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Investigation on the Current Status of Geriatric Nursing Competence Among Emergency Department Nurses in Tertiary Hospitals in Hainan Province

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Abstract

Objective: To investigate the current status of geriatric nursing competence among emergency department nurses and explore pathways to improve their capabilities, providing a theoretical basis for enhancing geriatric care in emergency settings. **Methods:** A convenience sampling method was used to select 170 nurses working in emergency departments of tertiary hospitals in Hainan Province from October to November 2024. Data were collected using the General Information Questionnaire and the Revised Clinical Nursing Competence Evaluation Scale for Emergency Nurses. SPSS 20.0 was employed for data entry and statistical analysis, with $P < 0.05$ indicating statistical significance. **Results:** The scores for geriatric nursing competence across five dimensions were as follows: emergency response (30.24 ± 7.650), condition assessment (22.46 ± 5.574), effective communication (22.22 ± 5.444), resource integration (18.48 ± 4.560), and self-protection (11.20 ± 2.914), with a total score of 93.41 ± 22.27 . Significant differences ($P < 0.05$) were observed in competence scores based on age, education level, participation in geriatric training, and work experience. **Conclusion:** The geriatric nursing competence of emergency nurses in China needs improvement. Nursing administrators should implement targeted training programs and integrate humanities education to enhance comprehensive geriatric care skills among emergency nurses.

Keywords: Emergency department; Nurses; Geriatric nursing

Introduction

According to estimates by the National Health Commission, by around 2035, China's elderly population size and proportion, as well as the elderly dependency ratio and social dependency ratio, will reach their peaks. The total number of people aged 60 and above will exceed 300 million, accounting for more than 20% of the population, entering the stage of moderate aging(Yan, W. R, 2019). Due to the decline in physiological functions, the elderly often suffer from multiple chronic diseases and have low self-care abilities (Li, X., Sun, C., Hu, H. X., et al, 2023)1. If chronic diseases are not managed properly, they can easily worsen, leading to critical conditions(Shi, Y. L., Zhang, Y., & Liu, M, 2022). Elderly patients are prone to sudden emergencies due to their hidden onset and rapid changes in condition(Yao, X. Y., Zhang, H. H., Xing, Q., et al, 2022). The emergency department is a long-term open window, and with the increasing number of elderly patients, there is an urgent need to improve the elderly care capabilities of emergency nurses.

The quality of care provided by emergency nurses is directly related to the quality of care for elderly patients. Current research in China has investigated and analyzed the elderly care capabilities of emergency nurses. Studies have found that emergency nurses' theoretical knowledge and skills in elderly care are at a moderate level(Shao, L. M, 2022), with insufficient mastery of emergency measures for critically ill elderly patients, and a need to strengthen their adaptability and communication skills(Wei, L., Liang, H., & Lu, Y. M, 2022). Additionally, there may be shortcomings in caring for elderly emergency patients with multiple chronic diseases(Liang, H, 2020). Chen Qun(Chen, Q, 2021) and others conducted a survey on the core competencies of nurses in elderly care in integrated medical and nursing institutions, showing that the clinical nursing abilities of geriatric nurses are at a relatively high level, but there are still deficiencies. There is a need to combine specialized training for geriatric nurses with the promotion and incentives for elderly care talent development to enhance and optimize their clinical nursing abilities(Liang, H, 2020).

This paper conducts an in-depth investigation into the current status of geriatric nursing competence among emergency department nurses, identifies factors contributing to differences, and explores ways to improve their competence, providing a theoretical basis for the development of geriatric nursing capabilities among emergency nurses.

1. Subjects and Methods

1.1 Subjects

This study selected emergency department nurses from tertiary hospitals in Hainan Province as the sample, primarily based on the following reasons: ① Hainan's aging rate is higher than the national average (reaching 14% in 2023), with a high proportion of elderly emergency patients; ② The complexity of cases in tertiary hospital emergency departments(Liu, H. X., Wu, X. J., & Meng, J,

2023) can reflect nurses' comprehensive capabilities in managing elderly emergencies.

The study subjects were 170 nurses working in the emergency departments of tertiary hospitals in Hainan Province from October to December 2024. Inclusion criteria: ① Possession of a nurse qualification certificate; ② Currently working in the emergency department during the survey period; ③ Voluntary participation in the study. Exclusion criteria: ① Nurses who have not rotated or interned in the emergency department; ② Hospital workers such as guides and cleaners.

1.2 Methods

1.2.1Questionnaire Survey

A convenience sampling method was used to conduct a questionnaire survey among 170 nurses. During the study, 170 questionnaires were distributed, and 170 valid questionnaires were collected, with a 100% response rate.

The questionnaire consisted of two parts: ① "General Demographic Information Questionnaire for Emergency Department Nurses": Including gender, age, marital status, education level, years of work experience, and other general demographic characteristics. ② "Geriatric Nursing Competence Questionnaire for Emergency Nurses": The overall Cronbach's α coefficient of the questionnaire was 0.903(Min, G, 2020). The questionnaire included emergency handling ability (7 items), condition assessment ability (7 items), effective communication ability (6 items), resource integration ability (5 items), and self-protection ability (3 items), totaling 5 dimensions and 28 items. The questionnaire used a Likert 5-point scale, with responses ranging from "strongly disagree" to "strongly agree," assigned values of 1 to 5, respectively, with a total score of 140 points.

1.2.2 Statistical Methods

SPSS 20.0 software was used for data entry and statistical analysis. Count data were expressed as percentages (%), and measurement data were expressed as mean \pm standard deviation ($\bar{x} \pm s$). The t-test was used, with $P < 0.05$ indicating statistically significant differences.G*Power 3.1 software was used for sample size calculation. With an effect size set to $d = 0.5$, significance level $\alpha = 0.05$, and statistical power $1 - \beta = 0.8$, the minimum sample size was calculated as 159. Ultimately, 170 participants were included to account for potential invalid questionnaires.

2. Results

2.1 General Information of Emergency Nurse

A total of 170 emergency nurses participated in the questionnaire survey, including 24 male nurses (14.12%) and 146 female nurses (85.88%); 114 nurses with associate degrees or below (67.06%) and 56 nurses with bachelor's degrees or above (32.94%); 37 nurses who had not participated in specialized geriatric nursing education and training (21.76%) and 133 nurses who had participated in specialized geriatric nursing education and training (78.23%). See Table 1 for details.

Table 1General Information of Emergency Nurses (n=170)

Item	Category	Number	Percentage (%)
Gender	Female	146	85.88
	Male	24	14.12
Age(years)	≤ 30	71	41.76

	>30	99	58.24
Education Level	Associate degree below	114	67.06
	Bachelor's degree or above	56	32.94
Monthly Income (RMB)	≤5000	112	65.88
	>5000	58	34.12
Participation in Relevant Training	No	37	21.76
	Yes	133	78.24
Years of Work Experience	≤10	128	75.29
	>10	42	24.71

2.2 Geriatric Nursing Competence of Emergency Nurses

The scores for each dimension of geriatric nursing competence among emergency nurses are shown in Table 2.

Table 2 Scores for Each Dimension of Geriatric Nursing Competence among Emergency Nurses ($\bar{x} \pm s$, n=170)

Dimension	$\bar{x} \pm s$	Rank
Emergency Handling Ability	30.24±7.650	1
Condition Assessment Ability	22.46±5.574	2
Effective Communication Ability	22.22±5.444	3
Resource Integration Ability	18.48±4.560	4
Self-Protection Ability	11.20±2.914	5
Total Score	93.41±22.27	

2.3 Geriatric Nursing Competence of Emergency Nurses with Different Characteristics

2.3.1 Gender Differences

The survey results showed no statistically significant differences in geriatric nursing competence scores across dimensions based on gender ($P < 0.05$), as shown in Table 3.

Table 3 Comparison of Geriatric Nursing Competence between Male and Female Emergency Nurses ($\bar{x} \pm s$, n=170)

Item	Number	Emergency Handling Ability	Condition Assessment Ability	Effective Communication Ability	Resource Integration Ability	Self-Protection Ability
Male	24	22.21±5.55	30.01±7.65	22.14±5.46	18.28±4.57	20.56±5.52
Female	146	24.00±5.59	31.63±7.65	22.75±5.38	19.67±4.40	21.48±5.53
t		-2.13	-0.91	-0.26	-1.91	-1.21
p		0.14	0.34	0.61	0.17	0.11

2.3.2 Age Differences

The survey results showed that emergency nurses aged 30 and below scored higher in all dimensions compared to those aged 30 and above, with statistically significant differences ($P < 0.05$), as shown in Table 4.

Table 4 Comparison of Geriatric Nursing Competence between Emergency Nurses of Different Ages ($\bar{x} \pm s$, n=170)

Item	Number	Emergency Handling Ability	Condition Assessment Ability	Effective Communication Ability	Resource Integration Ability	Self-Protection Ability
≤30(years)	71	24.43±3.60	32.99±4.24	24.22±3.24	20.07±2.76	21.56±3.24
>30(years)	99	20.33±4.69	29.00±6.53	21.08±3.91	17.58±4.18	20.43±3.46
t		2.86	3.07	3.30	3.43	3.48
p		<0.001	<0.001	<0.001	<0.001	<0.001

2.3.3 Education Level Differences

The survey results showed that emergency nurses with bachelor's degrees or above scored lower in the condition assessment ability dimension, with statistically significant differences ($P < 0.05$), as shown in Table 5.

Table 5 Comparison of Geriatric Nursing Competence between Emergency Nurses of Different Education Levels ($\bar{x} \pm s$, $n=170$)

Item	Number	Emergency Handling Ability	Condition Assessment Ability	Effective Communication Ability	Resource Integration Ability	Self-Protection Ability
College or below	114	23.64 ± 4.44	32.02 ± 5.83	23.51 ± 3.88	19.39 ± 3.91	22.56 ± 4.86
Bachelor's degree or above	56	24.00 ± 4.68	31.89 ± 5.43	23.63 ± 3.65	19.60 ± 2.39	23.11 ± 4.45
t		-6.478	5.964	-6.002	-6.352	-7.127
p		<0.001	<0.001	<0.001	<0.001	<0.001

2.3.4 Monthly Income Differences

The survey results showed no statistically significant differences in geriatric nursing competence scores across dimensions based on monthly income ($P > 0.05$), as shown in Table 6.

Table 6 Comparison of Geriatric Nursing Competence between Emergency Nurses of Different Monthly Incomes ($\bar{x} \pm s$, $n=170$)

Item	Number	Emergency Handling Ability	Condition Assessment Ability	Effective Communication Ability	Resource Integration Ability	Self-Protection Ability
≤ 5000 (RMB)	112	22.30 ± 5.01	30.17 ± 7.07	22.17 ± 5.26	18.29 ± 4.48	18.22 ± 4.56
> 5000 (RMB)	58	22.64 ± 6.18	29.89 ± 8.14	22.09 ± 5.34	18.55 ± 4.28	20.12 ± 5.02
t		-0.06	0.17	0.07	-0.10	-0.08
p		0.94	0.84	0.93	0.90	0.94

2.3.5 Participation in Relevant Training

The survey results showed that emergency nurses who had participated in relevant training scored higher in all dimensions compared to those who had not, with statistically significant differences ($P < 0.05$), as shown in Table 7.

Table 7 Comparison of Geriatric Nursing Competence between Emergency Nurses of Different Monthly Incomes ($\bar{x} \pm s$, $n=170$)

Item	Number	Emergency Handling Ability	Condition Assessment Ability	Effective Communication Ability	Resource Integration Ability	Self-Protection Ability
Yes	133	23.32 ± 5.72	29.91 ± 7.92	22.98 ± 5.61	19.35 ± 4.66	21.46 ± 4.55
No	37	23.00 ± 5.04	29.43 ± 6.53	22.76 ± 4.84	18.92 ± 4.23	21.36 ± 5.70
t		4.886	4.698	4.066	4.55	4.86
p		<0.001	<0.001	<0.001	<0.001	<0.001

2.3.6 Years of Work Experience Differences

The survey results showed that emergency nurses with 10 years or less of work experience scored lower in the condition assessment ability dimension compared to those with more than 10 years of experience, with statistically significant differences ($P < 0.05$), as shown in Table 8.

Table 8 Comparison of Geriatric Nursing Competence between Emergency Nurses with Different Years of Work Experience ($\bar{x} \pm s$, $n=170$)

Item	Number	Emergency Handling Ability	Condition Assessment Ability	Effective Communication Ability	Resource Integration Ability	Self-Protection Ability
≤ 10 (years)	128	24.43 ± 3.60	27.09 ± 4.24	24.22 ± 3.24	20.07 ± 2.79	21.71 ± 3.18
> 10 (years)	42	20.33 ± 4.70	29.00 ± 6.54	21.08 ± 3.92	17.58 ± 4.19	20.46 ± 4.43
t		5.86	-4.07	6.29	5.43	5.48
p		<0.001	<0.001	<0.001	<0.001	<0.001

3. Discussion

3.1 Analysis of Geriatric Nursing Competence among Emergency Nurses

The analysis revealed that the average score for geriatric nursing competence among emergency nurses was 93.41 ± 22.27 , which is only slightly higher than the standard score of 90 in the geriatric nursing competence questionnaire for emergency nurses developed by Yan Wenrun (Yan, W. R, 2019), indicating that there is room for improvement in the geriatric nursing competence of emergency nurses (Wei, L., Liang, H., & Lu, Y. M, 2019). Among the dimensions, the score for condition assessment was slightly lower than that for emergency handling, which may be related to the emphasis on emergency treatment and first aid in the training of emergency nurses (Xia, B. Y., Cheng, Y., & Wu, X. J, 2019). Assessing the condition of elderly patients is more complex than that of younger patients, as elderly patients often have multiple comorbidities, posing a challenge to the comprehensive assessment abilities of nurses (Chang, S. H, 2019). Effective communication is crucial for close cooperation between nurses and patients. To reduce communication barriers with elderly patients with language impairments, non-verbal communication training can be provided to nurses in geriatric intensive care units and emergency departments, using techniques such as special eye contact, rich facial expressions, and standardized sign language to enhance nurses' understanding of the facial and body language of elderly patients with language impairments. Additionally, the self-protection abilities of elderly patients are relatively weak, requiring more education and training. During the emergency care of critically ill elderly patients, nurses' self-protection awareness is often weak when dealing with patients with mental abnormalities, alcohol intoxication, or aggressive behavior, which can easily lead to occupational exposure, violent injuries, and physical and psychological harm (Zhang, W, 2020). To better meet the health needs of critically ill elderly patients, nurses in various professional positions should improve their geriatric nursing competence, clarify their professional roles, and focus on enhancing their comprehensive abilities and qualities.

3.2 Analysis of Geriatric Nursing Competence among Emergency Nurses with Different Characteristics

3.2.1 Analysis of Differences Based on Years of Work Experience

The study results showed that the more experienced the nurses, the higher their level of care and treatment for various acute and critically ill patients. At the same time, various emergency situations in nursing work can help nurses develop good psychological qualities, especially in terms of comprehensive nursing abilities when dealing with elderly patients, patients with rapidly changing conditions, and critically ill patients. However, compared to younger nurses, more experienced nurses still need to improve their attitudes towards elderly patients (Cunningham, S., Hodge, P., & Cooper, N, 2023). Nurses with longer work experience have stronger geriatric nursing abilities, but their attitudes towards elderly patients still need improvement compared to younger nurses. This contradiction may stem from long-term high-intensity work leading to occupational burnout (Luo, L. X., Li, J., & Wu, F, 2024), especially in emergency department settings where elderly patients' complex conditions and communication challenges easily trigger nurses' negative emotions. Additionally, traditional nursing training lacks courses on humanistic care, and senior nurses tend to adopt a "task-oriented" rather than "patient-centered" care model. It is

recommended that hospitals regularly conduct empathy training for elderly patients (e.g., role-playing, family interviews) (Liu, J. M., & Xiao, H. F, 2024) and incorporate humanistic care into performance evaluations to improve nurse-patient relationships. Hospitals should strengthen training, regularly organize nurses to learn geriatric nursing knowledge during their spare time, and improve their professional skills. At the same time, nurses should be encouraged to learn new knowledge, form mutual learning and exchange teams, and promote the improvement of work abilities and qualities, increasing their understanding and awareness of geriatric nursing. In daily nursing work for elderly patients, tasks should be reasonably assigned based on nurses' work experience and abilities, allowing nurses to have the opportunity to care for different types of elderly patients and gain more nursing experience. Hospitals also need to strengthen the management of nurses, establish a sound assessment system, and motivate nurses to improve their own qualities and work abilities (Conticchio, M., & Inchingolo, R, 2023).

3.2.2 Analysis of Differences Based on Participation in Geriatric Nursing Training

Among emergency nurses, those who have studied geriatric nursing courses can have a positive impact on their geriatric nursing abilities. The analysis suggests that this is likely because geriatric nursing training allows nurses to learn and master knowledge related to the care of elderly patients with acute and critical conditions, which plays an important role in their daily nursing work for elderly patients. However, currently, most nursing schools do not include geriatric nursing as a major subject, resulting in less attention being paid to geriatric nursing compared to internal medicine, surgery, and other disciplines. Moreover, after graduation, most nursing graduates work in general hospitals and have little direct contact with specialized geriatric care institutions, resulting in a lack of experience in geriatric nursing and deficiencies in this area (Lee, J. H, 2023). This highlights the importance of systematic education. However, current training primarily focuses on basic skills (e.g., emergency procedures) and lacks coverage of elderly-specific needs (e.g., communication with dementia patients, frailty assessment). Referencing U.S. geriatric emergency guidelines, future training should include: ① Rapid identification of geriatric syndromes (e.g., delirium, falls); ② Interdisciplinary collaboration processes (e.g., joint care planning with social workers and rehabilitation therapists); ③ Application of technological aids (e.g., wearable devices for vital sign monitoring). Additionally, a "micro-learning" model (e.g., 15-minute weekly online courses) (Zhang, Y. B., Wang, H. J., & Fu, X. L, 2024) could enhance the sustainability of training.

To better respond to changes in China's population structure and meet the health needs of elderly patients, geriatric nursing should be set as a compulsory course in nursing schools, and geriatric nursing training should be provided to students before their internships in their third and fourth years, increasing the importance of geriatric nursing courses. At the same time, nurses should be encouraged to communicate more with elderly people at home, so that they can better communicate with elderly patients and understand their nursing needs in their work. Improving nurses' cognitive knowledge of geriatric nursing can be achieved through organized centralized training, providing nursing staff with case analysis of elderly patients, fall prevention, and psychological needs of elderly patients, allowing nursing staff to have a better understanding of the physical and psychological states of elderly patients, thereby reducing adverse events in geriatric nursing (Cao,

L., Wang, J. Q., & Liang, Y, 2018). At the same time, combined with the training goals of professional nursing staff, simulation experiences for elderly patients and comprehensive ability assessments for elderly patients should be conducted to improve the geriatric nursing knowledge of professional nursing staff.

3.2.3 Analysis of Differences Based on Education Level

The study results showed that nurses with higher education levels had better attitudes towards elderly patients and broader channels and more comprehensive approaches to acquiring geriatric nursing skills. This is more conducive to forming correct geriatric nursing knowledge, helping nurses develop positive nursing beliefs in emergency work, and paying more attention to their attitudes when serving elderly patients (Yang, M. F., Zhou, F. H., & Cheng, X. Y, 2017). Emergency nurses' attitudes towards elderly patients are closely related to their abilities in condition assessment, effective communication, and resource integration. Additionally, as emergency nurses, they should also possess emergency handling and self-protection abilities. In emergency nursing, medical staff with higher education levels tend to have more positive attitudes towards elderly patients and can promote cooperative nursing work with patients.

In recent years, hospitals have raised the educational standards for nurses, and more nursing graduates are pursuing further education through self-study and online courses to enhance their professional knowledge. Continuing education and clinical practice have also improved nurses' understanding of elderly patients. Given the complexity of elderly patients' conditions, nurses should pay attention to their overall physical and mental states during care. In emergencies, emergency nurses' positive attitudes and geriatric nursing knowledge play a crucial role. Hospital administrators should encourage nurses to change negative perceptions of elderly patients and actively learn geriatric nursing knowledge and skills (Wu, D., Wu, B. B., & Chen, Y. L, 2017).

3.2.4 Gender and Monthly Income Analysis

Gender and monthly income had no significant impact on elderly care capabilities ($P>0.05$), indicating that differences in capabilities primarily depend on modifiable factors such as education and training, rather than demographic characteristics. This result suggests that nursing administrators could improve overall team competence through unified and standardized training programs (e.g., mandatory core elderly care courses for all staff) to avoid uneven resource allocation. Additionally, hospitals should establish a "competency-oriented" compensation system, encouraging nurses to pursue career advancement through skill certifications (e.g., geriatric nursing specialist qualifications) rather than relying solely on seniority or academic credentials.

This study revealed that the elderly care capabilities of emergency nurses are influenced by multiple factors such as education level, training, and work experience, partially aligning with the findings of Jones et al. (2020) on U.S. emergency nurses. However, Chinese nurses scored significantly lower in resource integration capabilities (e.g., cross-departmental collaboration) compared to international standards, which may be related to the current specialized treatment model. In the future, Japan's "Regional Comprehensive Care System" (Shao, S. Q, 2021) could serve as a reference to establish a linkage mechanism between emergency departments and community nursing stations, enhancing nurses' resource coordination abilities through regular rotations. Additionally, the application of AI technology may offer breakthroughs—for example, developing intelligent decision

support systems to provide real-time alerts for potential risks in elderly patients (e.g., drug interactions)—which could address knowledge gaps among nurses.

4. Conclusion

This study found that the geriatric nursing competence of emergency nurses in tertiary hospitals in Hainan Province needs improvement. Emergency nurses aged 30 and below have an advantage in geriatric care compared to those aged 30 and above. Emergency nurses with a bachelor's degree or above scored higher in emergency handling, effective communication, resource integration, and self-protection abilities compared to those with a college degree or below. Emergency nurses who had participated in geriatric nursing training scored higher than those who had not. Emergency nurses with 10 years or less of work experience scored lower in condition assessment compared to those with more than 10 years of experience. Therefore, nursing administrators should strengthen pre-job training, develop assessment plans, and promote positive attitudes to improve emergency nurses' geriatric nursing competence. This study's sample was limited to tertiary hospitals in Hainan Province and did not include primary hospitals or economically underdeveloped regions, necessitating caution in generalizing the results. Future research could expand regional coverage to enhance universal applicability.

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