

Effectiveness of structured continuing professional development program on nurse job satisfaction and competence: quasi-experimental study

Ria Desita Natalia¹✉, Regina V. T Novita¹, Sudibyo Supardi¹

¹ Department of Nursing, STIK Sint Carolus, Jakarta, Indonesia

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ABSTRACT

Introduction: Continuing Professional Development (CPD) is considered a strategic approach to strengthening nurses' competence and improving job satisfaction. However, evidence regarding structured CPD programs grounded in nursing theory remains limited, particularly in Indonesian hospital settings. This study aimed to evaluate the effectiveness of a structured CPD program based on Patricia Benner's framework from novice to expert in improving nurses' job satisfaction and professional competence.

Research Methodology: A quasi-experimental pretest-posttest control-group design was employed with 92 clinical nurses (46 in the intervention group and 46 in the control group), selected using purposive and cluster sampling. The intervention consisted of a two-month structured CPD program integrating face-to-face learning, e-learning, and clinical mentoring. Job satisfaction was measured using a validated job satisfaction questionnaire, while competence was assessed using the Nurse Competence Scale (NCS). Data were analyzed using the Wilcoxon signed-rank test, Chi-square test, Mann-Whitney U test, and binary logistic regression analyses.

Results: The intervention group demonstrated significant improvements in job satisfaction (10.7%; $p=0.010$) and nurse competence (7.4%; $p<0.001$). Multivariate analysis identified participation in the structured CPD program as the strongest predictor of improved job satisfaction (OR=2.64, 95% CI: 1.03–6.80; $p=0.042$) and competence (OR=6.88, 95% CI: 1.94–24.38; $p=0.003$), after controlling for nurses' working period. The control group showed no statistically significant improvement in either outcome.

Conclusion: A structured CPD program based on Patricia Benner's competency framework effectively enhanced nurses' job satisfaction and professional competence. Hospitals should integrate structured, competency-based CPD into routine workforce development strategies to strengthen nursing performance and improve the quality of healthcare services.

Keywords: continuing professional development; job satisfaction; nurse competence; Patricia Benner's theory.



✉Corresponding author. Email: riadesnatalia@gmail.com

Department of Nursing, STIK Sint Carolus, Jakarta, Indonesia



INTRODUCTION

Job satisfaction and nurse competence are two fundamental aspects that directly affect the quality of nursing services in hospitals, especially in the context of increasingly complex and patient safety-oriented health service demands. Nurses' job satisfaction is influenced not only by individual factors but also by organizational factors such as work environment, structural empowerment, organizational commitment, work stress levels, patient-nurse ratios, and demographic backgrounds, including work experience (Zhao et al., 2025). In addition, the aspect of workload, interpersonal relationships between health workers, and the recognition and support from direct superiors are also important determinants in shaping the level of job satisfaction of nurses (Hellín Gil et al., 2022). High job satisfaction of nurses has been shown to correlate positively with improved quality of service, including patient satisfaction and overall patient safety (Cho et al., 2023). Therefore, nurse job satisfaction not only has an impact on individual well-being but also has far-reaching implications for organizational effectiveness and the quality of health services provided to patients (Gumasing & Ilo, 2023).

On the other hand, nurse competence is the main focus in efforts to standardize nursing practices internationally. The International Council of Nurses (ICN), together with the World Health Organization (WHO), has developed the Global Competency and Outcomes Framework as a global framework of reference to ensure that nursing education can respond to the needs of the population it serves (WHO, 2022). The achievement of nurse competencies in Indonesia still faces various challenges, including a gap between practice standards and education, underscoring the need in shift nursing education towards active learning and the development of critical thinking skills (Grøndahl et al., 2025). In Indonesia, nurses' competencies are regulated through the Decree of the Minister of Health Number HK.01.07/MENKES/425/2020 concerning Professional Standards for Nurses, which stipulates five core competency areas and 12 basic competencies that must be mastered by every nurse in carrying out their professional practice (Wati et al., 2024).

The Continuing Professional Development (CPD) program has become an essential component in maintaining high standards of health care worldwide (Campos-Zamora et al., 2022). The World Health Organization emphasizes that health workers, including nurses, must continue to develop their knowledge and skills to face global health challenges (Catton, 2020). The nursing profession today faces complex challenges, including changing patient demographics, the increasing prevalence of chronic diseases, advances in medical technology, and the efficiency demands of the health system (Al-Omary et al., 2024). The positive results of the CPD program were reflected in the increase in nurses' satisfaction with the education program by up to 96%, and patient satisfaction with the quality of nursing services increased to 55% (Suprpto et al., 2024).

In Indonesia, the implementation of CPD for nurses is regulated in Law Number 17 of 2023 concerning Health, which places CPD as part of improving the quality of service and patient safety. The Hospital Accreditation Standards (STARKES) established through the Decree of the Minister of Health Number HK.01.07/MENKES/1596/2024 require each hospital to implement a CPD program that is structured, documented, and can be evaluated for effectiveness (Ministry of Health of the Republic of Indonesia, 2024). Although the importance of CPD has been widely recognized, various obstacles to its implementation continue to be encountered, including heavy workloads, limited organizational support, limited time for study, and limited funding (Mlambo et al., 2021). Effective implementation of CPD requires a supportive environment, an approach tailored to the local context, and consideration of each nurse's learning needs and preferences.

This condition was also observed at X Hospital in Bekasi City, where the participation rate of nurses in CPD activities remains low, ranging from 10% to 43% of the total nurses in each service unit. Nurses at the Clinical Nurse (PK) 1 level, who dominate the workforce at Hospital X, still need systematic coaching and development programs to support competency improvement to a higher level (Rusmianingsih, 2024). Performance appraisal data for 2024 show that only 10–11% of nurses achieve professional development scores above 75%, and 39 patient safety incidents originated from nursing services. Based on these conditions, this study aims to analyze the effectiveness of the CPD program on changes in job satisfaction and nurse competence at RS X, Bekasi City.

RESEARCH METHODOLOGY

Study Design

This study used a quasi-experimental, pretest-posttest with a control group design to evaluate the effectiveness of the Continuing Professional Development (CPD) program on changes in job satisfaction and nurse competence.

Study Setting and Period

The research was carried out in two type C hospitals in the Bekasi City area: Hospital X, the intervention group site and Hospital Y, the control group site. The research lasted from October 2025 to January 2026, covering the pretest phase, the implementation of the CPD program, clinical assistance, and the posttest.

Population and Sample

The study population comprises all clinical nurses who have worked for at least 1 year at X Hospital in Bekasi City, totaling 72 nurses. The sample size was calculated using a two-proportion test formula. It yielded 46 nurses for the intervention group and 46 for the control group, for a total of 92 respondents selected using a purposive sampling technique with cluster sampling.

Inclusion and Exclusion Criteria

Inclusion criteria include nurses with D3 Nursing or Bachelor of Nursing education, an active Certificate of Registration (STR), and willingness to participate in the entire series of programs during the research period. Exclusion criteria include nurses who are still on probation, performing full administrative duties without direct clinical practice, or planned mutations to other units during the study period.

Research Variables

The independent variable in this study was the structured CPD program, while the dependent variable was job satisfaction and nurse competence. The controlled confounding variables included age, gender, education level, working period, and career path of nurses.

Research Instruments

Data was collected using two instruments. First, the job satisfaction questionnaire consists of 25 items across five dimensions, rated on a 1–4 Likert scale. Second, the Nurse Competence Scale (NCS) developed by Meretoja et al. (2004) consists of 35 items, scored on a Visual Analog Scale (VAS) ranging from 0 to 100. Both instruments have been tested for validity and reliability among 30 nurses at RS Z Kota Bekasi, with Cronbach's Alpha values of 0.768 for the NCS and 0.756 for the job satisfaction questionnaires, respectively.

Data Collection Procedure

Data collection was carried out in two stages. The pretest was held on October 9–22, 2025, followed by the implementation of a structured CPD program based on Patricia Benner's theory

"From Novice to Expert" (Benner, 2001), which includes 12 Core Competencies delivered through face-to-face methods, e-learning, and clinical assistance for 2 months. The Posttest will be held on January 13-22, 2026, after the entire series of programs is completed.

Data Analysis

Data analysis was carried out using SPSS software, including univariate analysis to describe respondent characteristics, Wilcoxon and Chi-square tests for bivariate analysis, and binary logistic regression using the backward method for multivariate analysis, with a significance level of $\alpha = 0.05$ (Polit & Beck, 2017).

Ethical Considerations

This research has received ethical approval from the Health Research Ethics Committee of STIK Sint Carolus with approval number No. 166/KEPPKSTIKSC/VII/2025. All respondents were informed of the research's purpose and signed informed consent before participating, in accordance with ethical principles, including respect for human dignity, autonomy, beneficence, and justice.

RESULT

Table 1. Characteristics of Respondents (n = 92)

Variable	Intervention (n=46)	Control (n=46)	p-value
Age 25–39 years	82.6%	74.0%	0.280
Female	84.8%	89.1%	0.536
Bachelor's Degree (Ners)	82.6%	80.4%	0.788
Working period >3–10 years	63.0%	58.7%	0.097
Clinical Career Level PK1	52.2%	34.8%	0.000*

Significant at $p < 0.05$.

A total of 92 nurses participated equally in the intervention and control groups. Most respondents were female, aged 25–39 years, held a Bachelor of Nursing (Ners) degree, and had between three and ten years of working experience. Baseline comparisons indicated that both groups were comparable with respect to demographic characteristics. However, career level differed significantly between groups ($p < 0.001$), with the intervention group containing more PK1 nurses. Consequently, career level was included as a covariate in the multivariable analysis to minimize confounding bias.

Table 2. Bivariate Analysis of the Effect of Structured CPD Program

Outcome	Intervention	Control	Effect Size	p-value
Job satisfaction	+10.7%	–12.1%	$r = 0.379$ (medium)	0.010
Nurse competence	+7.4%	+4.2%	$r = 0.614$ (large)	<0.001

The structured Continuing Professional Development (CPD) program produced statistically significant improvements in both primary outcomes. Job satisfaction increased by 10.7% following the intervention ($Z = -2.571$, $p = 0.010$), representing a medium practical effect ($r = 0.379$). Nurse competence demonstrated an even greater improvement, increasing by 7.4% with a large effect size ($r = 0.614$; $Z = -4.164$, $p < 0.001$). In contrast, the control group showed no statistically significant changes. These findings suggest that participation in a structured CPD program substantially enhances both psychological and professional outcomes among nurses.

Table 3. Multivariate Logistic Regression Analysis

Variable	Outcome	Adjusted OR	95% CI	p-value
Structured CPD Program	Job satisfaction	2.64	1.03–6.78†	0.042
Structured CPD Program	Nurse competence	6.88	1.93–24.46†	0.003
Working period	Nurse competence	0.31	0.10–0.97†	0.046

†Approximate confidence intervals estimated from reported regression coefficients and p-values.

After adjustment for potential confounders, participation in the structured CPD program remained the strongest independent predictor of improved outcomes. Nurses receiving the intervention were approximately 2.6 times more likely to experience increased job satisfaction (Adjusted OR=2.64; 95% CI: 1.03–6.78; $p=0.042$) and nearly seven times more likely to demonstrate improved competence (Adjusted OR=6.88; 95% CI: 1.93–24.46; $p=0.003$) than nurses in the control group. Working period also independently influenced competence improvement (Adjusted OR=0.31; 95% CI: 0.10–0.97; $p=0.046$), indicating that professional experience contributes to competency development beyond participation in CPD alone.

The present findings demonstrate that a structured Continuing Professional Development (CPD) program is associated with meaningful improvements in both nurse job satisfaction and clinical competence. The observed medium effect on job satisfaction and large effect on competence indicate that CPD extends beyond knowledge acquisition by strengthening nurses' confidence, professional engagement, and clinical performance. Multivariable analysis further confirmed that participation in the structured CPD program independently predicted both outcomes after adjustment for working experience, highlighting the robustness of the intervention. These findings support integrating competency-based educational strategies with continuous mentoring and blended learning to maximize professional development. From a health service perspective, the results suggest that hospitals should institutionalize structured CPD as a strategic workforce development initiative rather than treating continuing education as a periodic administrative requirement. Tailoring CPD activities according to nurses' career stages and clinical experience may optimize learning outcomes while promoting workforce retention and service quality. Given that competence demonstrated the greatest improvement, structured CPD has considerable potential to enhance patient safety, evidence-based nursing practice, and organizational performance. Nevertheless, the modest explanatory power of the regression models suggests that additional organizational factors, such as leadership support, staffing adequacy, workplace culture, and reward systems, should also be addressed to achieve sustained improvements in job satisfaction and professional competence. Future multicenter studies with larger samples and longer follow-up are warranted to confirm the long-term effectiveness and generalizability of these findings.

DISCUSSION

The structured CPD program significantly increased nurses' job satisfaction by 10.7% in the intervention group ($p=0.007$), while the control group decreased by 12.1%. These findings are in line with Kearns (2021), who states that a structured CPD program plays an important role in improving the welfare and job satisfaction of nurses through strengthening professional identity and recognition of self-development efforts. Yu et al. (2022). It was also found that nurses who were actively involved in CPD programs felt more confident in their clinical practice, which ultimately contributed to increased job satisfaction.

The increase in job satisfaction in this study is mainly seen in the dimensions of satisfaction with work, supervision, and colleagues. The dimensions of rewards and promotions do not undergo significant changes because both aspects are structural and are heavily influenced by organizational policies that cannot be changed only through short-term training interventions. The decline in job satisfaction in the control group reflects the condition that, without an adequate development program, nurses experience professional stagnation, which has an impact on declining work motivation (FU et al., 2021)

In the competency variable, the structured CPD program significantly increased nurse competence by 7.4% in the intervention group ($p=0.010$), whereas the increase in the control group of 4.2% was not statistically significant ($p=0.079$). Aleo et al. (2024) found, in a systematic review, that structured and systematic CPD was effective in meaningfully improving nurses' knowledge and competence. Amir et al. (2024) also affirm that a systematically designed CPD program has a real positive impact on nurses' clinical competence through the development of knowledge, skills, and professional attitudes (Suprpto et al., 2021).

The competency improvement in this study covers all dimensions of NCS, especially in the helping role and therapeutic interventions, which describe the ability to provide direct nursing care. The teaching-coaching and managing situations aspects also showed improvements, reflecting communication skills and the management of complex clinical situations. This is in accordance with Benner's (2001) theoretical framework, which emphasizes that the development of nurse competencies occurs gradually through structured learning and hands-on clinical experience from novice to expert stages.

The results of the multivariate analysis showed that the CPD program was the most dominant factor in increasing job satisfaction (2.643 times greater chance; $p=0.042$) and competence (6.878 times greater chance; $p=0.003$) compared with the control group. The contribution of CPD programs to competency over job satisfaction indicates that CPD directly and more efficiently develops the cognitive, affective, and psychomotor dimensions of nurses. Kurtović et al. (2024) found that nurses who followed a structured CPD program showed more consistent improvements in competency than those who did not. The impact of CPD on job satisfaction is more indirect, as external factors beyond the CPD program itself influence it.

Working time proved to be a significant confounding variable for competency improvement ($p=0.006$), with nurses with 1–3 years and more than 10 years of working experience showing a greater increase in competence than the middle-working period group. Saiga et al. (2024) explained that nurses with 1–3 years of experience are in the most intensive learning phase of their nursing careers, and therefore highly responsive to a structured CPD program. Wardhani & Hariyati (2023) add that nurses with medium work experience tend to be more motivated to participate in professional development programs because they have understood the real needs in the field.

Career level was also found to be meaningful for improving competency ($p=0.032$), with nurses at the PK III level showing the highest proportion of competency improvement (92.3%). This shows that nurses at higher levels are better able to integrate CPD materials with their existing clinical experience. Lestari et al. (2024) added that the high proportion of PK 1 nurses in a hospital is an important indicator to evaluate the effectiveness of the nursing human resource development program.

This research has novelty in the design of the CPD program, which is systematically developed based on Patricia Benner's theory "From Novice to Expert" by integrating three learning methods simultaneously: face-to-face, e-learning, and clinical assistance. Vázquez-Calatayud et al (2021) stated that the relevance of the CPD program, intrinsic and extrinsic motivation, and organizational support greatly influenced the effectiveness of CPD on job satisfaction and nurse competence. Pashmeena et al. (2024) affirm that a well-designed CPD program can effectively enhance nurses' clinical competence and confidence, regardless of their formal educational backgrounds, because the most decisive factor is the suitability of the learning content to the needs of real clinical practice.

Thus, the study's hypothesis is supported: structured CPD programs have a meaningful effect on increasing nurses' job satisfaction and competence compared to unstructured CPD programs. The limitations of this study include competency assessments conducted independently through questionnaires, which are highly dependent on respondents' perceptions. In addition, the existence of differences in organizational culture between Hospital X and Hospital Y that cannot be fully controlled during the study period is also a limitation that needs to be considered in interpreting the results of this study.

CONCLUSION

This study demonstrates that the structured CPD program developed based on Patricia Benner's theory "From Novice to Expert" was effective in increasing nurse job satisfaction by 10.7% ($p=0.007$) and nurse competence by 7.4% ($p=0.010$) in the intervention group. The results of the multivariate analysis showed that the CPD program was the most dominant factor in increasing job satisfaction (2.65 times greater chance) and competence (6.87 times greater chance) than the control group, after controlling for the work period variable. These findings have important implications for hospital management in designing a structured, planned, and real-world CPD program that addresses nurses' real needs, considering career path and working period as factors that also affect the program's success. The integration of three learning methods, namely face-to-face, e-learning, and clinical assistance in one CPD program, has proven to be an effective approach and can be adapted by other hospitals in an effort to improve the quality of nursing services. Further research is recommended to use longitudinal designs with longer periods to observe the long-term impact of CPD programs on job satisfaction and nurse competence. In addition, the use of more objective competency assessment methods, such as direct observation and clinical simulations, should be considered to provide a more accurate picture of nurses' clinical capabilities.

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Conflict of Interest

The authors declare that they have no competing interests.

Authors' Contributions (CRediT Taxonomy)

Ria Desita Natalia was responsible for study design, data collection, and manuscript drafting.

Regina V.T. Novita contributed to the interpretation of results and critical revision of the manuscript.

Sudibyo Supardi contributed to data analysis and critical revision of the manuscript. All authors approved the final version of the manuscript.

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Declaration of Generative AI Use

The authors declare that generative artificial intelligence tools were used only to assist with language refinement, grammar checking, and manuscript organization. All research activities, including study design, data collection, data analysis, interpretation of findings, and final scientific conclusions, were conducted independently by the authors. The authors take full responsibility for the originality, accuracy, and integrity of the manuscript content.

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