Investigating the Current State of Caring Behavior Among Nursing Students

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Abstract: *Objective:* To investigate the current state of caring behavior among nursing students in a 3A hospital and analyze its influencing factors. *Methods:* A convenient sampling method was employed to survey 157 nursing students in a 3A hospital from October 2023 to March 2024, using a self-designed general data questionnaire and the Chinese version of the Caring Behavior Scale. *Results:* The caring behavior score of the nursing students was 102.39 ± 14.42. Among the three dimensions, the highest score was observed in "respect and connection" (40.29 ± 6.65), while the lowest score was in "knowledge and skill" (22.25 ± 3.53). Statistically significant differences in caring behavior scores were found in relation to education level, relationship with parents (general), and unwillingness to engage in nursing work after graduation ($P < 0.05$). *Conclusion:* The caring behavior scores of the nursing students in this study were at a moderate level. Education level, the quality of the relationship with parents (general), and an unwillingness to pursue nursing as a career after graduation were identified as the primary influencing factors.

Keywords: Nursing students; Caring behavior; Status survey

1. Introduction

Caring is a unique human "emotional" mode that provides comfort to patients [1]. Nurses' caring behavior represents the essence and core of nursing practice [2]. As early as 1979, Watson *et al.* [3] examined nursing care behavior from philosophical and ethical perspectives. In China, research on caring behavior began relatively late, with most studies focusing on the impact of objective factors on caring behavior [4,5].

As the future workforce of the nursing industry, the caring behavior of nursing students directly influences patients' medical experiences and levels of satisfaction [6]. Thus, the caring behavior of nursing students holds significant importance.

2. Materials and methods

2.1. General information

This survey adopted a convenience sampling method and selected 157 nursing students meeting the inclusion and exclusion criteria at a 3A hospital from October 2023 to March 2024.

Inclusion criteria: (1) Internship duration of $\geq$ 3 months; (2) Enrollment in a full-time nursing program; (3) Voluntary participation.

Exclusion criteria: (1) Absence from work during the investigation period.

2.2. Research tools

The questionnaire comprised two sections: a self-developed general data sheet and the Chinese version of the Nurse Caring Behavior Scale (CBI).

2.2.1. General data

The general data sheet was developed based on the objectives of the survey and included variables such as gender, age, and reasons for selecting nursing as a college major.

2.2.2. The Chinese version of the Nurse Caring Behavior Scale (Caring Behaviors Inventory, CBI)

The Caring Behaviors Inventory (CBI) was originally developed by Wolf in 1994 [7] and later translated into Chinese by Da in 2016 [8]. It is designed to measure the level of care demonstrated by student nurses toward patients. The inventory consists of 24 items distributed across three dimensions: respect and connection (items 1, 2, 3, 4, 5, 6, 7, 8, 13, 14), knowledge and skills (items 9, 10, 11, 12, 23), and support and assurance (items 15, 16, 17, 18, 19, 20, 21, 22, 24).

A six-point Likert scale was employed, where responses ranged from "never" (1 point) to "always" (6 points). The total score ranged from 24 to 144 points. The Cronbach's α coefficient for the inventory was 0.959, indicating high reliability.

2.3. Statistical analysis

Statistical analysis was performed using SPSS 24.0. Quantitative data were described using the mean ± standard deviation (SD), while qualitative data were expressed as frequency and relative frequency. Influencing factors of caring behavior were analyzed using the t-test, F-test, and multiple linear regression analysis. A P-value of < 0.05 was considered statistically significant.

2.4. Ethical considerations

All participants in this survey provided informed consent on a voluntary basis, with anonymity ensured throughout the process. All materials collected during the survey were used exclusively for scientific research purposes.

3. Results

A total of 180 questionnaires were distributed during the survey, with 157 completed and deemed valid, resulting in an effective recovery rate of 87.20%.

3.1. General information

The survey included 157 nursing students, of whom 142 (90.40%) were female, and 150 (95.50%) were undergraduate students. Detailed demographic and general information are presented in **Table 1**.

Table 1. General information of nursing students ($n = 157$)

Categories	Sub-categories	Number of cases	Composition ratio (%)
Gender	Male	15	9.55
	Female	142	90.45
Age (years)	≤ 22	69	43.95
	≥ 23	88	56.05
Level of education	Undergraduate	150	95.50
	Graduate and above	7	4.50
Only child status	Yes	38	24.20
	No	119	75.80
Relationship with parents	Good support	116	73.89
	Average	39	24.84
	Disharmony	2	1.27
Reason for selecting nursing as a major	Voluntary choice	49	31.21
	Family's wishes & peer influence	68	43.31
	Adjust	40	25.48
Care behavior education by hospital teachers	A lot of	26	16.56
	More	74	47.13
	Average	47	29.94
	Less	8	5.10
	Rarely	2	1.27
Willingness to work in nursing after graduation	Very willing	13	8.28
	General willing	98	62.42
	Willing	20	12.74
	Unwilling	26	16.56

3.2. Scores of nursing students across dimensions of caring behavior

The total score for caring behavior was 102.39 ± 14.42, with the highest-scoring dimension being "respect and connection" (40.29 ± 6.65), and the lowest-scoring dimension being "knowledge and skills" (22.25 ± 3.53). Detailed scores across all dimensions are provided in **Table 2**.

Table 2. Scores of nursing students across dimensions of caring behavior ($n = 157$, mean $\pm$ SD)

Dimension	Number of items	Score (mean ± SD)	Rank
Respect and connection	10	40.29 ± 6.65	1
Support and reassurance	9	39.85 ± 6.06	2
Knowledge and skills	5	22.25 ± 3.53	3
Total	24	102.39 ± 14.42	-

3.3. Single-factor analysis of nursing students' caring behavior

Independent sample *t*-tests and analysis of variance revealed significant differences in nursing students' caring behavior scores based on education level, relationship with parents, reasons for selecting nursing as a major, care behavior education by hospital teachers, and willingness to work in nursing after graduation ($P < 0.05$). Detailed results are presented in **Table 3**.

Table 3. Univariate analysis of factors affecting the caring behavior of nursing students ($n = 157$, mean $\pm$ SD)

Category	Sub-category	Number of cases	Score	F / t	P
Gender	Male	15	99.20 ± 13.12	-0.902	0.369
	Female	142	102.73 ± 14.55		
Age (years)	≤ 22	69	100.56 ± 14.71	-1.412	0.160
	≥ 23	88	103.83 ± 14.11		
Level of education	Undergraduate	150	101.55 ± 13.74	-3.505	0.001
	Graduate and above	7	120.43 ± 17.99		
Only child status	Yes	38	101.66 ± 14.37	-0.361	0.719
	No	119	102.63 ± 14.49		
Relationship with parents	Good support	116	104.22 ± 14.46	4.422	0.014
	Average	39	97.85 ± 13.22		
	Disharmony	2	85.50 ± 2.12		
Reason for selecting nursing as a major	Voluntary choice	49	106.27 ± 15.60	3.229	0.042
	Family's wishes & peer influence	68	101.78 ± 13.41		
	Adjust	40	98.70 ± 13.80		
Care behavior education by hospital teachers	A lot of	26	107.81 ± 15.85	3.090	0.018
	More	74	103.51 ± 15.53		
	Average	47	99.98 ± 11.03		
	Less	8	93.00 ± 7.71		
	Rarely	2	85.00 ± 9.90		
Willingness to work in nursing after graduation	Very willing	13	110.00 ± 12.36	5.626	0.001
	General willing	98	104.22 ± 14.73		
	Willing	20	100.45 ± 11.37		
	Unwilling	26	93.63 ± 12.58		

3.4. Multiple linear regression analysis of nursing students' caring behavior

To further explore predictors of nursing students' caring behavior, variables showing significant differences in the univariate analysis (education level, relationship with parents, reason for selecting nursing, care behavior education by hospital teachers, and willingness to work in nursing after graduation) were included as independent variables. Dummy variables were assigned, and multiple linear regression analysis was conducted. The results indicated that education level, relationship with parents (general), and unwillingness to work in nursing after graduation entered the regression equation ($R^2 = 0.165$, adjusted $R^2 = 0.149$). Details are provided in **Table 4**.

Table 4. Multiple linear regression analysis of factors influencing nursing students' caring behavior ($n = 157$)

Entry	B	SE	B'	t	P
(Constant)	104.51	1.32		79.197	< 0.001
Education level	18.879	5.15	0.271	3.668	< 0.001
Relationship with parents (general)	-5.735	2.46	-0.172	-2.329	0.021
Willingness to work in nursing after graduation (unwilling)	-9.238	2.86	-0.239	-3.228	0.002

4. Discussion

4.1. Current situation of nursing students' caring behavior

In this survey, the total score for the caring behavior of nursing students during their practical training was 102.39 ± 14.42, which corresponds to a medium level. This score is lower than that reported in Zhou's survey of 260 clinical nurses, indicating that the caring behavior of nursing students in China requires improvement [9]. Among the three dimensions, "respect and connection" received the highest score (40.29 ± 6.65), while "knowledge and skills" received the lowest (22.25 ± 3.53), consistent with the findings of Chi's study [10]. This outcome may be attributed to the heightened sensitivity of nurse interns to ethical considerations when first entering clinical practice, as well as their increased availability to communicate with patients [4,11]. However, the knowledge and clinical skills acquired during training may not yet be adequately applied to real-world clinical settings.

4.2. Factors influencing nursing students' caring behavior

4.2.1. Education level

As indicated in **Table 4**, the education level of nursing students demonstrates a significant effect on their total caring behavior scores ($P < 0.001$). This aligns with Xu's conclusion that humanistic care training serves as a key factor influencing the caring behavior of clinical nurses [12]. The findings suggest that higher levels of education provide more comprehensive and detailed training in caring behavior, thereby enhancing its development among nursing students.

4.2.2. Relationship with parents (general)

Table 4 also shows that a "general" relationship with parents significantly impacts the total caring behavior scores of nursing students (P = 0.021). This outcome may stem from the positive influence of parental care, which often serves as a model, encouraging nursing students to adopt a caring approach in practice [13]. Such guidance may foster a stronger sense of empathy and attentiveness toward patients, thereby improving patients' overall medical experiences and compliance [14].

4.2.3. Willingness to work in nursing after graduation (unwilling)

The willingness to pursue a nursing career after graduation (specifically, those categorized as "unwilling") is another factor that significantly affects the total caring behavior scores of nursing students ($P = 0.002$), as indicated in **Table 4**. This finding may be attributed to the observation that nursing students who possess a strong interest in the nursing profession are more likely to channel their energy and enthusiasm into the field [10,15].

5. Conclusion

The caring behavior of nursing students is at a medium level. Education level, the quality of the relationship with parents (general), and willingness to work in nursing after graduation (unwilling) have been identified as the primary factors influencing the caring behavior of nursing students.

Funding

Disclosure statement

The authors declare no conflict of interest.

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