The Relationship Between Pediatric Nursing Students' Clinical Practice Stress and Their Clinical Competence Regarding Gavage Feeding

Doaa Magdy Ahmed Mohamed, Demonstrators

Nursing Education, Faculty of Nursing, Alexandria University

Awatif Aly Hassan El Sharkawy, Professor,

Pediatric Nursing, Faculty of Nursing, Alexandria University

Shadia Ramadan Morsy, Assist Professor

Nursing Education, Faculty of Nursing, Alexandria University

Yasmeen Mohamed Shehata, Assistant Professor

Nursing Education, Faculty of Nursing, Alexandria University.

Marwa Mohamed Farag, Assistant Professor

Pediatrics Department, Faculty of Medicine, Alexandria Universit**y.**

ABSTRACT

Background: *Clinical practice is an imperative component of nursing education, where students apply theoretical knowledge in real healthcare settings. However, clinical practice can be demanding and stressful, particularly in pediatric nursing, due to the unique challenges of caring for neonates. This stress can impact their ability to demonstrate clinical competence, encompassing the knowledge, skills, and attitudes necessary for safe and effective nursing practice.* ***Aim:*** *Explore the relationship between clinical competence and clinical practice stress among pediatric nursing students.* ***Research design:*** *A descriptive correlational research design was used in the present study. Setting:*
This study was conducted at five neonatal intensive care units in Alexandria hospitals, Alexandria University, Egypt. ***Subject:*** *200 nursing students were selected conveniently to represent all nursing students (N = 240) who enrolled in clinical training at the Pediatric Nursing Department during the second semester of the academic year 2021-2022.* ***Tools:*** *Three tools were used for data collection. Tool I: "Perceived Stress Scale (PSS)". Tool II, "Clinical Competence Self-Assessment Tool (CCSAT)". Tool III, "Gavage feeding observational checklist".* ***Results:*** *More than two-thirds of pediatric nursing students had a moderate level of clinical practice stress, more than one-third of them were competent in the knowledge of the gavage feeding procedure, and more than two-thirds were also competent in demonstrating the gavage feeding procedure as well as the majority of them had a positive attitude toward their competence. Moreover, there was a positive, weak correlation between clinical practice stress and clinical competence among pediatric nursing students.* ***Conclusion:*** *Clinical competence is the outcome of nursing education. Low levels of clinical practice stress help nursing students develop clinical competence.* ***Recommendation:*** *Addressing effective teaching strategies, creating an optimal learning environment, and utilizing stress management techniques foster the development of clinical competence.*

Keywords: Clinical Practice Stress, Clinical Competence, Pediatric Nursing students, Gavage Feeding.

Received 20 March 2024; Accepted 27 March 2024; Published December 2024

Introduction

Nursing education plays a pivotal role in preparing students for the challenges and responsibilities they will face in their future nursing careers. Nursing education programs aim to equip students with the theoretical foundations, clinical skills, and professional competencies to excel in their practice. Clinical practice is an integral component of nursing education, as it provides students with hands-on experience in real healthcare settings, allows them to apply their knowledge, and develops critical thinking skills. However, clinical practice can also be a source of significant stress for nursing students, particularly in pediatric nursing care, where the complexity and emotional demands of neonatal care are high (Refrande et al., 2019; Salifu et al., 2022).

Clinical practice stress was defined by Lazarus and Folkman as a process that arises when an individual perceives an imbalance between the demands placed upon them and their resources to cope with those demands. This imbalance is considered a significant stressor in clinical practice stress (Barreira et al., 2023).

Many factors in the clinical setting could predispose to stressors. The first one is the workload and time pressures placed upon nursing students, such as high workloads and tight deadlines, that can create a sense of overwhelming stress. The second one is the clinical demands that put additional pressure on students as they strive to meet expectations, complete assignments, and perform well on exams while managing their academic responsibilities. Interpersonal relationships are the third factor that also plays a role which includes the relationships with clinical staff clinical instructors and nurses who could have differing expectations, methods of providing feedback, and attitudes. Also, relationships with peers who might possess varying degrees of ability, knowledge, and skills. The fourth one is organizational factors, such as inadequate resources and a lack of support which contribute to the stress experienced in the clinical setting. The personal factors which include perfectionism, self-doubt, and a lack of self-care, can also contribute to stress levels (El-Ashry et al., 2022; Xu et al., 2023).

Clinical practice stressors can have significant implications on nursing students' well-being, their ability to deliver safe and effective care to neonates, and their ability to cope with the demands of clinical practice. High levels of stress can also impair students' cognitive function, decision-making skills, and situational awareness, all those implications are crucial for pediatric nursing practice. Research has shown that increased stress levels among nursing students are associated with decreased clinical competence, leading to potential errors in medication administration, missed assessments, and compromised patient safety (Mazalová et al., 2022; Welch & Ccrn, 2023).

Clinical competence is a critical aspect of nursing education and practice. It is a multidimensional concept that encompasses the ability to combine cognitive, affective, and psychomotor skills when providing care. This concept has been extensively researched and defined by various authors in healthcare education and practice. Benner (1984) highlighted that clinical competence involves the capacity of healthcare professionals to integrate knowledge, skills, attitudes, and clinical judgment, enabling them to deliver competent and high-quality care

(Nabizadeh et al., 2021; Wong, 2020).

The achievement and development of clinical competence among pediatric nursing students are influenced by several factors, including personal, environmental, and psychological factors. The personal factors that may affect the ability to develop proficiency in neonatal care include prior experiences, knowledge, skills, and personality traits of nursing students. Meanwhile, the environmental factors include the availability of resources, support systems, and the organizational culture of the healthcare setting. Finally, psychological factors including anxiety, low self-efficacy, social problems, peer challenges, and stress can affect the confidence and performance of nursing students. So, recognizing and addressing these factors is essential in supporting pediatric nursing students as they strive to develop clinical competence and provide optimal care for high-risk neonates
(Egilsdottir et al., 2023; Hui et al., 2023).

Stress is one of the factors that can impact clinical competence among nursing students, especially in the field of pediatric nursing. It may evoke stress for nursing students during clinical practice due to the unique challenges including the care of critically ill and vulnerable neonates. Hence, studying the relationship between clinical practice stress and clinical competence in pediatric nursing holds significant importance in the field of nursing education and practice. It identifies potential areas for improvement of competence in nursing education. Also, knowing stressors among pediatric nursing students may impact clinical competence. Unfortunately, there have been few studies that assess the impact of clinical practice stress on clinical competence among pediatric nursing students. Thus, this study was implemented to explore the relationship between clinical practice stress and clinical competence among pediatric nursing students.

Aim of the Study

This study aimed to explore the relationship between clinical practice stress and clinical competence among pediatric nursing students.

Research Questions:

The following questions were developed:

*Q1: What are the levels of clinical practice stress among pediatric nursing students?
*Q2: What are the levels of clinical competence among pediatric nursing students?

*Q3: Is there a relationship between clinical practice stress and clinical competence among pediatric nursing students?

*Q4: What is the relationship between clinical practice stress and clinical competence among pediatric nursing students? ***Materials and method***

Materials

Design: A descriptive correlational research design was followed in the present study.

Setting: This study was conducted at five Neonatal Intensive Care Units (NICU) in the following settings: Maternity University
Hospital at El-shatby, Alexandria University Children's Hospital at Smouha, El-Raml Children Hospital at Wingate, Alexandria Maternity Hospital, and ElGomhoria Public Hospital.

Subjects: The subjects of this study comprised 200 nursing students who were selected conveniently to represent all nursing students (N=240) who enrolled in the Pediatric Nursing Department, during the second semester of the academic year 2021-2022

Tools: Three tools were used in this study for data collection: ***Tool I: Perceived Stress Scale (PSS)***

This tool was developed by Sheu et al, (1997) and it was modified by the researcher to be applicable for measuring pediatric nursing students' clinical practice stress. It consists of 37 statements distributed over six dimensions. Firstly, stress from taking care of neonates which consists of 12 statements. Secondly, stress from teachers and nursing staff which consists of 9 statements. Thirdly, stress from assignments and academic workload which consists of 5 statements. Fourthly, stress from peers which consists of 2 statements. Fifthly, stress from lack of professional knowledge and skills which consists of 3 statements. Finally, stress from the clinical environment which consists of 6

statements. It was tested for its reliability using Cronbach's alpha test and the coefficient value was 0.92. Students' responses were measured on the 5-point Likert scale as follows; never (0), almost never (1), sometimes (2), fairly often (3), and very often (4). The scoring system of this tool ranged from 0- 148 distributed as follows: less than 49 indicates a low level of clinical practice stress, from 49- 98 indicates a moderate level of clinical practice stress, and from 99- 148 indicates a high level of clinical practice stress.

Percent Score	Category	Level of competence
> 90%	Excellent	Proficient
80% to 89%	Very good	Competent
70% to 79%	Good	Advanced Beginner
60% to 69%	Fair	Novice
< 60%	Fail	

Tool II: Clinical Competence SelfAssessment (CCSA) scale for gavage feeding.

This tool was developed by the researcher after an extensive review of related literature (Limão, 2016; Zeed et al., 2019) to assess pediatric nursing students' clinical competence regarding the gavage feeding procedure. It is composed of two parts; the first part is related to the student's knowledge about the gavage feeding procedure and the second part is related to the attitude toward their competence in gavage feeding. It was tested for its reliability using Cronbach's alpha test and the coefficient value for part one was 0.719 and for part two was 0.932.

Part I: Knowledge of pediatric nursing students about the gavage feeding procedure.

This part was used to identify nursing students' knowledge about gavage feeding. It consists of 15 Multiple Choice Questions (MCQs). Students' responses were measured by giving one grade for the correct answer, and zero for the wrong answer. The scoring system of this tool ranged from 0- 15 and was categorized based on Benner's theory (1984) as follows:

Part II: Attitude of pediatric nursing students toward their competence in gavage feeding. This part was used to identify nursing students' attitudes toward their competence in gavage feeding. It consists of 11 statements. Students' responses were measured on 5-point Likert scale as follows: strongly agree (5), agree (4), neutral (3), disagree (2), strongly disagree (1). The scoring system of this tool ranged from 11-55 distributed as follows: from 11 - 47 indicates a negative attitude toward their competence in gavage feeding and more than 47 indicates a positive attitude toward their competence in gavage feeding.

Tool III: Gavage feeding observational checklist.

This tool was adopted by the researcher from the procedural and conceptual manual of the Pediatric Nursing Department, Alexandria University (February 2020) to evaluate the pediatric nursing students' performance of gavage feeding in clinical areas. It consists of 17 steps measured on a three-point Likert scale including achieved (correct and complete) 2, not achieved (incorrect or incomplete) 1, and not applicable (N/A) 0. It was tested for its reliability using Cronbach's alpha test and the coefficient value was 0.932. The scoring system of this tool ranged from 17- 34 and was categorized based on Benner's theory (1984) as follows:

Attached to these tools is a sheet that contains personal and academic data about pediatric nursing students such as age, gender, last GPA, and experience in caring for sick neonates.

Method

An approval to conduct the study was obtained from the Research Ethics Committee (REC) at the Faculty of Nursing, Alexandria University. Official Permission to conduct the study was obtained from the Dean and the head of the Pediatric Nursing Department, at the Faculty of Nursing, Alexandria University after explaining the study's aims. An official permission to conduct the study was obtained from the head of Neonatal Intensive Care Units (NICU) in the five setting areas mentioned before. The tool I was developed by Sheu et al, (1997), and it was modified by the researcher to be applicable for the first aim of the study. Tool II was developed by a researcher after an extensive review of related literature. Tool III was adopted from the procedural and conceptual manual of the Pediatric Nursing Department. The tools were tested for their content validity by five experts in Nursing Education and the Pediatric Nursing Departments then the necessary modifications were made accordingly. A pilot study was carried out on 24 nursing students (10% of the total sample) who were selected conveniently to assess the feasibility, clarity, and applicability of the tools, and to identify the difficulties that may be faced during data collection. Those students were excluded from the total study sample. Furthermore, the reliability of the tools was tested for their internal consistency using Cronbach's alpha test. The tools were reliable and the coefficient values for tool I, tool II (part I and part II), and tool III were 0.917, 0.719, 0.923, and 0.932 respectively. The study participants were selected conveniently from nursing students enrolled in the Pediatric Nursing Department. Pediatric nursing students' clinical practice stress was measured using tool I. Pediatric nursing students' knowledge and attitudes were measured using tool II. The researcher evaluated the students in the clinical hospital while demonstrating the gavage feeding procedure using tool III. Data collection was carried out on the third academic level of pediatric nursing students during the second semester of the academic year 2021-2022. Data was collected through an observational checklist and questionnaire over three months starting from the beginning of

Score	Category	Level of competence
≥90%	Excellent	Proficient
80% to 89%	Very good	Competent
70% to 79%	Good	Advanced Beginner
60% to 69%	Fair	Novice
< 60%	Fail (if the skill is not performed or performed incompletely or incorrectly	

March 2022 and continuing till the beginning of June 2022.

Ethical considerations

Written informed consent was obtained from nursing students after explaining the purpose of the study. The student's right to refuse to participate or to withdraw from the study at any time was assured. The anonymity of participants and confidentiality of data were maintained.

Statistical analysis:

After completion of the data collection, the necessary statistical analysis was done, and data was revised, coded, and fed to the computer and analyzed using IBM SPSS software package version 25.0. (Armonk, NY: IBM Corp). Descriptive statistics were calculated on all variables of interest, including arithmetic means ($\bar{x}$), standard deviations (SD), frequencies, numbers, and percentages, to describe study variables. The used tests were:

1. Bonferroni test: Used for normally distributed quantitative variables, to compare between more than two groups.
2. Pearson coefficient: Used to correlate between two normally distributed quantitative variables.

Results

Table 1 shows the percent distribution of pediatric nursing students according to their personal and academic data. It was found that the majority of pediatric nursing students (83%) were aged 21 years or younger, while only 17% of them were 22 years or older. The minimum age observed was 20 years, and the maximum was 23 years, with a mean age of 20.99 ± 0.75. Concerning the gender, it was found that 50.5% of students were males. The last GPA of more than half of the students (52.5) ranged from C- to C+, and 46.5% of them ranged from B- to B+ grade. The range of their last GPA varied from 2.1 to 3.8, with a mean GPA of 2.7 ± 0.51. Nearly half of pediatric nursing students (51%) had experience in caring for sick neonates.

Table 2 reveals the percent distribution of perceived levels of clinical practice stress among pediatric nursing students. This table shows that pediatric nursing students have a moderate level in various domains of clinical practice stress, including stress from taking care of neonates (65.5%); stress from interactions with teachers and nursing staff (63%); stress from assignments and academic workload (46.5%); stress from peers (48.5%); stress from lack of professional knowledge and skills (52.5%); and stress from the clinical environment (49.5%). Generally, this table confirms that less than three-quarters of pediatric nursing students (71%) experience moderate levels of clinical practice stress.

Table 3 illustrates the percent distribution of pediatric nursing students' levels of knowledge about the gavage feeding procedure. Over one-third of pediatric nursing students (36%) were competent in the knowledge of the gavage feeding procedure, while approximately one-fifth of them (20.5%) were an advanced beginner. Unfortunately, only 9% of them were proficient and 16.5% had a novice level of understanding. On the other hand, 18% of them were failed. The minimum score for knowledge is 1, and the maximum is 15, with a mean of 10.80±2.85.

Table 4 shows the percent distribution of pediatric nursing students' levels of attitude regarding their

competence in the gavage feeding procedure. This table confirmed that the majority of pediatric nursing students (95.5%) had a positive attitude toward their competence in gavage feeding. In contrast, only 4.5% of them had a negative attitude. The scores ranged from a minimum of 14 to a maximum of 55, with a mean score of 42.59 ± 7.71.

Table 5 illustrates the percent distribution of pediatric nursing students' skill levels in the gavage feeding procedure. This table reveals that the highest percentage of pediatric nursing students (69.5%) were categorized as competent in the gavage feeding procedure. Whereas 22% of them were advanced beginners and only 8.5% were proficient. The scores for the gavage feeding procedure ranged from a minimum of 26 to a maximum of 32, with a mean score of 28.52 ± 1.29.

Table 6 presents the percentage distribution of levels of clinical competence among pediatric nursing students. The data indicates that 44% of the students had competence in the gavage feeding procedure. Over onethird of the pediatric nursing students (36%) were classified as advanced beginners, while 9.5% were categorized as novices in the gavage feeding procedure. Regrettably, only 6% of the pediatric nursing students achieved proficiency, and 4.5% of them failed.

Table 7 reveals the correlation between clinical practice stress and clinical competence among pediatric nursing students. This table reveals that there was a significant positive weak correlation between clinical competence and stress from taking care of neonates ($p = 0.053$, $r = 0.137$) and stress from assignments and academic workload ($p = 0.095$, $r = 0.118$). In contrast, there was no significant correlation between clinical competence and stress from teachers and nursing staff, peers, a lack of professional knowledge and skills, as well as stress from the clinical environment. Generally, it was found that there was a significant weak positive correlation between the students' clinical competence and their overall clinical practice stress ($p = 0.002$, $r = 0.173$).

Discussion

Clinical practice stress is a foremost issue among nursing students. Addressing this issue is crucial for the academic success of nursing students, the quality of patient care, and the future of the nursing profession (Abdelaziz et al., 2019). The current study revealed that more than two-thirds of pediatric nursing students who trained in the previously mentioned hospital had moderate levels of clinical practice stress. This result answered the first research question. It could be due to the challenges and difficulties of dealing with delicate and precious populations such as neonates. This result aligns with previous research conducted by Mushtaq et al., (2021), who found that approximately two-thirds of nursing students reported moderate levels of stress. Similarly, the finding of Rafati et al., (2020) mentioned that nursing students experience moderate levels of stress during their clinical practice. Furthermore, Kim et al., (2018) revealed that nursing students' stress levels were moderate regarding neonatal practice. On the contrary, D'emeh & Yacoub, (2021) showed that there was a high level of stress among Saudi nursing students.

There are many sources of stress experienced by undergraduate nursing students in clinical practice (Hamadi et al., 2021). In the light of the present study, it was indicated that the most common sources of clinical practice stress identified

by students were related to assignments and academic workload. This might be due to various factors including the requirement of multiple assignments in the clinical area, long clinical studying hours, and the need to balance between clinical duties and academic responsibilities. Furthermore, students' worry about receiving poor grades may also induce stress. This result is consistent with Ayed et al., (2020) and Latif & Nor, (2019) who found that the most common sources of stress faced the nursing students were assignments and academic workload.

Stress from peers is challenging for nursing students. The present study found that the least common source of stress among pediatric nursing students was stress from peers. It might be related to the nursing education programs often emphasizing the importance of teamwork and collaboration as well as encouraging students to support and help one another. Specifically, nursing students often work in teams or groups which may lead to developing strong bonds and support networks with peers, this can provide a buffer against stress. The present study findings agreed with Tamang et al., (2020), who explored that stress from peers is ranked as a sixth source of stress among nursing students.

Moreover, Clinical competence is a holistic concept that encompasses the integration of knowledge, skills, and attitudes in the clinical setting. (Nabizadeh et al., 2021). Regarding knowledge, the present study clarifies that more than one-third of nursing students enrolled in pediatric nursing clinical training were competent toward their knowledge about the gavage feeding procedure. This result answered the second research question. It could be attributed to the comprehensive education that is provided to them in pediatric nursing course which helped the students to develop a strong foundation of knowledge in this area. The quality and effectiveness of instructors can also play a significant role in developing the students' competence regarding nasogastric feeding knowledge. The result of this study was in line with Abo Elezz et al., (2021) who found that nurses had a satisfactory level of knowledge regarding enteral feeding. Similarly, Ibrahim & Qalawa, (2016) clarified that nurses had a satisfactory level of knowledge before and during nasogastric tube (NGT) feeding administration. In contrast, Mohammed & Fattah, (2018) were inconsistent with the current study finding that the nurses' knowledge about the nasogastric tube feeding procedure at the neonatal intensive care units was inadequate.

Attitudes can influence the confidence, motivation, and willingness of nursing students to engage in specific clinical procedures, ultimately impacting their overall competence and proficiency in providing care (Anagor et al., 2021). In the current findings, it was noticed that the majority of pediatric nursing students had a positive attitude toward their competence in the gavage feeding procedure. This result answered the second research question. It could be justified by their prior training and experience in the skill, which enhances their confidence in performing the procedure effectively and safely. Contrary to the findings of this study Zohra & Afzal, (2021) found that the majority of nurses have a pessimistic view of the NGT feeding procedure. In addition, Abo Elezz et al., (2021) noted that slightly less than half of nurses had a positive attitude about enteral feeding.

Gavage feeding is an essential nursing skill, particularly in the care of neonates who may require specialized nutritional support due to their unique

developmental needs and medical conditions. It was observed in the findings of the current study that more than two-thirds of the pediatric nursing students were competent in performing the gavage feeding procedure. This result answered the second research question. This result might be due to previous training, education, and exposure to simulated scenarios in clinical labs which provided them with adequate and necessary knowledge and skills related to gavage feeding. Moreover, factors such as the students' previous GPA and prior experience were identified as influential factors that contributed to their competence in performing the procedure (Table 1). In addition, having knowledgeable instructors who provide feedback, perform debriefing, and ongoing supervision helped the students refine their skills, address any concerns, and build confidence in their ability to perform gavage feeding safely and effectively. The result of the present study was supported by the research done by Elsayed et al., (2021) who revealed that nurses had high mean performance scores regarding gavage feeding. On the other hand, the study done by Mohammed & Fattah, (2018) was incongruent with the findings of the current study. They found that nurses' practices at the nasogastric tube feeding administration pre-program were insufficient. El-Meanawi, (2017) also reported that nurses had unsatisfactory practices related to gavage feeding before the education program.

Clinical practice stress can have a significant impact on a student's ability to perform competently in the clinical setting. The level of stress experienced by nursing students during their clinical practice can influence their overall clinical competence and ability to provide quality patient care (Welch, 2023). The present study revealed that there was a significant positive, weak correlation between the clinical practice stress of pediatric nursing students and their clinical competence. This result answered the third and fourth research questions. This could clarify the idea that a moderate level of stress can serve as a motivating factor for students. It can increase their awareness and focus on their clinical practice, as well as push them to strive for excellence. Attentiveness and consciousness can contribute to increasing their competence as nursing students. In contrast, a high level of stress has detrimental effects on students' wellbeing and performance, potentially leading to decreased competence. This is congruent with the research of Welch, (2023) who clarified that increased and sustained stress levels negatively affect nursing students' perceptions of competence. This result was consistent with the study made by Chen et al., 2021 who explored that clinical stress was positively correlated with competence in the care of patients. On the contrary, Afzal et al., (2019) reported that there is a negative relationship between stress and competence among nursing students.

Conclusion

Based on the findings of the present study, it was concluded that clinical practice stress is a prevalent issue facing pediatric nursing students. There are many stressors experienced by pediatric nursing students. These stressors include stress from taking care of neonates, stress from teachers and nursing staff, stress from assignments and academic workload, stress from peers, stress from professional knowledge and skills, and stress from the clinical environment. These stressors have impacted their clinical competence. Moreover, pediatric nursing students had a competent level of knowledge and skills in

the gavage feeding procedure, as well as positive attitudes toward their competence in this procedure. As a result, there was a significant positive, weak relationship between clinical practice stress and clinical competence. This finding confirms that a moderate level of stress plays a role in enhancing students' focus and learning in clinical settings.

Recommendations

Based on the findings of the current study, the following recommendations are suggested:

- Incorporate stress-coping strategies into the curriculum.
- Encourage time management and prioritization skills.
- Foster open communication and feedback that provide a good relationship between teacher and students.
- Peer support groups where students can share experiences, ask questions, and support one another.
- Collaborative learning activities that encourage teamwork and collaboration among students.
- Foster a supportive learning environment such as clear learning objectives, opportunities for active learning, and debriefing that help students acquire clinical competence.

Table (1): *percent distribution of pediatric nursing students according to personal and academic data*

Pediatric Nursing students' personal and academic data	**No.**	**%**
Age		
≤ 21	166	83.0
≥22	34	17.0
Min – Max. Mean ± SD	20 – 23 20.99 ± 0.75	
Gender		
Male	101	50.5
Female	99	49.5
Last GPA		
A-	2	1.0
B-to B^+	93	46.5
C- to C^+	105	52.5
Min – Max Mean ± SD	2.1-3.8 2.7± 0.51	
Experience in caring for sick neonates		
Yes	102	51.0
No	98	49.0

Table (2) *percent distribution of perceived levels of clinical practice stress among pediatric nursing students*

Clinical practice stress domains	Low		Moderate		High	
	No.	%	No.	%	No.	%
Domain 1: stress from taking care of neonates	26	13.0	131	65.5	43	21.5
Domain 2: stress from teacher and nursing staff	42	21.0	126	63.0	32	16.0
Domain 3: stress from assignments and academic workload	31	15.5	93	46.5	76	38.0
Domain 4: stress from peer	81	40.5	97	48.5	22	11.0
Domain 5: stress from lack of professional knowledge and skills	59	29.5	105	52.5	36	18.0
Domain 6: stress from the clinical environment	52	26.0	99	49.5	49	24.5
Level of clinical practice stress	**23**	**11.5**	**142**	**71.0**	**35**	**17.5**

Table (3) *Percent distribution of pediatric nursing students' knowledge levels about gavage feeding procedure.*

Levels of knowledge about gavage feeding	No.	%
Excellent (Proficient)	18	9
Very good (Competent)	72	36
Good (Advanced beginner)	41	20.5
Fair (novice)	33	16.5
Fail (Fail)	36	18
Min-Max Mean ± SD	1-15 10.80±2.85	

Table (4): *Percent distribution of pediatric nursing students' levels of attitude regarding their competence in gavage feeding procedure.*

Levels of attitude	No	%
Positive attitude	191	95.5
Negative attitude	9	4.5
Min-Max Mean ± SD	14-55 42.59±7.71	

Table (5): *Percent distribution of pediatric nursing students' levels of skills in gavage feeding procedure.*

Levels of skills in gavage feeding	No.	%
Excellent (Proficient)	17	8.5
Very good (Competent)	139	69.5
Good (Advanced beginner)	44	22.0
Fair (Novice)	0	0
Fail (Fail)	0	0
Min-Max Mean ± SD	26-32 28.52±1.29	

Table (6): *percent distribution of levels of clinical competence among pediatric nursing students.*

Levels of clinical competence	No.	%
Excellent (Proficient)	12	6.0
Very good (Competent)	88	44.0
Good (Advanced beginner)	72	36.0
Fair (Novice)	19	9.5
Fail (Fail)	9	4.5

Table (7): *Correlation between clinical practice stress and clinical competence among pediatric nursing students*

Domains of clinical practice stress	Clinical competence	
Stress from taking care of neonates	r P	0.137* 0.053
Stress from teachers and nursing staff	r P	0.01 0.893
Stress from assignments and academic workload	r P	0.118* 0.095
Stress from peers	r P	0.016 0.817
Stress from lack of professional knowledge and skills	r P	0.012 0.863
Stress from the clinical environment	r P	0.021 0.765
Overall clinical practice stress	**r P**	**0.173*** **0.002**

Pearson correlation coefficient value is more than 0.5 (***) is a strong positive, from 0.3 to 0.5 (**) is moderately positive, from 0.0 to 0.3 (*) is weakly positive, zero (0.0) is no Correlation, from 0.0 to -0.3(*) is weakly negative, from -0.3 to -0.5 (**) is moderately negative, and less than -0.5 (***) is strongly negative.

References

Abdelaziz, M. M., Madian, A., & Ahmed, H. A. E. (2019). Level of Stress and Coping Strategies among Nursing Students at Damanhour University, Egypt. *American Journal of Nursing Research, Vol. 7, 2019, Pages 684-696*, *7*(5), 684–696. https://doi.org/10.12691/AJNR-7-5-3

Abo Elezz, M., Adly, R. M., & Refaat, T. H. (2021). Assessment of nursing performance toward enteral feeding at Pediatric critical care units. *Original Article Egyptian Journal of Health Care*, *12*(4), 1159–1178.

Afzal, M., Hussain, M., & Gilani, S. A. (2019). The impact of stress on competency among nursing students in Lahore, Pakistan. *Journal of Advances in Education and Philosophy*, *3*(5), 200–203. https://doi.org/10.21276/jaep.2019.3.5.1

Anagor, C. R., Lukpata, F. E., IkechukwuOkoroezi, J. N., & Obiora, M. U. (2021). Attitude of Nursing Students Towards Work in the Clinical Learning Environment. *International Journal of Studies in Nursing*, *6*(1), 54. https://doi.org/10.20849/ijsn.v6i1.855

Ayed, A., Toqan, D., Batran, A., & Salameh, B. (2020). Sources of nursing students' stress and coping behaviors during their clinical training. *International Medical Journal*, *25*(03), 13412051.

Barreira, C., Rodrigues, I., & Loureiro, F. (2023). Nursing students experiences in neonatal care: A qualitative study. *Journal of Neonatal Nursing*, *29*(3),

559–562. https://doi.org/10.1016/J.JNN.2022.11.007

Chen, H. M., Liu, C. C., Yang, S. Y., Wang, Y. R., & Hsieh, P. L. (2021). Factors related to care competence, workplace stress, and intention to stay among novice nurses during the coronavirus disease (Covid-19) pandemic. *International Journal of Environmental Research and Public Health*, *18*(4), 1–10. https://doi.org/10.3390/ijerph18042122 D'emeh, W. M., & Yacoub, M. I. (2021). The visualization of stress in clinical training: A study of nursing students' perceptions. *Nursing Open*, *8*(1), 290– 298. https://doi.org/10.1002/NOP2.629

Egilsdottir, H. Ö., Heyn, L. G., Falk, R. S., Brembo, E. A., Byermoen, K. R., Moen, A., & Eide, H. (2023). Factors associated with changes in students' self-reported nursing competence after clinical rotations: a quantitative cohort study. *BMC Medical Education*, *23*(1), 1–15. https://doi.org/10.1186/S12909-023-04078-7/TABLES/6

El-Ashry, A. M., Harby, S. S., & Ali, A. A. G. (2022). Clinical stressors as perceived by first-year nursing students of their experience at Alexandria main university hospital during the COVID-19 pandemic. *Archives of Psychiatric Nursing*, *41*, 214–220. https://doi.org/10.1016/j.apnu.2022.08.007

El-Meanawi, Dr. N. H. K. K. (2017). Impact of implementing an educational program regarding care of nasogastric tube feeding on nurses' knowledge and performance. *IOSR Journal of Nursing and Health Science*, *06*(01), 101–109. https://doi.org/10.9790/1959-060104101109

Elsayed, I. F., Reyad2, A. R., Abdelrahman3, H. A., Mahmoud4, M. M., & Kandeel5, N. A. (2021). The effect of nasogastric tube feeding educational interventions on critical care nurses' knowledge and performance. *Mansoura Nursing Journal (MNJ)*, *8*, 11–26.

Hamadi, H. Y., Zakari, N. M. A., Jibreel, E., Al Nami, F. N., Smida, J. A. S., & Haddad, H. H. B. (2021). Stress and coping strategies among nursing students in clinical practice during COVID-19. *Nursing Reports*, *11*(3), 629–639. https://doi.org/10.3390/nursrep11030060

Hui, T., Zakeri, M. A., Soltanmoradi, Y., Rahimi, N., Hossini Rafsanjanipoor, S. M., Nouroozi, M., & Dehghan, M. (2023). Nurses' clinical competency and its correlates: before and during the COVID-19 outbreak. *BMC Nursing*, *22*(1), 1–9. https://doi.org/10.1186/S12912-023-01330-9/TABLES/3

Ibrahim, M., & Qalawa, S. (2016). Assessment of nurses' knowledge and performance regarding feeding patients with nasogastric tube in Ismailia General Hospital. *Med. J. Cairo Univ*, *84*(2), 99–105. https://medicaljournalofcairouniversity.net/images/pdf/2016/September/014.pdf

Kim, Y., Park, H., Hong, S. S., & Chung, H. J. (2018). CHNR effects of a neonatal nursing practice program on students' stress, self-efficacy, and confidence. *Child H Ealth N Urs Res*, *24*, 3–4. https://doi.org/10.4094/chnr.2018.24.3.3

Latif, R. A., & Nor, M. Z. M. (2019). Stressors and coping strategies during clinical practice among diploma nursing students. *Malaysian Journal of Medical Sciences*, *26*(2). https://doi.org/10.21315/mjms2019.26.2.10

Limão, N. (2016). KNOWLEDGE ATTITUDE AND PRACTICES TOWARDS NASOGASTRIC TUBE INSERTION AMONG THE NURSES IN INTERNATIONAL HOSPITAL KAMPALA. 입법학연구, 제 *13* 집 *1* 호(May), 31–48.

Mazalová, L., Gurková, E., & Štureková, L. (2022). Nursing students' perceived stress and clinical learning experience. *Nurse Education in Practice*, *64*, 103457. https://doi.org/10.1016/j.nepr.2022.103457

Mohammed, A. A., & Fattah, S. A. F. A. Z. A. (2018). The effect of educational program on nurse's knowledge and practices about nasogastric tube feeding at neonatal intensive care units. *Journal of Nursing Education and Practice*, *8*(8), 21. https://doi.org/10.5430/JNEP.V8N8P21

Mushtaq, B., Mir, I. A., & Mushtaq, O. A. (2021). Stress level among nursing students. *International Journal of Creative Research Thoughts*, *9*(5), 681–686. https://www.researchgate.net/publication/351314089_STRESS_LEVEL_AMONG_NURSING_STUDENTS

Nabizadeh, G. Z., Alavi, N. M., & Ajorpaz, N. M. (2021). Clinical competence in nursing: A hybrid concept analysis. *Nurse Education Today*, *97*, 104728. https://doi.org/10.1016/J.NEDT.2020.104728

Rafati, F., Rafati, S., & Khoshnood, Z. (2020). Perceived stress among Iranian nursing students in a clinical learning environment: A cross-sectional study. *Advances in Medical Education and Practice*, *11*, 485–491. https://doi.org/10.2147/AMEP.S259557

Refrande, S. M., Silva, R. M. C. R. A., Pereira, E. R., Rocha, R. C. N. P., Melo, S. H. da S., Refrande, N. A., & Dos Santos, R. R. (2019). Nurses' experiences in the care of high-risk newborns: a phenomenological study. *Revista Brasileira de Enfermagem*, *72*(3), 111–117. https://doi.org/10.1590/0034-7167-2018-0221

Salifu, D. A., Heymans, Y., & Christmals, C. (2022). Teaching and learning of clinical competence in Ghana: Experiences of students and postregistration nurses. *Healthcare (Switzerland)*, *10*(3). https://doi.org/10.3390/HEALTHCARE10030538

Tamang, N., Rai, S., Ni, P., & Mao, J. (2020). Perceived level of stress, stressors, and coping strategies among undergraduate health professional students during their clinical education. *Acta Scientific Pediatrics*, *3*(8), 62–73. https://www.researchgate.net/publication/343392722

Welch, S. R. (2023). Clinical stress and clinical performance in prelicensure nursing students: A systematic review. *Journal of Nursing Education*, *62*(1), 36–41. https://doi.org/10.3928/01484834-20221109-03

Welch, S. R., & Ccrn, A. (2023). Clinical stress and clinical performance in prelicensure nursing students: A systematic review. *Journal of Nursing Education*, *62*(1), 36–41. https://doi.org/10.3928/01484834-20221109-03

Wong, S.-C. (2020). Competency definitions, development, and assessment: A Brief review. *International Journal of Academic Research in Progressive Education and Development*, *9*(3). https://doi.org/10.6007/IJARPED/V9I3/8223

Xu, J., Zhang, L., Ji, Q., Ji, P., Chen, Y., Song, M., & Guo, L. (2023). Nursing students' emotional empathy, emotional intelligence and higher education-related stress: a crosssectional study. *BMC Nursing*, *22*(1), 1–9. https://doi.org/10.1186/S12912-023-01607-Z/TABLES/4

Zeed, A. S. A., Al-Rafay, S. S. E.-D., & Ismail, S. S. (2019). Assessment of Nursing knowledge and Practices in Caring of Neonatal Intestinal Obstruction. *Egyptian Journal of Health Care*, *10*(4), 96–106. https://doi.org/10.21608/ejhc.2019.63571

Zohra, A., & Afzal, M. (2021). Knowledge, attitude, and practices regarding nasogastric tube insertion among nurses. *Global Scientific Journals*, *9*(4), 3020–3029. www.globalscientificjournal.com