



## THE ROLE OF CONTINUOUS PROFESSIONAL DEVELOPMENT (CPD) IN IMPROVING NURSE COMPETENCE IN THE DIGITAL ERA: LITERATURE REVIEW

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### ABSTRACT

Continuing Professional Development (CPD) is a critical need in the nursing profession along with the increasing complexity of health services and technological advancements. Continuing Professional Development (CPD) also has an important element in improving the competence and professionalism of nurses. This study aims to analyze scientific findings related to Continuing Professional Development (CPD) in nursing with a literature review approach based on the latest research. Data were collected from indexed journals in 2018-2024 from journals published in databases such as google scholar, PubMed, Springer and ProQuest. Screening was carried out based on inclusion criteria, namely the selected articles focused on the implementation and evaluation of Continuing Professional Development (CPD) in the context of nursing, both in the form of quantitative, qualitative, and mixed method research. The results of the study show that the CPD program plays an important role in ensuring that nurses update their skills and knowledge, support the implementation of evidence-based practices, and improve the quality of patient care. The importance of improving the competence of nurses and the quality of health services in the midst of challenges faced through professional development (CPD). Key challenges include limited resources, time, cost and access to technology. Digital transformation in CPD has been proven to increase the accessibility and flexibility of learning even though it still faces digital literacy constraints. The successful implementation of CPD requires organizational support, clear policies, and optimal use of technology. This study provides insights for the development of CPD programs that are more effective and adaptive to the needs of the digital era. Continuing Professional Development (CPD) has an important role in improving the competence of nurses and the quality of health services. By continuously updating knowledge and skills, supporting the implementation of evidence-based practices, and adapting to advances in health technology, it is able to respond to the complexity of evolving patient needs.

Keywords: continuing professional development (CPD); digital transformation; learning management system; nurse competence; nursing

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## INTRODUCTION

In the era of globalization and technological advancements, the need for the development of health workers' competencies is increasing. One of the important instruments to meet this need is Continuing Professional Development (CPD) or continuous professional development. CPD is an essential component in the world of nursing because this profession faces dynamic demands along with the development of science and patient needs (Amir et al., 2024). CPD programs are designed to ensure nurses are constantly updating their skills and knowledge to be able to provide quality, safe, and evidence-based services CPD in many countries often face challenges. One of the most common obstacles is limited resources, including time, cost, and infrastructure (Kurtović et al., 2024). In the context of technology, CPD is starting to transform by utilizing digital platforms to reach more participants effectively. For example, the use of Learning Management System (LMS) and application-based mobile has been shown to increase the flexibility and accessibility of training for nurses. Studies show that this

approach not only supports real-time learning, but also allows nurses to adapt to the latest health technology developments. However, to optimize these benefits, it is important for healthcare institutions to ensure the readiness of technology, accessibility, and relevance of the material delivered. In addition to playing a role in improving individual competence, CPD is also an important part of ensuring the quality of health services at the organizational level. A well-designed CPD program can help nursing staff to cope with changing policies, standards of practice, and evolving patient needs. Health organizations that support CPD programs not only strengthen the capacity of their nursing staff, but also ensure that the services provided are in accordance with international standards and evidence-based. This is especially relevant amid the increasing complexity of diseases and increasingly specific patient needs (Mather & Cummings, 2017).

Although CPD has been recognized as an important component in the development of the nursing profession, the implementation of traditional methods such as in-person seminars and workshops still faces various challenges. Based on the research of Palma et al. (2020), 98.75% of nurses reported cost constraints as the main obstacle in participating in traditional CPD, followed by the problem of uneven program availability for all staff (61.6%), and time constraints (60.3%). This is reinforced by the findings of Purwanti et al. (2023) which revealed that 69% of nurses reported a lack of facility support and program socialization that was not optimal, resulting in low participation in conventional CPD activities. The study of Sundah et al. (2019) also found that although the lecture method is still a preference ( $M=3.42$ ,  $SD=0.584$ ), its effectiveness is limited due to difficulties in attending face-to-face sessions and limited access to training centers. This gap shows the need for a transformation in CPD delivery methods that are more adaptive and accessible for nurses. The objective of this research is to explore and analyze various aspects that influence Continuous Professional Development (CPD) for nurses, focusing on identifying the challenges faced in the implementation of CPD, as well as evaluating the effectiveness of the learning methods used. This study aims to provide deeper insights into the perceptions of nurses and health facility managers regarding CPD, and to identify relevant learning needs within the context of clinical practice. Thus, this research is expected to offer constructive recommendations to enhance the quality of CPD and support nurses in developing their skills and knowledge continuously.

## **METHOD**

Relevant articles are selected based on abstracts, keywords, and research methods with inclusion criteria that include research articles from 2018 to 2024 published in indexed journals and are fully accessible. Data was collected from journals published in databases such as Google Scholar, PubMed, ProQuest, and Springer. The selected articles focus on the implementation and evaluation of Continuing Professional Development (CPD) in the context of nursing, both in the form of quantitative, qualitative, and mixed method research. The selection also considers articles in English and Indonesian that discuss the benefits, challenges, and innovations in the implementation of CPD in various health care settings. The selection process excludes articles that do not focus on nursing CPD, articles in the form of editorials or opinions, and articles that do not have a clear methodology. The search was carried out using keywords such as Continuing Professional Development (CPD), nursing professional development, and challenges in nursing CPD.

The following is a PRISMA flow chart for the article screening process used in literature review (Chart 1).

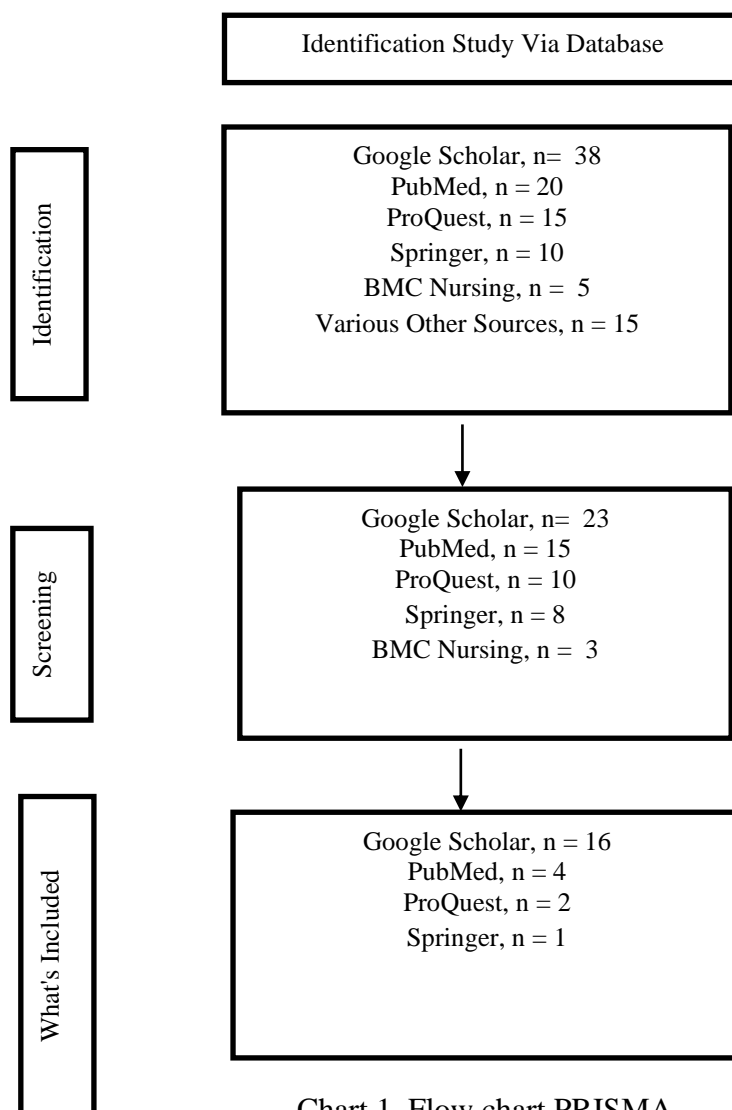


Chart 1. Flow chart PRISMA

**RESULT**

Table 1.  
Article Analysis

Journal Name	Research Objectives	Instruments/ Methods	Population	Research Results
Contemporary Challenges of Nursing CPD: Time to change the model to meet citizens' needs.  <i>Carolyn Jackson &amp; Kim Manley.</i> 2022. <a href="https://doi.org/10.1002/nop2.941">https://doi.org/10.1002/nop2.941</a>	Explain the current challenges of nursing CPD and how CPD can optimize the quality of health care based on the needs of citizens.	Citizen consensus panels, theoretical studies, and reviews of scientific evidence.	Nursing practitioners in the UK, citizens involved in the consensus panel.	Emphasizing the importance of a holistic approach to CPD by utilizing the workplace as a key source of learning, development, and innovation. Highlight patient experience as a key focus in designing CPD and the importance of CPD impact indicators on the health care system (Jackson & Manley, 2022).
Continued professional development (CPD) provision for nurses: A	The study aims to explore ways to attract and retain nursing	This study uses a phenomenological approach with a qualitative method through group focus	The purposive sample consisted of 7 nurse stakeholders responsible for	The results of the study identified three main themes: 1) The role of staff development, which includes future planning, management,

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<p>qualitative exploration</p> <p><i>Tracey Redwood, Alison Ward, Tracey Ali, Cindy O'Dell, Claire Poole, &amp; Denisa Rebaudo.</i> 2024.  <a href="https://doi.org/10.1016/j.heliyon.2024.e32582">https://doi.org/10.1016/j.heliyon.2024.e32582</a></p>	<p>staff in postgraduate training and education to facilitate professional advancement, registration maintenance, and improved patient care.</p>	<p>discussions and online (virtual) interviews with nurse stakeholders.</p>	<p>managing or developing CPD activities in the National Health Service (NHS), private providers and other health Trusts in the Midlands, UK. Participants have a range of managerial roles ranging from staff supervision to staff development within their healthcare Trusts. Of the total 7 nurse stakeholder practitioners, there are four women and three men.</p>	<p>funding and staff time allocation; 2) Requirements for the provision of staff support, including the role of the Trust in course development, course selection, quality of provision and information search; and 3) the University and the provision of CPD, including transparency, working partnerships, competitor identification, future scanning opportunities, information sharing and career support. The study emphasizes the importance of partnerships between academic and health institutions to support nurses in maintaining their enrollment and developing themselves professionally through further education and CPD (Redwood et al., 2024).</p>
<p>Development of a CPD program on caring nursing practice for hospital nurses: A mixed-methods study.</p> <p><i>Tonia Naylor.</i> 2023.  <a href="https://doi.org/10.5430/jnep.v13n3.p11">https://doi.org/10.5430/jnep.v13n3.p11</a></p>	<p>Developed a CPD program to support nursing practices that care for hospital nurses in Western Australia.</p>	<p>Mixed method approach (survey, reflective journal, participant observation)</p>	<p>84 nurses from eight metropolitan hospitals in Western Australia, including senior and executive nurses.</p>	<p>CPD programs improve participants' reflective knowledge and skills, but have little impact on treatment practices. Challenges include time constraints, organizational culture, and systemic pressures. It is recommended to train the trainer for wider dissemination and integration of caring values in a systemic approach (Naylor, 2022).</p>
<p>Importance of nursing research and nursing continuing professional development.</p> <p><i>Amanda Kay Garey.</i> 2022.  <a href="https://doi.org/10.1002/nur.22269">https://doi.org/10.1002/nur.22269</a></p>	<p>Describes the benefits of aligning nursing research with nursing continuing professional development (NCPD) in the context of continuing education contact hours.</p>	<p>An experiential editorial and literature review with references to conference evaluations, stakeholder feedback and public health trends.</p>	<p>Nurses who attend the Southern Nursing Research Society (SNRS) convention and nurses who need continuing education contact hours to maintain licensure.</p>	<p>Conventions and webinars allow nurses to gain hours of educational contact through a variety of activities while building professional networks. Research shows the need for convention restructuring to accommodate cross-generational learners and the importance of long-term surveys for NCPD development. The study also emphasizes the benefits of using the ANCC Multisite Research Playbook for collaborative research between organizations (Garey, 2022).</p>
<p>Lifelong learning and nurses' continuing professional development, a</p>	<p>Conduct a qualitative research metasynthesis of nurses'</p>	<p>Metasynthesis of qualitative literature. A total of 25 articles met the inclusion criteria</p>	<p>Nurses involved in qualitative studies on CPD from different countries and</p>	<p>This metasynthesis identifies that nurses highly value continuous professional development (CPD) and believe that it is fundamental</p>

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metasynthesis of the literature. <i>Mandlenkosi Mlambo, Charlotte Silén, &amp; Cormac McGrath.</i> 2021. <a href="https://doi.org/10.1186/s12912-021-00579-2">https://doi.org/10.1186/s12912-021-00579-2</a>	experiences in continuous professional development (CPD).	and were reviewed.	health care settings.	for professionalism and lifelong learning. Based on metasynthesis, access to ongoing professional development can be made more accessible, realistic and relevant. Organizations must adequately fund and make CPDs accessible. In return, nurses must continue to be actively involved in CPD to maintain a high standard of nursing care through competent practice. This study highlights the benefits and challenges of CPD faced by nurses and provides advice and understanding related to CPD. This metasynthesis provides valuable insights and advice to nurses, policymakers and others involved in nursing education and continuing professional development (Mlambo et al., 2021).
Nurses' Awareness and Participation in Mandatory Continuing Professional Development in the Philippines: A Pilot Survey. <i>Ryan Michael F. Oducado &amp; Julie Anne Faye S. Palma.</i> 2020. <a href="https://doi.org/10.26699/jnk.v7i1.art.p135-142">https://doi.org/10.26699/jnk.v7i1.art.p135-142</a>	Determine the awareness and participation of nurses in Continuing Professional Development (CPD) in the Philippines.	A descriptive survey was conducted on nurses (n=30) at a private hospital in Iloilo City. Using a survey tool made by researchers to collect data. The data were analyzed using descriptive statistics and Mann-Whitney U to test the differences between the variables.	Nurse working at a private hospital in Iloilo City, Philippines (n=30)	The results of the study indicate that nurses in general are aware of the CPD law and its implementation rules (IRR). However, although nurses understand the concept of CPD and the renewal requirements of the CPD Act, more than half are unaware of the learning activities under Self-Directed Learning and that nurses can earn CPD credit units through online CPD programs. Nearly half don't know that CPD surplus can't be carried over to the next three-year period, and more than a third don't know that only completed post-graduate degree programs can be used to earn CPD credit units. There was no significant difference in nurses' awareness when grouped by gender, age, marital status, position, salary, and length of work experience. Seminars and workshops are the most common CPD activities attended by nurses in the last 12 months (Oducado & Palma, 2020).
Continuing professional	Determine awareness,	The study used a cross-sectional	237 nurses were randomly selected	The results showed that nurses had a moderate awareness of

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<p>development: Awareness, attitude, among nurses in the Philippines.</p> <p><i>Palma, Julie Anne Faye Sobrepeña, Oducado, Ryan Michael Flores, Palma, &amp; Bonna Sobrepeña.</i> 2020.  <a href="https://doi.org/10.18502/npt.v7i3.3348">https://doi.org/10.18502/npt.v7i3.3348</a></p>	<p>attitudes, supporting factors, and barriers to CPD among hospital nurses in the Philippines.</p>	<p>descriptive survey design with 237 randomly selected nurses at a tertiary hospital in Iloilo City, Philippines. The instrument used was a self-administered questionnaire. Data were analyzed using descriptive statistics, t-test, ANOVA, and Pearson's r.</p>	<p>from a tertiary hospital in Iloilo City, Philippines. The majority of respondents were women (81.4%), single (74.7%), and aged 23-38 years (68.8%).</p>	<p>CPD's law (M=2.31; SD=.31), positive about the importance of CPD (M=3.91; SD=.72) but ambivalent towards the implementation of CPD (M=5.98; SD=2.01). Attitudes towards the importance of CPD differed significantly (p=.000) by age group. Awareness of CPD law (p=.000) and attitude towards the importance of CPD (p=.000) are significantly related to their attitude towards CPD implementation. Awareness that CPD is a requirement for license renewal (90.7%), knowledge that CPD can help improve job skills (78.9%), and support from organizations (62%) were cited as key supporting factors. While cost (98.75%), not available to all staff (61.6%), and time-related factors (60.3%) were the main barriers to participating in CPD (Palma et al., 2020).</p>
<p>Optimizing the implementation of continuous professional development for nurses.</p> <p><i>Annie Sri Purwanti, Rr.Tutik Sri Hariyati, Amelia Asmara, dan Andi Amalia Wildani.</i> 2023  <a href="https://doi.org/10.31539/joting.v5i2.7769">https://doi.org/10.31539/joting.v5i2.7769</a></p>	<p>This study aims to analyze the implementation of continuous professional development in hospitals through a case study.</p>	<p>The research used a case report design conducted at a hospital in Jakarta, Indonesia. Data collection was carried out through several methods, namely document observation, interviews with the KSPK Coordinator and the Chairman of the Nursing Committee, Focus Group Discussion (FGD) with 15 inpatient room heads, and a survey using a questionnaire to 91 implementing nurses. Problem analysis was carried out using a fishbone diagram, then a Plan of Action (PoA) was prepared for implementation and evaluation.</p>	<p>This study involved several groups of participants consisting of 15 inpatient room heads, 91 implementing nurses, KSPK Coordinators, and Chairmen of the Nursing Committee at one of the hospitals in Jakarta.</p>	<p>The results of the study identified the main problem, namely the lack of optimal implementation of continuous professional development in the hospital. Some of the causative factors found include policies that are not comprehensive, including criteria, submission flows and evaluation methods, regulations that have not been properly socialized, planning that has not actively involved nurses, and 69% of nurses reported a lack of facility support. In addition, information about continuous professional development has not been disseminated evenly across staff. To overcome this problem, Kurt Lewin's planned change approach was applied with the implementation of a draft guide for the implementation of sustainable professional development. This guide is expected to be a reference for nurses in participating in continuing professional</p>

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<p>Adult learners' perceptions of self-directed learning and digital technology use in continuing professional education: An update for the digital age.</p> <p>Vernon Curran, Diana L Gustafson, and Lyle Wetsch  <a href="https://doi.org/10.1177/1477971419827318">https://doi.org/10.1177/1477971419827318</a></p>	<p>Understanding how digital and mobile technologies can support the self-paced learning process for adult learners in the 21st century, as well as to update the understanding of continuing professional education in an ever-evolving digital context</p>	<p>Research using Interview Methods semi-structured conducted on 55 students adults from four professional groups, to explore Adult learner perspectives around impact digital and mobile technologies.</p>	<p>Studies that discuss mobile technology in an effort to continue professional education for nurses.</p>	<p>development programs in a more structured and systematic manner. The final results show that this strategy is effective in optimizing the implementation of continuous professional development in the hospital (Purwanti et al., 2023).</p> <p>The results of the study show that the use of digital technology is a professional learning model that is very possible among health workers. Key findings include:</p> <ol style="list-style-type: none"> <li>1. The use of mobile technology for independent learning. The need for initiative in managing their own learning.</li> <li>2. The implementation of digital technology requires the readiness and confidence of nurses, as professional models. And as a form of responsibility Answer for Ensuring Himself "Up-to-Date" in the Profession or the field of practice.</li> <li>3. The main obstacles include limited time, access to information, and the need for good management so that the use of technology does not interfere with the focus of services.</li> </ol> <p>The study concluded that the use of digital technology in contemporary nursing practice for the purpose of learning and knowledge development is possible through the transformation of digital knowledge in real time. It takes the readiness of individual nurses, systems, and organizations to be able to optimize the use of digital technology in Continuing Nursing Education (Curran et al., 2019).</p>

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Learning Needs Assessment and Preferred Instructional Methods Among Nurses Participating in Continuous Professional Education.  Chelsea Celica Sundah, Karen Saguinsin Ablola, Karen Kim Prapatan Wu. 2019. <a href="https://doi.org/10.35974/isc.v7i1.942">https://doi.org/10.35974/isc.v7i1.942</a>	This study aims to determine the preferred learning needs and instructional methods among nurses, as well as measure significant differences in professional development needs, clinical skills needs, and instructional methods related to gender and length of clinical experience.	The research uses a descriptive design with a structured questionnaire. Sampling was carried out by convenience sampling on 120 nurses from selected hospitals in Laguna. The instrument used was a questionnaire made by the researcher. Data analysis uses mean, standard deviation, t-test, and ANOVA. The questionnaire was distributed to the hospital's nurse educator to be distributed to the nurses. Each room head gets 5 questionnaires to be distributed to their respective units after explaining the research objectives and procedures. The questionnaire is collected and sealed after it is filled.	120 registered nurses from selected hospitals in Laguna, Philippines. The demographic characteristics of the respondents consisted of 64 (54%) males and 56 (46%) females. Based on work experience: 85 people (71%) have 1-4 years of experience, 25 people (21%) have 5-9 years of experience, and 10 people (8%) have 10 years or more of experience.	The results show that the highest priority of learning needs in terms of professional development is stress management (M=3.92, SD=0.282). In terms of clinical skills, emergency management is the highest priority (M=3.92, SD=0.282). The most preferred learning method for nurses is the use of lectures (M=3.42, SD=0.584). There were no significant differences in professional development needs, clinical skills, and instructional methods when viewed from gender and length of clinical experience. The study recommends that nursing educators and managers use the results of this learning needs assessment to implement educational programs. Learning needs assessment should be an ongoing process involving other professional and clinical topics to improve the quality of service (SUNDAH et al., 2019).
What's in a Word? Understanding Terms in Continuing Nursing Education and Professional Development.  Pamela S. Dickerson, PhD, RN-BC, FAAN; and Amy Bernard, MS, BSN, RN-BC. 2018. <a href="https://doi.org/10.3928/00220124-20180102-06">https://doi.org/10.3928/00220124-20180102-06</a>	Explain the various terminology used in the field of continuing nursing education and professional development and the importance of using appropriate terminology.	Experiential editorial and literature review on terminology in continuing nursing education.	Nursing practitioners involved in continuing education and nursing professional development, including nurse educators, educational planners, and other health professionals.	The results of the study demonstrate the importance of a comprehensive understanding of key terminology such as NPD, CNE, and IPCE, as well as provide clarification on the roles and responsibilities of various positions within NPD. The study also emphasizes that proper understanding of terminology is essential to support effective practice in the development of nursing professionals and improve the quality of continuing education (Dickerson & Bernard, 2018).
The Relationship between Continuing Education and	To find out the relationship between	This study uses an analytical survey with a Cross Sectional approach.	48 nurses who already have STRs at the Inpatient	The results showed that there was a relationship between continuing education and nurse competence with p-

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Nurse Competence. Herri Novita br Tarigan, Anita Theresia Lumban Gaol. 2019. <a href="https://doi.org/10.35451/jkf.v1i2.139">https://doi.org/10.35451/jkf.v1i2.139</a>	continuing education and nurse competence at the Inpatient Installation of Kindergarten II Putri Hijau Kesdam I/BB Hospital Medan	The sampling technique used a total sampling with a sample of 48 people.	Installation of Kindergarten II Putri Hijau Kesdam I/BB Hospital Medan.	value (0.001<0.005) and PR (0.750). Of the 48 nurses, 44 (91.7%) had good continuing education and 4 (8.33%) had poor continuing education. For nurse competence, it was found that 47 people (97.9%) were competent and 1 person (2.01%) was incompetent. The study recommends that the hospital continue to provide and include nurses in continuing education to help nurses develop their competencies (Tarigan & Lumban Gaol, 2019).
Analysis of Student Perception of Preceptors on Online Learning Method Stage of Gerontic Nursing in The Pandemic of COVID-19. Eltanina Ulfameyitalia Dewi dan Aan Devianto. 2020. <a href="https://doi.org/10.30590/joh.v7i2.186">https://doi.org/10.30590/joh.v7i2.186</a>	This study aims to identify students' perceptions of preceptors in gerontic nursing stations that are carried out online during the COVID-19 pandemic. This research also aims to provide objective evaluation and input for preceptors to improve performance during the professional learning process.	This study uses an analytical descriptive design with a cross sectional approach. The research instrument used Young's modified perception and evaluation questionnaire, which consisted of 18 statements with 5 answer choices using a Likert scale. Data collection was carried out online using a google form. Students are also asked to provide criticism and suggestions as well as opinions in general which are then classified to find answer categories.	The population in this study is 78 students of the Nursing Study Program of the Nurse Professional Program of STIKES Guna Bangsa Yogyakarta who participated in online learning at a gerontic nursing station for eight days. The research uses a total sampling technique where the entire population is used as a research sample.	The results of the study showed that 84.6% of students (66 respondents) stated that the online learning method of gerontic nursing stations was in the category of "very good" and 15.4% (12 respondents) in the category of "good". The mean value of 82.29 with a standard deviation of 6.674 shows that the preceptor meets more than 75% of student expectations in carrying out the online learning process. The main obstacle faced is an unstable internet network (26.92% of respondents), but this does not reduce the achievement of student competence. The study also identified the positive personality of the supervisor (29.48%) and a good guidance process (24.35%) as factors supporting learning success (Ulfameyitalia Dewi & Devianto, 2020).
Electronic Continuing Professional Development (e-CPD) to Improve Competencies of Indonesian Clinical Nurses: An exploratory action research study protocol. Sari, N. K.,	To explore and develop the e-CPD model applied to clinical nurses in Indonesia, with a special focus on Level II clinical nurses.	The study used an Exploratory Action Research (EAR) design with data collection through Focus Group Discussion (FGD) in three different groups of participants. In addition, in the action stage, instructional design development, creation of the e-	The research sample consisted of: • Nurses who provide direct care to patients and a minimum of level II clinical nurses (10 nurses) • Hospital management (9-12 people) • Representatives of	E-CPD is a ward-based learning activity that facilitates independent learning through the provision of information sources such as protocols and literature. This model drives concise distribution of essential content through a platform format that facilitates engagement between peers and mentors, interactivity, user-friendly digital learning opportunities, and support from peers and mentors. This

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Prihatiningsih, T. S., & L. I. (2024).  <a href="https://doi.org/10.21203/rs.3.rs-4619908/v1">https://doi.org/10.21203/rs.3.rs-4619908/v1</a>		CPD platform, and user testing are carried out.	professional nursing associations (9-12 people) Nurse for the action stage (8-10 people) Secondary participants as IT experts and professionals	study provides new insights into how e-CPD can be used as an alternative CPD model for clinical nurses (Sari, 2024).
Newly qualified nurses' and midwives' experience with continuing professional development during transition: A cross-sectional study.  Napolitano, F., Pagnucci, N., & Aleo, G. (2024) <a href="https://doi.org/10.1016/j.nepr.2024.104123">https://doi.org/10.1016/j.nepr.2024.104123</a>	This research was conducted with the aim of exploring the experiences of newly graduated nurses and midwives related to continuing professional development (CPD) activities in three European countries. Specifically, this study examined factors related to the benefits of CPD participation during the transition period, such as job satisfaction and intention to leave the profession. The research also aims to explore the importance of CPD, the motives for engaging in CPD, the conditions required to participate in CPD, as well	The study used a cross-sectional design by conducting a comprehensive online survey consisting of 83 question items. Research instruments included the Nurse Professional Development Questionnaire (Q-PDN), the McCloskey/Mueller Satisfaction Scale to assess job satisfaction, three questions on "Intention to Leave" (ITL), and two open-ended questions. Data collection was carried out during the period from September 2021 to October 2022. For data analysis, the researcher used a combination of descriptive analysis and logistic regression to process the data obtained.	The study population consisted of a sample of newly graduated nurses and midwives from three European countries, namely Ireland, Italy, and Croatia with a total of 476 respondents. The study applied specific inclusion criteria where respondents had to be registered as nurses or midwives, have work experience between 3-24 months after initial registration, and be working in one of the three countries at the time of the survey.	The results of the study showed several important findings where only 32% (n=152) of respondents stated that they were satisfied with the opportunity to participate in CPD activities. Nonetheless, 54.8% (n=261) reported having participated in a formal CPD program and a large majority of 89.1% (n=424) expressed a desire to participate in a formal CPD program. An interesting finding is that almost half of the respondents (46.4%, n=219) have considered leaving the profession in the past 12 months. The study also identified factors associated with better job satisfaction, including participation in new nurse support programs (OR=0.29; p<.001), participation in compulsory CPD activities (OR=0.76; p=0.016), and work areas in the community (OR=0.31; p<.001) or midwifery (OR=0.46; p=0.040). Overall, the study confirms that participation in support programs during the transition period contributes significantly to increased job satisfaction for newly graduated nurses and midwives (Napolitano et al., 2024)

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	as the impact of COVID-19 restrictions on the implementation of CPD and its relationship with job satisfaction and intention to leave the profession.			
Digital Transformation in the Activities of a Nursing Specialist as an Information and Communication Component of the Development of Their Professional Skills.  <i>Sharlovych, Z. (2022). <a href="https://doi.org/10.35433/pedagogy.4(111).2022.262-272">https://doi.org/10.35433/pedagogy.4(111).2022.262-272</a></i>	Analyze the need for the use of information and communication technology (ICT) for the development of professional skills of specialist nurses and digital transformation in health services.	Literature studies and analysis of relevant data on the implementation of digitalization in nursing practice.	Specialist nurses who undergo advanced training and work in health facilities that implement a service digitization system.	Digital transformation accelerates the adoption of medical information systems, improves the digital skills of nurses, and the efficiency of patient data management. Challenges such as the lack of ICT competence among senior nurses can be overcome with ongoing training. The results show that the use of ICT helps optimize nurses' work processes, improve service quality, and support electronic medical documentation effectively (Sharlovych, 2022).
Simulation as a Tool for Continuous Professional Development Unveiling Excellence: Harnessing Simulation for Lifelong Learning in Nursing Practice.  <i>Mohammed Al-Hassan and Elham Al Omari. 2023. <a href="https://saudijournals.com/media/articles/SJNHC_610_346-353.pdf">https://saudijournals.com/media/articles/SJNHC_610_346-353.pdf</a></i>	Exploring the benefits of simulation as a tool for continuing professional development (CPD) in the nursing profession, including how simulation bridges the gap between theory and practice.	Review studies using various real-world case examples and secondary data to evaluate the use of simulation in CPD	Professional nurses in a variety of healthcare contexts and environments, especially in the Middle East.	Simulations improve clinical skills, communication, and interprofessional collaboration, allowing nurses to practice skills in a safe environment. In addition, simulations provide a personalized and adaptive learning experience, support ongoing professional development, increase confidence, and significantly contribute to improving the quality of patient care and reducing medical errors (Al-Hassan & Omari, 2023).
Continuing Professional Development	The study has three main	The study used a cross-sectional survey design by	The study population was teachers in Ghana	This research yielded several important findings in continuing professional

Journal Name	Research Objectives	Instruments/ Methods	Population	Research Results
(CPD) Practices Among Basic School Teachers in the Central Region of Ghana  <i>Abakah Ellen, Widin Jacqueline, Ameyaw Edward Kwabena</i> 2022. <a href="https://journals.sagepub.com/doi/10.1177/21582440221094597">https://journals.sagepub.com/doi/10.1177/21582440221094597</a>	objectives: (1) to identify the professional development needs of teachers in Ghana, (2) to investigate the frequency and nature of existing CPD practices, and (3) to explore teacher participation and the factors influencing their involvement in CPD, particularly in the absence of an adequate policy framework.	collecting quantitative data through self-report measures. The main instrument is a questionnaire adapted from the Teaching and Learning International Survey (TALIS).	with a total sample of 456 teachers. The characteristics of the majority of respondents are male (65.6%), aged 31-40 years (46.7%), have a bachelor's degree (59.6%), and have 6-10 years of teaching experience (31.4%).	development (CPD) practices in Ghana. In terms of professional development needs, teachers identified three main areas that need development, namely ICT skills for teaching (52.1%), research and dissemination (42.8%), and teaching skills with special needs (37.7%). Regarding the dominant CPD practice, the study showed that in-service training (85.1%), continuing education (81.8%), and workshops (68.2%) were the most frequently conducted forms of professional development. However, these activities are rarely carried out and do not fully meet the needs of teacher development. The study also revealed that teacher participation in CPD activities is still minimal due to several main obstacles, including the unavailability of appropriate CPD (65.1%), lack of information about CPD activities (52.2%), and lack of school support (46.3%) (Abakah et al., 2022).
Time to Consider the Introduction of Mandatory Continuous Professional Development Training Programme for Registered Healthcare Workers, Especially Nurses and Midwives in Sierra Leone  <i>Ibrahim Sahr Momoh and Mimi K K Rogers.</i> 2023  <a href="https://www.researchgate.net/publication/367974496">https://www.researchgate.net/publication/367974496</a> <u>Time to Consider the Introduction of Mandatory Continuous</u>	Evaluate the need to introduce a mandatory continuing professional development (CPD) training program for nurses and midwives in Sierra Leone, in order to improve clinical competence and ensure patient safety.	A literature review, SWOT analysis, and field experience to evaluate the status of CPD in Sierra Leone and compare it with practice in developed countries.	Nurses, midwives, and health workers in Sierra Leone, especially those working in government and rural health facilities.	Mandatory CPD training can improve clinical competence, professional skills, and patient safety. The implementation of CPD is also proposed as a strategy to update clinical skills, support lifelong learning, and reduce clinical risk in Sierra Leone. The program is recommended to include locally-based training to ensure sustainability and accessibility, especially for health workers in remote areas (Momoh & M.K.K., 2023).

Journal Name	Research Objectives	Instruments/ Methods	Population	Research Results
<u>Professional Development Training Programme for Registered Healthcare Workers Especially Nurses and Midwives in Sierra Leone</u>	Improving nurses' digital literacy and their involvement in digital workflows by using data-driven education models.	Data collection is through the EPR (Electronic Patient Record) application which includes three main applications: Harm Free Care, Digital Literacy, and Positive Patient Identification. Educational strategies include small group sessions, short needs-based training, as well as individual training in a clinical practice setting.	Nurses at Imperial College Healthcare NHS Trust, which includes three major hospitals with around 4300 nurses and midwives.	The implementation of data-driven education models improves digital literacy and nurse involvement in digital workflows. For example, the percentage of risk assessment implementation by nurses increased significantly. The adoption of Positive Patient Identification technology also increased from 21% to 72% after intensive training and equipment repairs. Optimization of the EPR system resulted in a "booklet" format that increased compliance with risk documentation such as bed fence assessments from 40% to 70% (Macalindin et al., 2024).
<u>Beth Victoria Macalindin, Hirah Fatima Ahmed, Rose Marie Granaghan, Donna Goodfellow</u> <a href="https://pubmed.ncbi.nlm.nih.gov/38014494/">https://pubmed.ncbi.nlm.nih.gov/38014494/</a>				
Online learning for continuous professional development of healthcare workers: an exploratory study on perceptions of healthcare managers in Rwanda	This study aims to understand the perceptions of health facility managers in Rwanda towards online learning in CPD, and identify the digital infrastructure that supports it. In addition, this study explores the enabling and inhibiting factors in the implementation of online-based CPD.	This study used a convergent mixed-methods design, combining a quantitative survey of 42 healthcare facility managers and semi-structured interviews with 14 managers. Quantitative data were analyzed descriptively, while qualitative data were analyzed thematically to explore factors influencing the adoption of online CPD.	The study involved 42 health facility managers from 31 health centers, 9 district hospitals, and 2 referral hospitals in Rwanda. Respondents included managers from various areas, both urban and rural.	The results showed that the majority of managers (90.5%) considered online learning as a very important method for CPD. However, more than half of the institutions (52.4%) have not implemented online learning for CPD. The main inhibiting factors include limited access to digital devices, poor internet connection, low digital skills of health workers, and high workload of medical staff. This study emphasizes the importance of designing online CPD that is more in line with the needs of health workers and improving information technology infrastructure to support the wider implementation of online learning (Byungura et al., 2022).
<u>Jean Claude Byungura, Gerard Nyiringango, Uno Fors, Elenita Forsberg David K. Tumusime. 2022</u> <a href="https://doi.org/10.1186/s12909-022-03938-y">https://doi.org/10.1186/s12909-022-03938-y</a>				
Professional	This study	This study used an	The sample	Professional nurses consider

Journal Name	Research Objectives	Instruments/ Methods	Population	Research Results
Nurses' Experiences Regarding Continuing Professional Development (CPD) Opportunities at Public Hospitals of Limpopo Province, South Africa  Maggie Nyelisani, Lufuno Makhado, and Takalani Luhlima. 2023  <a href="https://doi.org/10.1177/21582440231210614">https://doi.org/10.1177/21582440231210614</a>	aims to explore the experiences of professional nurses regarding CPD opportunities in public hospitals in Limpopo Province. The study also identifies barriers and strategies that can improve the effectiveness of CPD programs.	exploratory-descriptive qualitative design. Data were collected through semi-structured interviews with 35 professional nurses selected purposively. Interviews were recorded, transcribed, and analyzed using Tesch's eight-step data analysis method. Data reliability was ensured through credibility, confirmability, dependability, and transferability.	consisted of 35 professional nurses in a general hospital in Limpopo Province. The majority of participants were female (88.6%), with the majority having a diploma in nursing (65.7%).	CPD important to improve their skills and quality of patient care. However, they face challenges such as low participation in CPD, limited access to training, staff shortages, and lack of support and funding from management. The study recommends increasing access to CPD, more flexible working hours, and more active involvement from managers and health departments to support ongoing professional development (Nyelisani et al., 2023).
Stakeholders' Perceptions of Continuing Professional Development among Nepalese Nurses: A Focus Group Study  Bibha Simkhada, Edwin van Teijlingen, Apsara Pandey, Chandra Kala Sharma, Padam Simkhada, and Devendra Raj Singh  <a href="https://doi.org/10.1002/nop2.1586">https://doi.org/10.1002/nop2.1586</a>	This study aims to explore the perceptions of stakeholders in the nursing profession in Nepal towards continuing professional development (CPD) opportunities. The study also highlights the barriers and enabling factors in the implementation of CPD in the nursing sector.	This study used a qualitative method with Focus Group Discussions (FGDs). Eight FGDs were conducted in three major cities of Nepal, involving various stakeholders, such as nurse managers, nursing academics, and representatives of nursing organizations. Data were analyzed using a thematic approach based on Creswell's six-step analysis and following the Standards for Reporting Qualitative Research (SRQR) guidelines.	The study involved 54 participants from various sectors, including government and private, consisting of nurse managers, nursing academics, and government officials related to CPD in Nepal.	The study findings revealed three main themes affecting CPD in Nepal: (1) policy level—lack of clear CPD regulations, political influence, and unstructured training policies; (2) organizational level—limited access to CPD, workforce shortages, lack of continuity of training, and financial constraints; and (3) individual level—nurses' motivation to undertake training and lack of relevance of available training. The study highlights the need for a more systematic CPD policy, increased organizational support, and development of more relevant training for the nursing workforce in Nepal (Simkhada et al., 2023).

## DISCUSSION

The results of analysis from various studies show that there is complexity in the implementation of CPD in the field of nursing. Palma et al. (2020) and Purwanti et al. (2023) identified several major obstacles in the implementation of traditional CPD, where 98.75% of nurses reported cost constraints, 61.6% experienced difficulties in accessing programs, and 60.3% were constrained in time. However, several studies have shown innovative solutions to address these challenges. Vernon and Diana (2019) found that the implementation of mobile

technology can improve the accessibility and flexibility of learning, allowing nurses to access learning materials anytime and anywhere. This is supported by a study by Sari et al. (2024) which developed a ward-based e-CPD model, proven to be effective in facilitating independent learning through the provision of more accessible digital information sources. Digital transformation in CPD also provides solutions to time and cost constraints. The research of Mohammed Al-Hassan and Elham Al Omari (2023) demonstrates the effectiveness of using simulation as a CPD tool that can improve clinical and communication skills without having to leave the work area. Meanwhile, Sharlovych's study (2022) shows that digitizing CPD through medical information systems not only improves learning efficiency, but also helps optimize nurses' work processes and improve service quality. Nevertheless, Naylor (2023) emphasizes the importance of a blended learning approach that combines traditional and digital methods to accommodate various learning styles and preferences of nurses.

The implementation of Continuing Professional Development (CPD) has shown a significant impact on improving the competence of nurses in clinical practice. Research by Herri Novita br Tarigan and Anita Theresia (2019) proves that there is a strong relationship between continuing education and nurse competence, where 97.9% of nurses showed an increase in competence after participating in the CPD program with a p-value of 0.01 ( $< 0.05$ ). This is reinforced by a study by Enny Sri Purwanti et al. (2023) which found that 95% of nurses reported an improvement in their abilities and competencies through the CPD program. The research of Mandlenkosi Mlambo et al. (2021) also confirms that CPD not only improves technical knowledge and skills, but also maintains professionalism and standards of patient care. This increase in competence is reflected in various aspects, including clinical decision-making skills, the application of evidence-based practices, and the improvement of the overall quality of nursing care, as evidenced in a study conducted by Pamela S. Dickerson and Jennifer Graebe (2020) during the COVID-19 pandemic.

CPD makes a significant contribution to improving the quality of nursing services through the application of evidence-based practice (EBP) in patient care. Tonia Naylor's (2023) research demonstrates that CPD programs designed with a mixed-methods approach and involving caring practice-based training have resulted in a significant increase in the implementation of evidence-based practices among 84 nurses from eight metropolitan hospitals in Western Australia. This program not only improves the reflective knowledge and skills of participants, but also directly impacts the improvement of the quality of nursing care. The 'train the trainer' strategy applied in this study also allows for a wider dissemination of evidence-based practices in hospital settings. This is supported by the findings of Carolyn Jackson & Kim Manley (2022) who emphasized that the focus on patient experience and evidence of CPD effectiveness has resulted in improved quality of health and social care. Furthermore, Oducado & Palma Research (2020) revealed that the implementation of a structured CPD system with organizational support (62%) and a good understanding of the benefits of CPD in improving job skills (78.9%) contributed significantly to improving the quality of service. This is reinforced by the study of Mandlenkosi Mlambo et al. (2021) which through metasynthesis found that a well-designed and fully supported CPD by the organization can ensure nurses maintain high standards of nursing care through competent and evidence-based practices. This improvement in service quality is also reflected in the ability of nurses to provide more comprehensive and evidence-based care, which ultimately improves patient care outcomes.

Closely related to improving competence and service quality, CPD also has a fundamental impact on the professional development aspect of nurses. Professional development through

CPD has proven to be an important instrument in maintaining and enhancing the professional credentials of nurses. According to Amanda Kay Garey (2022), CPD plays a vital role in maintaining nurse licensing and certification, where the program includes various development activities such as attending conferences, building professional networks, and improving research collaboration. This is reinforced by research by Tracey Redwood et al. (2024) which shows that in the UK, CPD is mandatory and plays an important role in ensuring nurses retain up-to-date skills and knowledge. Furthermore, the study by Jean Shinnors and Jennifer Graebe (2019) emphasizes that continuing professional education makes a significant contribution to the nursing profession by ensuring practitioners remain competent and keep abreast of evolving healthcare practices. These three positive impacts – improved competence, quality of service, and professional development – show that CPD is an integral component in advancing the nursing profession. However, CPD implementation also faces various challenges that need to be overcome to maximize its effectiveness.

Although CPD has shown various positive impacts in the development of the nursing profession, its implementation is inseparable from various challenges and obstacles that need to be considered to optimize the effectiveness of the program. Organizational factors are one of the crucial challenges that can affect the successful implementation of CPD programs in the nursing environment. The research of Enny Sri Purwanti et al. (2023) revealed several significant organizational obstacles, where the CPD program in hospitals has not run optimally due to the lack of clear policies regarding program implementation, the lack of socialization of regulations related to CPD, and the low involvement of nurses in planning development programs. These findings are supported by Mandlenkosi Mlambo et al. (2021) who emphasize that organizational support is often the main obstacle that hinders nurses' participation in CPD programs. Furthermore, a study by Palma et al. (2020) in the Philippines shows that although CPD has been mandated by law, its implementation is still constrained by organizational structures that have not yet fully supported it, including in terms of alignment with international standards and program management. Ryan, Michael F. Oducado & Julie Anne Faye, S. barriers (2020) also found that many nurses lack knowledge about certain activities and learning requirements due to a lack of clear socialization and guidance from the organization.

In addition to the organizational factors discussed earlier, resource limitations are the next challenge that significantly affects the implementation of CPD programs in the nursing environment. Limited resources in the implementation of CPD include various interrelated aspects. According to a study by Chelsea Celica Sundah et al. (2019) in the Philippines identified the main obstacles in the implementation of CPD, where limited access to appropriate programs (65.1%), lack of information about CPD activities (52.2%), and lack of support from institutions (46.3%) are significant obstacles. This is reinforced by the findings of Mlambo et al. (2021) through metasynthesis which shows that access to CPD programs is often constrained by inadequate funding and lack of organizational support. The study emphasizes that organizations must adequately fund and make CPD more accessible so that nurses can maintain high standards in nursing care. This is in line with the findings of research by Ibrahim Sahr Momoh and Mimi K K Rogers (2023) in Sierra Leone which identified that in developing countries, limited resources are a serious obstacle in the implementation of CPD. The study proposes the need for CPD programs that include locally-based training to ensure sustainability and accessibility, especially for health workers in remote areas. These findings are in line with the research of Mandlenkosi Mlambo et al. (2021) who emphasized that to overcome resource constraints, organizations need to ensure access to ongoing professional development is made more accessible, realistic, and relevant to the local context. Furthermore, a study by Enny Sri Purwanti et al. (2023) revealed that 95%

of nurses are aware of the importance of CPD, but significant obstacles such as time constraints, cost support, inadequate infrastructure, and staff shortages are still the main obstacles in the implementation of this program. Palma et al. (2020) also emphasized that cost, time, and availability of learning resources are obstacles that need to be overcome to improve the effectiveness of CPD programs.

In response to the technological challenges faced in the implementation of CPD, especially related to infrastructure limitations and individual readiness, it is important for hospitals and educational institutions to design more adaptive strategies. A clear needs assessment is one of the main steps that can bridge this gap. Through in-depth assessments, hospitals can identify areas that need to strengthen skills, as well as understand the need for technology that supports continuous learning. In addition, this assessment can assess the readiness of nurses to access and utilize digital technology, so that CPD programs can be designed by considering factors such as technology accessibility, digital literacy levels, and the limitations of the devices used by participants. Thus, a clear needs assessment not only ensures the relevance of the training material, but also ensures that participants can participate optimally in the CPD program without being burdened by existing technical constraints.

A clear needs assessment in the context of CPD is important to ensure that training programs are appropriate to the real challenges facing nurses in hospital settings. This process includes an analysis of the gap between the skills that nurses possess and those needed to improve the quality of service (Philips & Gully, 2009). By identifying these skills gaps, hospitals can structure more focused CPD programs, allocate appropriate resources and provide relevant training as per the needs of participants. In addition, a clear needs assessment also identifies the need for technology that can support learning, such as e-learning-based learning or the use of a Learning Management System (LMS), which has proven to be effective but needs to be optimized to overcome existing technical weaknesses (Dewi & Aan, 2020). Through the right approach, hospitals can design CPD programs that are not only beneficial in improving clinical skills, but also pay attention to external factors that affect the success of training, such as access to adequate technology and infrastructure (Widyaningsih & Tutik, 2023).

## **CONCLUSION**

Continuing Professional Development (CPD) has an important role in improving nurse competence and the quality of health services. The program allows nurses to continuously update their knowledge and skills, support the implementation of evidence-based practices, and adapt to advances in health technology. The adoption of digital technologies, such as Learning Management Systems (LMS) and mobile apps, has increased the flexibility and accessibility of CPD. However, its success is still constrained by limited resources, low digital literacy, and suboptimal organizational support. To overcome these obstacles, strategic program design, strong institutional support, and appropriate needs assessments are needed so that CPD can run effectively, align with international standards, and be able to respond to the complexity of evolving patient needs.

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