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Original Article

Readiness of Final-Year Nursing Students Towards Giving Health Education to Caregivers of Critically Ill Clients After Transfer Out of ICU

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Abstract

Introduction: Critically ill patients often require complex care even after discharge from the Intensive Care Unit (ICU), and caregivers become crucial in providing continuous care at home. Preparing nursing students to educate these caregivers is essential to ensuring quality patient outcomes. **Objective:** This study aimed to assess the readiness of final-year nursing students in providing health education to caregivers of critically ill patients following ICU discharge, focusing on their knowledge, skills and awareness, and confidence. The study also examined whether gender had a significant association with these competencies. **Methodology:** A quantitative cross-sectional design was employed, targeting 102 final-year nursing students at IIUM Kuantan. Participants were recruited using census sampling. Data collection was conducted from March to April 2025 through a self-administered online survey consisting of the Health Education Competency Instrument (I-Cepse) and the Casey-Fink Readiness for Practice Survey. Statistical analysis was performed using SPSS Version 27 for descriptive and inferential statistics, including chi-square tests. **Results:** Most students demonstrated high levels of knowledge (78.4%) and confidence (73.5%). However, a lower proportion (39.2%) reported high levels of skills and awareness. Gender showed no significant association with any of the readiness variables. Notably, knowledge was significantly associated with confidence ($p < 0.05$) and showed a borderline association with skills and awareness ($p = 0.051$). **Conclusion:** While final year nursing students are well-prepared theoretically, practical and communication skills related to caregiver education require further strengthening. The curriculum should incorporate simulation, interprofessional training, and caregiver engagement strategies to ensure holistic readiness.

Keywords: *Caregiver Education; Intensive Care Unit; Nursing Students*

Introduction

The transition from the ICU to home care is a critical phase for patients and their families. Post-ICU recovery often involves complex care needs, placing substantial responsibility on family caregivers (Pueyo-Garrigues *et al.*, 2022). These caregivers must manage medication regimens, monitor symptoms, support mobility, and provide emotional reassurance. Nurses play a central role in preparing caregivers for these tasks, and nursing students must be trained accordingly.

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According to the World Health Organization (2012), health education is a purposeful learning experience designed to enhance health literacy and empower individuals with knowledge and life skills (Khazhymurat *et al*., 2023). In the context of ICU discharge, this includes educating caregivers on patient care, symptom monitoring, nutrition, and follow-up routines (González-García *et al*., 2020). As Pueyo-Garrigues *et al*. (2022) supported, despite the importance of health education, concerns remain regarding the readiness of nursing students, particularly in applying knowledge through communication, empathy, and practical instruction. Studies have shown that while many students excel in theoretical domains, they lack the confidence and hands-on exposure required to deliver comprehensive caregiver education (Salem, 2020). Therefore, this study evaluates the readiness of final-year nursing students to deliver health education to caregivers of critically ill patients, identifying strengths and gaps in knowledge, practical skills, and confidence.

Methodology

A descriptive cross-sectional study design was used in this study. Further information for these sections is as below:

Participant Information

This study was conducted at the Kulliyyah of Nursing, International Islamic University Malaysia, Kuantan Campus, Pahang. It was conducted among nursing students, more specifically, year 4 nursing students. Census sampling was used to recruit all 102 final-year nursing students enrolled during the 2024/2025 academic session. Inclusion criteria included active enrolment and willingness to participate. Exclusion criteria included incomplete responses.

Instruments

The questionnaire was used as the instrument in this study, which was adapted from the Modified Health Education Competency Instrument for Nursing Professionals (I-Cepse)—to assess knowledge, skills, and awareness, and Casey-Fink Readiness for Practice Survey (2008) to assess students' confidence in practice settings with the author's permission (Casey *et al*., 2011). This questionnaire was used to collect data from March 2025 to April 2025. The instruments consist of four parts:

- Part A: Socio-demographic data. The part that collects the data on the gender of the students.
- Part B: This part assesses the knowledge of health education— Contains 23 items rated on a 5-point Likert scale (1 = very low to 5 = very high)
- Part C: This part assesses skills and awareness regarding health education. It comprises 35 items evaluating interpersonal and practical skills. The minimum score for each question is 1, and the maximum score is 5. A score of 1 indicates 'very low,' and a score of 5 indicates 'very high.'
- Part D: This part assesses the confidence in providing health education— Includes 15 items scored on a 5-point scale, from 1, which indicates 'strongly disagree,' to 5, which indicates 'strongly agree.'

A pilot test was done to validate the questionnaire, and a consistency Cronbach's alpha of 0.9 was obtained.

Data Analysis

For data analysis, Statistical Package for the Social Sciences (SPSS) version 29.0 was used to analyse the data and generate interpretations. p value < 0.05 was set as statistically significant.

Flow of Study

Ethical approval was obtained from the Kulliyyah of Nursing Postgraduate Research Center (KNPGRC) and the IIUM Research Ethics Committee (IREC). After getting the approval, the researcher conducts the pilot test. Then the purpose of the study was explained to the participants, and after getting informed

consent, questionnaires were distributed using Google Forms. The data was then analysed, and all the information was kept anonymous.

Ethical Consideration

The research obtained ethical clearance from the IIUM Research Ethics Committee, Kulliyyah of Nursing Postgraduate Research Center (KNPGRC), Malaysia, with reference number: IREC (UG) 2024-100 on 9th January, 2025.

Results

Table 1 presents demographic data from 102 nursing students at the International Islamic University Malaysia, reflecting a 100% response rate. The gender distribution was predominantly female (84.3% female vs. 15.7% male). Chi-square tests revealed no significant association between gender and levels of knowledge, skills, awareness, or confidence ($p > 0.05$), suggesting readiness is not influenced by gender.

Table 1: Demographic Data of Respondents (N=102)

	Variables	Frequency (n)	Percentage (%)
Gender	Male	16	15.7
	Female	86	84.3

Table 2 explained the level of knowledge, with 84.3% of participants reporting high levels of knowledge in caregiver education, indicating strong theoretical grounding. Furthermore, the level of skills and awareness in giving health education to year 4 nursing students reveals that only 16.7% of students reported high levels, suggesting challenges in applying knowledge in practice and understanding caregiver needs. In addition, the level of confidence of final-year nursing students in giving health education was high: 86.3% of students reported feeling confident to provide caregiver education, suggesting a positive self-perception but not necessarily skill-based assurance.

Table 2: Descriptive Findings for Level of Knowledge, Skills and Awareness and Confidence in Giving Health Education (N = 102)

Variables	Answer choices	Frequency (n)	Percentage (%)
Knowledge score (out of 115)	Not ready: 23-35 score (<30%)	0	0
	Somewhat ready: 36-79 score (31%-69%)	16	15.7
	Ready: 80-115 score (>70%)	86	84.3
Skills and Awareness Towards Health Education (out of 175)	Not ready: 35-53 score (<30%)	0	0
	Somewhat ready: 54-121 score (31%-69%)	86	83.3
	Ready: 122-175 score (>70%)	17	16.7
Confidence in Giving Health Education	Not ready: 15-23 score (<30%)	1	1
	Somewhat ready: 24-52 score (31%-69%)	13	12.7
	Ready: 53-75 score (>70%)	88	86.3

The results show that most respondents had the knowledge, skills and awareness, and confidence needed to deliver health education. For the knowledge score out of 115, none of the respondents fell into the "Not ready" category (<30%). A significant 84.3% were classified as "Ready," scoring between 80 and 115, which is above 70%, while 15.7% were "Somewhat ready" (scoring between 36 and 79). In terms of health education skills and awareness, there were no respondents in the "Not ready" category. 16.7% of participants were classified as "Ready" with scores above 122, while 83.3% of participants were classified as "Somewhat ready" (scoring between 54 and 121). Only 1% of respondents scored "Not ready" (score <30%) for confidence in providing health education out of a total score of 75. The majority, 86.3%, were categorized as "Ready," with scores ranging from 53 to 75, and 12.7% were "Somewhat ready," scoring between 24 and 52. These results show that most participants had a high degree of confidence.

Table 3 showed no statistically significant association between gender and any of the three domains. In the knowledge domain, 87.5% of male respondents (14 out of 16) and 83.7% of female respondents (72 out of 86) were categorized as "Ready," with only a few in the "Somewhat ready" category and none

in the "Not ready" category (p = 0.703). For skills and awareness, most respondents were "Somewhat ready" (13 males and 72 females), while a smaller portion were "Ready" (3 males and 14 females), and none were "Not ready" (p = 0.808). In terms of confidence, 15 out of 16 males and 73 out of 86 females were classified as "Ready," while one male and twelve females were "Somewhat ready," and only one female was "Not ready" (p = 0.626). These findings indicate that gender does not have a significant influence on the readiness levels of final-year nursing students in any of the measured domains.

Table 3: Association Between Gender and Readiness of Final-Year Nursing Students to Provide Health Education to Caregivers

Knowledge			
	Not ready	Somewhat ready	Ready
Male	0	2	14
Female	0	14	72
Pearson Chi-square (p-value): 0.703			
Skill and Awareness			
	Not ready	Somewhat ready	Ready
Male	0	13	3
Female	0	72	14
Pearson Chi-square (p-value): 0.808			
Confidence			
	Not ready	Somewhat ready	Ready
Male	0	1	15
Female	1	12	73
Pearson Chi-square (p-value): 0.626			

Table 4 uses the chi-squared test to examine the relationship between knowledge levels and skill and awareness levels. Among the 102 respondents, 85 students who were "Somewhat ready" in skills and awareness were divided into "Somewhat ready" (16 students) and "Ready" (69 students) knowledge categories. Furthermore, 17 students who were "Ready" in terms of awareness and skills were also "Ready" in terms of knowledge. No students were classified as "Not ready" in terms of awareness, skills, or knowledge.

Table 4: Association Between Knowledge and Exposure to Skills and Awareness, And Confidence Among Final-Year Nursing Students to Provide Health Education to Caregivers

Skills and awareness	**Knowledge**			
	Not ready	**Somewhat ready**	**Ready**	**Total**
Not ready	0	0	0	0
Somewhat ready	0	16	69	85
Ready	0	0	17	17
Total	0	16	86	102
Pearson Chi-square (p-value): 0.051				
Confidence	**Knowledge**			
	Not ready	**Somewhat ready**	**Ready**	**Total**
Not ready	0	1	0	1
Somewhat ready	0	7	6	13
Ready	0	8	80	88
Total	0	16	86	102
Pearson Chi-square (p-value): 0.000				

The Pearson Chi-Square p-value was 0.051, which is slightly higher than the standard 0.05 level of statistical significance. This result is very near the threshold, even though it is not statistically significant. This implies that students' skills and awareness, and knowledge may have a weak or borderline relationship. This research suggests that students who possess greater awareness and skill levels may also tend to possess higher knowledge levels. But the correlation is not strong enough to make a firm judgment. A larger sample size or more precise categorization in subsequent studies could potentially reveal a clearer relationship. Knowledge and confidence among final-year nursing students were found to be statistically significantly correlated by the Chi-Square test, with a p-value of 0.000, significantly below the normal significance level of 0.05. This suggests that students' confidence in providing health education to caregivers is closely correlated with their level of knowledge.

According to the table, most students who were classified as "Ready" in terms of knowledge (n = 86) were also classified as "Ready" in terms of confidence (n = 80). Students who were "Somewhat ready" in their knowledge also displayed a range of confidence levels, but they tended to fall into the "Somewhat ready" (n = 7) and "Ready" (n = 6) categories. The only student who said they were "Not ready" in confidence was the one who said they were "Somewhat ready" with knowledge. This shows that students are more confident in their ability to teach health education as their knowledge expands. The significance of enhancing knowledge to boost students' confidence in practical health education settings is highlighted by the strong statistical relationship.

Discussion

Most respondents (84.3%) were classified as "ready" in terms of knowledge of caregiver health education. This shows that nursing students in their final year have a strong theoretical basis, which is probably a result of their coursework and clinical experience gained in the subject of Intensive Care Nursing, theoretically and practically. This finding is consistent with a study by Longhini *et al*. (2024) that students' readiness and interpersonal skills for interacting with caregivers are greatly improved by nursing education, especially clinical training. These results demonstrate that final-year students have a strong theoretical and practical foundation in caregiver health education, influenced by their exposure to both real-world clinical settings and classroom teaching.

Most of the research supports the benefits of clinical exposure and curriculum, but some studies highlight issues that may affect readiness, as seen in the 15.7% of the respondents classified as "Somewhat ready." According to Aryuwat *et al*. (2024), focusing on resilience in clinical education highlights the complex transition from theory to practice, which can put students' adaptability and competence to the test. This demonstrates that, despite a strong theoretical foundation, the quality of clinical experiences and support systems is still critical for ensuring that all students achieve optimal readiness (Fooladi *et al*., 2022).

It is noteworthy that despite their knowledge, only 16.7% of students were categorized as "ready" in terms of their skills and awareness; the majority (83.3%) were categorized as "somewhat ready." This disparity implies that although there is theoretical knowledge, there is still a lack of real-world experience and self-perceived readiness to provide health education. To close this gap, the World Health Organization (WHO) highlights that educators should prioritize integrating theoretical content with hands-on experience and reflective learning strategies (World Health Organization, 2003). Their skills and awareness were not sufficiently developed during their two weeks of posting in the intensive care unit. This is supported by a previous concept analysis of clinical readiness for practice. Konlan *et al*. (2024) found that many nursing graduates lack the necessary skills for complex clinical settings, especially in complex or high-stress environments like ICU discharge. Among the factors mentioned are difficulties transferring from student to practitioner roles, a lack of support during clinical placements, and an inadequate integration of skills training (Konlan *et al*., 2024).

Students showed encouraging levels of confidence, with 86.3% of them being classified as "ready" and 12.7% classified as “somewhat ready.” The findings revealed that most of final-year nursing students were confident in providing health education to caregivers of critically ill patients after ICU transfer. This suggests a positive self-perception of their readiness, likely influenced by cumulative clinical exposure throughout their training (Kiik *et al*., 2022). This can be seen by the combination of rigorous academic requirements, structured and diverse clinical assessments (including OSCEs), active community engagement, and a supportive educational environment, which are likely key contributors to the higher results observed among final-year nursing students at IIUM.

A 2021 study that was published in Collegian examined final-year nursing students' interest and confidence concerning working in the medical field. The study discovered that an important indicator of confidence was work experience, especially from clinical placements. Students who had more experience in the real world expressed greater confidence in their capacity to function as registered nurses. The authors concluded that increasing both theoretical and clinical exposure boosts students'

confidence and interest in pursuing nursing careers, supporting the idea that structured educational experiences foster high levels of self-assurance among final-year students (Calma *et al*., 2022).

High confidence is generally a good thing, but some research warns against it. According to a Calma *et al*. (2022) study, some students expressed doubt about their undergraduate preparation and the suitability of their skills in particular contexts, even though their confidence levels were generally positive. These findings imply that even though final-year nursing students tend to have high levels of confidence, the existence of even one student who is “not ready" emphasizes the significance of tailored support and continuous evaluation.

The Chi-square test found no significant correlation between gender and knowledge (p = 0.703), skills and awareness (p = 0.808), or confidence (p = 0.626). Gender equity in educational exposure and outcomes is indicated by the fact that male and female students appear to perform similarly across these variables. The lack of significant association between gender and students' readiness in terms of knowledge, skills, awareness, and confidence can be attributed to the fact that all students, regardless of gender, received the same theoretical instruction and were exposed to clinical experiences throughout the nursing program. This finding is in line with a study conducted in Tanzania in 2024 that revealed no significant correlation between gender and professional practice among nurses (p = 0.239), highlighting the fact that gender disparities in competency outcomes are lessened by standardized training along with equal clinical exposure (Masibo *et al*., 2024).

The relationship between knowledge, and skills and awareness were slightly correlated (p = 0.051), suggesting that it might become significant with a larger sample size. Although this result is not statistically significant, it does indicate a borderline or weak association between the two variables. This finding reflects the complexity of translating theory into practice. Students get practical experience applying their theoretical knowledge in real-world situations through clinical attachments. However, the students may have felt that there was insufficient time to put their theoretical knowledge into practice because they had only been in the intensive care unit for two weeks.

The borderline correlation between awareness, knowledge, and skills (p = 0.051) in this study is well explained by Benner’s Novice to Expert Theory. According to Benner, nursing students begin with theoretical knowledge but have limited practical awareness and skill. They move from novice to more advanced levels of competence as they acquire more clinical experience and start to integrate knowledge, skills, and awareness (Nursology, 2025). Although they are not yet fully proficient, the study's slight correlation indicates that students are in a transitional phase where they are beginning to make the connection between their knowledge and abilities. Ozdemir (2019) emphasizes the importance of ongoing experiential learning and clinical exposure in strengthening these connections and assisting students' progress toward expertise. This is supported by a study from Aswan University, which found that comprehensive clinical experiences, which include ongoing evaluations and feedback throughout placements, are strongly associated with improved clinical performance and practice readiness. The quantity and quality of these experiences have a big impact on professional and academic development (Ibrahim, 2025).

This study discovered a statistically significant relationship between nursing students' level of knowledge and their confidence in providing health education to caregivers of critically ill patients (p = 0.000). This strong association suggests that students with a higher level of knowledge are more confident in delivering health education, whereas those with less knowledge may lack the confidence to engage with caregivers. In other words, knowledge gained through structured academic courses appears to directly contribute to the development of student confidence (Leynes-Ignacio, 2023). This highlights how crucial it is to provide and promote enrolment in these elective courses since they greatly boost students' confidence in their future roles.

Every semester, health education is one of the required assessments for nursing students. A 2024 systematic review and meta-analysis discovered that educational interventions aimed at increasing knowledge, such as through assessments, simulation learning, and structured clinical teaching, significantly increased nursing students' self-esteem. Tabriz *et al*. (2024) emphasized that adequate

knowledge and practical skills are prerequisites for students to feel confident and competent in clinical practice, especially in complex environments like critical care.

The findings of this study align well with Benner's Novice to Expert Theory, which describes the progression of nursing competence through five stages: novice, advanced beginner, competent, proficient, and expert. Final-year nursing students in this study are situated between the advanced beginner and competent levels. Their high level of theoretical knowledge reflects classroom learning and exposure to foundational clinical experiences, consistent with the characteristics of an advanced beginner. However, the moderate scores in skills, awareness, and confidence suggest that while students are gaining competence, they may not yet fully integrate knowledge with intuitive, experience-based judgment typical of a competent or proficient nurse.

Benner's theory supports the idea that clinical readiness, particularly in providing complex interventions like caregiver education, evolves and requires repeated real-world practice. Thus, the theory provides a meaningful framework to interpret the gap between students perceived readiness and the comprehensive skills needed for real-life caregiver education. This also reinforces the importance of experiential learning, mentorship, and reflective practice in supporting students' transition to competent professionals.

Limitations

This study on nursing students' preparedness for critically ill patients has several limitations. The sample was limited to final-year nursing students from the Kulliyyah of Nursing, International Islamic University Malaysia, with a small sample size of 102. The self-administered questionnaire may be subject to response bias, and the cross-sectional design may not track changes over time or in response to educational interventions. The small sample size, especially in the elective course on Patient Safety in ICU, may limit statistical power to identify stronger associations. Additionally, the study did not consider other influencing factors, such as prior caregiving experience or academic performance. Future research should involve larger, more diverse samples, adopt longitudinal designs, and examine additional variables to better understand nursing students' preparedness.

Conclusion

A study conducted among 102 final-year undergraduate nursing students at the International Islamic University Malaysia's Kulliyyah of Nursing aimed to determine their knowledge, skills, awareness, and confidence in delivering health education to caregivers of critically ill patients after discharge from the ICU. The study also examined the relationship between students' gender and their knowledge, skills, awareness, and confidence. The results showed that most respondents were highly knowledgeable and confident in their ability to provide health education, but their skills and awareness showed a lower level of preparedness. The study found no significant gender differences, suggesting that both male and female students were equally prepared. However, the study also highlighted the importance of ensuring that confidence is matched with competence through practical experience. The study found a strong correlation between confidence and knowledge, suggesting that greater confidence in delivering health education to caregivers may be influenced by greater knowledge. A weak correlation was found between knowledge, skills, and awareness, suggesting that more hands-on experience could enhance these areas.

Recommendation

To enhance the readiness of final-year nursing students in educating caregivers of critically ill patients after ICU discharge, nursing programs should focus on bridging the gap between theory and practice. Incorporating structured, simulation-based learning into the curriculum can provide realistic experiences that build confidence and communication skills. Developing a standardized module on health education, covering areas such as medication management, symptom monitoring, and emotional support, would ensure consistency and clarity in teaching practices.

Interprofessional education and collaborative clinical training should also be emphasized, enabling students to understand the dynamics of team-based care and contribute effectively to discharge planning. Strengthening these experiential and collaborative components will help nursing graduates transition smoothly into clinical roles, ensuring they are fully equipped to support caregivers and promote patient safety after discharge.

Conflict of Interest

The author(s) declare that there is no conflict of interest regarding the publication of this article.

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