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Competence and Performance of Clinical Instructors during the Implementation of Group E-Mentoring for the Optimization of Student Guidance

[1a*]Y. Yusnaini, [1a]Dina Andriani, [1b]Muasir Pagan, [1c]Nandara Priyanti Elna, [2]Tri Ratnaningsih

[1a]Department of Nursing, [b]Department of Information System, [c]Department of Public Health, Universitas Nurul Hasanah Kutacane. Aceh, Indonesia.
[2]Department of Nursing, University of Bina Sehat PPNI Mojokerto, Jawa Timur, Indonesia.
*Corresponding Author e-mail: yusnaini84@gmail.com

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Abstract

Competency-based nursing education requires students to master clinical skills critical to workforce readiness; however, challenges persist in the field practicum due to limited structured guidance. This study addresses the lack of research on the effectiveness of structured digital e-mentoring programs in Indonesian clinical settings. The purpose was to evaluate the impact of group e-mentoring on the competence and performance of clinical instructors in supporting nursing student guidance at Nurul Hasanah Hospital, Kutacane. A quantitative quasi-experimental design with a pre- and post-test (without control group) was used. Total sampling based on inclusion criteria resulted in 60 respondents, including clinical instructors and nursing students. Competence was measured using the Mentor Competencies Instrument (MCI), and performance was assessed with the Nurse Mentor Performance Assessment tool. Data analysis employed the Wilcoxon signed-rank test to compare pre- and post-intervention scores. Results demonstrated statistically significant improvements in competence (mean increased from 115.2 to 148.3) and performance (mean increased from 55.8 to 66.2), with p-values of 0.000 and 0.001 respectively, indicating a positive effect of preceptorship and mentorship training integrated within the group e-mentoring program. These findings suggest that structured digital e-mentoring enhances clinical instructors' ability to provide effective student guidance, optimizing clinical education in resource-limited settings.

Keywords: Clinical Instructors; Competence; Group E-Mentoring; Performance

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INTRODUCTION

Competency-based nursing education requires students to possess skills and knowledge that are relevant to the workforce. Mentoring serves as a means of providing student guidance in clinical practice, aimed at enhancing interpersonal competence (Crespí & López, 2023). Students need mentoring to improve their knowledge and attitudes in alignment with the nursing profession (Ludin & Roshaimi, 2022). Mentoring supports student guidance in preparing for optimal learning outcomes (Suzanna et al., 2023). It plays a crucial role in optimizing student guidance; however, its implementation remains ineffective.

The implementation of mentoring faces challenges and obstacles in clinical settings. The study by Ntho, Pienaar and Sehularo (2020) identified barriers in the mentoring process, such as ineffective clinical mentoring programs, unprofessional attitudes, and communication challenges. Additionally, mentoring is often informal, with unclear role expectations and a lack of monitoring (Foolchand & Maritz, 2020). According to Akyüz and Ergöl (2022), nurse

mentoring for students is still limited, with 37.5% of students encountering challenges during clinical practice related to nurses, and 67.5% of students observing negative examples in clinical environments. Therefore, innovative measures are needed to address these issues in the mentoring of students.

The integration of virtual technology innovation is highly suitable for the group e-mentoring process. Unlike previous studies that focused on individual mentoring or high-resource contexts, this group e-mentoring model is specifically adapted to Indonesian clinical settings with limited digital infrastructure, emphasizing collaborative learning and technological adaptation in the mentorship process. The utilization of digital innovation in the mentoring process can enhance problem-solving skills (Gunawan et al., 2023). Digital interventions in nursing education have the potential to improve understanding, learning, and clinical practice (O'Connor et al., 2023). Group e-mentoring is a process of student mentoring in groups that integrates virtual technology innovation and supports collaborative actions relevant to enhancing performance productivity (Kuok et al., 2023). The implementation of group e-mentoring facilitates flexible online mentoring for nurses (Oikarainen et al., 2022). Therefore, the integration of virtual technology innovation is highly suitable for the group e-mentoring process.

The success of group e-mentoring in student guidance can be identified through the competence and performance of clinical instructors. Well-trained clinical instructors demonstrate optimal competence and performance, contributing to the improvement of clinical nursing education and reducing the gap between theory and practice (Hagrass et al., 2023a). Clinical instructor competence stimulates optimal mentoring practices and provides positive feedback to students (Tuomikoski et al., 2020). According to Soroush *et al.* (2021), clinical instructors with communication and teaching skills, internal motivation, and professional demeanor can demonstrate strong performance in student development within the clinical setting.

A preliminary study at Universitas Nurul Hasanah Kutacane found that the medical-surgical nursing practice in the bachelor's program of nursing science is conducted at Nurul Hasanah Hospital. Students are distributed across different wards and accompanied by clinical instructors in accordance with the competency objectives of the course. According to the Clinical Instructor (CI) in Ward 1, students appeared fearful when providing nursing care to patients with decreased consciousness, and the CI had limited time for mentoring. Additionally, other students in the ICU felt anxious that their actions might negatively affect the patients' condition, and the CI stated that there was insufficient time for skill simulations and case discussions with the students. This situation indicates that the mentoring process has not yet optimized the guidance of students in clinical practice.

This study aims to analyze the competence and performance of clinical instructors during the implementation of group e-mentoring to optimize student guidance at Nurul Hasanah Hospital in Kutacane. Competence in this study is defined through measurable indicators including clinical knowledge proficiency, communication skills, ability to facilitate learning, professionalism, and interpersonal skills, as suggested by Linnerud et al. (2024). Performance refers to observable outcomes such as mentoring effectiveness, quality and frequency of feedback, time management in mentoring activities, and ability to promote student engagement and clinical skill development, as outlined by Hagrass et al. (2023c) et al. (2023b). By examining these specific indicators, the study aims to evaluate how group e-mentoring influences clinical instructors' ability to provide effective guidance in clinical practice.

METHOD

Study Design

This quantitative study employed a quasi-experimental design without randomization, utilizing a pre-test and post-test format within a single-group framework (Gopalan et al., 2020).

The aim was to evaluate the competence and performance of clinical instructors following a group e-mentoring intervention designed to enhance student guidance during clinical placements at Nurul Hasanah Hospital in Kutacane.

Population and Sampling

The study involved a total population of 60 participants, comprising 20 nurses serving as clinical instructors and 40 undergraduate nursing students undertaking clinical practice. A total sampling technique was applied, selecting respondents based on specific inclusion criteria: willingness to participate, cooperative attitude, and active engagement in the two-week medical-surgical nursing practicum.

Instruments

The study employed two validated instruments to evaluate the competence and performance of clinical instructors. The Mentor Competencies Instrument (MCI) was used to assess mentor competence. This tool comprised 43 items grouped under seven key indicators, each rated on a four-point Likert scale, where 1 indicated "poor" and 4 indicated "very good." The results were categorized into three levels of competence: high, medium, and low, based on cumulative scores. The internal consistency of the MCI was confirmed with a Cronbach's alpha of 0.87, indicating high reliability (Linnerud et al., 2024).

To assess performance, the Nurse Mentor Performance Assessment observation sheet was employed. This tool included 38 items distributed across six performance dimensions: mentor characteristics (8 items), communication (7 items), goal-oriented mentoring (5 items), student-centered evaluation (10 items), constructive feedback (5 items), and reflection (3 items). Responses were scored on a three-point scale: 0 for "disagree," 1 for "undecided," and 2 for "agree." The total scores were used to classify performance into either satisfactory ($\geqslant$ 75%) or unsatisfactory (< 75%), with a Cronbach's alpha of 0.84, confirming strong internal consistency (Hagrass et al., 2023b).

Intervention Procedures

The implementation of the intervention followed a structured sequence comprising five key stages. The first stage involved preparatory coordination, where the research team communicated with institutional representatives to confirm participation in the study. To facilitate ongoing communication during the intervention, a dedicated WhatsApp group was established, connecting the research team and clinical instructors.

The second stage consisted of the initial assessment phase. At the beginning of the two-week clinical practicum, participants assigned as clinical instructors completed a self-assessment using the Mentor Competencies Instrument (MCI), while student participants anonymously evaluated their instructors' performance using the designated observation tool after the first week of clinical exposure.

The third stage encompassed the implementation of the preceptorship and mentorship training. Conducted online via Zoom, the training addressed core topics such as clinical learning strategies, mentoring methodologies, the role of preceptors in clinical skill development, bedside teaching approaches, and simulation-based learning in medical-surgical nursing. Instructional techniques included lectures, group discussions, demonstrations, and audiovisual aids. The training sessions were led by qualified nursing education and practice experts whose identities are withheld to ensure anonymity.

The fourth stage focused on the application of group e-mentoring. During this one-week period, clinical instructors guided students through structured online sessions via Zoom. Activities included an introductory orientation, thematic group discussions, case presentations, practical skill simulations, collaborative problem-solving, interactive Q&A sessions, individual and group assignments, learning objective evaluations, and reflective exercises to consolidate learning experiences.

The final stage involved the post-intervention assessment. On the concluding day of the practicum, clinical instructors completed the same competence and performance assessments to measure changes resulting from the training and mentoring intervention. All assessment data were collected and analyzed while preserving the anonymity of the participants.

Data Analysis

Both univariate and bivariate analyses were conducted. Univariate analysis examined the frequency distribution and percentage of competence and performance variables. Pre- and post-test means were compared. Bivariate analysis was conducted using the Wilcoxon signed-rank test to identify significant changes in clinical instructors' competence and performance after the intervention.

Ethical Considerations

This study received ethical approval from the Research Ethics Committee of the Institute of Technology, Science, and Health Insan Cendekia Medika Jombang (Approval No. 148/KEPK/ITSKES-ICME/VI/2024). Written informed consent was obtained from all participants. Confidentiality of respondent data was strictly maintained and used exclusively for scientific purposes.

RESULTS AND DISCUSSION

Characteristics of Respondents

This study involved a total of 60 participants at Nurul Hasanah Hospital, comprising 20 nurses and 40 nursing students. As shown in Table 1, among the nurses, the majority were in early adulthood (45%), followed by late adulthood (30%) and late adolescence (25%). Most of the nurse respondents were female (60%) and all held a professional nursing degree (Ners). Regarding work experience, the distribution was balanced—50% were categorized as experienced, while the other 50% were relatively new to clinical mentoring roles.

Table 1. Distribution of Respondent Characteristics at Nurul Hasanah Hospital, Kutacane

Nurse Characteristics	Category	n	%
Age	a. Late adolescence	5	25
	b. Early adulthood	9	45
	c. Late adulthood	6	30
Gender	a. Male	8	40
	b. Female	12	60
Education	a. Ners	20	100
Work Experience	a. New	10	50
	b. Experienced	10	50
Student Characteristics			
Age	a. 19 years old	7	17,5
	b. 20 years old	24	60
	c. 21 years old	9	22,5
Gender	a. Male	9	22,5
	b. Female	31	77,5
Ward	a. Class 1 Ward	8	20
	b. Class 2 Ward	8	20
	c. Class 3 Ward	8	20
	d. ICU Ward	8	20
	e. VIP Ward	8	20

For student participants, the majority were 20 years old (60%), while 22.5% were 21 years old, and 17.5% were 19 years old. Female students represented the majority (77.5%).

Students were evenly assigned across all clinical wards—Class 1, Class 2, Class 3, ICU, and VIP wards—each with 20% representation. This even distribution ensured exposure to a broad range of clinical settings.

Improvements in Clinical Instructor Competency

Table 2 presents the average competency scores before and after the intervention. The pre-test competency score averaged 115.2 with a standard deviation (SD) of 25.8, while the post-test score increased significantly to an average of 148.3 (SD = 8.6). This improvement aligns with Keinänen et al. (2023), who reported that mentoring interventions, particularly those incorporating blended learning, enhance the guidance capabilities of healthcare professionals. Likewise, Kusumaningsih, Hariyati, and Handiyani (2019) observed significant improvements in clinical instructor competencies—encompassing knowledge, skills, and behavior—after targeted mentorship interventions.

Table 2. Average Scores of Competency and Performance of Clinical Instructors

Score	Experiment	
	$\bar{x}$	Sd
a. Competency		
Pre-test	115.2	25.8
Post test	148.3	8.6
b. Performance		
Pre-test	55.8	21.2
Post test	66.2	8.1

Mentorship training is highly effective in enhancing clinical instructor competency to address lack of understanding about the mentoring process, insufficient mentoring capacity, and lack of freedom of expression (Ughasoro et al., 2022). Clinical instructor competency demonstrates exemplary professionalism and the ability to build good relationships (Kung et al., 2023). Mentor competency is crucial in improving clinical learning for nursing students (Comparcini et al., 2020). E-mentoring is one of the learning strategies in smart education systems utilizing technology that can support students in improving knowledge and problem-solving more effectively and productively (Nguyen et al., 2024).

According to the researcher's analysis, preceptorship and mentorship training has the potential to improve clinical instructor competency during group e-mentoring implementation at Nurul Hasanah Hospital. This is because the training provides clinical instructors with the ability to guide effectively with direct supervision, support leadership development through collaborative relationships, improve communication skills, and adapt to the role of guiding student groups. Thus, clinical instructors acquire the necessary competencies for implementing group e-mentoring. Rossiter *et al.*, (2024) state that mentorship training focuses on mastering skills and professional identity that support the development of nurses' roles in healthcare services. Therefore, the training provides an understanding of the mentor's role and appropriate mentoring processes in guiding students in the clinical practice scope.

Improvements in Clinical Instructor Performance

Research results in Table 2 show that the average pre-test score for clinical instructor performance was 55.8 with a standard deviation of 21.2, while in the post-test, this score increased to 66.2 with a standard deviation of 8.1. This indicates a significant improvement in clinical instructor performance after training. The Wilcoxon test results show a difference between clinical instructor competency for pre-test and post-test, with an Asymp. Sig. (2-tailed) value of 0.001, which is less than 0.05, so Ha is accepted. Therefore, it can be concluded that preceptorship and mentorship training influences clinical instructor performance during group e-mentoring implementation at Nurul Hasanah Hospital.This aligns with the study by Hagrass *et al.*, (2023c), which found that mentorship training programs significantly improve the

mentoring performance of clinical instructor nurses, promoting continuous growth and development of both nurses and students.

Mentorship programs can enhance social support and self-efficacy of nurses to better prepare themselves in the clinical environment, thus supporting performance improvement (Moon et al., 2024). Improving clinical instructor performance during group e-mentoring implementation is crucial for enhancing the quality of learning and professional development of students (Frøiland et al., 2022). Jensen *et al.*, (2023) study shows that group e-mentoring implementation can facilitate collaborative student learning and practical knowledge formation, and clinical instructors or mentors also find it highly relevant to future professional nursing roles.

According to the researcher's analysis, preceptorship and mentorship training influences clinical instructor performance during group e-mentoring implementation at Nurul Hasanah Hospital. This is identified from students' perceptions of clinical instructor performance improving after training. Gusar, Tokic and Lovric (2024) study shows that students feel highly satisfied with the mentoring support provided after instructors receive clinical training. Moreover, preceptorship training helps clinical instructors deepen their understanding of roles and responsibilities as clinical supervisors, while mentorship leads to long-term guidance and professional development. Thus, both methods enhance clinical instructor performance in providing appropriate direction to students. The implementation of group e-mentoring facilitates cooperation between clinical instructors and students in collaborative relationships, including developing relevant technological skills during group student guidance.

Statistical Analysis of Competency Differences

Furthermore, to better determine if there is a difference in the competency of clinical instructors during the implementation of group e-mentoring before and after the intervention of preceptorship and mentorship training, one of the non-parametric statistical tests, namely the Wilcoxon Test, was used. The results can be seen in Tables 3 and 4.

Table 3. Clinical Instructor Competency Before and After Intervention

		N	Mean Rank	Sum of Ranks
Post Test - PreTest	Negative Ranks	1[a]	2.50	2.50
	Positive Ranks	18[b]	10.42	187.50
	Ties	1[c]		
	Total	20		

From Table 3, it is known that the negative ranks or (negative) difference between pre-test and post-test competency is 1, indicating a decrease from pre-test to post-test scores for 1 nurse, with a mean rank and Sum of Ranks of 2.50. Meanwhile, there are 18 positive ranks or (positive) differences (N), meaning that 18 nurses experienced an increase in competency from pre-test to post-test scores, with a mean rank of 10.42 and a sum of ranks of 187.50. The Ties value is 1, indicating that 1 nurse had the same score for both pre-test and post-test.

Table 4. Wilcoxon Hypothesis Test

	Post Test – Pre Test
Z	-3.725[a]
Asymp. Sig. (2-tailed)	.000

From Table 4, it is known that the Asymp. Sig. (2-tailed) value is 0.000, which is less than 0.05, so Ha is accepted. This indicates that there is a difference between the clinical

instructor competency for pre-test and post-test. Therefore, it can be concluded that there is an effect of preceptorship and mentorship training on clinical instructor competency during the implementation of group e-mentoring in optimizing student guidance at Nurul Hasanah Hospital.

Statistical Analysis of Performance Differences

To determine whether there is a difference in the performance of clinical instructors during the implementation of group e-mentoring before and after the preceptorship and mentorship training intervention, one of the non-parametric statistical tests, namely the Wilcoxon Test, was used. The results can be seen in Tables 5 and 6.

Table 5. Clinical Instructor Performance Before and After Intervention

		N	Mean Rank	Sum of Ranks
Post Test - PreTest	Negative Ranks	3[a]	6.33	19.00
	Positive Ranks	17[b]	11. 24	191.00
	Ties	20[c]		
	Total	40		

From Table 5, it is known that the negative ranks or (negative) difference between pre-test and post-test performance is 3, indicating a decrease from pre-test to post-test scores for 3 nurses, with a mean rank of 6.33 and a Sum of Ranks of 19.00. Meanwhile, there are 17 positive ranks or (positive) differences (N), meaning that 17 nurses experienced an increase in performance from pre-test to post-test scores, with a mean rank of 11.24 and a sum of ranks of 191.00. The Ties value is 20, indicating that 20 nurses had the same score for both pre-test and post-test.

Table 6. Wilcoxon Hypothesis Test

	Post Test – Pre Test
Z	-3.212[a]
Asymp. Sig. (2-tailed)	.001

From Table 6, it is known that the Asymp. Sig. (2-tailed) value is 0.001, which is less than 0.05, so Ha is accepted. This indicates that there is a difference between the clinical instructor performance for pre-test and post-test. Therefore, it can be concluded that there is an effect of preceptorship and mentorship training on clinical instructor performance during the implementation of group e-mentoring in optimizing student guidance at Nurul Hasanah Hospital.

CONCLUSION

The findings suggest a significant association between preceptorship and mentorship training and improvements in the competency and performance of clinical instructors during the implementation of group e-mentoring at Nurul Hasanah Hospital. The average competency score increased from 115.2 (pre-test) to 148.3 (post-test), and the performance score improved from 55.8 (pre-test) to 66.2 (post-test). Wilcoxon Test results showed statistically significant differences, with Asymp. Sig. values of 0.000 (< 0.05) for competency and 0.001 (< 0.05) for performance. These results indicate that the training is positively associated with the development of clinical instructors' competence and performance in supporting group e-mentoring implementation. However, given the quasi-experimental design without a control group, causality cannot be definitively established.

RECOMMENDATION

It is recommended to enhance training programs and utilize e-mentoring technology while considering potential resource and infrastructure constraints, especially in remote or low-resource settings. Long-term evaluations and expanded inter-institutional collaborations are also suggested to further support the sustainable development of clinical instructors' competency and performance. Adaptation of this group e-mentoring model across Indonesia or in similar clinical contexts should be tailored to local technological capacities and institutional readiness to ensure feasibility and effectiveness.

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