Caring Behavior and Associated Factors among Nurses Working in Selected Public Hospitals in Southern Ethiopia

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Abstract

Background: Nurses' caring behavior improves care quality, outcomes, and client satisfaction. Despite its significance in delivering top-notch care, there is limited information on the barriers that may affect nurses' caring behavior. Hence, this study sought to determine the level of caring behavior and the factors influencing it among nurses in selected public hospitals in Southern Ethiopia.

Methods: A cross-sectional study was conducted among 422 randomly selected nurses from public hospitals in Southern Ethiopia from May 1st to May 30th, 2022. Data was collected using the Caring Behavior Inventory (CBI-24) scale to evaluate the level of caring behavior. The data was then analyzed using SPSS version 23, and logistic regression was conducted to identify the factors associated with nurses' caring behaviors. The adjusted odds ratio (AOR) with a 95% confidence interval (CI) was calculated to determine the strength and direction of the association at a significance level of $p \leq 0.05$.

Results: The study involved 414 participants with a mean age of 28.72 ± 5.66 years. The findings showed that 70.8% (95% CI: 66.0, 74.9) of nurses exhibited good caring behavior. Being holders of a bachelor's degree or higher (AOR=3.18; 95% CI: 1.03,9.82), high emotional intelligence (AOR=2.97; 95% CI: 1.51,5.84), job satisfaction (AOR=3.00, 95% CI: 1.56,5.79), nurse-physician collaboration (AOR=3.43, 95% CI: 1.76,6.70), and satisfaction with the profession (AOR=3.31, 95% CI: 1.64,6.69) were found to be factors associated with good nurses caring behavior.

Conclusion: The study found that seven out of ten participating nurses exhibited good caring behavior, suggesting that a notable portion of nurses did not exhibit such behavior. Factors such as level of education, high emotional intelligence, nurse-physician collaboration, and job satisfaction were independent predictors of good caring behavior. Therefore, improving nurses' caring behavior demands interventions targeting compassionate care, emotional intelligence, collaboration between nurses and physicians, and job satisfaction, which are essential.

**Keywords:** Caring Behavior; Emotional Intelligence; Nurse, and Southern Ethiopia

Introduction

Caring behavior is a crucial aspect of nursing practice, involving the provision of attention, concern, and support to patients to ensure their safety and well-being (Watson, 1979; Salimi and Azimpour, 2013). Moreover, in providing healthcare services, the caring behavior of nurses helps to build trust, establish strong relationships, and improve patient satisfaction (Kol _et al_., 2018). It involves showing respect, adopting a humanistic approach, fostering positive connections, and utilizing professional expertise and skills (Agussalim _et al._, 2020; Albano _et al_., 2022). This behavior involves instrumental actions related to physical and technical tasks, while expressive behavior pertains to psychosocial and emotional actions (Arthur and Randle, 2007; Alshammari _et al.,_ 2018).

Evidence indicates that nurses who exhibit good caring behavior can enhance the work environment, boost satisfaction levels, improve safety, deliver high-quality healthcare, and enhance favorable/positive patient outcomes (Vujanic _et al_., 2020; Putra _et al_., 2021). Nurses' compassionate actions meet their physical, mental, spiritual, and social needs (Naghneh _et al_., 2017). By assessing healthcare needs, providing compassionate care, and advocating for patients, nurses can effectively meet patient needs and improve overall healthcare outcomes (Oyira _et al_., 2016). These could be achieved by prioritizing the patient's welfare through qualities like empathy, reassurance, transparency, active listening, and unbiased support (Kiliç and Öztunç, 2015).

On the other hand, inadequate caring behavior by nurses can negatively impact the quality of healthcare and the patient-nurse relationship (Pajnkihar *et al*., 2017). This can lead to patient dissatisfaction, lack of trust, and reduced adherence to treatment recommendations (Bucco, 2015), highlighting the importance of nurses delivering compassionate care for favorable health outcomes and patient contentment (Soliman, 2015).

Previous studies have indicated that the levels of caring behavior among nurses vary across different regions of Ethiopia: 51.7% in Harar, 53.3% in Gamo Zone, and 80.3% in Jimma (Oluma and Abadiga, 2020; Kibret *et al*., 2022; Ashagere *et al*., 2023). Research has also identified several factors that significantly influence nurses' caring behavior, including gender, age, marital status, education, economic status, work experience, satisfaction with the profession, job satisfaction, satisfaction with nursing management, position, joint participation in the caring process, workplace circumstances, and experience (Oluma and Abadiga, 2020; Alikari *et al.,* 2021; Arsat *et al*., 2023; Ashagere *et al.,* 2023).

Across numerous studies undertaken in different countries, the aspects of caring behaviors of nursing implemented are varying. A study done in Turkey focused on emotional, intimacy, and support aspects (Akansel *et al*., 2021), whereas studies in Tunisia, Iran, and Ethiopia reported that nurses mainly focused on the technical-dimension rather than the relational, and psychosocial-dimensions of nursing caring behavior (Azizi-Fini *et al*., 2012; Salimi and Azimpour, 2013; Oluma and Abadiga, 2020; Ashagere *et al*., 2023). While understanding the entire aspects of nurses' caring behavior is vital to improving the quality of nursing care, there were inconsistent findings that focused on individual aspects. Moreover, caring for others can be stressful for nurses, and may lead them to leave the profession (Mulisa *et al*., 2022). However, nurses with high emotional intelligence better recognize, understand, express, and manage their emotions (Johnson, 2017), leading to improved stress management, reduced burnout, and enhanced compassionate care (Serrat, 2017). Recognizing the connection between emotional intelligence and caring behavior in nurses is essential for assessing their ability to exhibit caring be-

haviors despite stress. This insight can help stakeholders boost caring behaviors, ultimately improving nursing service quality and client satisfaction. Therefore, this study aimed to determine the level of caring behavior and associated factors among nurses working in selected public hospitals in Southern Ethiopia.

Materials and Methods
Study Setting, Design, and Period
An institutional-based cross-sectional study was conducted among nurse who work at three randomly selected public hospitals in Hadiya, Silte, and Wolaita zones in Southern Ethiopia from May 1st to May 30th, 2022. The hospitals included in the study were Wachemo University Nigist Eleni Mohammed Comprehensive Specialized Hospital, Wolaita Sodo University Referral Hospital, and Worabe Comprehensive Specialized Hospital.

Wachemo University Nigist Eleni Comprehensive Specialized Hospital (WUNECSH), located in Hosanna town, 230 kilometers away from Addis Ababa, the capital city of Ethiopia, was established in 1983 G.C. The hospital's inpatient department offers over 150 different services to around 830 inpatients per month, and as of the 2020 Human Resource Department report, it had a total of 212 nurses.

Wolaita Sodo University Referral Hospital (WSURH), another teaching hospital situated in Wolaita town, 327 kilometers from Addis Ababa, provides various services across different departments to approximately 450-500 patients daily, with a nursing staff of 321.

Worabe Comprehensive Specialized Hospital (WCSH) located in Worabe town in the Silte zone, 170 km from Addis Ababa, has 201 nursing teams offering services in various departments.

All three hospitals provide services in medical, surgical, pediatrics, obstetrics, and gynecology wards. The hospitals offer services in Intensive Care Units (ICUs), outpatient departments (OPDs), radiology, pathology, laboratory, HIV care and treatment, psychiatry, and pharmacy departments.

Study Population
All nurses working for more than six months in the selected hospitals were included in the study. Those nurses who were not present during the data collection due to illness, leave and training were excluded.

Sample Size, and Sampling Method

The sample was determined by using the single population proportion formula with the assumption of a 95 % confidence interval, 5% margin of error, and the level of nurses' caring behavior was 51.67% which was taken from the research conducted in Harar (Kibret *et al*., 2022). Therefore, the final sample after considering the 10% non-response rate was 422. In all three hospitals, there were 734 nurses. Then the sample was allocated proportionally based on the number of nurses working in each hospital (figure 1).
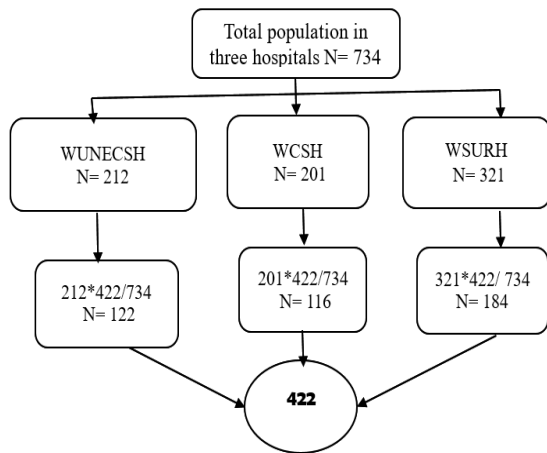
WUNECSH; Wachemo University Nigist Eleni Comprehensive Specialized Hospital,WCSH; Worabe Comprehensive Specialized Hospital, WSURH; Wolaita Sodo University Referral Hospital

Figure 1: Sampling procedure of study conducted to assess caring behavior among Nurses at selected public hospitals in Southern Ethiopia, 2022 (n=414).

Data Collection Method

The socio-demographic information, work-related factors, personal characteristics, and nurses' caring behavior data were collected by six B.Sc. nurses working out of the selected hospitals using structured self-administered questionnaires, which were adapted from different literature (Dharmanegara and Pradesa, 2015; Bjork, 2019; Liliana Ramos, 2020; Oluma and Abadiga, 2020). Caring behavior was measured by a CBI- 24 Nurse scale, reflecting four caring domains: Assurance (8 items), knowledge and skill (five items), respect (six items), and Connectedness (five items) with responses ranging from (1=never to 6=always) (Wu *et al*., 2006). Nurse-physician collaborative scale (NPCS) was evaluated using a 27-item scale containing three subscales: sharing patient information (9

items), decision-making process (12 items), and the relationship between nurse and physician (6 items) with responses ranging from 1 to 5 (1=never to 5=always) (Ushiro, 2009). Emotional intelligence was assessed using nine items with responses ranging from (1=strongly dissatisfied to 5=strongly satisfied). Nurses' job satisfaction was evaluated using the Global Job Satisfaction scale comprising 15 items. Responses were given on a scale ranging from (1= extremely dissatisfied to 7=extremely satisfied) (Warr, *et al.,* 1979). Satisfaction with the profession was measured with a single item using "Yes" or "No" responses, coded as 1 for Yes and 0 for No. The responses were summed and categorized as satisfied or dissatisfied.

Definition of Terms

Caring behavior: Having a caring behavior score that is equal(mean=3.99) to or higher than the mean was seen as good caring behavior, whereas a score below the mean was classified as poor caring behavior (Ashenafie *et al*., 2015; Kibret *et al*., 2022b). The coefficient alpha demonstrated 0.90.

Nurse-physician collaborative: Having an NPCS score that is equal (mean=72.9) to or higher than the mean suggests good nurse-physician collaboration, while a score below the mean indicates poor nurse-physician collaboration (Ushiro, 2009). The coefficient alpha was 0.68.

The workload of nursing was defined as giving nursing services to more than 35 clients within a day (Federal Democratic Republic of Ethiopia Ministry of Health, 2010).

Emotional intelligence: Having an emotional intelligence mean score equal (mean=3.37) to or higher than the mean indicates a high degree of emotional intelligence, while a score below the mean suggests a low degree of emotional intelligence (Anjum and Swathi, 2017). The coefficient alpha was 0.81.

Nurses' job satisfaction: Having a Nurses' job satisfaction score equal (mean =4.43) to or higher than the mean indicates satisfaction, while a score lower than the mean score suggests dissatisfaction with their job (Wall *et al.,* 1981). The coefficient alpha was 0.79.

Conflict with the supervisor was assessed using a single question: "Have you had conflicts with your nursing supervisor that could impact your performance?" Responses were categorized as either "had conflict" or "did not have conflict" based on "Yes" or "No" an-

swers. The same is true for satisfaction with the profession, and motivation

Data Quality Control

The data were collected using a standardized questionnaire written in English. Before the actual fieldwork, data collectors and supervisors received training to maintain the quality of the data. The pre-test was conducted on 5% of the sample size among nurses working at Dr. Bogalech Memorial Durame General Hospital, and the data collection procedure was strictly supervised by the principal investigator and supervisors.

Data Processing and Analysis

The data were collected, checked for consistency and completeness, cleaned, coded, checked, and entered to Epi-data version 3.1, then exported to SPSS version 23 for analysis. Descriptive statistics were performed using texts, frequency tables, and numerical summary measures. Caring behavior was then classified as good or poor based on the mean score. Binary logistic regression was computed to identify explanatory variables using odds ratio and 95 % confidence interval at p-value ≤0.25 to fit into the multivariable logistic regression analysis. Then those variables with p-value ≤0.05 in the multivariate logistic regression analysis were considered as statistically significant. Multi-collinearity was checked by variance inflation factors and the Hosmer-Lemeshow test was used to check model fitness.

Ethical Consideration

Ethical clearance was obtained from the Institutional Health Research Ethics Review Committee (IHRERC) of the College of Health and Medical Sciences, Haramaya University with reference No: IH-RERC/062/2022.Formal written consent was obtained from the participants after explaining the purpose of the study. Data were anonymously collected, and participants' information was kept confidential.

All the information provided by the participants was used for research purposes only. Hospitals were fully informed about the purpose of the study and signed their consent. Results

Results

Socio-demographic characteristics of participants

A total of 414 participants were enrolled, making a response rate of 98.1%. The mean age of participants was 28.72 (SD±5.66) years. Nearly, half of the study participants were male (50.2%) and single (51%). Most of the participants (91.1%) had Bachelor's degree and above. The mean estimated monthly income of the participants was 6495 (SD±839.00) ETB. Less than half of them (47.1%) were protestant by religion (Table 1).

Work-Related Characteristics of the Participants

Of the total participants, 89(21.5%) & 88(21.3%) were working in the medical and surgical wards, respectively. Most of them, 311 (75.1%) had ≤5 years working experience. Nighty three (22.5%) of nurses reported conflict with co-workers while196 (47.3%) of participants reported work overload and 218(52.7%) of the nurses reported adequate staffing and support. The result also revealed that 261(63%) of the nurses reported that they had been motivated in providing nursing care and more than two-thirds, 280(67.6%) of nurses had satisfaction towards their profession. Majority of participants, 292(70.5) and 218(52.7%) of the nurses reported adequate staffing and support, respectively. The result also revealed that 261(63%) of the nurses reported that they were motivated in provid¬ing nursing care and more than two-thirds, 280(67.6%) of nurses had satisfaction towards their profession. Most participants, 292(70.5%) had good emotional intelligence. About 73.2% of nurses reported good nurse-physician collaboration & 298(72%) of nurses had good satisfaction with their job (Table 2).

Table 1. Socio-demographic characteristics of the study participants working in selected public hospitals in Southern Ethiopia, 2022 (n=414).

Characteristics	Category	Frequency	Percent
Sex	Male	208	50.2
	Female	206	49.8
Age (years)	≤24	107	25.8
	25-34	238	57.5
	≥35	69	16.7
Marital status	Single	211	51.0
	Married	186	44.9
	Others*	17	4.1
Educational level	Diploma	37	8.9
	Bachelor's Degree +	377	91.1
Monthly income (ETB)	≤5000	16	3.9
	>5000	398	96.1
Ethnicity	Hadiya	107	25.8
	Silte	75	18.1
	Wolaita	74	17.9
	Gurage	69	16.7
	Amhara	32	7.7
	Oromo	22	5.3
	Others	35	8.5
Religion	Protestant	195	47.1
	Orthodox	106	25.6
	Muslim	88	21.3
	Others **	25	6.0

*Others **:Catholic/others, Others *: Divorced/widowed, ETB: Ethiopian Birr*

Table 2: Work-related factors, emotional intelligence, nurses-physician interactions, and job satisfaction of nurses working in public hospitals in Southern Ethiopia, 2022 (n=414).

Variable	Category	Frequency	Percent
Department	Medical	89	21.5
	Surgical	88	21.3
	Pediatrics	73	17.6
	Emergency	69	16.7
	OPDs	59	14.2
	Gynecology	33	8.0
	Others*	3	0.7
Work experience (years)	≤5	311	75.1
	>5	103	24.9
Conflict with supervisor	Did not have	321	77.5
	Had	93	22.5
Work overload	No	218	52.7
	Yes	196	47.3
Adequate staffing and support	No	196	47.3
	Yes	218	52.7
Motivation	Not Motivated	153	37.0
	Motivated	261	63.0
Satisfaction with profession	dissatisfied	134	32.4
	Satisfied	280	67.6
Emotional intelligence	Poor	122	29.5
	Good	292	70.5
Nurses-physician collaboration	Poor	111	26.8
	Good	303	73.2
Job satisfaction	Dissatisfied	116	28.0
	Satisfied	298	72.0

Others: psychiatry and ICUs*

Nurses' caring behavior and its dimensions

The result of this study showed that good nurses caring behavior was found to be 70.8% (95% CI: 66.0-74.9) with a mean of 3.99 +0.730. The assurance of human presence aspect was 72.7%, while the knowledge dimension accounted for 84.8%. (Table 3).

Table 3: Level of caring behavior and its dimensions among nurses working in selected public hospitals in Southern Ethiopia, 2022(n=414)

Dimensions of Nurses' Caring Behaviors	Mean + SD	Percentage
Assurance of human presence	3.91 + 0.69	72.7
Knowledge and skill	4.28 + 0.77	84.8
Respectfulness	3.90 + 0.75	71.5
Positive connectedness	3.87 + 0.71	68.4
Overall nurses' caring behavior score	3.99 + 0.73	70.8

Factors associated with nurses' caring behaviors

Bivariate logistic regression analysis showed significant associations between nurses' caring behavior and factors such as educational level, income, workload, staffing and support, experience, conflict with co-workers, professional satisfaction, emotional intelligence, job satisfaction, nurses-physician collaboration, and motivation in nursing care. In multivariate analysis, educational level, nurse-physician collaboration, satisfaction with the profession, job satisfaction, and high emotional intelligence were found to be significantly associated with nurses' caring behavior. Nurses with bachelor's and master's degrees were 3.18 (AOR=3.18; 95% CI: 1.03,9.82) times more likely to exhibit good caring behavior compared to those with diplomas Nurses who had good collaboration with physicians were 3.43 (AOR=3.43; 95% CI: 1.76,6.7) times more likely to demonstrate good caring behavior than those with poor collaboration. Nurses who were satisfied with their profession were 3.31 (AOR=3.31; 95% CI: 1.64, 6.69) times more likely to exhibit good caring behavior compared to those who were not satisfied. Similarly, nurses with a high degree of emotional intelligence were 2.97 (AOR=2.97, 95% CI: 1.51, 5.84) times more likely to demonstrate good caring behavior than those with lower degree of emotional intelligence. Additionally, nurses who were satisfied with their job were 3 (AOR=3.00, 95% CI: 1.56, 5.79) times more likely to exhibit good caring behavior compared to those who were dissatisfied (Table

Table 4: Factors associated with nurses' caring behaviors among nurses working in public hospitals in Southern Ethiopia,2022(n=414)

Variables	Category	Nurses' Caring behavior		AOR (95%CI)
		Poor (N/%)	Good (N/%)	
Motivation in nursing care	No	78 (51.0)	75(49.0)	1
	Yes	43(16.5)	218(83.5)	1.16(0.562-2.40)
Satisfaction with profession	No	75(56.0)	59(44.0)	1
	Yes	46(16.0)	234(84.0)	3.31(1.64-6.69)*
Work experience (years)	≤ 5	102(32.8)	209(67.2)	1
	>5	19(18.4)	84(81.6)	1.28(0.618-2.65)
Monthly income(ETB)	≤ 5000	11(68.8)	5(31.2)	1
	>5000	110(27.6)	288(72.4)	1.59(0.314-8.04)
Educational level	Diploma	23(62.0)	14(38.0)	1
	Bachelor's Degree +	98(26.0)	279(74.0)	3.18(1.03-9.82)-
Nurse-physician collaboration	Poor	75(67.6)	36(32.4)	1
	Good	46(15.2)	257 (84.8)	3.43(1.76-6.7) **
Adequate staffing and support	No	87(44.4)	109(55.6)	1
	Yes	34(15.6)	184(84.4)	1.54(0.88-2.9)
Job satisfaction	Satisfied	43(14.4)	255(85.6)	1
	Dissatisfied	78(67.2)	38(32.8)	3.00(1.56-5.79) *
Emotional intelligence	Low	77(63.1)	45(36.9)	1
	High	44(15.1)	248(84.9)	2.97(1.51-5.84) *
Work overload	Yes	86(43.9)	110(56.1)	1
	No	35(16.1)	183(83.9)	1.44(0.754-2.73)
Conflict with co-workers	Yes	43(46.2)	50(53.8)	1
	No	78(24.3)	243(75.7)	1.07(0.539-2.11)

Discussion

The study found that 70% of nurses working in selected public hospitals in Southern Ethiopia exhibited good caring behavior. According to the theory of human caring, Jean Watson stated that caring is central to nursing practice and contributes to better health outcomes than just medical treatment (Watson, 1979). However, the finding of the study suggests that a significant number of nurses may not provide quality care, potentially impacting patient outcomes and satisfaction. Being holders of a bachelor's or higher degree, high emotional intelligence, nurse-physician collaboration, and satisfaction with the current job, and the profession were found to be the predictors of good nurses' caring behavior.

The findings of this study were lower than the study conducted in Ethiopia, Jimma, 80.3% (Oluma and Abadiga, 2020), Indonesia (85%) (Handayani and Kuntarti, 2022), and USA (92.3%) (Porter *et al*., 2014). Moreover, the findings of this study were higher than studies conducted in Indonesia (64.7%) (Mutmainnah *et al.,* 2021) and Harar, Ethiopia (51.67%) (Kibret *et al*., 2022). The possible reasons for the difference might be differences in educational curriculum, working environment, socio-cultural differences, and understanding of the nurses' caring behavior respectively.

The study found that most participants had positive collaboration with physicians and co-workers. The terprofessional caring model suggests that teamwork fosters a sense of ownership and promotes a culture of caring behavior, which improves nurses' overall caring behavior (Wei *et al*., 2019).

The finding of this study depicted those nurses with bachelor's degrees and higher educational levels showed association with good nurses' caring behavior, and the finding agreed with the study done in Egypt (Shalaby *et al*., 2018), and Ethiopia (Fikre *et al.,* 2022). The reason for congruence could be that higher education can provide nurses with opportunities to gain exposure to a variety of experiences and a deeper understanding of the essence of caring (Ahmed *et al*., 2022). This can improve their ability to address patients' healthcare needs and solve problems through compassionate care. However, a study in Indonesia found no link between nurse education and caring behavior (Mutmainnah *et al*., 2021b). This finding warrants further exploration.

 Satisfaction of nurses towards their profession was identified as the factor associated with good nurses' caring behavior. This finding was in line with the

study conducted in Jimma and Gamao Zone Ethiopia (Oluma and Abadiga, 2020; Ashagere *et al.,* 2023). The possible explanation could be satisfaction with their profession usually motivates them to maintain their professional values and ethical sensitivity which in turn influences the implementation of caring behaviors.

The finding of this study also revealed that nurses who had collaboration with physicians demonstrated good nurses' caring behavior. This agreed with study conducted in Greece (Sarafis *et al.,* 2016), and Ethiopia (Ashenafie *et al*., 2015). This could be because positive relationships might lead to effective inter-professional collaboration, and to build team spirit which in turn enhances motivation and satisfaction to their work and caring behaviors.

The study findings also depicted that the nurse's satisfaction to their job showed an association with good nurses' caring behavior. This finding was in line with the study finding of Southwest Ethiopia, and Indonesia (Oluma and Abadiga, 2020; Putra *et al*., 2021). The reason might be that satisfied nurses are motivated, happy on their work, and concentrate on their caring behavior (Jafari et al., 2020).

This study also showed that nurse with a high degree of emotional intelligence had good nurses' caring behavior. This review also provides evidence that having high emotional intelligence in nurses may positively impact caring behaviors (Nightingale *et al*., 2018). This was supported by studies done in Indonesia (Dharmanegara and Pradesa, 2015; Kartini *et al*., 2019), and Malaysia (Kaur *et al*., 2013). Emotional intelligence indicates one's self-awareness, and awareness of others that fosters strong inter-professional collaboration. On the other hand, understanding others' feelings and perspectives, and taking an active interest in addressing their concerns so that having this leads to foster caring behavior among nurses (Serrat, 2017).

This study has several strengths, including the use of a standardized measurement scale and being conducted in multiple study settings. However, it is essential to interpret the study findings with some limitations in mind. The study could not establish a cause-and-effect relationship due to its study design nature. Furthermore, the measurement of caring behavior was solely based on nurses' self-reports, which may be influenced by social desirability bias, leading to a potential overestimation of nurses' caring behavior.

Conclusion
The study revealed that nearly seven out of ten of nurses demonstrated good caring behavior, suggesting that a significant portion did not exhibit such behavior. Factors such as educational level, emotional intelligence, collaborative efforts between nurses and physicians, and job satisfaction were found independent predictors of good caring behavior. Consequently, enhancing nurses' caring behavior necessitates interventions aimed at fostering compassionate care, emotional intelligence, nurse-physician collaboration, and job satisfaction, all of which are vital components. In the future, a prospective cohort study is recommended to explore the temporal relationship between nurses' caring behavior and associated factors.

Acknowledgments

Competing interests
The authors declare that they have no competing interests.

Funding statement

Authors' contributions
AK conceived and participated in designing, conducting, and performing the statistical analysis, and manuscript writing. MT and SL approved the proposal designing, revising, and analyzing the results, and ES, writing and revising the draft manuscript. All authors read and approved the final manuscript.

List of abbreviations
AOR; Adjusted Odds Ratio, CI: Confidence Interval, COR; Crude Odds Ratio,

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