

Research Article

The Impact of Clinical Practice Stress on Nursing Professional Competence among Undergraduate Nursing Students: A Cross-Sectional Study

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Abstract

AIM: This study aims to explore the impact of undergraduate nursing students' clinical practice stress on nursing professional competence.

METHODS: The research was performed as a cross-sectional study. From January 2023 to February 2023, a total of 114 nursing students in their first clinical practice at a university in Taiwan were included in the survey. Data collection was conducted using the Clinical Practice Stress Scale and the Nurse Professional Competence Scale. Pearson's correlation analysis was used to analyze the relationship between clinical practice stress and nursing professional competence, and multiple regression analysis was used to explore predictors of nursing professional competence.

RESULTS: The clinical practice stress of nursing students was at a medium level (37.75 ± 12.24), and the nurse professional competence was at a high level (79.34 ± 10.12). Clinical practice stress was negatively correlated with nurse professional competence ($r = -.311, p = .001$). Clinical practice stress could predict nursing professional competence ($F = 3.041, p = .013$), which explained 12.3% of the total variance (adjusted $R^2 = .083, p < .001$), among which the stress of taking care of patients in clinical practice had the highest β value ($\beta = -.336, p < .001$).

CONCLUSION: Clinical practice stress can predict nursing professional competence. The stress of taking care of patients in clinical practice is a major predictor of nursing professional competence. Nursing students who experience the stress of clinical practice tend to develop lower nursing professional competence, highlighting the need for effective coping strategies and supportive learning environments for nursing students.

Keywords: Clinical practice, competence, nursing student, stress

Introduction

Clinical practice constitutes a vital aspect of nursing education, affording students the chance to apply theoretical knowledge in authentic patient care contexts (Gülner et al., 2024; Liu et al., 2022; Sanad, 2019). However, the transition from classroom learning to clinical environments presents unique challenges for undergraduate nursing students. The demands of clinical environments often lead to stress among undergraduate nursing students and affect nursing professional competence (Mauriz et al., 2021; Sanad, 2019). Given the importance of clinical placements in nursing education, it is essential to investigate how clinical practice stress affects the professional competence of entry-level nursing students. By addressing clinical practice stress and its impact on nursing professional competencies, nursing education program can better prepare students to cope with and support them in meeting the challenges of clinical practice.

The challenges faced by undergraduate nursing students in clinical practice environments are well documented in the literature (Bahadır-Yılmaz, 2016; Ching et al., 2020), and stress is a common issue that may impact nursing professional competence

(Seo & Park, 2014; Visiers-Jiménez et al., 2021). The transition to clinical practice can be daunting for many nursing students, especially those who have never had clinical practice experience (Sanad, 2019). Studies by Sanad (2019) and Onieva-Zafra et al. (2020) have highlighted the prevalence of stress among nursing students throughout their clinical training, showing that 47.92% and 67% of nursing students were at moderate levels of stress, respectively (Onieva-Zafra et al., 2020; Sanad, 2019). Mauriz et al. (2021) emphasized the significant impact of the clinical environment on nursing professional competence, which can have a negative impact on clinical practice (Lee et al., 2022). Sanad (2019) reported a high percentage of nursing students experiencing moderate stress in clinical practice, demonstrating the pervasiveness of this challenge. Similarly, Onieva-Zafra et al. (2020) identified a notable association between stress experienced during clinical practice and anxiety levels among nursing professional competencies include a variety of attributes, including clinical competency, ethical behavior, communication skills, and professional identity (Valizadeh et al., 2019). Stress experienced during clinical placements can affect these aspects of professionalism, potentially affecting the quality and safety of patient care (Labrague, 2024; Visiers-Jiménez et al., 2021).

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Nurses appear to be required to possess many competencies in their professional practice; competence is considered as the ability to make decisions to solve problems. Professional competence is defined as a collection of professional knowledge that forms intellectual, technical, functional, behavioral, ethical, and political competences (Camelo & Angerami, 2013). Nursing professional competence is a comprehensive, complex, multidimensional, context-dependent concept composed of different domains (Valizadeh et al., 2019). Nursing competency is defined as “the ability of nursing staff to act through acquired knowledge, skills, values, beliefs and experiences”; competencies can be viewed as reflecting the overall performance of the nursing profession’s feelings, thoughts, and judgments; and perform duties through nursing practice (Fukada, 2018).

Studies examining stress factors in clinical practice have revealed that nursing students face heightened stress risks during their clinical placements, with second-year nursing students exhibiting the highest stress levels (Wu et al., 2021). Factors associated with clinical practice stress include general health status (Wu et al., 2021), while personality traits are good predictors of clinical practice stress in nursing students (Xu et al., 2023). The stress is created by students integrating their expectations with the demands of clinical placement to meet the practical demands of a busy ward and seek learning opportunities (Ching et al., 2020). Students face new learning environments and new interpersonal relationships when studying in the hospital; the clinical practice environment is one of the common stressors for nursing students (Welch, 2023). Furthermore, environmental changes and academic pressures, such as excessive clinical responsibilities, risks of infectious diseases, or relationships with medical staff, patients and their families, and nursing techniques in clinical practice, may present great challenges to nursing students (Xu et al., 2023). Generally speaking, factors related to clinical nursing competency include age, marital status, level of education, participation in ongoing education, current workplace, clinical practical experience, and total years of work experience (Yamamoto et al., 2021), knowledge, position, employment status, salary, critical thinking (Rizany et al., 2018; Seo & Park, 2014), job satisfaction, and good interpersonal relationships (Gunawan et al., 2020). Furthermore, relevant factors that affect nursing students’ clinical performance and nursing competence include the environment for clinical learning, self-assessed nursing competence, satisfaction with nursing education (Taylor et al., 2020; Visiers-Jiménez et al., 2021), resilience (self-efficacy, reflective ability, and self-confidence) (Aryuwat et al., 2023), academic year, and clinical skill preparation (Welch, 2023).

There was a notable correlation between clinical practice stress and nursing students’ clinical competence; higher levels of clinical competence were linked to reduced stress during clinical practice (Lee et al., 2022). Furthermore, the clinical performance and nursing competence of nursing students are often related to stress in the clinical learning setting (Welch, 2023). Lee et al. (2015) pointed out that stress affects the clinical competence among nursing students during clinical practice; in other words, higher clinical competence is associated with lower clinical practice stress (Lee et al., 2015). Perceived stress among nursing trainees is negatively correlated with clinical performance, and

excessive or sustained stress can affect clinical performance (Ye et al., 2018). The clinical practice stress experienced is significantly related to clinical competencies, and the decline in clinical practice competency of nursing students can even lead to stress, anxiety, and unnecessary errors for students at clinical sites (Song & Lee, 2020). Sustained increased stress levels can negatively impact nursing students’ perceptions of their competence, confidence, and ultimately clinical performance (Welch, 2023).

The originality of this study lies in its focused investigation of how clinical practice stress specifically affects the professional competence of entry-level nursing students. While previous research (Mauriz et al., 2021; Sanad, 2019) has established a general link between stress in clinical settings and nursing competence, this study points to the unique stressors faced by entry-level students as they transition from classroom learning to clinical practice.

Moreover, this research distinguishes itself by concentrating on clinical practice stress as a predictor of professional competence. Many previous studies have explored stress in nursing education, but have not specifically examined its direct impact on the development of core competencies in real-world clinical settings. By doing so, this study seeks to provide a clearer understanding of how to better prepare and support nursing students during their critical early clinical experiences, thus filling a gap in the existing literature. The aim of this study was to explore how clinical practice stress impacts the nursing professional competence of undergraduate nursing students. The conceptual framework for the impact of clinical practice stress on nursing professional competence is shown in Figure 1.

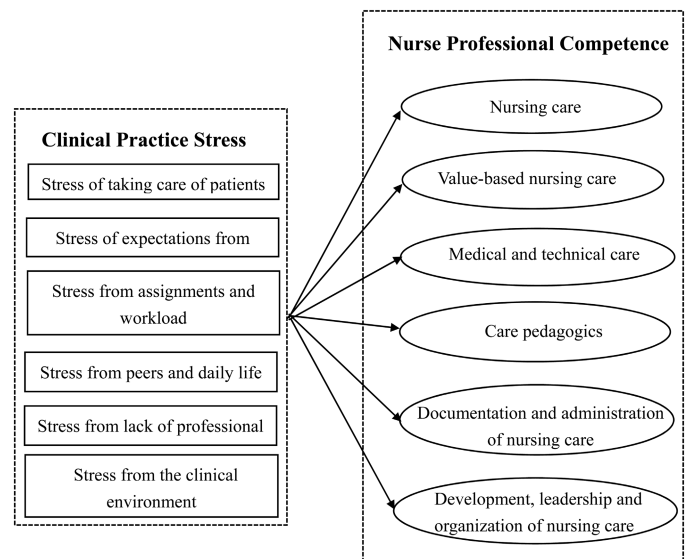


Figure 1. Conceptual Framework of the Impact of Clinical Practice Stress on Nursing Professional Competence.

Research Questions

1. Is clinical practice stress related to nursing professional competence?

2. Can clinical practice stress predict nursing professional competence?

Methods

Study Design

The study was designed as a cross-sectional study.

Sample

Data were collected between January 16 and February 19, 2023. The sample size was based on the entire second-grade population of nursing students. Furthermore, the sample size was determined using G-power, test family (F test, linear multiple regression: fixed model, R^2 deviation from zero), power = .80, number of predictors = 8, and the final calculated sample size was 109. Eligibility criteria were: all participants were second-year nursing students at this university, completed the fundamental nursing clinical practice course, and must be in a clinical practice setting when researchers access collected data. In this study, nursing students enrolled in the nursing major at a university in Taiwan during the academic year 2023 were recruited, specifically during the fundamental clinical practice course held from January to February. Currently, in Taiwan, university nursing degree programs last 4 years. At the beginning of their second grade, nursing students alternate between studying academic subjects (theoretical courses in the classrooms) and clinical practice in clinical settings. After completion of the second year of the Fundamental Nursing course, students begin clinical practice. Fundamental nursing clinical practice is the first clinical practicum for these nursing students, which lasts two weeks and takes place in a hospital setting. Furthermore, informed consent for participation was obtained. The number of second-year nursing students was 125; out of these, 11 participants were excluded due to not meeting the eligibility criteria. Finally, 114 students completed the self-administered questionnaire, with a response rate of 91.2%.

Data Collection Tools

Demographic data included age, sex, application process, reasons for studying nursing, and level of interest in nursing.

Clinical Practice Stress Scale (CPSS)

Clinical practice stress scale is a psychometric tool designed to assess the level of stress experienced by students undertaking clinical placements in hospitals (Sheu et al., 2002). The scale consists of 29 items divided into 6 factors. These six factors are stress from taking care of patients (8 items), stress of expectations from teachers and nursing staff (6 items), stress from homework and workload (5 items), stress from peers and daily life (4 items), stress from lack of professional knowledge and skills (3 items), and stress from the clinical environment (3 items). Participants used a 5-point scale to indicate the extent to which they experienced each stressor (from "not at all" to "very much") (Sheu et al., 2002). The overall score spans from 0 to 116. Add the raw scores for each item in a factor, then divide by the maximum score for that factor, and finally multiply by 100. A higher score indicates elevated stress levels. Cronbach's alpha of .89 and the content validity index of .94 proved its validity (Sheu et al., 2002).

Nurse Professional Competence Scale (NPC Scale)

A 35-item NPC scale short form (SF) was developed (Xu et al., 2021), and the Chinese version was translated (Xu et al., 2021). The SF questionnaire contains six competence aspects: nursing care (5 items), value-based nursing care (5 items), medical and technical care (6 items), care pedagogics (5 items), documentation and administration of nursing care (8 items), and development of nursing care (6 items) (Xu et al., 2021). Responses to each item are expressed on a 7-point scale ranging from 1 (very low degree) to 7 (very high degree). It is calculated by summing the raw scores of the items within a factor, dividing the total item score by the total scale score, and multiplying by 100, with higher scores indicating higher degrees of nursing competence. This scale was reliable, with Cronbach's alpha ranging from .71 to .86 (Halabi et al., 2021), and the Cronbach alpha of the Chinese version for the factors ranging from .78 to .95, while the total scale was .97 (Xu et al., 2021).

Statistical Analysis

Statistical analysis was conducted using the Statistical Package for Social Sciences version 26.0 software (IBM Corp.; Armonk, NY, USA), with a significance level (alpha) established at .05. Statistical significance was determined by the p -value < .05. Demographic characteristics, CPSS, and NPC scale were described using frequency, percentage, mean, and standard deviation (SD). Pearson's correlation analysis was employed to measure the strength of linear associations between demographics, CPSS, and NPC scale. Multiple regression analysis was used to evaluate the association between several independent and dependent variables and to identify predictors of nursing professional competence.

Ethical Considerations

The study protocol was approved by the Ethics Committee of Chung Shan Medical University Hospital (Approval no: CS2-22150, Date: November 22, 2022). The objectives and methodologies were explained to the participants and their informed consent was obtained. Participants were assured of their privacy and confidentiality, and they retained the option to withdraw from the study at any time without explanation or negative consequences.

Results

Demographic Characteristics

The study involved 114 participants (114 of 125 eligible participants from the departments of nursing at the university), consisting of 37 men (32.5%) and 77 women (67.5%), with an average age of 20.91 years (± 1.49). Among the admission methods, 77 students (67.5%) were admitted through examination and 37 students (32.5%) were admitted through application. It can be seen that most of the students were admitted through examination. The reasons for studying nursing include parents' expectations ($n=6$, 5.3%), relatives and friends who are medical staff ($n=35$, 30.7%), easy employment ($n=55$, 48.2%), interest in nursing ($n=37$, 32.5%), and other (admission scores reached or no comments) ($n=65$, 57.0%), showing that most students are motivated to study nursing because their test scores are up to standard and they have no ideas. The level of interest in nursing (on a scale of 1–10) is 6.82 (± 1.86),

Table 1.
Demographic Characteristics of Participants (n = 114)

Variables	n (%)	Mean (SD)
Age		20.91 (1.49)
Sex		
Men	37 (32.5)	
Women	77 (67.5)	
Admission methods		
Exam admission	77 (67.5)	
Apply for admission	37 (32.5)	
Reasons for studying nursing		
Parents' expectations	6 (5.3)	
Relatives and friends are medical staff	35 (30.7)	
Easy employment	55 (48.2)	
Interested in nursing	37 (32.5)	
Others (admission score reached or no comments, etc.)	65 (57.0)	
Level of interest in nursing (1–10 points)		6.82 (1.86)

indicating that the students have a moderate interest in nursing (Table 1).

Descriptive Survey of Participants

The mean CPSS score was 37.75 (12.24), indicating that the clinical practice stress of nursing students was moderate. The mean CPSS subscale scores were: stress from taking care of patients 50.17 (±15.49), stress from expectations from teachers and nursing staff 22.84 (±12.39), stress of homework and clinical workload 45.75 (±20.12), stress of peers and daily life 13.43 (±13.49), stress from lack of professional knowledge and skills 58.04 (±17.70), and stress of the clinical environment 33.26 (±18.44), respectively. The mean score on the NPC scale was 79.34 (±10.12), of which nursing care was 77.47 (±11.94), value-based nursing care was 87.17 (±10.40), medical and technical care was 77.00 (±12.18), care pedagogics was 77.64 (±13.21), documentation and administration of nursing care was 76.58 (±12.09), and development of nursing care was 85.27 (±12.76), respectively (Table 2).

Correlations Between Clinical Practice Stress and Nursing Professional Competence

The six CPSS subscales and CPSS were negatively correlated with the overall NPC scale ($r = -.311, p = .001$), that is to say, there was a moderate negative correlation between clinical practice stress and nursing professional competence. In other words, the lower the clinical practice stress, the higher the nursing professional competence. Stress of taking care of patients was negatively associated with the NPC subscale that included nursing care ($r = -.372, p = .000$), value-based nursing care ($r = -.295, p = .001$), medical and technical care ($r = -.249, p = .007$), care pedagogics ($r = -.265, p = .004$), and documentation and administration of nursing care ($r = -.296, p = .001$), which showed that stress of taking care of patients was not related to the development, leadership, and organization of nursing care.

Table 2.
The Mean Scores of Clinical Practice Stress and Nurse Professional Competence (n = 114)

Variables	n (%)	Mean (SD)
Clinical practice stress Scale		37.75 (12.24)
Stress from taking care of patients		50.17 (15.49)
Stress of expectations from teacher and nursing staff		22.84 (12.39)
Stress of homework and clinical workload		45.75 (20.12)
Stress of peers and daily life		13.43 (13.49)
Stress from lack of professional knowledge and skills		58.04 (17.70)
Stress of the clinical environment		33.26 (18.44)
Nurse professional competence Scale		79.34 (10.12)
Nursing care		77.47 (11.94)
Value-based nursing care		87.17 (10.40)
Medical and technical care		77.00 (12.18)
Care pedagogics		77.64 (13.21)
Documentation and administration of nursing care		76.58 (12.09)
Development of nursing care		85.27 (12.76)

The stress of expectations from school faculty and hospital staff was negatively associated with nursing care ($r = -.303, p = .001$), value-based nursing care ($r = -.343, p = .000$), and development, leadership, and organization of nursing care ($r = -.226, p = .016$). The stress of homework and clinical workload was negatively associated with nursing care ($r = -.291, p = .002$) and development, leadership, and organization of nursing care ($r = -.187, p = .046$). The stress of the clinical environment was negatively associated with nursing care ($r = -.249, p = .008$), medical and technical care ($r = -.299, p = .001$), and documentation and administration of nursing care ($r = -.254, p = .006$). The stress of gaining professional knowledge and skill was negatively associated with nursing care ($r = .211, p = .024$), medical and technical care ($r = -.207, p = .027$), and development, leadership, and organization of nursing care ($r = -.211, p = .024$) (Table 3).

Predictors of Nursing Professional Competence

Since there is a significant correlation between CPSS and the NPC scale, significant independent variables were included in the multiple regression model, and the regression analysis method was selected as the enter method. The multiple regression model used in this study is meaningful and valid, that is, the regression variable examinations were consistent with the predictions of the multiple regression model. In this regression model, the age and level of interest in nursing were not related to nursing professional competence and therefore excluded from further analyses (Table 3).

Clinical practice stress was shown to predict nursing professional competence ($F = 3.041, p = .013$), explaining 12.3% of the total variance (adjusted $R^2 = .083, p < .001$), for the overall NPC scale, stress from taking care of patients significantly negatively

Table 3.
Correlations Between of Demographic, CPSS, and NPC Scale (n = 114)

Variable	Nursing Care		Value-Based Nursing Care		Medical and Technical Care		Care Pedagogics		Documentation and Administration of Nursing Care		Development, Leadership, and Organization of Nursing Care		NPC Scale	
	r	p	r	p	r	p	r	p	r	p	r	p	r	p
CPSS	-.355**	.000	-.285**	.002	-.260**	.005	-.207*	.027	-.243**	.009	-.209*	.026	-.311**	.001
Stress of taking care of patients	-.372**	.000	-.295**	.001	-.249**	.007	-.265**	.004	-.296**	.001	-.140	.139	-.336**	.000
Stress of expectations from school faculty and hospital staff	-.303**	.001	-.343**	.000	-.160	.088	-.167	.075	-.157	.096	-.226*	.016	-.256**	.006
Stress of homework and clinical workload	-.291**	.002	-.147	.118	-.165	.080	-.130	.167	-.168	.074	-.187*	.046	-.213*	.023
Stress of balancing peers and personal life	-.060	.528	-.109	.249	-.100	.290	.007	.940	.019	.843	-.002	.981	-.048	.613
Stress of the clinical environment	-.	.008	-.180	.056	-.299**	.001	-.125	.186	-.254**	.006	-.175	.062	-.264**	.005
Stress from lack of professional knowledge and skill	-.211*	.024	-.160	.089	-.207*	.027	-.160	.089	-.154	.103	-.211*	.024	-.214*	.022

Note: * $p < .05$. ** $p < .01$. CPSS=Clinical Practice Stress Scale; NPC scale=Nurse Professional Competence Scale. Statistical tests: Pearson correlation.

predicts competence ($\beta = -.336$, $p < .001$), meaning higher stress reduces competence. Therefore, clinical practice stress was considered to be a predictor of nursing professional competence of nursing students. The results of the multiple regression analysis for the six subscales of the NPC scale indicated: (1) Stress of taking care of patients, expectations from school faculty and hospital staff, homework and clinical workload, clinical environment, and lack of professional knowledge and skill accounted for 15.9% of the total variance in nursing care subscale scores ($F = 4.074$, $p = .002$), the stress of taking care of patients predicted 13.8% of the variance and was regarded as a predictor of nursing care. (2) Stress of taking care of patients and expectations from school faculty and hospital staff accounted for 13.3% ($F = 8.522$, $p < .001$) of the total variance in the value-based nursing care subscale score and were therefore considered predictors of value-based nursing care. (3) Stress of taking care of patients and clinical environment accounted for 9.7% of the total variance in the medical and technical care subscale score ($F = 3.940$, $p = .010$), and stress from taking care of patients is a strong predictor of medical and technical care. (4) Stress of taking care of patients is a predictor of care pedagogics ($R^2 = 7.0\%$, $F = 8.428$, $p = .004$). (5) Stress of taking care of patients is a predictor of documentation and administration of nursing care ($R^2 = 9.5\%$, $F = 5.798$, $p = .001$). (6) Stress of taking care of patients is a predictor of development, leadership and organization of nursing care ($R^2 = 6.5\%$, $F = 2.546$, $p = .016$) (Table 4). Table 4 presents multiple regression analyses to identify the predictors of nursing professional competence, divided into several subscales. Subscales such as value-based nursing care and medical and technical care show similar findings where stress from patient care and expectations from school faculty also negatively impact

competence. However, factors such as stress from workload and lack of professional knowledge have minimal effects across the subscales. Each subscale explains varying degrees of variance in competence (e.g., R^2 change = .113 for the NPC scale).

Discussion

In the CPSS of this study, the students were under great stress from taking care of patients, and stress from lack of professional knowledge and skills belonged to the moderate stress level; homework, stress from clinical workload, and clinical environment were moderate; and there was less stress from teachers, nursing staff, peers, and daily life. Several studies indicate that nursing students experience moderate levels of stress while undertaking clinical placements (Bahadır-Yılmaz, 2016; Liu et al., 2022; Wu et al., 2021). The most stressful situation for students was taking care of patients and the basic competencies and skills required (Lepiani-Díaz et al., 2023; Toqan et al., 2023). The results of this study show that the NPC scale scores range from 77.00 to 87.17, indicating that students have a high degree of self-evaluation of nursing professional competencies. However, the research results of Wang et al. (2024) show that the core competencies of higher vocational nursing students are at a moderate level. There is evidence that there is no international/global agreement on core competencies and their domains for undergraduate nursing students (Purabdollah et al., 2023). Therefore, the development of competence is an important aspect of nursing education.

Regarding the correlations between CPSS and the NPC scale in this study, preliminary analysis showed that the "stress of

Table 4.
Multiple Regression Analysis to Identify Predictors of Nursing Professional Competence (n = 114)

Model	B	SE _B	β	t	p	R ² Change	F	p	R ²	Adjusted R ²
NPC scale							3.041	.013	.123	.083
Stress of taking care of patients	-.219	.058	-.336	-3.770	.000	.113				
Stress of expectations from school faculty and hospital staff	-.071	.103	-.087	-.694	.489	.007				
Stress of homework and clinical workload	.003	.065	.006	.048	.961	.000				
Stress of the clinical environment	-.037	.073	-.065	-.515	.608	.003				
Stress from lack of professional knowledge and skill	-.019	.064	-.034	-.294	.769	.001				
Subscale 1—Nursing care							4.074	.002	.159	.120
Stress of taking care of patients	-.223	.099	-.290	-2.263	.026	.138				
Stress of expectations from school faculty and hospital staff	-.081	.119	-.084	-.683	.496	.013				
Stress of homework and clinical workload	-.072	.075	-.121	-.961	.339	.007				
Stress of the clinical environment	.015	.084	.022	.175	.861	.000				
Stress from lack of professional knowledge and skill	.013	.074	.021	.179	.858	.000				
Subscale 2—Value-based nursing care							8.522	.000	.133	.117
Stress of taking care of patients	-.198	.061	-.295	-3.272	.001	.087				
Stress of expectations from school faculty and hospital staff	-.217	.090	-.258	-2.424	.017	.046				
Subscale 3—Medical and technical care							3.940	.010	.097	.072
Stress of taking care of patients	-.196	.072	-.249	-2.727	.007	.062				
Stress of the clinical environment	-.162	.081	-.236	-1.996	.048	.032				
Stress from lack of professional knowledge and skill	-.038	.071	-.057	-.531	.596	.002				
Subscale 4—Care pedagogics							8.428	.004	.070	.062
Stress of taking care of patients	-.225	.078	-.265	-2.903	.004	.070				
Subscale 5—Documentation and administration of nursing care							5.798	.004	.095	.078
Stress of taking care of patients	-.231	.070	-.296	-3.283	.001	.088				
Stress of the clinical environment	-.074	.081	-.108	-.913	.363	.007				
Subscale 6—Development, leadership, and organization of nursing care							2.546	.060	.065	.039
Stress of expectations from school faculty and hospital staff	-.233	.095	-.226	-2.456	.016	.051				
Stress of homework and clinical workload	-.013	.081	-.021	-.167	.868	.003				
Stress from lack of professional knowledge and skill	-.087	.079	-.125	-1.101	.273	.010				

Note: p < .05.

NPC scale = Nurse Professional Competence Scale.

taking care of patients," the "stress of the clinical environment," "stress of expectations from school faculty and hospital staff," the "stress from lack of professional knowledge and skill," and "stress of homework and clinical workload" were significantly negatively correlated with nursing professional competence, in this order, the stress of taking care of patients had the strongest negative correlations with the NPC scale. Furthermore, the nursing care subscale of the NPC scale had the strongest negative correlation with CPSS. In short, students who experienced higher levels of stress in clinical practice tend to develop lower nursing professional competencies.

The findings of this study align with research showing that the lower the stress from taking care of the patients, school faculty and hospital staff, and clinical environment, the higher the nursing professional competence (Welch, 2023; Wu et al., 2021; Toqan et al., 2023). Students generally had a high clinical workload, and lack of professional knowledge and skills, which had a highly negative correlation with nursing competence. Students report academic load as a fairly common source of stress in clinical practice (Bahadır-Yılmaz, 2016; Wu et al., 2021). Furthermore, the higher frequency of faculty criticism in clinical settings and concerns about practice errors and lack of preparation are also

stressors for nursing students in clinical placements (Lepiani-Díaz et al., 2023; Liu et al., 2022; Toqan et al., 2023).

In this study, the stress of taking care of patients in clinical practice was the main predictor of nursing professional competence, with multiple regression analysis showing a low but significant predictive relationship between the CPSS and NPC scale, explaining 8.3% of the total variation. Although this percentage may seem modest, despite the relatively lower coefficient, it suggests that clinical practice stress plays a role in affecting nursing competence. This is consistent with findings from previous studies, which have also highlighted the impact of stress on nursing competence (Welch, 2023; Wu et al., 2021). Higher levels of clinical practice stress were associated with lower nursing competence among students (Welch, 2023; Wu et al., 2021), especially under the stress of taking care of patients (Toqan et al., 2023). The findings of this study suggest that clinical practice stress affects not only overall nursing professional competence but also specific domains of nursing practice. Specifically, stress of taking care of patients had a significant predictive relationship with five factors on the NPC scale (nursing care, medical and technical care, value-based nursing care, care pedagogics, and documentation and administration of nursing care). These findings are consistent with previous research, which similarly identified patient care stress as a significant predictor of various aspects of nursing professional competence. Research shows that stress during patient care can affect clinical decision-making, technical skill proficiency, and interpersonal communication skills, all of which are essential components of nursing competence (Almarwani & Alzahrani, 2023). The consistency of these findings highlights the robustness of the relationship between patient care stress and nursing competence.

The stress of expectations from school faculty and hospital staff as a predictor of value-based nursing care, integrating stress from academic and institutional expectations as a predictor of competence in value-based nursing care, highlights the multifaceted nature of the stressors encountered by nursing students. This aligns with the findings of Bahadır-Yılmaz (2016) and Toqan et al. (2023), who confirmed that students perceived stress during their first clinical training. One of the most common sources of this stress was interactions with teachers and nursing staff, with the highest levels of stress attributed to teachers' criticism in clinical environments. These results highlight the critical impact that faculty behavior and feedback have on nursing students' stress levels in clinical settings.

Research in the existing literature suggests that institutional factors such as workload, role ambiguity, and hierarchical structures influence clinical practice stress (Noor et al., 2023). Similarly, educational pressures and evaluation criteria imposed by faculty can influence students' perceptions of nursing practice and their adherence to professional values (Ammari & Gantare, 2023). Although the stress of taking care of patients is often considered an important factor, the stress generated by school faculty and hospital staff is equally important and deserves attention in nursing education and practice. This study's findings suggest that the challenges and stress inherent in clinical settings not only impact

overall nursing competence but also specifically impact nurses' abilities to perform medical and technical tasks effectively. The significance of stress in the clinical environment as a predictor of medical and technical care aligns with the existing literature that highlights the impact of stress on nursing skills and procedural proficiency. Studies have shown that stress can alter nurses' cognitive functioning, attention, and skills, all of which are critical to accurately performing medical and technical tasks (Babapour et al., 2022). Furthermore, stress has been associated with errors and adverse events in clinical practice, underscoring its potential to compromise patient safety and quality of care (Labrague, 2024).

Study Limitations

This study only explored second-year nursing students who had completed a clinical fundamental nursing internship. It is recommended that studies be conducted with second-, third-, and fourth-year nursing students using a stratified proportional sampling method to explore differences between different grades. Additionally, it is recommended that the sample size be increased and expanded to different schools in the future to further validate the results of this study, which are expected to be increased to establish results that can be broadly extrapolated. Sources of stress in clinical practice can vary depending on the experience of a student in the practicum, thus affecting the performance of nursing competencies in clinical practice. Therefore, longitudinal studies are recommended to expand the findings.

Conclusions and Recommendations

This study identified clinical practice stress as a predictor of nursing professional competence; and the stress of taking care of patients in clinical practice is being a major predictor of nursing professional competence. Training programs can focus on enhancing students' coping mechanisms, communication skills, simulated clinical environments for skill practice, and clinical decision-making abilities to better prepare them to meet the challenges of patient care (Gülner et al., 2024). In addition, innovative and creative teaching methods (Gibson-Young et al., 2023) and incorporating stress management and coping skills into the curriculum, can equip educators to identify and support students experiencing stress, improve clinical settings, and create a positive and inclusive clinical learning environment (Gülner et al., 2024), and these efforts help nursing students overcome adversity in clinical practice. By understanding the factors that influence nursing professional competence and highlighting the significance of clinical practice stress, particularly in patient care, it underscores the importance of proactive measures to support nursing students in managing stress and ultimately enhancing their professional competence.

Availability of Data and Materials: The data that support the findings of this study are available on request from the corresponding author.

Ethics Committee Approval: This study was approved by the Ethics Committee of Chung Shan Medical University Hospital (Approval no: CS2-22150, Date: November 22, 2022).

Informed Consent: Written informed consent was obtained from participants who participated in this study.

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