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Investigating Nurses' Caring Behavior When Dealing with Patients with Emerging Diseases

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Abstract

Background: In the era of emerging diseases, the caring behavior of nurses is regarded as a crucial factor in managing health crises.

Objectives: This study aimed to investigate the caring behaviors of nurses when interacting with patients affected by emerging diseases.

Methods: This cross-sectional study was conducted with 210 nurses from two educational and medical centers, Sayad Shirazi and Panj Azar, in Gorgan. Participants were selected through convenience sampling. The instrument utilized was a questionnaire comprising two demographic sections and the Caring Behaviors Inventory (CBI-42). Data were analyzed using SPSS-24, employing descriptive statistics (frequency, median) and inferential tests, including the Spearman, Mann-Whitney, and Kruskal-Wallis tests.

Results: The study demonstrated that the age of nurses was significantly associated with "confidence in human presence" ($P = 0.002$), "positive communication" ($P = 0.009$), and "attention to the experiences of others" ($P = 0.034$). Additionally, work experience was linked to the dimensions of respect ($P = 0.015$), positive communication ($P = 0.012$), and attention to others' experiences ($P = 0.008$). Marital status was associated with all dimensions of care ($P < 0.05$); however, education, gender, and blood type did not exhibit any significant associations. These findings underscore the importance of nurses' experience and social status in influencing their caregiving behaviors.

Conclusions: Nurses' caring behaviors are correlated with both experiential and individual factors that affect the quality of care delivery. Such observations can serve as a valuable foundation for educational and support planning in healthcare settings.

Keywords: Caring Behavior, Nurses, Emerging Diseases

1. Background

Nursing care, aimed at improving patients' health, not only addresses the physical needs of a patient but also encompasses their mental, spiritual, and social needs. Since the 1980s, nurses in Western countries have progressed from theory to practice and have emphasized nursing care as the core of professional practice (1). Morse et al. defined caring through five major conceptualizations: Caring as a human trait, a moral imperative, an affect, an interpersonal interaction, and an intervention (2).

The prevalence of emerging infectious diseases (EIDs) with pandemic potential has increased over recent decades due to the expansion of global commerce and the subsequent widespread disruption of ecological systems (3). During epidemics, providing care to patients places considerable stress on nurses, often triggering negative psychological responses, including depression, anxiety, and irritability (4). These

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psychological complications were particularly prevalent among nurses caring for COVID-19 patients (5). Emerging diseases, such as COVID-19, Ebola, and Middle East respiratory syndrome (MERS), place additional strain on health systems, especially on nurses, due to unknown transmission routes, limited treatment options, and a lack of standardized protocols. This situation underscores the necessity of examining nursing behavior during such crises (6, 7).

Although several studies have examined nurses' stress during pandemics (8, 9), few have analyzed their objective nursing behaviors when confronted with emerging diseases. This study aims to address this gap by focusing on the behavioral components involved.

2. Objectives

This study was designed to investigate nurses' behaviors when caring for patients with emerging diseases and to identify the factors that influence these behaviors.

3. Methods

This was a cross-sectional study involving nurses who cared for patients with emerging diseases, including COVID-19, at two educational and medical centers in Sayad Shirazi and Panj Azar, Gorgan. Participants were selected using convenience sampling. Due to the critical conditions resulting from COVID-19 and the limited ability to interact with participants, the questionnaires were distributed as an online link. The researcher, who works in the hospital, provided the link directly to the nurses in the departments involved in the care of COVID-19 patients. The study was conducted from 19 February 2021 to 25 May 2021.

The inclusion criteria encompassed nurses who provided care for patients with COVID-19 and were willing to participate in the study. The exclusion criteria consisted of nurses with less than one year of clinical experience and those who completed the questionnaires incompletely.

3.1. Sample Size

To determine the sample size, based on the study by Hosseinzadeh et al. (10), the standard deviation of caring behavior (the questionnaire used in the present study) was S = 0.7, with a confidence interval of 95%, and to detect a significant difference, d = 0.1 units. This calculation yielded a minimum sample size of 190 individuals. The formula used is as follows:

3.2. Study Measures

The questionnaire consisted of two parts: (1) Demographic items including age, gender, blood type, marital status, work history, level of education, history of COVID-19, illnesses of family members, deaths of family members due to COVID-19, access to personal protective equipment, and appropriate cleaning agents; and (2) the Caring Behaviors Inventory (CBI-42). The CBI-42 was designed by Wolf in 1998 with 75 items, later reduced to 42 after revision. This questionnaire measures five subscales: Respect for others, assurance of human presence, communication and orientation, professional knowledge and skills, and attention to others' experiences. Items are scored on a 6-point Likert scale (always = 6, most of the time = 5, sometimes = 4, a few times = 3, rarely = 2, never = 1), with possible total scores ranging from 42 to 252. Higher scores indicate higher levels of caring behavior.

The subscales are: Respect for others (12 items), assurance of human presence (12 items), positive communication and attitude (9 items), professional knowledge and skills (5 items), and attention to the experiences of others (4 items). Items 1 to 33 pertain to the psycho-emotional dimension, and items 34 to 42 relate to the physical dimension of caregiving behaviors.

Wolf et al. reported a Cronbach's alpha of 0.93 for this questionnaire and confirmed its test-retest reliability and construct validity (11). In Iran, its validity and reliability were confirmed content validity was assessed by translating the questionnaire into fluent Persian and then obtaining feedback from ten faculty members at the Tehran School of Nursing and Midwifery. After incorporating their suggestions, the final instrument was prepared. Permission to use the validated instrument was obtained. The Cronbach's alpha coefficient of the instrument was 0.92 in the study by Hajinezhad et al. (12). In this study, the Cronbach's alpha coefficient for the CBI-42 was 0.81, and for the subscales: Respect for others (0.71), assurance of human presence (0.73), positive communication and attitude (0.73), professional knowledge and skills (0.80), and attention to the experiences of others (0.79).

For content validity, the necessity of the items was assessed by experts to determine the content validity ratio (CVR). Fourteen experts (nurse managers and shift supervisors) were asked to review each item using a 3-point scale: (1) Necessary, (2) useful but not necessary, and (3) not necessary. Ten experts completed the checklist. The CVR for each item was calculated using the following formula, where n is the number of experts who rated an item as necessary, and N is the total number of experts:

$$CVR_i = \frac{n_e - \frac{N}{2}}{\frac{N}{2}}$$

The obtained numbers were compared with Lawshe's table (13). According to Lawshe's table, the minimum CVR for ten experts should be 0.62 (based on the English version); thus, there were 42 questions. To calculate the Content Validity Index (CVI), each item was evaluated on a 4-point Likert scale for relevance, clarity, and simplicity. For relevance, the options were: Irrelevant (1), somewhat relevant (2), relevant (3), and completely relevant (4). The CVI score was obtained by dividing the number of experts who rated each item as 3 or 4 by the total number of experts. A value of 0.79 or greater denoted desirable content validity (14). None of the items scored below 0.7, and no item was deleted. The CVI was calculated as follows:

$$CVI - \frac{n}{N}$$

where n is the number of experts who gave an item a score of 3 or 4, and N is the total number of experts who answered that item.

Data were analyzed using SPSS-24. The Kolmogorov-Smirnov test indicated that the data were non-normal. Therefore, descriptive statistics (frequency, median) and inferential analyses, including the Spearman, Mann-Whitney, and Kruskal-Wallis tests, were used.

4. Results

In this study, 210 nurses participated, with a mean age of 33 ± 7.67 years. The youngest participant was 23 years old, and the oldest was 54 years old. Notably, 36.2% of the participants were in the 25.1 - 30 years age range. The majority of the nurses were female (75.2%) and married (65.2%). The highest percentage of nurses (40.1%) had less than 5 years of work experience, and 42.9% had blood type O (Table 1). Table 2 shows descriptive value of caring behavior dimensions.

Table 1. Frequency of Demographic Characteristics of Nurses

Demographic Characteristics	No. (%)
Gender	
Male	52 (24.8)
Female	158 (75.2)
Age (y)	
20 - 25	30 (14.3)
25.1 - 30	76 (36.2)
30.1 - 35	37 (17.6)
35.1 - 40	32 (15.2)
40.1 - 45	16 (7.6)
45.1 - 50	13 (6.20
50.1 - 55	6 (2.9)
Marital status	
Single	70 (33.3)
Married	137 (65.2)
Divorced	3 (1.4)
Blood type	
A	56 (26.7)
B	46 (21.9)
AB	15 (7.1)
O	90 (42.9)
Don't know	3 (1.4)
Education level	
Postgraduate diploma	1.9 (4)
Bachelor's degree	81 (170)
Master's degree	16.7 (35)
Doctorate	0.5 (1)
Work history	
0 - 5	83 (40.1)
5.1 - 10	49 (23.7)
10.1 - 15	32 (15.2)
15.1 - 20	26 (12.6)
20.1 - 25	11 (5.3)
25.1 - 30	6 (2.9)

The results indicated a significant correlation between caring behavior and age (P = 0.007, R = 0.189), as well as work experience (P = 0.015, R = 0.172). However, no significant correlation was found between nurses' caring behavior and education level (P = 0.015, R = 0.172). Two-way tests further revealed a significant correlation between caring behavior and marital status (P = 0.002). In contrast, no significant correlation was observed between gender or blood type and caring behavior (Table 3).

Regarding the correlation between various dimensions of caring behavior and demographic

Table 2. Descriptive Value of Caring Behavior Dimensions

Dimensions of Caring Behavior	Minimum - Maximum	Median (IQR)
Respect for others	38 - 72	63 (60 - 68)
Reassurance of human presence	37 - 72	66 (61 - 69)
Communication and positive attitude	23 - 86	47 (43 - 50)
Professional knowledge and skills	18 - 30	29 (27 - 30)
Experience of other experiences	12 - 24	22 (21 - 23)

Table 3. Comparison of Behavior Between Demographic Variables According to Nurses' Caring Behaviors and Its Various Dimensions

Variables	Descriptive Values	Caring Behaviors	Dimensions of Caring Behavior					Test	
			Respect for Others	Ensuring Human Presence	Positive Communication and Attitude	Professional Knowledge and Skills	Experience Other Experiences		
Age	Median:30 Q1:27y Q3:38y	0.189[a]	0.124	0.216[a]	0.184[a]	0.07	0.147[b]	R	Sperman
		0.007	0.075	0.002	0.009	0.315	0.034	P	
Work history	Median:7 Q1:3y Q3:14y	0.172[a]	0.137[b]	0.194[a]	0.175[a]	0.106	0.184[a]	R	Sperman
		0.015	0.05	0.006	0.012	0.128	0.008	P	
Education level	-	0.038	0.003	- 0.075	0.011	0.109	- 0.118	R	Sperman
		0.595	0.968	0.282	0.879	0.117	0.087	P	
Gender	-	0.784	0.886	0.502	0.888	0.775	0.282	P	Mann-Whitney U test
Marital status	-	0.002	0.002	0.0001	0.005	0.020	0.041	P	Kruskal-Wallis test
Blood type	-	0.444	0.366	0.335	0.142	0.361	0.472	P	Kruskal-Wallis test

[a] Correlation is significant at 0.05 level (2-tailed).

[b] Correlation is significant at 0.001 level (2-tailed).

characteristics, the findings demonstrated that age was significantly correlated with assurance of human presence (P = 0.002, R = 0.216), positive communication and tendencies (P = 0.009, R = 0.184), and experiences of other interactions (P = 0.034, R = 0.145). Additionally, work experience exhibited a positive and significant correlation with several dimensions of the Nurses' Caring Behavior Questionnaire, including respect (P = 0.015, R = 0.172), assurance of human presence (P = 0.05, R = 0.137), positive communication and tendencies (P = 0.012, R = 0.175), and experiences of other interactions (P = 0.008, R = 0.184). Furthermore, a significant correlation was found between marital status and all dimensions of nurses' caring behavior, including respect for others (P = 0.002), assurance of human presence (P = 0.0001), positive communication and tendencies (P = 0.005), professional knowledge and skills (P = 0.02), and experiences of other interactions (P = 0.04). However, no significant correlations were identified between the various dimensions of caring behavior and education level, gender, or blood type (Table 3).

The results of the study indicated that 58.1% of nurses answered "yes" to the question "Do nurses have access to protective equipment?," 40% of nurses answered "yes" to the question "Did nurses or a member of their family get COVID-19?," and 79% answered "yes" to the question "Have hospital managers been responsible for controlling and providing personnel facilities?" (Table 4).

The results indicated no significant correlation between the history of COVID-19 among nurses and their families, access to personal facilities, and nursing care behaviors and their various dimensions. However, a significant correlation was found between the responsibilities of hospital managers and nursing care behaviors (P = 0.01), as well as the dimensions of assurance of human presence (P = 0.002), professional

Table 4. The Frequency of Participant Responses to Questions: Nurses' Access to Personal Protective Equipment, COVID-19 Infection, and the Responsibility of Hospital Managers [a]

Variables	Response	
	Yes	No
Nurses' access to personal protective equipment	122 (58.1)	87 (41.9)
History of COVID-19 in nurses and their families	83 (40)	126 (60)
Responsibility of hospital managers	166 (79)	43 (21)

[a] Values are expressed as No. (%).

knowledge and skills (P = 0.02), and attention to others' experiences (P = 0.002).

5. Discussion

Nurses' caring behavior in critical situations, such as emerging diseases, was analyzed in the present study as follows: Data analysis revealed a significant correlation between age and work experience with caring behavior. These findings align with the study conducted by Cha and Lee, which demonstrated a positive correlation between work experience and the quality of care (15). Additionally, marital status was significantly associated with all dimensions of caring behavior, consistent with the research by Dilmaghani, which explored the impact of marital status on nurses' professional commitment (16).

The results indicated that hospital managers' accountability was positively associated with nurses' caring behaviors and specific dimensions such as ensuring human presence and possessing professional knowledge. These findings are consistent with research by Spence Laschinger et al., which highlighted the importance of managerial support in enhancing nurses' performance (17). Conversely, no significant association was found between access to personal protective equipment or a history of COVID-19 infection and caring behaviors. This outcome is consistent with the study by Cha et al., which demonstrated a minimal impact of the pandemic on caring behaviors (15).

In contrast to Swanson's (1999) study, which examined caring behavior in nurses with extensive experience, this study demonstrated that even nurses with limited experience can exhibit effective caring behavior if they receive support from their managers (18). Furthermore, unlike the findings of Papastavrou et al., which identified a correlation between education level and caring behavior, this study did not establish such a correlation (19).

The present study demonstrated that age is significantly associated with key dimensions of caring behavior, including assurance of presence, communication and orientation, and attention to others' experiences. These findings align with the research conducted by Hojat et al., which indicated that older nurses possess stronger communication and empathy skills due to their greater experience in patient interactions (20). Watson's study also highlighted that older nurses are more likely to foster a supportive environment in healthcare settings, thereby enhancing patient trust (21).

The results indicate that nurses' work experience is positively correlated with several dimensions of caring behavior, including respect for others, confidence in human presence, and positive communication and orientation. These findings are consistent with Benner's study, which emphasized the significance of clinical experience in shaping nurses' professional behavior (22). Koloroutis demonstrated that nurses with more extensive work experience, due to their exposure to diverse situations, are better equipped to understand the emotional needs of patients (23).

One of the intriguing findings of this study was the robust association between marriage and all dimensions of caring behavior, particularly the dimensions of human presence and attention to others with marital status. These results align with Khalaila's research, which indicated that married nurses demonstrated superior communication skills and a heightened sense of responsibility stemming from family commitments (24). Moreover, a study by Aiken et al. further corroborated that married nurses possessed a

better understanding of patients' emotional needs, attributed to their experiences of cohabitation (25).

Limitations of the study include the use of a non-random convenience sampling method, a cross-sectional design preventing causal inference, potential for social desirability bias in self-reported data, and a restricted geographical scope (two centers in one city).

5.1. Conclusions

Caregiving behavior in healthcare settings is influenced by a complex interplay of professional and personal characteristics, which are evident in healthcare interactions. This study suggests that the quality of care provided in response to a new disease can be significantly affected by both work experience and individual traits. The findings underscore the importance of considering both human and professional dimensions when developing educational and support programs. This comprehensive approach can facilitate continuous improvement in the quality of nursing services and enhance the therapeutic relationship.

Footnotes

Authors' Contribution: Study concept and design: A. M.; Acquisition of data: M. M. and A. M.; Analysis and interpretation of data: A. Z.; Drafting of the manuscript: M. M., A. M., A. Z., and S. R.

Conflict of Interests Statement: The authors declare no conflict of interest.

Data Availability: The dataset presented in the study is available upon request from the corresponding author during submission or after publication. The data are not publicly available due to privacy and ethics.

Ethical Approval: This study was approved by the Ethics Committee of Golestan University of Medical Sciences (IR.GOUMS.REC.1398.399).

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