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Received: 16 June 2023 | Accepted: 8 January 2024

DOI: 10.1111/inr.12942

International Nursing Review

ICN International Council of Nurses

WILEY

ORIGINAL ARTICLE

Effects of governmental support on clinical nurse educators in South Korea: A repeated cross-sectional study

Sujin Shin PhD, RN, Professor[1] | **Eunmin Hong RN**[1] | **Inyoung Lee PhD, RN, Assistant Professor**[2] | **Jeonghyun Kim PhD, RN, Assistant Professor**[3]

[1]College of Nursing, Ewha Womans University, Seoul, South Korea

[2]Department of Nursing, Dongnam Health University, Gyeonggi, South Korea

[3]College of Nursing, Catholic University of Pusan, Busan, South Korea

Correspondence
Jeonghyun Kim, Assistant Professor, College of Nursing, Catholic University of Pusan, 74 Oryundae-ro, Geumjeong-gu, 46252 Busan, South Korea.
Email: kjh1218@cup.ac.kr

Funding information
Ministry of Health and Welfare in South Korea; Korean Hospital Association

Abstract

Aim: To assess the effectiveness of the Clinical Nurse Educator Support Project and offer valuable insights for supporting nursing education.

Background: Allocating clinical nursing educators is crucial for supporting novice nurses' transition into the clinical setting and improving their performance.

Introduction: In 2019, the Ministry of Health and Welfare in South Korea implemented the Clinical Nurse Educator Support Project, which involves governmental financial support for the employment of clinical nurse educators.

Methods: This study employed a repeated cross-sectional design to assess the project outcomes. Following the framework of the Kirkpatrick Evaluation Model, secondary data from annual self-program evaluation reports were analyzed to assess program satisfaction, clinical adaptation, and turnover rates of novice nurses. The "Strengthening the Reporting of Observational Studies in Epidemiology checklist" guided the reporting of the study.

Results: The project played a pivotal role in enhancing the quality of nursing education. Novice nurses' program satisfaction and clinical adaptation consistently remained high or exhibited an increase. The project led to a decrease in turnover rate among novice nurses, while the coronavirus 2019 pandemic resulted in increased turnover rates due to limited clinical practice opportunities for nursing students.

Conclusion: Government support for clinical nurse educators has positively impacted the institutionalization of nursing education. The pressing need is to prioritize not only the enhancement of nursing education quality and the improvement of nurses' working conditions but also the development of healthcare policies and programs to effectively respond to unforeseen challenges and crises.

Implications for nursing policy: Government and healthcare institutions must collaborate to strengthen clinical education, crucial for novice nurses' clinical adaptation. Prioritizing the improvement of nursing education quality and nurses' working conditions is essential. Continuous research and evaluation of the Clinical Nurse Educator Support Project is imperative to assess its impact and make necessary adjustments.

KEYWORDS
Education, health policy, in-service training, novice nurses, nursing, staff development

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INTRODUCTION

Novice nurses are expected to perform various roles in the clinical field, as caregivers, communicators, educators, and expert advocates. They are immediately entrusted with the responsibility of performing complex professional tasks that directly affect patients' lives (Charette et al., 2019). The need for nursing care for chronic illnesses and high-quality nursing, patient safety, and infection control continues to expand and is being diversified. In an era where the demand for high-quality nursing, particularly in the realms of chronic disease management, patient safety, and infection control, continues to grow and diversify, the proficiency of novice nurses profoundly influences the quality of healthcare delivery. Accordingly, sufficient educational support is needed to enable novice nurses to successfully perform their duties in the clinical field and transition to professional nurses.

Novice nurses face numerous challenges as they transition to the clinical field after completing their education. One notable challenge is the struggle to effectively apply theoretical knowledge gained in college to real-world clinical practice. Many of them feel unprepared due to gaps in their knowledge and skills. This sense of unpreparedness often leads to stress and feelings of inadequacy in their role within the organization or the nursing profession (Ho et al., 2021). Additionally, they may encounter interpersonal difficulties, primarily related to a lack of confidence, which can further exacerbate feelings of self-doubt and hinder their ability to build positive relationships with colleagues and patients (Kim et al., 2020). The cumulative impact of these challenges creates what is commonly referred to as "transition shock," a state of emotional and professional upheaval (Duchscher & Windey, 2018).

The impact of transition shock can be observed in the elevated turnover rate among newly graduated nurses, underscoring the urgent requirement for effective strategies that facilitate their integration into the clinical field. This heightened turnover rate imposes a considerable financial burden on healthcare institutions, as they invest substantial resources in recruiting and training replacement nurses (Silvestre et al., 2017). The increased turnover places additional strain on existing nursing staff, leading to a depletion of experienced nurses, which, in turn, has adverse consequences for patient safety and escalates societal costs (Bae, 2022). Therefore, it is necessary to develop countermeasures to enable novice nurses to successfully adapt to the clinical field and fulfill their nursing responsibilities.

In South Korea, nursing students complete a four-year bachelor of nursing degree program before entering the workforce as novice nurses. They mainly perform clinical practice in their third and fourth years and must accumulate a total of 22 credits of clinical practice to graduate. However, the post-graduation education of novice nurses remains a significant concern due to several challenges inherent in undergraduate nursing education. These challenges include a shortage of training institutions, difficulties in developing and securing clinical practice instructors, a clinical practice that is primarily oriented toward observation rather than hands-on experience, and a lack of collaborative partnerships between educational institutions and medical facilities (Shin et al., 2019).

The healthcare sector is confronted with other ongoing challenges, notably chronic shortages of nursing personnel and regional disparities in nursing workforce distribution. The turnover rate of novice nurses was 52.8% in 2022 and has steadily risen over the past five years. Excluding individuals who changed jobs before being assigned to a healthcare agency, the percentage of novice nurses who changed positions while actively employed was 28.6% in 2019, 26.1% in 2020, and 28.4% in 2021 (Korean Hospital Nurses Association, 2022). Although the number of nursing college graduates is gradually increasing, the number of nurses per 1,000 population is 4.2, which is only about half the Organisation for Economic Cooperation and Development's average of 7.9 (Ministry of Health & Welfare, 2021). Furthermore, the distribution of nurses remains heavily concentrated in metropolitan areas and large hospitals, exacerbating the critical shortage of nursing staff in local and small to medium-sized healthcare facilities. The demanding workload and inadequate compensation further contribute to the ongoing shortage of nursing personnel in the healthcare sector.

Consequently, even when nursing professionals are recruited, they often lack the opportunity for sufficient training and experience due to the challenging working conditions. This, in turn, impedes efforts to invest in nursing education and secure a skilled workforce. This trend is closely related to the short on-the-job training period for novice nurses and the lack of educational manpower and guidelines for nursing education. The average on-the-job training period, including clinical immersion experiences, is 57.3 days, which is far shorter than that in the United States and Australia, where novice nurse training is provided for six months to one year. In many institutions, particularly small and medium-sized hospitals, no guidelines have been established for various aspects of training such as assessing trainees, operating educational programs, evaluating educational outcomes, and managing the program and preceptors (Shin et al., 2019). This has led to challenges in ensuring the quality of nursing education and an adequate nursing workforce.

Clinical Nurse Educator Support Project

South Korea initiated the Clinical Nurse Educator Support Project in 2019, targeting national and public hospitals. The key components of this project include promoting the establishment of dedicated nursing education departments and the allocation of dedicated staff for nursing education. Prior to this initiative, most medical institutions shared the responsibilities of both education and administration, making it challenging to allocate sufficient time and resources for educational tasks. The government committed to covering labor costs for the deployment of clinical nurse educators (CNEs)

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and facilitating the creation of dedicated education departments within participating organizations to address these issues. These departments were equipped with personnel dedicated to designing and implementing educational programs, providing evaluation, guidance, and mentorship for novice nurses (Ministry of Health & Welfare, 2019).

At the outset of the project, support was provided to CNEs, starting with Type 1 CNEs responsible for designing, implementing, and assessing the curriculum, and Type 2 CNEs, including preceptors, who focused on the clinical training of novice nurses and were responsible for assessing the adaptation status of novice nurses and providing them with emotional support. The system faced limitations when institutions faced a shortage of nursing staff, as preceptors were compelled to juggle patient care and educational responsibilities, restricting their focus solely to educational tasks. As the project advanced, personnel role specifications were clearly established, resulting in the separation of Type 2 CNEs and preceptors in the third year. Both types of CNEs were designated solely for educational work and excluded from direct patient care responsibilities. This modification provided Type 2 CNEs with the opportunity to evaluate the job performance and adaptation progress of novice nurses following the preceptorship phase. It also empowered them to provide valuable feedback and act as crucial mediators in resolving conflicts between novice nurses and preceptors.

The Clinical Nurse Educator Support Project also aims to emphasize the enhancement of the quality of nursing education programs through self-evaluation by participating institutions. Participating institutions are required to submit annual self-program evaluation reports, outlining their educational operations and program evaluation results across the following four key areas: nursing education system, education program operation, education program evaluation, and project implementation outcomes. While preparing the annual self-program evaluation reports, the institution conducts a thorough evaluation of its educational framework, processes, and overall performance. Throughout this procedure, opportunities to enhance the nursing education system are actively sought.

The specific evaluation items are in the four areas. In the evaluation of the nursing education system, the focus is on optimizing human and material resources within the institution. This entails assessing whether there is an adequate number of CNEs for the number of hospital beds, confirming their necessary educational competencies, and ensuring active participation in ongoing professional development to enhance their teaching skills. This evaluation also considers the allocation and expansion of the training budget, the availability of training space and equipment, and the presence of institutional training guidelines for nursing education. When evaluating educational program operation, the emphasis is on assessing the program's functionality, the presence of an annual training plan, diversity of training methods, and the development of essential skills for novice nurses. Additionally, it considers the program's duration, individual on-site training, and the provision of emotional support for novice nurses. In the realm of educational program evaluation, the key focus is on determining whether deliberate efforts have been made to improve the quality of education through program evaluation. This evaluation scrutinizes the structure, process, and outcome indicators of the educational program, identifies areas in need of quality enhancement, and evaluates the institution's initiatives to enhance the program. Finally, the project implementation outcome is evaluated based on novice nurses' educational satisfaction, training personnel's job satisfaction, organization members' project satisfaction, novice nurses' clinical adaptation, and the turnover rate of novice nurses.

Through these evaluations, participating institutions can identify areas for improvement and take steps to enhance the quality of nursing education provided to their staff. In addition, at the annual workshop organized by the Korean Hospital Association, each participating organization shares the results of its workforce training initiatives. This workshop also fosters the exchange of solutions for common queries and insight related to nursing education program operations. During the workshop, materials presented are reviewed by experts to select outstanding examples related to the educational system, educational operations, and the evaluation of educational programs. These examples are then compiled into a compendium of best practices and shared with the participating institutions.

AIM OF THE STUDY

The primary objective of this study was to assess the efficacy of the Clinical Nurse Educator Support Project, which was executed in three phases from 2019 to 2022. Additionally, the study aimed to offer valuable insights into prospective directions for government-led support in nursing education and pinpoint areas where enhancements in the nursing education system could be made.

METHODS

Research design

The study used a repeated cross-sectional descriptive design, utilizing secondary data from annual self-program evaluation reports, for analyzing outcomes of the Clinical Nurse Educator Support Project implemented from 2019 to 2022 in South Korea. The repeated cross-sectional design, which compiles independent cross-sectional data from various time points, involving nonidentical but comparable respondents across these intervals (Menard, 1991), is highly suitable for this study, which analyzes the project outcomes using the annual self-program evaluation reports, from participating institutions. The study adhered to the reporting guidelines outlined in the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist.

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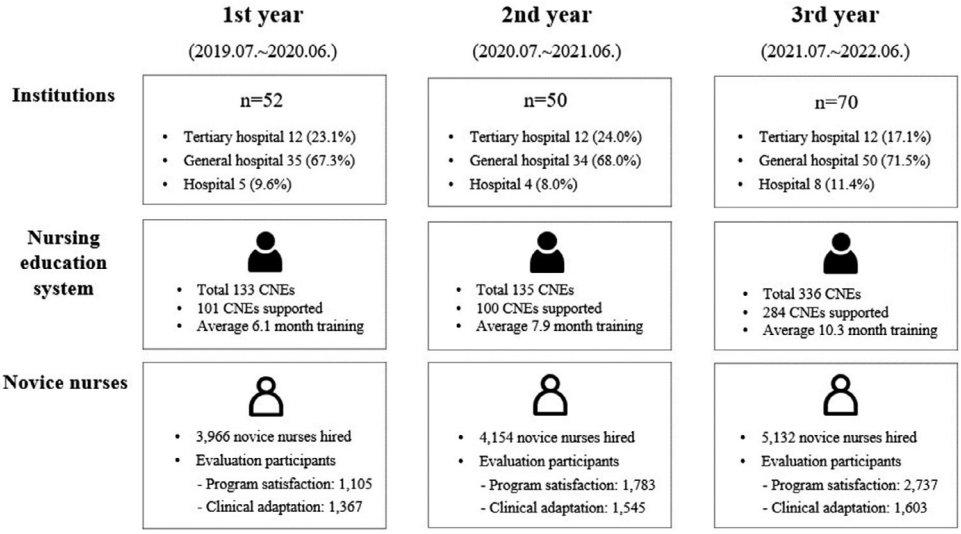


FIGURE 1 Characteristics of participating institutions.

Procedure

Participants

The participating institutions in the Clinical Nurse Educator Support Project were 52 in the first year (2019–2020), 50 in the second year (2020–2021), and 70 in the third year (2021–2022). Of the participating institutions, 48 hired novice nurses in the project for three consecutive years. The participating institutions were national and public hospitals across the country, with beds ranging from 99 to 1,751.

Novice nurses were defined in accordance with the guidelines established by the Clinical Nurse Educator Support Project. Within the context of the project, the primary educational focus for CNEs pertained to nurses hired at the participating institutions within 12 months after graduating, i.e., with less than one year of clinical experience. The number of novice nurses recruited by participating institutions in the project varied each year (3,966 in the first year, 4,154 in the second year, and 5,132 in the third year). In each respective year, the evaluation of program satisfaction was based on subsets of novice nurses, consisting of 1,105, 1,783, and 2,737 participants. Similarly, the evaluation of clinical adaptation involved subsets of novice nurses, with 1,367, 1,545, and 1,603 participants in the first, second, and third years, respectively (Figure 1).

Instrument

The outcome variables of the project were analyzed according to the Kirkpatrick evaluation model (Kirkpatrick & Kirkpatrick, 2006), which consists of the following four levels: reaction, learning, behavior, and results. In this study, the reaction was evaluated through program satisfaction, the behavior was evaluated based on clinical adaptation, and the result was evaluated by turnover rates.

The program satisfaction and clinical adaptation questionnaire items were developed by the research team with reference to instruments commonly employed in clinical practice and literature related to nurse residency program (NRP) outcomes. The validity of the items was ascertained by 10 experts, including education managers and CNEs, using the content-validity index. All items achieved a score of 0.8, resulting in no items being excluded. Nevertheless, there were concerns raised about the ambiguous wording of some items, prompting subsequent revisions. Program satisfaction was evaluated on a four-point scale with eight items about content, methods, length of training period, and program operation, and a higher average score indicated greater satisfaction with education. Clinical adaptation was evaluated using a four-point scale with 15 items about competence and confidence, perception of organizational support, and intention to stay. Competence and confidence in the following five areas was included: patient care, interprofessional collaboration, patient safety and quality improvement, use of health information system, and professionalism and leadership. The higher the average score, the higher the level of practice adaptation for the items.

The pre-project turnover rate refers to the average annual turnover rate of novice nurses for three years prior to the implementation of the project, whereas the turnover rate during the implementation period refers to the one-year turnover rate of novice nurses appointed within one year of the implementation of the project.

Data collection

This study utilized secondary data from the annual self-program evaluation reports by the participating institutions in the Clinical Nurse Educator Support Project. The research team developed comprehensive report guidelines

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and evaluation standards for nursing education performance. These guidelines and standards were provided to the participating organizations by the Korean Hospital Association. Face-to-face and remote orientations were conducted to facilitate the report-writing process. The participating institutions analyzed the nursing education program outcomes and project performance at the institutional level, following the specified format. After the institutions prepared and got their reports endorsed by their respective heads, the Korean Hospital Association collected these reports and subsequently provided them to the research team.

Data analysis

Data were analyzed using IBM SPSS Statistics for Windows Version 28.0 (Armonk, NY: IBM Corp). The general characteristics, performance outcomes, and turnover rates of the participating institutions were analyzed using descriptive statistics. The overall turnover rate for all participating institutions was determined by considering the ratio of departing nurses to the total number of newly hired nurses during the project period, instead of relying on a simple average of each institution's turnover rates. This approach prevents the undue amplification of the impact of institutions experiencing significant turnover fluctuations due to a limited number of novice nurses.

The causes of the increased turnover rate within each institution were analyzed using the inductive approach of content analysis proposed by Elo and Kyngäs (2008). In analyzing the data, the researcher repeatedly read the interview transcripts, comprehending the main statements' significance and assigning titles to create categories. Then, the content was grouped into higher-level categories based on the identified units of meaning, and this content was coded, leading to the derivation of attributes and key terms. The researchers repeatedly reviewed the transcripts to ensure the validity of the results, understood the core meanings, and checked the data coding that had been categorized and extracted by the researchers.

Ethical consideration

The Institutional Review Board granted an exemption for this study as it involved the analysis of secondary data, including institutional names, hospital types, and bed capacities, while excluding sensitive personal information or specific institutional details to ensure privacy and ethical standards were maintained. Participating institutions were informed in advance that the evaluation results would be disseminated through publication. Approval for data analysis and the dissemination of the outcomes of the project was obtained from both the Korean Hospital Association and the Ministry of Health and Welfare.

RESULTS

Characteristics of participating institutions

The participating institutions were all national public hospitals, including 15 university hospitals. Among the institutions involved in the study, general hospitals constituted the highest percentage (approximately 70%). The participating institutions were reclassified based on the number of beds, those with fewer than 300 beds accounted for the highest percentage at 50.0%. The number of CNEs in the participating institutions, including the supported manpower from the project, was 133 in the first year, 135 in the second year, and 336 in the third year. The average training period for novice nurses increased from 6.1 months in the first year to 10.3 months in the third year of the study, indicating that this was associated with the deployment of CNEs, which led to an extended period of adaptation support and education for novice nurses within the institutions.

Project outcome

Program satisfaction

Program satisfaction of novice nurses was assessed across the following four dimensions: content, methods, length of training period, and program operation. The findings indicated that all four dimensions received scores of 3 or higher on a four-point scale, indicating positive satisfaction levels. The satisfaction scores with educational methods and program operation also showed an upward trend throughout the project.

Clinical adaptation

Novice nurses' clinical adaptation was assessed across the following three domains: competence and confidence, perception of organizational support, and intention to stay. In the third year of the study, the average score for competence and confidence was 3.17, with the average scores for the five specific areas ranging from 3.06 to 3.24. Both items related to professionalism and interprofessional collaboration demonstrated high scores of 3.20 and 3.17 in the first and second years, respectively, and further increased to 3.24 in the third year, surpassing other items. Furthermore, the patient safety and quality improvement score—which was 3.12 and 3.14 in the first and second year, respectively—showed a significant increase to 3.21 in the third year. Conversely, the lowest score was observed in patient care, with scores of 3.03 in the first and second years, respectively, and a slight increase to 3.06 in the third year. The perception of organizational support and the intention to stay remained consistently high throughout the project period, with scores ranging from 3.25–3.30 and 3.12–3.19, respectively (Table 1). These find-

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TABLE 1 Program satisfaction and clinical adaptation of novice nurses.

Variables	*n* or Mean ± SD		
	1st year	2nd year	3rd year
Program satisfaction ($N = 5,625$)			
Number of participating nurses	1,105	1,783	2,737
Content	3.67 ± 0.22	3.57 ± 0.21	3.68 ± 0.22
Methods	3.39 ± 0.20	3.57 ± 0.21	3.64 ± 0.23
Length of training period	3.32 ± 0.21	3.47 ± 0.22	3.55 ± 0.29
Program operation	3.47 ± 0.18	3.61 ± 0.19	3.67 ± 0.28
Clinical adaptation ($N = 4,515$)			
Number of participating nurses	1,367	1,545	1,603
Competence and confidence	3.12 ± 0.16	3.14 ± 0.16	3.17 ± 0.17
Patient care	3.03 ± 0.22	3.03 ± 0.19	3.06 ± 0.18
Interprofessional collaboration	3.20 ± 0.15	3.20 ± 0.19	3.24 ± 0.16
Patient safety and quality improvement	3.12 ± 0.19	3.14 ± 0.14	3.21 ± 0.18
Use of health information system	3.08 ± 0.21	3.09 ± 0.23	3.12 ± 0.20
Professionalism and leadership	3.17 ± 0.20	3.17 ± 0.20	3.24 ± 0.19
Perception of organizational support	3.25 ± 0.21	3.25 ± 0.23	3.30 ± 0.19
Intention to stay	3.12 ± 0.25	3.15 ± 0.28	3.19 ± 0.25

Note: Four-point scale.

ings indicate that the efforts made by participating institutions to improve the quality of education were reflected in the observed increase in scores throughout the project. They also showed the lowest scores in the patient care domain, which can be attributed to COVID-19–related constraints on clinical education, underscoring the importance of education in clinical settings.

Turnover of novice nurses

On average, the annual turnover rate of novice nurses in the third year of project implementation was reported to be 20.0%. Prior to the project's initiation in 2019, participating institutions had an average novice nurse turnover rate of 23.5%. Following a decrease to 15.8% in the first year and 16.3% in the second year of the project, the turnover rate experienced an increase in the third year but remained lower than the levels observed before the project's implementation and the rates of nonparticipating institutions.

Examining the trend of turnover rate changes based on institutional characteristics was conducted on a sample of 48 institutions that participated and hired novice nurses in the project for three consecutive years. The results showed that institutions with fewer than 300 beds and general hospitals exhibited the largest decrease in turnover rate in the third year. By contrast, institutions with 900 or more beds and tertiary hospitals showed either a smaller decrease in turnover rate or an increase in the average turnover rate compared with pre-project implementation. Across all classifications of training period, the turnover rate of novice nurses demonstrated a decrease after the implementation of the project compared with the pre-project period. However, it exhibited an increase between the second and third years of the project (Figure 2; Supplementary Appendix S1).

Causes of increase in turnover rate

Supplementary Appendix 2 presents an analysis of the factors contributing to the increased turnover rate in institutions where the turnover rate of novice nurses increased compared with the previous year or before the implementation of the project among the participating institutions in the third year. The analysis revealed that the turnover rate of novice nurses increased owing to various reasons, including reduced opportunities for nursing students' clinical practicum because of the coronavirus disease 2019 (COVID-19) pandemic, frequent department transfers to secure isolation wards, and nurses' exit to higher-paying positions generated as a result of the COVID-19 pandemic. Novice nurses, particularly in institutions with over 600 beds, encountered greater difficulties in adapting to the clinical field, as clinical practicum opportunities decreased because of the COVID-19 pandemic.

DISCUSSION

The Clinical Nurse Educator Support Project has significantly enhanced the systematization of nursing education in Korea, with specific focus on resource allocation, the establishment of structured programs and evaluation systems, and the formation of a Clinical Nurse Educator network. Notably, participating institutions have achieved an extension of the average training period from 6.1 months in the initial year to 10.3 months by appointing CNEs who can provide effective supervision and conduct clinical skills assessments. This extension contributes to the overall quality of practical training by enabling a comprehensive evaluation of novice nurses and providing valuable feedback. The criteria presented in the annual self-program evaluation reports for the nursing education system, education program operation, and education program evaluation have encouraged institutions to identify areas requiring improvement, fostering a self-driven process for enhancing the quality of nursing education. The results shared among participating institutions have further generated a synergistic effect. It is worth noting that the NRP in the United States shares similar attributes, including strong institutional support, effective leadership, a diverse and well-structured program with sufficient duration to facilitate the adaptation of novice nurses, and a comprehensive evaluation process involving program assessment tools and feedback collection (Chant, 2019). The positive changes resulting from the Clinical Nurse Educator Support Project align with NRP principles, indicating a consistent direction for nursing education development.

Despite the impact of the COVID-19 pandemic on the education system during the analyzed period from 2019 to 2022,

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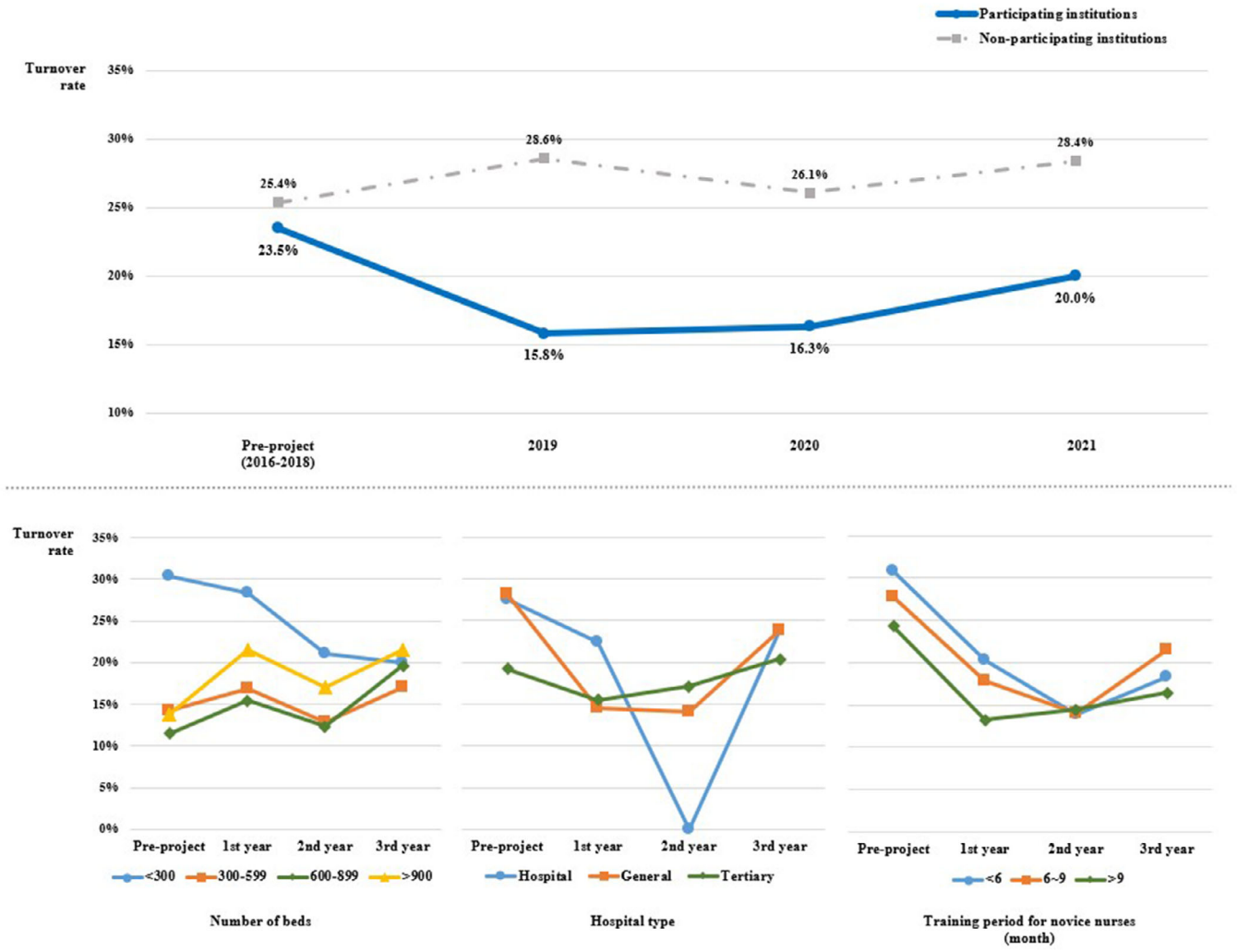


FIGURE 2 Turnover rate changes of participating institutions.

the findings indicate overall satisfaction with the program, with all aspects scoring 3 or higher on a four-point scale. With regard to clinical adaptation, project participation led to improvements across all areas, particularly in interprofessional collaboration and professionalism, which exhibited higher levels of improvement compared with other clinical competencies.

However, patient care competency showed relatively lower scores, consistent with a study on self-confidence among Korean nursing students conducted during the same period (Bang et al., 2021). This could be attributed to the challenges faced by novice nurses in adapting to clinical settings owing to the COVID-19 pandemic, which limited clinical practicum opportunities of undergraduate education. Clinical practicum plays a crucial role in integrating theoretical knowledge with practical skills within real clinical settings (Soler et al., 2021). Field practice allows students to develop familiarity with clinical routines, establish relationships with patients and medical staff, and acquire effective coping strategies for managing stress in clinical settings (Wang et al., 2019). The substantial impact of COVID-19 commenced in 2020 in South Korea. Novice nurses who were part of this project in 2021 and 2022 had previously been in their third or fourth year of clinical training in 2020. These students are mandated to complete 1,000 hours of clinical practice for graduation. To meet this requirement, they faced the dilemma of either undertaking in-person clinical practice, despite the challenges posed by COVID-19, or resorting to online simulation practice. As a result, nursing students during this period found themselves lacking hands-on clinical practice experience, which further exacerbated the difficulties they encountered during their transition into the workforce. This unpreparedness posed significant challenges as they navigated the fear and uncertainty typically associated with the clinical field. Thus, it is imperative for universities and healthcare institutions to maintain ongoing efforts to enhance practical training as an integral element of future nursing education initiatives. Additionally, they should explore alternative approaches for clinical practice to prepare for potential outbreaks of infectious diseases.

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COVID-19 has exacerbated nursing shortages globally and has had negative impacts, including new responsibilities, workforce mobility, and personal factors such as stress, workload, the risk of infection, and moral distress in the healthcare system (Buchan et al., 2022). The turnover rate of novice nurses averaged 20.0% in the third year of project implementation and remained lower than the pre-project average turnover rate of 23.5%, and the average turnover rate of nonparticipating institutions was 28.4% (Korean Hospital Nurses Association, 2022). However, this rate increased slightly compared with the first and second years, reflecting the challenges faced by nurses in the context of the COVID-19 pandemic.

Along with reductions in clinical practicum opportunities for nursing students due to the COVID-19 pandemic, several factors in the context of the Korean situation contributed to the increased turnover rate. These factors include frequent departmental rotations required due to the allocation of isolation beds and attrition to higher-paying nursing positions driven by the impact of COVID-19. Nurses who were not directly involved in caring for COVID-19 patients may also have felt excluded from policy support systems, such as compensation and support programs provided to personnel directly involved in COVID-19. This exclusion could contribute to job stress and burnout (Yun & Ahn, 2022).

Moreover, the level of wages for nursing staff also affects the turnover rate among novice nurses. In 2022, the prevalence of COVID-19 increased the number of confirmed cases, resulting in a higher demand for nurses in various healthcare settings such as public health centers, screening clinics, and residential treatment centers. According to the Korean Hospital Nurses Association (2022), the average monthly wages for novice nurses in medical institutions in 2019 were approximately $2,400 in tertiary general hospitals and $2,100 in general hospitals. However, life treatment centers introduced risk allowances and professional allowances, resulting in wages of approximately $220 per working day. This wage disparity contributed to the increased turnover among novice nurses. Therefore, policies aimed at improving the overall treatment of the nursing workforce should be developed.

Limitations of the study

The present study has several limitations. The second stage learning outcome of the Kirkpatrick evaluation model could not be analyzed using individual tools employed by the participating institutions. Moreover, except for the influence of the COVID-19 pandemic, the study did not comprehensively analyze the impact of government support on nursing education because of the temporal overlap of the project with the pandemic. However, despite these limitations, the study effectively investigated the turnover rates of 70 institutions and assessed the educational performance of over 4,500 novice nurses within the government-led Clinical Nurse Educator Support Project. Consequently, the study provides valuable insights and data that can be used to pursue future support for nursing education.

Implications for nursing and health policy

Establishing continuous government and institutional collaborative support for CNEs is imperative to ensure a sustainable supply of competent nurses in the future. The government should develop long-term support strategies aimed at securing a stable workforce of CNEs, in addition to the existing provisions for labor cost support. One potential approach could involve enacting legislation that mandates the obligatory inclusion of CNEs or the incorporation of provisions specifying the required placement levels of CNEs within the certification process for medical institutions and the nursing education system. Healthcare institutions should create an environment that supports the enhancement of clinical education in response to government support. Institutions should provide comprehensive assistance not only to maintain and improve the quality of nursing education but also to address the need to improve the working conditions and the treatment of nurses. Ultimately, collaborative efforts between the government and institutions are essential to improve the treatment and working conditions of novice nurses, enabling them to adapt more easily to the clinical field and deliver safe nursing care to patients.

CONCLUSION AND RECOMMENDATIONS

This study analyzed the educational performance and turnover rate within the Clinical Nurse Educator Support project, which involved the government-led placement of personnel exclusively for education purposes. Despite the considerable challenges presented by the COVID-19 pandemic, the study findings indicate that the program satisfaction levels and clinical adaptation of novice nurses remained consistently high or increased throughout the project. Moreover, the turnover rate of novice nurses in participating institutions was lower than that in nonparticipating institutions, indicating a positive impact on the participating institutions. These findings highlight the importance of strengthening support for CNE and practical training, as well as improving the treatment of nursing personnel to prevent novice nurse turnover.

Based on the findings of this study, the following recommendations are presented. First, it is essential to conduct a long-term performance evaluation to assess the sustained effects of Clinical Nurse Educator allocation. The impact of educational enhancements on the acquisition of competent nursing professionals did not manifest in the short term. To comprehensively analyze the influence of strengthening the nursing education system, a multiyear performance evaluation study must be undertaken in the future. Second, there is a need for research that examines the pure effects of CNE allocation, free of the influence of COVID-19. This research will provide insights into the genuine impact of government-led efforts to enhance the education system. Third, research should be conducted to reinforce the effectiveness and significance of government-led manpower support by examining the

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economic effects of CNE deployment. Such studies can serve as a foundation for allocating national budgets to nursing education. Finally, policymakers should consider the importance of nursing education when developing policies aimed at enhancing patient safety and the quality of nursing care. An integrated perspective on strengthening the nursing education system, the deployment of CNEs, and policy analysis of the economic effects on nursing personnel, including social costs, is required.

AUTHOR CONTRIBUTIONS

SS, JK: Study design. **SS, EH, IL, JK**: Data collection. **EH, IL, JK**: Data analysis. **SS**: Study supervision. **SS, EH, IL, JK**: Manuscript writing. **SS, JK**: Critical revisions for important intellectual content.

ACKNOWLEDGMENTS

The authors would like to appreciate the participating institutions, the Ministry of Health and Welfare, and the Korean Hospital Association for their invaluable contributions to the Clinical Nurse Educator Support Project. This study is based on a part of the second, third, fourth reports of the Clinical Education Support Project supported by the Ministry of Health and Welfare (MOHW, Korea) and the Korean Hospital Association.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

ORCID

Sujin Shin PhD, RN https://orcid.org/0000-0001-7981-2893
Eunmin Hong RN https://orcid.org/0000-0003-2917-8067
Inyoung Lee PhD, RN https://orcid.org/0000-0003-1282-515X
Jeonghyun Kim PhD, RN https://orcid.org/0000-0001-5173-6745

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How to cite this article: Shin, S., Hong, E., Lee, I. & Kim, J. (2024) Effects of governmental support on clinical nurse educators in South Korea: A repeated cross-sectional study. *International Nursing Review*, 71, 933–941. https://doi.org/10.1111/inr.12942

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