# Caring behavior in the intensive care unit: An instrument development and validation

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## A B S T R A C T

This study aimed to develop and test the instrument of the caring behavior of nursing students in the Intensive Care Unit. The caring behavior domains were formulated and prepared according to the significant findings from the review of literature on the carative factors of Jean Watson. All third and fourth year Bachelor of Science in Nursing students of the University of Hail were recruited as respondents based on inclusion and exclusion criteria. Content validity was reviewed by an expert panel. Data analyses were performed using Stata SE 13. Quantitative variables were presented as means and standard deviations. The internal consistency reliability of each domain was calculated as Cronbach's alpha 1.00; very high from 0.81 to 0.99; high from 0.61 to 0.80; moderate from 0.41 to 0.60; low from 0.21 to 0.40; and very low from 0 to 0.20. Using the developed tool, sixty-nine (94.52%) Bachelor of Science in Nursing students actively participated in the study. Ages of respondents are from 21 to 44 years old (M= 26, SD ±5.67). Seven caring behavior items were rated outstanding, being sensitive to patients' rights, (4.58 ±0.85) monitoring patient's vital signs (4.55 ±0.83) provide privacy (4.58 ±0.88) awareness of patients' health problems (4.55 ±0.72), hand washing (4.59 ±0.81), performs nursing procedures (4.57 ±0.90). This study demonstrated that perceptions of caring behaviors among Saudi nursing students were congruent to the results of other related studies on the most and least important caring behaviors.

## 1. Introduction

*"Caring"* in nursing pertains to the actions rendered by a professional nurse that in any way is a "*therapeutic intervention*", a "*helping process*", and a "*nurse-patient relationship*". It also corresponds to "*actions of the nurse*" with "*respect for the patient*", an "*intention*", and the "*amount of time to provide care*" (Hoffman, 2013).

Indeed, the caring behavior phenomenon has been studied among nurses, patients, and nursing students but were defined unclearly despite numerous studies as regards components of caring because of the multiple dimensions involved, hence, it cannot be reconciled easily (Salimi and Azimpour, 2013; Modic et al., 2014; Li et al., 2016; Hoffman, 2013; Papastavrou et al., 2011).

In the learners' context, the caring behavior is a major component, a key indicator, and a basis of

the quality of education (Labrague, 2012). As such, translating them into empirical evidence would mean looking at how the learning outcomes were met by each student but may not always be very substantial since it only sheds light on the theory side but not in practice. In another way, this can be done by inquiring on the perceptions of students about what presents as "*caring behaviors*" to them when attending to patients followed by a validation of their actual behaviors through student evaluation.

In the Kingdom of Saudi Arabia, caring in the nursing curriculum was described in five domains by the National Commission for Academic Accreditation and Assessment (NCAAA). Despite multiple dimensions addressed in teaching the science and art of nursing care, the affective component remains to exist as *"hidden curriculum"* in nursing education (Pay-Fan, 2001).

Across literature, caring behaviors were categorized as: (1) *"technical,"* the cognitive and psychomotor and (2) *"expressive,"* the affective (Zamanzadeh et al., 2014). The caring behavior of nursing students takes into account the essential elements of this phenomenon that encompass the

professional knowledge (cognitive), technical (psychomotor) skills and expression of care (affective). Furthermore, nursing actions nominated as *"supporting," "negotiating," "reinforcing,"* and *"transforming"* embodies the phenomenon of caring into its meaningful expression as the professional roles of nurses. These elements have been unveiled and supported by a large body of research (Li et al., 2016).

Care of critically-ill patients focuses on providing *"total support"* for bodily systems and organ functions with some parameters and contraptions to monitor and manipulate since the characteristic of patients admitted are unstable or physiologically decompensated, unconscious, delirious, and immunocompromised. This level of caring is needed by student nurses in the ICU. Current research emphasized the use of multiple teaching strategies to improve the caring behaviors of students (Li et al., 2016).

The caring behavior of nursing students needs to take off as it significantly helps to improve to plan fundamental change eventually. There is a dearth in the literature regarding the advancement of caring behavior specifically in the intensive care unit. As such, this study aimed to develop and test the caring behavior instrument of nursing students in the Intensive Care Unit.

## 1.1. Conceptual paradigm of the study

The theory of Jean Watson on human caring is applied to illuminate the caring behaviors of students to ICU patients (i.e., technical and expressive caring) and was used to determine their behavior through the seven domains derived from the carative factors. According to Watson's theory, *"Nursing is known to promote health, preventing illness, caring for the sick, and restoring health."* It emphasizes on health advancement and disease treatment. According to Watson (2009), caring is a core to nursing practice that enhances health compared to simple medical cure. Students possess knowledge and skills to perform bedside care and have unique personal backgrounds and values which can influence how they perceive caring behaviors (Benken, 1995). This can be assessed on how the students will rate themselves on the 5-point Likert scale. Furthermore, this may also reflect how they perceived their nursing education and provide the basis for revision of the course in the program to improve clinical training.

## 2. Methods

### 2.1. Instrument development

The questionnaire was developed to capture the caring behaviors of nurses in the Intensive Care Unit. Domains were formulated according to the review of studies on caring behaviors and the major tools that were founded on the carative factors of Jean Watson while the items in the questionnaire are prepared according to significant findings in the literature review (Drake, 2016) and including all nursing activities that were implemented for ICU. Specifically, all caring behavior tools presented in a systematic review (Drake, 2016) were examined carefully and then domain labels and significant caring behaviors were extracted.

Five instruments were considered as crucial reference for domains and items construction. These included caring assessment report evaluation Q-sort (CARE-Q), caring behavior assessment (CBA), caring behavior inventory (CBI), CBI-24 and holistic caring inventory (HCI). Twenty-six domain labels and thirty-three caring behavior items were organized in a matrix table and then cross-matched manually to reduce into seven domains. The studies of Christiano (2005), Labrague (2002), and Hoffman (2013) provided the methodological model for the application of carative factors in Jean Watson's theory using only seven components.

In order to efficiently capture the essence of the carative factors among the nursing students, all seven domains were included in the following context: (1) *"Being sensitive to patients' rights"*; (2) *"Being sensitive to patients' privacy"*; (3) *"Being sensitive to patients' feelings"*; (4) *"Being sensitive to patients' understandings"*; (5) *"Being sensitive to patients' basic needs"*; (6) *"Being sensitive to patients' treatment"*; and (7) *"Being sensitive to patients' religious practice"*. The item pool originally consisted of items taken from the literature. All overlapping context were merged then learning outcomes were added to write new statements. Steps are outlined in Fig. 1.
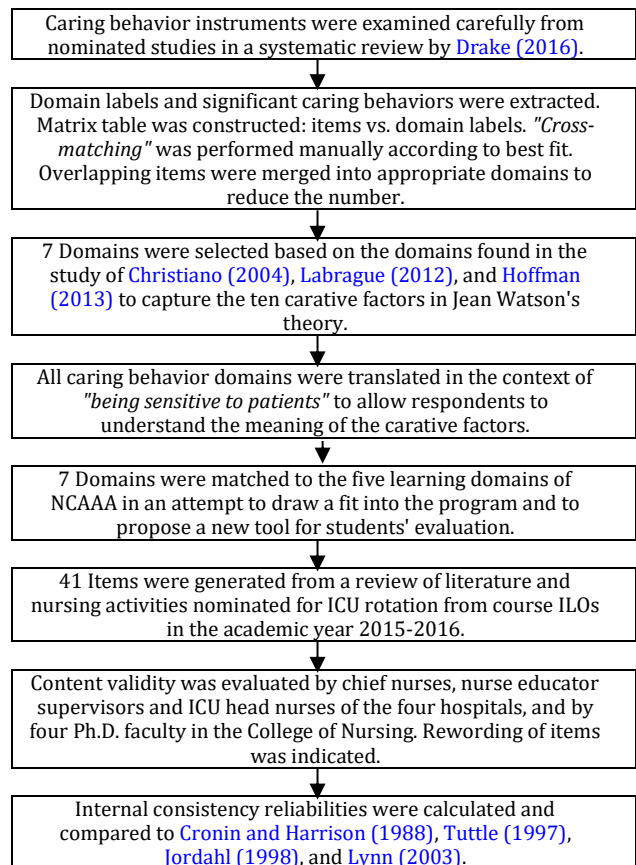


Caring behavior instruments were examined carefully from nominated studies in a systematic review by Drake (2016).

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Domain labels and significant caring behaviors were extracted. Matrix table was constructed: items vs. domain labels. *"Cross-matching"* was performed manually according to best fit. Overlapping items were merged into appropriate domains to reduce the number.

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7 Domains were selected based on the domains found in the study of Christiano (2004), Labrague (2012), and Hoffman (2013) to capture the ten carative factors in Jean Watson's theory.

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All caring behavior domains were translated in the context of *"being sensitive to patients"* to allow respondents to understand the meaning of the carative factors.

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7 Domains were matched to the five learning domains of NCAAA in an attempt to draw a fit into the program and to propose a new tool for students' evaluation.

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41 Items were generated from a review of literature and nursing activities nominated for ICU rotation from course ILOs in the academic year 2015-2016.

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Content validity was evaluated by chief nurses, nurse educator supervisors and ICU head nurses of the four hospitals, and by four Ph.D. faculty in the College of Nursing. Rewording of items was indicated.

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Internal consistency reliabilities were calculated and compared to Cronin and Harrison (1988), Tuttle (1997), Jordahl (1998), and Lynn (2003).

**Fig. 1:** Instrument development process

## 2.2. Sample

All third and fourth year Bachelor of Science in Nursing students of the University of Hail served as a *"pilot"* for the validation of the instrument. This group was chosen based on inclusion and exclusion criteria. Eligibility of the nursing student respondents were the following: (a) active registration in the Banner system who are third and fourth year students during the study period, (b) completion of four or more ICU rotations during the Advanced Adult Care Nursing Practice and Critical Care Nursing Practice courses, (c) can read and understand English, and (d) willing to participate. Respondents were excluded if absent or if they refused to sign the informed consent. Only 69 Saudi nursing student respondents were taken in the study as per eligibility (Table 1).

**Table 1:** Profile of nursing student respondents

| Characteristics (*N*= 69) | *n (%)* |
|---|---|
| **Age** | |
| ≤27 years old | 44 (63.8) |
| >27 years old | 25 (36.2) |
| **Gender** | |
| Male Students | 35 (50.7) |
| Female Students | 34 (49.3) |
| **Type of Nursing Program** | |
| Regular | 55 (79.7) |
| Bridging | 14 (20.3) |
| **Cumulative GPA** | |
| ≥3.00 | 24 (34.8) |
| <3.00 | 45 (65.2) |

The instrument has been subjected for content validity. This was represented by chief nurses, nurse educator supervisors, and ICU head nurses in the following hospitals: King Khalid Hospital; Cardiac Center, Hail General Hospital; and Convalescent Center Hospital, and by four Ph.D. faculty members in the College of Nursing of University of Hail. Re-wording of items was done as suggested by expert panel members to be concise and to be relevant according to nursing practice, religion, and cultural norms.

Data analyses were performed using Stata SE 13. Quantitative variables were presented as means and standard deviations. On the other hand, qualitative variables were tabulated as frequency and percent. Reliability was assessed through the use of Cronbach's alpha (α) with an arbitrary cut-off set at 40% for the item-test correlation since the current study was an initial exploratory phase in developing a tool for assessment of caring behaviors. Internal consistency reliability of each domain was calculated and interpreted as: perfect at Cronbach's alpha 1.00; very high from 0.81 to 0.99; high from 0.61 to 0.80; moderate from 0.41 to 0.60; low from 0.21 to 0.40; and very low from 0 to 0.20.

## 3. Results and discussion

Sixty-nine (94.52%) respondents were mostly regular (*n*= 55) male (*n*= 35) and female (*n*= 34) students. Age of respondents was from 21 to 44 years (*M*= 26, *SD* ±5.67). However, age 27 years was used as *"cut-point"* to categorize students' age.

The overall cumulative Grade Point Average (GPA) of students was above average based on the University grading system and in a range of 0.882 to 3.907 (*M*= 2.58, *SD ±0.*799). A cut-point was used (3.00) to categorize their GPA.

Table 2 shows the internal consistency of instrument on the seven domains.

**Table 2:** Internal consistency of instrument domains

| Domain | Cronbach's α |
|---|---|
| Patients' rights | 0.956 |
| Patients' privacy | 0.955 |
| Patients' feelings | 0.955 |
| Patients' understandings | 0.955 |
| Patients' basic needs | 0.955 |
| Patients' treatment | 0.955 |
| Patients' religious practice | 0.956 |
| Overall | 0.955 |

Seven domains with 41 items were formulated. The average inter-item correlation of the 41-item tool would be 0.36, and an excellent scale reliability coefficient of 0.96, overall. There were no missing values or unanswered questions in the survey which suggests that the questions appear to be well understood and can be answered well. Most of the items have acceptable item-test correlation, ranging between 0.39 to 0.77 with only one item falling below the arbitrary cut-off of 0.40, which involved item 3.2 (*"I allow my patients to express attention-seeking behaviors...."*) yet the internal consistency of the questionnaire remains to be high. According to DeVellis (2016), Cronbach's α of 0.70 is adequate. Table 3 shows the overall Cronbach's α result of the validation of survey instrument on caring behavior among nursing students. It can be gleaned that the overall Cronbach's α is 0.958 which is high reliable.

**Table 3:** Validation of survey instrument on caring behavior among nursing students

| Domain | Cronbach's α |
|---|---|
| Patients' rights | 0.847 |
| Patients' privacy | 0.871 |
| Patients' feelings | 0.831 |
| Patients' understandings | 0.874 |
| Patients' basic needs | 0.867 |
| Patients' treatment | 0.920 |
| Patients' religious practice | 0.619 |
| Overall | 0.958 |

The total internal consistency of the seven domains comprised of 41 items in this study was calculated at 0.96. The reliabilities of each item from domains 1 to 7 were comparable to other studies concerning DeVellis (2016) and is recommended on acceptable Cronbach's α coefficient of 0.70. In the earlier caring behavior tool originally developed by Cronin and Harrison (1988) with 61 items, the overall Cronbach's α was reported at 0.75 and have high reliabilities. Similar results were found by Tuttle (1997) using 57 items. In the study of Jordahl (1998), 63 items were utilized and reported the total Cronbach's α at 0.95, and the domains were calculated high reliability. Moreover, Cronin and Harrison (1988) and Tuttle (1997) both had similar results on domain seven as the lowest. On the other hand, domain 6 was the highest, but this was inconsistent with the report of Jordahl (1998). According to

Watson and Hoogbruin (2001), student nurses at the beginning of their nursing education perceive caring as *"technical"* but shifts to the *"psychosocial"* and *"expressive"* domain and perceive them as *"more caring"* behaviors when they progress in their academic training. In this study, the higher mean scores in the majority of the respondents over the instrumental behaviors confirm the findings of the authors as part of their academic career development.

The findings were also consistent with the study of Khademian and Vizeshfar (2008). The monitoring subscale (M= 4.33, SD ±0.60), a type of instrumental skill, was rated by students as the most important which is equivalent to domain one (1) in this study.

On the other hand, trusting relationship domain (M= 3.70, SD ±0.62) was the least important which is equivalent to domains 3 and 5 in this study which pertains to an expressive or affective task. Giving medical treatments was the most important whereas personalized care was least important.

In this study, these items were comparable to *"I practice hand washing and/or hand hygiene"*; and *"I allow my patients to express attention-seeking behaviors such as moaning, making noise, throwing pillows, or kicking the foot of the bed"* and *"I inform my patients about my plan of care in the shift"*. Also, this study revealed similar findings with Labrague (2012). Table 4 shows the 41 caring behaviors items.

**Table 4:** Ratings of the caring behavior items

| Subscale | Mean±SD | Interpretation |
|---|---|---|
| **1. Being sensitive to patients' rights** | | |
| 1.1. I respect my patients' dignity and self-worth. | 4.58 ±.85 | *Outstanding* |
| 1.2. I let my patients feel my presence by speaking and touching. | 4.30 ±1.03 | *Very Satisfactory* |
| 1.3. I tell my patients of any improvements in their health conditions. | 4.22 ±1.01 | *Very Satisfactory* |
| 1.4. I take note of nonverbal cues from my patients. | 4.14 ±1.07 | *Very Satisfactory* |
| 1.5. I monitor my patient's vital signs. | 4.55 ±.83 | *Outstanding* |
| 1.6. I check for any signs of resistance to mechanical ventilation, e.g., alarms, use of accessory muscles of respiration, coughing, gagging, or gasping. | 4.38 ±.81 | *Very Satisfactory* |
| **2. Being sensitive to patients' privacy** | | |
| 2.1. I check on my patients at regular intervals. | 4.38 ±.77 | *Very Satisfactory* |
| 2.2. I introduce myself to my patients. | 4.49 ±.96 | *Very Satisfactory* |
| 2.3. I provide privacy by closing the curtains when performing nursing procedures. | 4.58 ±.88 | *Outstanding* |
| 2.4. I focus on my patients whenever I stay at the bedside. | 4.38 ±.97 | *Very Satisfactory* |
| 2.5. I ensure continuity of care by introducing members of the healthcare team to my patients. | 4.20 ±.90 | *Very Satisfactory* |
| 2.6. I do not disclose any information about patients to any persons. | 4.32 ±1.13 | *Very Satisfactory* |
| **3. Being sensitive to patients' feelings** | | |
| 3.1. I allow my patients to express happiness such as smiling, humming, or hand tapping. | 4.30 ±1.00 | *Very Satisfactory* |
| 3.2. I allow my patients to express attention-seeking behaviors such as moaning, making noise, throwing pillows, or kicking the foot of the bed. | 3.99 ±1.18 | *Very Satisfactory* |
| 3.3. I express happiness unto my patients. | 4.25 ±.91 | *Very Satisfactory* |
| 3.4. I accept any suggestions from my patients regarding their recent health status | 4.35 ±.85 | *Very Satisfactory* |
| 3.5. I am aware of my patients' health problems and all the procedures being done to achieve the quality care they need. | 4.55 ±.72 | *Outstanding* |
| **4. Being sensitive to patients' understandings** | | |
| 4.1. I teach patients to communicate using nonverbal cues. | 4.20 ±1.02 | *Very Satisfactory* |
| 4.2. I demonstrate breathing exercises to my patients. | 4.19 ±1.05 | *Very Satisfactory* |
| 4.3. I work with my patients to perform range-of-motion exercises. | 4.10 ±1.03 | *Very Satisfactory* |
| 4.4. I explain all procedures to my patients. | 4.45 ±.83 | *Very Satisfactory* |
| 4.5. I provide teaching regarding medication use. | 4.23 ±1.07 | *Very Satisfactory* |
| 4.6. I advise my patients about their diet. | 4.29 ±1.02 | *Very Satisfactory* |
| **5. Being sensitive to patients' basic needs** | | |
| 5.1. I inform my patients about my plan of care in the shift. | 3.99 ±1.10 | *Very Satisfactory* |
| 5.2. I provide my patients adequate rest periods. | 4.26 ±.96 | *Very Satisfactory* |
| 5.3. I provide and maintain privacy such as limiting visitors, observing visiting hours, closing curtains, draping the patients during procedures. | 4.39 ±1.06 | *Very Satisfactory* |
| 5.4. I promote a safe environment by raising side rails, checking for restraints, keeping the linens dry and wrinkle-free. | 4.39 ±1.03 | *Very Satisfactory* |
| 5.5. I assist in turning, bathing, and linen changing. | 4.23 ±1.05 | *Very Satisfactory* |
| 5.6. I practice hand washing and hand hygiene. | 4.59 ±.81 | *Outstanding* |
| 5.7. I perform nursing procedures according to unit protocols. | 4.57 ±.90 | *Outstanding* |
| 5.8. I regulate room temperature, lighting, alarms, and noise. | 4.13 ±1.10 | *Very Satisfactory* |
| **6. Being sensitive to patients' treatment** | | |
| 6.1. I operate medical equipment such IV pump, suction, machine, cardiac monitor, ECG machine, and mechanical ventilator proficiently. | 4.48 ±.82 | *Very Satisfactory* |
| 6.2. I adhere to medication/treatment protocols: preparation, administration, and documentation. | 4.20 ±1.07 | *Very Satisfactory* |
| 6.3. I monitor my patients' health condition. | 4.33 ±.90 | *Very Satisfactory* |
| 6.4. I refer my patients' medical condition as necessary to healthcare team members. | 4.41 ±.77 | *Very Satisfactory* |
| 6.5. I ensure my patients appear clean and with pleasant body odors. | 4.22 ±.84 | *Very Satisfactory* |
| 6.6. I maintain my patients' human needs such as airway clearance, blood circulation, gas exchange, nutrition, and elimination. | 4.43 ±.87 | *Very Satisfactory* |
| 6.7. I anticipate my patients' future needs and concerns. | 4.22 ±1.06 | *Very Satisfactory* |
| 6.8. I listen to my patients' concerns. | 4.46 ±.88 | *Very Satisfactory* |
| **7. Being sensitive to patients' religious practice.** | | |
| 7.1. I respect my patients' practice of their religion. | 4.52 ±.82 | *Outstanding* |
| 7.2. I let God take action for my patients' critical condition. | 4.26 ±1.23 | *Very Satisfactory* |

Among them, *"I respect my patients' dignity and self-worth", "I monitor my patients vital signs", "I provide privacy by closing the curtains when performing nursing procedures", "I am aware of my patients' health problems and all the procedures* being done to achieve the quality care they need", "I practice hand washing and/or hand hygiene", "I perform nursing procedures according to unit protocols", and "I respect my patients' practice of their religion"* were the highest (Outstanding)

caring behaviors of student nurses. As such, a nursing student possesses knowledge and skills to perform bedside care and utilize unique personal backgrounds and values which can influence how they perceive caring behaviors (Benken, 1995). Meanwhile, all other items were Very Satisfactory. Majority of the items interpreted as Outstanding were part of the *"Being sensitive to patients' rights," "Being sensitive to patients' privacy," "Being sensitive to patients' feelings," "Being sensitive to patients' basic needs,"* and *"Being sensitive to patients' religious practice"* subscales. Overall, the caring behaviors of student nurses were Very Satisfactory. This implies that nursing students utilized ways of showing caring to their patients. Mlinar (2010) talked about the caring relationship and depicted two aspects as instrumental and expressive. Accordingly, the instrumental part identifies with the physical and specialized parts of care, while expressive caring identifies with meeting patients' psychosocial and emotional needs. The instrumental part is one that is promptly educated and effectively gotten a handle on by most nursing students, while expressive caring, referred to some as the most vital viewpoint, and is something that develops after some time.

## 4. Conclusion

This study has demonstrate that the test instrument to validate the caring behavior of the nursing students is valid and that this caring assessment tool of caring behavior can be used to assess the nursing students. Further, studies on the perceptions of nurses, patients, and nursing students on caring behaviors provide evidence of multidimensionality but *"caring"* in nursing is universal. This study demonstrated that perceived caring behaviors among Saudi nursing students in ICU were congruent to literature.

## Acknowledgment

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