. Effects of family presence during resuscitation and invasive procedures in a pediatric emergency department. *J Emerg Nurs*. 2006;32(3):225-233.
 41. O'Grady TP. Nurses as knowledge-workers. Interview by Kathy Mallock. *Creat Nurs*. 2003;9(2):6-9.
 42. Seifert P. The perioperative nursing data set: power is knowledge. *AORN J*. 1999;70(1):9-11.
 43. Clarke SP, Aiken LH. Failure to rescue: measuring nurses' contributions to hospital performance. *Am J Nurs*. 2003;103:42-47.