ASSESSMENT OF CONTINUING PROFESSIONAL DEVELOPMENT PRACTICES AMONG NURSES AND MIDWIVES IN HEALTH FACILITIES IN ARUA REGION

SUSAN TABU

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A DISSERTATION SUBMITTED TO THE FACULTY OF PUBLIC HEALTH, NURSING AND MIDWIFERY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF PUBLIC HEALTH AND LEADERSHIP OF UGANDA CHRISTIAN UNIVERSITY

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Declaration

With the exception of the references and quotations from other sources which have all been duly acknowledged, I hereby declare that this dissertation is the result of my own original research, devoid of plagiarism. This dissertation has never been submitted either in part or in whole for the award of any master degree in this institution or any other university elsewhere.

Signature:  Date: 30th December 2025

Tabu Susan

(MPHL Student)

Approval

This dissertation entitled: "**CONTINUING PROFESSIONAL DEVELOPMENT PRACTICES AMONG NURSES AND MIDWIVES IN HEALTH FACILITIES IN ARUA REGION**" has been submitted for examination with my approval as research supervisor.

Signature  ..... Date 16/06/26

Dr. Edward Kibikyo Mukooza

(Supervisor)

Dedication

I dedicate this work to God the Almighty Father who gave me the courage, strength and wisdom to accomplish this work and to my beloved late Father who laid the foundation for my education and to my beloved brothers Jimmy, Isaac and their families for the tireless effort in supporting me in the course of my study.

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Operational Definitions according to this study

A nurse: A health care professional who takes care of both health and basic needs of clients, focusing on cure, rehabilitation, health promotion and disease prevention holistically.

A midwife: A health care professional who takes care of the sexual and reproductive health needs of clients as well as child health, thus, focuses on safe motherhood and early childhood survival/development

Continuous professional development: in this study, it refers to the process of ongoing education and professional growth in addition to the already acquired qualifications, professional skills and competences

Continuous professional development activities: Refers to formal or informal learning activities such as self- learning activities, journal clubs, teaching by health professionals and other continuous medical education activities.

Continuous professional development credit units: These are total credits gained by a Nurse or Midwife equivalent to the number of Continuous professional education activities contact hours in active participation of a Continuous professional education activity or programme

List of abbreviations

ARRH:	Arua Regional Referral Hospital
CDC:	Continued Professional Development
CME:	Continuing Medical Education
CNE:	Continuing Nursing Education
HC:	Health Center
HIV:	Human Immune- deficiency Virus
ICN:	International Council of Nursing
PFP:	Private for Profit
PNFP:	Private Not for Profit
REC:	Research and Ethics Committee
TB:	Tuberculosis
UBOS:	Uganda Bureau of Statistics
UCU:	Uganda Christian University
UNMC:	Uganda Nurses and Midwives Council
WHO:	World Health Organization

ABSTRACT.

Introduction: In the wake of the increasing disease dynamics and overwhelming demand for nurses and midwives globally, Continuing Professional Development (CPD) is an essential component, capable of empowering the few available nurses and midwives with a mix of skills and competences that can allow them operate in multidisciplinary and multi-sectoral environment effectively. Each Nurse or Midwife in Uganda is required to engage and acquire at least 50 CPD credit units over a period of 3 years. However, some nurses and midwives have limited engagement in CPD and the extent of their participation is not well documented.

Objectives: This study assessed the participation of nurses and midwives in health facilities in Arua region in continuing professional development activities and the associated factors.

Methods: The study had a cross-sectional design and employed both quantitative and qualitative methods of data collection (mixed method). Quantitative data collection involved conduct of interviews with 218 nurses and midwives working in health facilities in Arua region namely Arua Regional Referral Hospital (ARRH), Oli health center IV, Adumi health center IV, Kuluva hospital and Maracha hospital. The qualitative component involved conduct of Key Informant Interviews with 6 persons who were content experts including the in charge of CPD activities in the region and at the health facilities, facility in charges and representative of the Nurses and Midwives Council in Arua. The key outcome measure was the proportion of nurses and midwives who acquired the recommended 50 CPD credit units over the last 3 years. Data was collected using structured and self-administered questionnaires and a check list. Univariate analysis was done to generate descriptive statistics. Bi-variate and multi variate analysis was done to assess the association between the independent and dependent variables. The association between participation in CPD (dependent variable) and the demographics, formal qualifications, and other independent variables were assessed by logistic regression using prevalence ratios with 95% confidence intervals as a fixed level of significance. Data from Key Informant Interviews was transcribed in English and thereafter emerging themes were generated. The transcripts were manually coded and the findings were presented as quotes to supplement quantitative results.

Results: All the study participants indicated that they had ever participated in continuing professional development in the past 3 years, however only 38.3% (90/235) scored > 50 credit units. The nurses and midwives in Arua region generally held positive attitudes toward CPD, recognizing its importance for career advancement and quality care. The individual factors that hindered participation in CPD included overload of work, personal demotivation, disagreement between the work team, lack of communication and information, negative experiences with previous CPD programs and lack of interest in new information by some staff members. Compared with staff on the highest salary scale (U7), those on lower scales were significantly more likely to have inadequate CPD credits, including U5 (adjusted PR = 1.30; 95% CI: 1.01–1.66), U4 (adjusted PR = 1.75; 95% CI: 1.44–2.13), and U3 (adjusted PR = 1.84; 95% CI: 1.52–2.24). In addition, participants without any alternative source of income were less likely to have inadequate CPD credits compared with those who had other income sources (adjusted PR = 0.75; 95% CI: 0.62–0.90), indicating better CPD performance among those relying solely on their salary. Attitudinal barriers included lack of motivation, perceived irrelevance or repetitiveness of topics, and absence of financial incentives. Organizational factors that hindered participation in CPD included unsuitable location, non-supportive and compatible CPD schedule, lack of flexibility to leave the service for training, logistical problems related to the organization, large and dispersed audience that were difficult to manage, lack of targeted training content and lack of follow-up and evaluation of training sessions. The institutional factors that hindered participation in CPD included lack of flexibility of time to attend CPD, conflicting scheduling requirement to attend CPD, lack of clinical supervision and insufficient budget for continuing education.

Conclusion and recommendations. Continuing Professional Development is vital for enhancing the competencies of nurses and midwives in Uganda, ultimately improving health outcomes. While there are several practices in place, a multi-stakeholder approach is necessary to overcome existing challenges. Strengthening policy implementation, expanding access and integrating digital tools are key steps toward more effective and inclusive CPD systems. Institutional commitment to provide protected learning time and resources are necessary.

CHAPTER ONE: INTRODUCTION

1.0 Introduction

This chapter covers the background, statement of the problem, significance, the research questions, research objectives and the theoretical framework of the study.

1.1 Background

In the wake of the increasing disease dynamics and overwhelming demand for nurses and midwives globally, Continuing Professional Development (CPD) is the ultimate solution, capable of empowering the few available nurses and midwives with a great mix of skills and competences that can allow them operate in multidisciplinary and multi-sectoral environment effectively.

CPD is the process of ongoing education and development of health care professionals from initial educational qualification and for the duration of the professional's life in order to maintain competence to practice and increase professional proficiency and expertise *(Mlambo et al 2021).*

The world health organization initiative of transforming and scaling up health professionals' education and training, adopted integration of CPD into medical, nursing, midwifery and other health professionals' education scale up for excellent and responsive service delivery *(WHO 2013).* The trans-formative scale up of the health professionals' education and training guideline identified five domains; education and training institutions, Accreditation regulations, financing and sustainability, monitoring and evaluation and governance *(WHO 2013).*

Nurses and midwives are braced with unique opportunity of improving, maintaining and expanding their knowledge, expertise through CPD, resulting in development of both personal and professional qualities in their entire career *(Carey F. McCarthy 2013).* Several studies have shown that nurses and midwives have recognized the need for CPD as a measure of their knowledge and professional skills development and maintenance but lack clear insight into the concept of CPD *(Aris et al 2010).*

Globally, nursing and midwifery needs based shortage stands at 5.9million, which is very critical in meeting the demands of the ever-bulging population health *(Man HO et al 2023).* About 90%

of this shortage is estimated to affect the low and lower-middle income countries *(Man HO et al 2023).*

Most countries worldwide do not require CPD by law but as a responsibility of the different professional regulatory associations and councils to initiate, provide guidelines and promote CPD with partners and other implementers *(Giri K. et al 2012).*

The international council of nurses (ICN) affirmed that registered nurses and midwives offer high quality and consistent services to their clients as a result of developing a core of research based professional knowledge that enhances evidence-based practice (EBP) *(Kaseka et al 2022).*

In Africa, there is sufficient evidence of poor performance in the global health indicators in the WHO Afro-region, mainly attributed to low quality, ineffective healthcare delivery and poor access to information about best practice among nurses and midwives *(Baloyi and Jarvis 2020).*

The lack of mix in skills and competences has worsened the demand for nurses and midwives in sub–Saharan Africa amidst an ever-increasing disease burden *(Baloyi and Jarvis 2020).*

In Uganda, the Uganda nurses' and midwives' council invented the "the continuing nursing education (CNE) dairy given to every registered nurse and midwife to track their own professional development and generate their own CPD credits required for renewal of their licenses every three years *(UNMC 2016).* Each registered or enrolled Nurse or Midwife in Uganda is required to engage and acquire at least 50 CPD credit units over a period of 3 years. A total of 35 credits should be acquired in Nursing and midwifery related areas and 15 credits should be acquired in other related areas that are deemed necessary by the nurse or midwife. The CPD credit units should be attained throughout the 3 years according to need and not in a blocked manner (UNMC CPD frame work 2016).

However, sufficient evidence shows that majority of nurses and midwives have not consistently used the CNE diary as required for unclear reasons and the UNMC on her part has not been strict on verifying the use of the CNE diary during license renewals (*UNMC CPD frame work 2016)*

Therefore, this study seeks to assess the participation of nurses and midwives in health facilities in Arua region in continuing professional development activities and the associated factors. The

findings will be used for relevant interventions to improve their acquisition of knowledge and overall improvement of patient care and service.

1.2 Statement of the problem

Midwives and nurses need to further their education and training continuously in order to maintain and expand their knowledge, expertise and skills, resulting in development of both personal and professional qualities in their entire career to be able to offer quality maternal and child care services *(McCarthy 2013).* Each registered or enrolled Nurse or Midwife in Uganda is required to engage and acquire at least 50 CPD credit units over a period of 3 years (UNMC CPD frame work 2016). However, "*the health foundation evidence scan 2012"* revealed that while the health sector globally knows about the need for CPDs, there is no comprehensive record of how nurses and midwives view and experience CPD.

According the UNMC frame work 2016 report, the continuing nursing education (CNE) dairy given to every registered nurse and midwife to track their own professional development and generate their own CPD credits required for renewal of their licenses every three years was not complied to by the nurses and midwives.

In Africa, there is evidence of poor performance in the global health indicators in the WHO Afro-region, mainly attributed to low quality, ineffective healthcare delivery and poor access to information about best practice among nurses and midwives *(Baloyi and Jarvis 2020).*

In Uganda, evidence from Uganda nurses' and midwives' council (UNMC) shows that majority of nurses and midwives have not consistently used the CNE diary as required for unclear reasons and the UNMC on her part has not been strict on verifying the use of the CNE diary during license renewals *(UNMC 2016).* This challenge is due to weak enforcing of regulations of training and practice for nurses and midwives coupled with delays in approving policies *(Baggala et al 2018)*

Relaxing CPDs in the health sector will lead to lack of mix in skills and competences required to deal with the increasing disease burden, provision of maternal and child health services and even hike the demand for nurses and midwives in the sub-Saharan Africa, including Uganda *(Baloyi and Jarvis 2020).* The proportion of nurses and midwives who meet the required 50 credit units of CPD in Arua region has never been systematically assessed and factors associated with CPD among nurses and midwives in this region is not well documented. This study, therefore, aimed to

assess participation in continuing profession development activities and associated factors among nurses and midwives in health facilities in Arua region. Identifying the factors associated with staff participation in continuing training could help improve the quality of care for patients and the population in general.

1.3.0 Research objectives

1.3.1 General research objective

To assess participation in continuing professional development activities and associated factors among nurses and midwives working in health facilities in Arua region.

1.3.2 Specific research objectives

1. To determine the proportion of nurses and midwives working in health facilities in Arua region who acquired the recommended 50 CPD credit units over the last 3 years.
2. To examine the attitudes of nurses and midwives working in health facilities in Arua region towards continuing professional development.
3. To identify the factors associated with attainment of recommended continuing Professional Development points among nurses and midwives working in health facilities in Arua region.

1.4.0 The research questions

1.4.1 General research question

What is the level of participation in continuing professional development, and associated factors among nurses and midwives working in health facilities in Arua region?

1.4.2 Specific research questions

1. What proportion of nurses and midwives working in health facilities in Arua region acquired the recommended 50 CPD credit units over the last 3 years
2. What are the attitudes of nurses' and midwives working in health facilities in Arua region towards continuing professional development?
3. What are the factors associated with participation in Continuing Professional Development among nurses and midwives working in health facilities in Arua region

1.5. Significance of the study

A good understanding of the attitudes and level of CPD practice among nurses and midwives in Arua region is significant. In view of this, the study was necessary in the efforts to scale up CPD practice among the nurses and midwives and in turn, this may be beneficial in enhancing their skills and competence levels thus, personal and professional development.

This study will be useful to the Ministry of Health in Uganda in developing interventions to ensure that nurses and midwives attain a mix of skills and competences to meet the increasing disease burden, maternal and child health services and cover up for staff shortages.

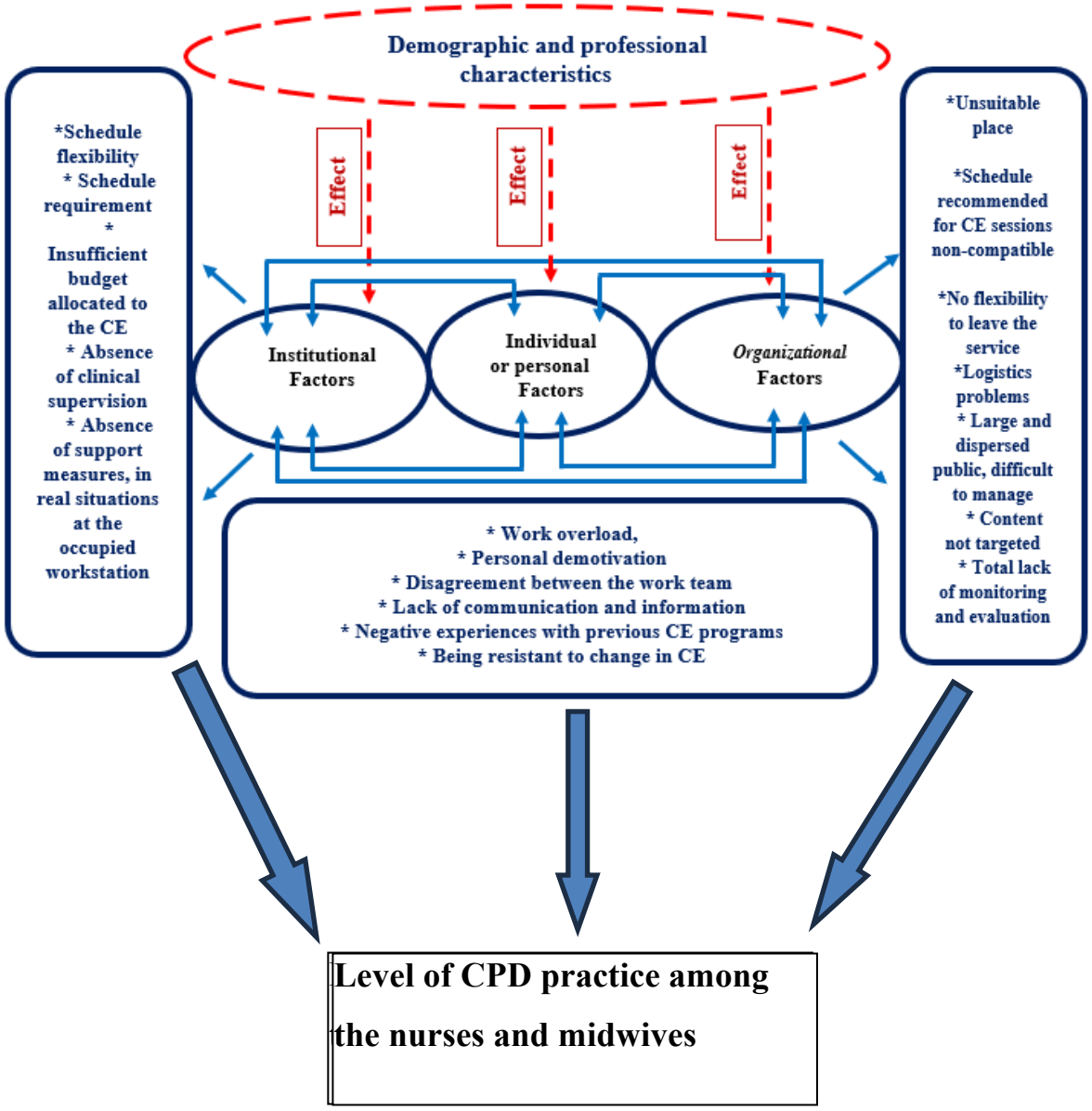
The study findings will be essential for the community of Arua region as well as the West Nile community in general as the nurses and midwives will be informed of the interventions to enhance knowledge and skills to improve quality of general/ maternal and child care services.

The findings of this study will encourage future scholars to explore the benefits of continuing professional development among nurses and midwives and the impact it will have on the quality-of- maternal and child health service delivery.

1.6. Conceptual framework

This conceptual framework constitutes a schematic representation of the factors hindering the participation of nurses and midwives in continuous education (CE) sessions. The framework was adopted from the model developed by Amina Lhbibani on factors that hamper the participation of nursing staff in the continuing education activities of hospitals (Amina et al, 2021). The participation in CPD activities is influenced by individual, organizational and institutional factors. Individual factors include the socio demographic characteristic, work overload, personal attitudes, and previous experiences among others. Institutional factors include schedule flexibility, financing, supervision, supportive measures among others. Organizational factors include suitability of venues for CPD, study leave, logistical problems, and suitable CPD content among others. The individual, organizational and institutional factors that affect CPD are the independent variables, while the dependent variable is the level of CPD practice among the nurses and midwives (figure 1).

Figure 1. The conceptual frame work on factors that affect the level of practice of CPD among nurses and midwives.



• *Adopted from the model developed by Amina Lhbibani on factors that hamper the participation of nursing staff in continuing education activities of hospitals. (Aminah et al,2021)*

1.7. Theoretical framework

This study is further guided by the adult learning theory (andragogy) and the theory of planned behaviour (TPB) to explain participation in Continuing Professional Development (CPD) among nurses and midwives.

The adult learning theory, proposed by Knowles, posits that adult learners are self-directed, goal oriented, and motivated to learn when the content is relevant to their professional roles and immediate needs. According to this theory, adults are more likely to engage in learning activities when they perceive them as practical, applicable, and respectful of their prior experiences (Merriam, 2001). In the context of CPD, nurses and midwives are expected to participate actively when CPD activities are relevant to clinical practice, appropriately designed, and supported by flexible schedules and conducive learning environments. Conversely, poor alignment of CPD content with practice needs, limited flexibility, and lack of institutional support may reduce engagement.

The Theory of planned behaviour explains behaviour as a function of an individual's intention to perform that behaviour, which is influenced by attitudes, subjective norms, and perceived behavioural control (Godin, 1996). In this study, participation in CPD is viewed as a behaviour influenced by nurses' and midwives' attitudes toward CPD (perceived benefits, motivation), subjective norms (professional expectations, regulatory requirements by the Nurses and Midwives Council), and perceived behavioural control (availability of time, workload, financial resources, and institutional support). When nurses and midwives perceive CPD as beneficial, feel professional or organizational pressure to participate, and believe they have adequate resources and opportunities, they are more likely to engage in CPD activities.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

The focus of this chapter is to review literature from different studies conducted on the knowledge, attitudes and practice of CPD among nurses and midwives according to the objectives of the study stated earlier in chapter one. The preference is given to attitudes and level of CPD practice among

nurses and midwives. It also reviewed literature from other sources such as text books; periodicals, official reports, and journals where available. This is to help identify any loop holes in nurses' and midwives' concept of CPD and how they feel about their experience of CPD.

2.1 Continuing Professional Development frame work for nurses and midwives in Uganda

Continuing professional development (CPD) is necessary for nurses and midwives to acquire the right mix of skills and competences needed to respond to the steadily changing global health needs of the population.

The concept of CPD for nurses and midwives revolves around three actors; the CPD providers, the Uganda nurses' and midwives' council and the nurses and midwives themselves. These actors are to work in support of one another. The collaboration among the actors is mandatory for the CPD program to thrive and meet the desired objectives of maintaining and sustaining the quality nursing and midwifery services in Uganda.

The Uganda nurses' and midwives' council remains the only mandated body by law to regulate nursing and midwifery training and practice in Uganda. It also accredits, supervises and gazettes the accredited CPD providers as well as determining CPD credit units for nurses and midwives in Uganda.

CPD has been integrated into licensure of nurses and midwives as a requirement. Registered nurses and midwives are obliged to get 50 CPD credit units over a three years' period to qualify for renewal of their licenses. Thirty-five of the fifty credit units should come from nursing and midwifery related areas and fifteen credits from the other areas deemed necessary for the nurses and midwives.

2.2 Attitudes of nurses and midwives towards Continuing Professional Development

In a study conducted by *Aris et al 2010* on nurses' attitudes regarding CPD in Greece among 23 clinical nurses of tertiary education who were consecutively sampled randomly. They also assessed the concept of CPD and opportunities for advanced professional development it might have offered the nurses. They revealed that nurses who participated in the study understood the concept of CPD as part of their lifelong learning and also had positive attitudes towards CPD. Participants acknowledged that CPD was helping them in planning nursing care and thinking of what was to be done in practice. Aris and group then suggested that health institutions should adopt CPD for more effective planning and have implications for staff requirements and retention.

Another study to evaluate nurses' and midwives' CPD in reducing maternal and neonatal mortality in Embu provincial general Hospital in Embu County, Kenya was done by *Gitonga et al 2014.* They did a Systemic review of the factors motivating and demotivating nurses' and midwives' behavior to CPD leaders' and providers' priorities among midwives and nurses who had attended CPD in the previous six months. This study was intended to develop a new CPD frame work for the hospital and the county at large. Their finding was that the nurses and midwives has good feelings about CPD and the concept that it was paramount for them to continue learning throughout their careers. Participants also agreed to CPD being the principal means through which midwives and nurses maintain, improve and expand their knowledge and skills required for optimal patient care and safety.

Carey F. McCarthy in 2013 examined CPD for nurses and midwives and produced a toolkit for developing a national CPD framework across seventeen countries in east, central and southern Africa. In this study, the researcher noted that all the countries under study had recognized the need for CPD for nurses and midwives and established councils with developed structures to

support CPD programs for the nurses and midwives. The nurses and midwives were found to have understood the concept of CPD and how it would impact their career paths and advanced professional development.

In another study by Mlambo et al 2021 to assess lifelong learning and nurses' CPD in a qualitative meta synthesis of literature in 25 randomly selected articles. They discovered four overarching themes that controlled nurses CPD programs; organizational culture shaped the conditions, supportive environment was a prerequisite, attitudes and motivations reflected nurses' professional values, and that nurses' perception on barriers and perceived impact of CPD on practice was a core value. Their study finding was that nurses valued CPD and believed its worth in professional development and lifelong learning, leave alone its importance in improved patient care standards.

Kaseka et al 2022 conducted a descriptive cross-sectional study on the knowledge, attitude and practice of evidence-based practice (EBP) among 183 registered nurses and midwives who were randomly sampled in a central hospital in Malawi with a response rate of 87.9%. their findings were presented as follows: average score (mean ±SD) of EBP = 78.7±19.6 for attitude, 70.6±15.1 for knowledge levels 57.8±23 for use and 68.9±14.20 for the overall EBP. Participants with higher education levels had higher knowledge scores for EBP and research experience had higher nursing use of EBP ($p=0.02$). There was high overall EBP significance with research experience ($p=0.035$) and higher education qualification levels ($p=0.004$). Hospitals where nurses and midwives existed had some significance with EBP levels ($p=0.016$). However, gender and administrative roles were not significant with EBP practice. This was affirmed by UNMC in its CPD frame work for nurse and midwives in 2016 where they stated that registered nurses and midwives offered better quality patient care because of exposure to research that improved their decision making and judgment.

2.3 Level of Continuing Professional Development practice among nurses and midwives.

In a study by Sanli and Pang (2022), on the knowledge, attitude and practice towards simulation among 342 clinical nursing teachers of a medical university in Beijing, China, the mean score for knowledge and attitude was 60.01±13.42 and 81.40±19.99 respectively. Mean practice score was 70.65±22.05 for 162 participants (47.4%). Higher education level (F=3.496, p=0.032). Career length ≤15years (t=2.676, p=0.008) had higher knowledge scores but no significance in attitudes. Career length of ≤35years (t=3.355, p=0.001) and ≤10years (t=2.073, p=0.041). advanced beginners (t=3.212, p=0.002), had a high practice of simulation. This is in agreement with Kaseka et al 2022, where research experience (p=0.005) and education qualification (p=0.004) were significant with nurses' use of evidence-based practice.

One other study worthy noting was to evaluate the awareness and perceptions of nurses and midwives regarding evidence-based practice (EBP) in Mulago and Kawempe national referral hospitals in Uganda by Muhindo Richard in 2021. He consecutively sampled 384 nurses and midwives from the two facilities in a descriptive cross-sectional study. He noted that over ninety percent of the participants accepted EBP as a necessary tool and an obligation in nursing and midwifery practice. However, the practice of EBP was relatively low (67%) among the nurses and midwives. Awareness of nurses and midwives to EBP was found to be related to level of education attained (p=0.000), going back to school after initial qualification (p=0.000) and attendance of CMEs and CPD (P=0.000) among others. He then recommended that nurses and midwives should be encouraged to embrace EBP by empowering them with skills and competences through CMEs and CPD or refresher trainings.

Search of literature from various articles and from professional webpages from the previous five years to ascertain the status of CPD in the WHO Afro-region member states was done by Baloyi

and Jarvis 2020. They identified a continuum of issues related to CPD in the WHO Afro-region member states and they classified these as; strengths in view of compulsory CPD programs and licensure renewal for nurses and midwives in the member states. There was inequitable distribution of CPD programs across the region viewed as a weakness. The region's CPD program was opportuned with international academic partnership offering room for further engagements. However, the threat in his findings was the low participation of nurses and midwives in CPD programs amidst shortages. Based on their findings, they suggested that the CPD outlook be revised in order to reshape nurses' and midwives' perception and response capacity to CPD since they are the major players of the global health indicators.

In yet another study to evaluate the effect of CPD from the perspective of nurses and midwives who participated in continuing education program offered by global health alliance in western Australia used a mixed qualitative and quantitative approach.

A study in Tanzania by Yan Ing (Jenni) NG in 2017, revealed that CPD in Tanzania was promoted and but had limited availability. There was perceived overall reduction in maternal and neonatal mortality in Tanzania among nurses and midwives who embraced continuing education and CPD. He suggested the need to strengthen CPD among nurses and midwives to provide practice and nursing care in Tanzania.

Furthermore, Feldacker et al (2017), conducted a qualitative evaluation to identify barriers and promoters of effective HIV/TB related CPD for medical, nursing and midwifery cadres in Malawi, Tanzania and South Africa. Fifty-two (52) key informant interviews 17 in Malawi, 19in Tanzania and 16 in South Africa and enrolled eighty-nine (89) health workers 24 in Malawi, 38 in Tanzania and 27 in South Africa. The CPD practice was low, due to health worker shortage led disparities in CPD access. CPD irrelevance and imbalances identified in CPD needs and current programs

demotivated health worker for CPD. Poor infrastructure and weak supply chains constrained CPD implementation. Recommendation was to enable sustainable funding, strong leadership and collaboration at all levels to enhance CPD regulation and accreditation systems.

2.4 Summary

Continuing professional development still remains the only and most realistic means of stimulating skillful and competent clinical practice and patient care among nurses and midwives worldwide. It is on this bases that in most of the literature reviewed, nurses and midwives appreciated the need for CPD in their lifelong career and acquisition of the right mix of skills and competences required to counter the ever-changing diseases burden and rampant staff shortages in the health sector. Nurses and midwives also agreed that CPD had far reaching impact in the quality of patient care significant treatment outcomes, leave alone their personal and professional development.

The literature shows that it is important for every nurse and midwife to participate in continuing medical education to constantly learn to be able to respond to the rapidly changing needs of the patient and the workplace. There is a gap in describing the implementation of continuing education activities and the level of participation in these activities by nurses and midwives in Arua. The factors that may constrain nurses and midwives from participating in CPD from literature include organizational difficulties, personal difficulties in terms of availability, and financial difficulties, resulting in low participation. Other factors can be linked mainly to individual, contextual and organizational factors. The factors associated with CPD participation among nurses and midwives in Arua region have not been determined. Generally, there are few studies on CPD in nursing and few that address the factors that may be behind them.

Through this observation and this study, we propose to describe the factors that hinder the participation of nurses and midwives in CPD. It is important to better understand the key factors so as to use the information to the quality of care provided to the patients.

CHAPTER THREE: METHODOLOGY

3.0 Introduction

In this chapter, we present the methods that were used to assess the level of CPD practice, attitudes and other factors associated with CPD among nurses and midwives in Arua region. It includes the study design, study setting, study population (the target, accessible and study population), sample size estimation, study variables, data collection (the tools, source of data, research assistants, pre-testing and role of the PI), data storage and analysis, quality assurance and ethical issues.

3.1 Study design

This study employed a cross-sectional mixed-methods design. The quantitative component consisted of a descriptive cross-sectional survey among nurses and midwives in selected health facilities, using a structured questionnaire to assess CPD participation, types and frequency of activities, compliance with CPD requirements, and related individual and institutional factors. The qualitative component was an exploratory study using key informant interviews to examine perceptions, experiences, and contextual barriers and facilitators influencing CPD practices among nurses and midwives. Quantitative data was collected using structured questionnaires that were self-administered to the nurses and midwives in Arua region. The qualitative component involved conduct of Key informant Interviews with persons who were content experts including the in charge of CPD activities in the region and at the respective health facilities, facility in charges and representative of the Nurses and Midwives Council in Arua region. The descriptive and analytical cross-sectional study design was chosen because it is quick, cheap and allows data collection on attitudes and level of practice of CPD among nurses and midwives simultaneously at a point in time.

3.2 Study area or setting

The study was conducted among nurses and midwives working at five public and private not for profit hospitals and health center IVs in Arua region namely Arua Regional Referral Hospital (ARRH), Kuluva hospital, Maracha hospital, Oli health center IV and Adumi health center IV. Arua Regional Referral Hospital (ARRH), Oli health center IV and Adumi health center IV are public facilities while Kuluva and Maracha hospitals are private not for profit health facilities.

Arua is located in north western Uganda in the West Nile region. For the purpose of health care service delivery, West Nile region has been sub divided in to Arua region, under the care of Arua regional referral hospital serving the districts of Packwach, Nebbi, Zombo, Madi Okolo, Arua district, Arua city, Maracha and Terego. While Yumbe region, under Yumbe regional referral hospital that supervises the districts of Koboko, Yumbe, Moyo, Obong and Adjumani. Arua hospital is a regional referral hospital located in Arua city about 493.2 km from Kampala the capital city of the republic of Uganda. Kuluva and Maracha hospitals are private not for profit hospital located at Arua and Maracha districts respectively. Arua city has a total population of 380,824 people according to the 2024 UBOS national census report. Arua district has a total of twenty public and private not for profit (PNFP) health facilities, and six major private for profit (PFP) health centers, one general hospital, twelve health center IIIs and fifteen health center IIs. We selected all the hospitals and health center IVs since they have a relatively bigger number of staff in the region.

Private for-profit health facilities were excluded from this study to maintain consistency in CPD implementation context and regulatory oversight. CPD coordination, access, and monitoring mechanisms for nurses and midwives are largely standardized within public and private not-for-profit facilities through government and professional regulatory structures. In contrast, private for-

profit facilities operate under diverse internal policies, variable support for CPD activities, and differing employment arrangements, which could introduce heterogeneity and limit comparability of findings. Excluding private for-profit facilities therefore enhanced internal validity and ensured that the results reflect CPD practices within facilities operating under similar administrative and regulatory frameworks.

3.3 Study population

3.3.1 Target population

The study targeted all nurses and midwives working in the sampled hospitals and health center IVs in Arua region and specifically Arua city, Arua district and Maracha district.

3.3.2 Accessible population

In the study, focus was on all nurses and midwives working in the sampled private not for profit and public hospitals and health center IVs in Arua city, Arua district and Maracha district.

3.3.3 Study population

The study participants were nurses and midwives working in ARRH in Arua city, Kuluva hospital in Arua district, Maracha hospital in Maracha district, and Oli & Adumi HC IVs in Arua city.

3.3.4. Study population for the qualitative component of the study

The study population for the qualitative component of the study included persons who were content and context experts including the in charge of CPD activities in the region and at the facilities, facility in charges and representative of the Nurses and Midwives Council in Arua region.

3.4 Sample size estimation

3.4.1. Quantitative study.

The sample size was obtained by using Kish Leislie's formula for calculating sample size for a single proportion with assumed 95% confidence interval levels, 5% precision rate and 5% non-response rate.

$$N = \frac{Z^2 \times P(1-P)}{de^2}$$

where,

N = Sample size

Z = Given Z value

P = Percentage of population (Proportion of nurses and midwives who participate in CPD

d = Confidence level

We used a p value of 60% based on findings from a study in Rwanda where 60% of health personnel had acquired fewer than 60 CPD credits (required for license renewal) in an emergency obstetric and neonatal care (EmONC) related training (Gakwerere et al., 2024). This is expressed as a proportion of 0.6 and using de= 0.05 and Z = 1.96.

Substituting in the formula:

$$n = \frac{1.96 \times 1.96 \times 0.6(1-0.6)}{0.05 \times 0.05}$$

$$n = \frac{1.96 \times 1.96 \times 0.6 \times 0.4}{0.0025}$$

$$n = \frac{3.8416 \times 0.6 \times 0.4}{0.0025}$$

$$n = \frac{0.921984}{0.0025}$$

$n = 368.79 \approx 369.$

Adjusting for 10% non-response, the sample size was

$N = 369 \text{ X } 1.1 = 406$

Adjusting by a design effect of 2 since sampling was from different clusters

$N = 406X2 = 812.$

The number of nurses and midwives in the 5 health facilities is finite (about 330 in total, 226 from ARRH, 49 from Kuluva hospital, 30 from Maracha hospital, 10 from Adumi HC IV and 15 from Oli HC IV) therefore the sample size was adjusted for a finite population using the formula

$N = N/ [1 + \{(N - 1)/Pop\}]$

Where,

- N = Sample size
- Pop = Population

$N = 234.85 \approx 235.$

The 235 nurses and midwives were sampled from their work stations by the researcher and the research assistants, so as not to interfere with their working time and patients' medication schedule. Only those who met the eligibility criteria were included in the study.

3.4.2. Sample size for the qualitative study

A total of 6 key informants were interviewed; this number was arrived at following achievement of data saturation.

3.5 Eligibility criteria for the quantitative study

3.5.1 Inclusion criteria

- Nurses and midwives working in ARRH, Kuluva hospital, Maracha hospital, Oli and Adumi health center IVs in Arua region.
- Provision of consent to participate in the study.
- Must have been in service for over 3 years.

3.5.2 Exclusion criteria

- Staff who were very sick, or had other serious circumstances which hindered their participation in the study.
- Staff who were not present during the survey period.

3.6 Sampling method/procedure

3.6.1. Sampling of nurses and midwives (quantitative study)

The nurses and midwives were sampled proportionate to their number in each health facility. ARRH has an estimated 226 nurses and midwives, Kuluva hospital has 49, Maracha hospital has 30, Adumi HC IV has 10 while Oli HC IV has 15. Using sampling proportionate to size, we sampled the following number of staff from the health facilities.

ARRH = 235 X (226/330) = 170 X 0.627 = 161 staff.

Kuluva = 235 X (49/330) = 170 X 0.176 = 35 staff

Maracha = 235 X (30/330) = 170 X 0.108 = 21 staff

Oli HV IV = 235 X (15/330) = 134 X 0.053 = 11 staff.

Adumi HC IV = 235 X (10/330) = 134 X 0.036 = 7 staff.

The list of all nurses and midwives in each health facility was obtained from the facility administrators. The list of all nurses and midwives in each health facility formed the sampling frame. The list of nurses and midwives was numbered from one through to the last based on alphabetical order. The desired number of staff from each facility was sampled from the list by simple random sampling using computer generated random list. Selected participants were screened for the eligibility criteria until the desired number was attained.

3.6.2. Sampling of key informants

The Key informants were purposively selected based on their knowledge, experience, and involvement in CPD activities.

3.7 Study variables

3.7.1 Independent variables

The independent variable included the attitudes and factors associated with participation in CPD among the nurses and midwives. The factors that may constrain nurses and midwives from participating in CPD from literature included organizational difficulties, personal difficulties in terms of availability, and financial difficulties, resulting in low participation. Other factors were linked mainly to individual, contextual and organizational factors. Individual factors included the socio demographic characteristic, work overload, personal attitudes, and previous experiences among others. Institutional factors included schedule flexibility, financing, supervision, supportive measures among others. Organizational factors included suitability of venues for CPD, study leave, logistical problems, and suitable CPD content among others.

The independent variables including attitudes and factors associated with participation in CPD were measured using a structured questionnaire developed from relevant literature. Attitudes toward CPD were assessed using a series of Likert-scale items (strongly agree to strongly disagree) that captured perceptions of the relevance, usefulness, motivation, and perceived benefits of CPD. Individual factors were measured through self-reported items capturing socio demographic characteristics (age, sex, cadre, highest qualification, years of experience), work related factors

such as workload and availability, personal motivation, competing responsibilities, and previous experiences with CPD activities. These variables were measured using categorical and Likert-scale questions. Institutional factors were assessed using questionnaire items on the availability of institutional support for CPD, including flexibility of work schedules, access to study leave, availability of supervision and mentorship, financing or sponsorship for CPD activities, and supportive workplace policies. Responses were captured using binary (yes/no) and Likert-scale options. Organizational factors were measured using items that assessed the suitability of CPD venues, availability and relevance of CPD content, logistical arrangements (such as timing, duration, and accessibility), opportunities for study leave, and follow-up mechanisms after CPD sessions. These factors were captured through categorical and Likert-scale responses. Financial difficulties were measured through questions on out-of-pocket costs related to CPD participation, availability of financial support or allowances, and perceived affordability of CPD activities. Overall, these measures allowed for quantification of the extent to which individual, institutional, and organizational factors influenced participation in CPD among nurses and midwives.

3.7.2 Dependent variables

The dependent variable in this study was the level of CPD practice among the nurses and midwives. This was computed as the proportion of nurses and midwives who acquires the recommended 50 CPD credit units over the last 3 years. This was expected to entirely depend on the behaviors and perceptions of the midwives on CPD and the ability of the health care facilities to attract the CPD providers and logical selection of CPD areas to benefit the nurses' and midwives' personal and professional growth.

The UNMC has provided guidelines for the allocation of CPD credits. The activities fall under two categories. Category I activities are formal educational activities leading to qualifications within a minimum of 6 months including certificate courses, diploma courses and post graduate courses. The credits are awarded according to qualification acquired. Category II activities are informal/formal educational activities including self-directed and experiential learning each of

which should run for a maximum of 5 months. These include presenting/facilitating or attending seminars, workshops, conferences, symposia, refresher courses, meetings, journal clubs, and practical training sessions. Others activities are participation in research and authorship activities, development of materials (policies, protocols, regulations, guidelines, training materials), self-directed learning, and attending short courses. Other are voluntary activities such as reading scientific papers in journals, lecturing or teaching if it is not own job description, being an examiner/mentor/preceptor, moderation of external exams, and on job self-directed and experiential learning opportunities. Details of the scores for allocation of CPD credits are shown in table 1.

Table 1. Guidelines for Allocation of CPD credits

Category I activity: Formal educational activities leading to qualifications. These will be a minimum of 6 months.	**Credit**
Certificate courses	5
Diploma courses	10
Bachelor courses	20
Post graduate courses • Certificate courses • Diploma courses • Masters and PhD courses	 10 15 25
Category II Activity: Informal/formal educational activities including self-directed and experiential learning. These will be a maximum of 5 months	
Attending seminars, workshops, conferences, symposia, refresher courses, meetings, journal clubs, practical training sessions	1
Presenting/facilitating seminars, workshops, conferences, symposia, refresher courses, meetings, journal clubs, practical training sessions	2
Participation in research and authorship activities • Principal author of a peer reviewed publication or chapter in a book • Co-author/editor of a peer reviewed publication or chapter in a book • Review of an article/chapter in a book/journal • Principal presenter/author of a paper/poster at a congress/symposium/conference/workshop	 10 5 2 2 1

• Co-presenters/co-authors of a paper/poster at a congress/symposium/conference/workshop	
Development of materials (policies, protocols, regulations, guidelines, training materials) • Lead in the development • Participation in the development	 10 5
Undertake self-directed learning (online/distance learning etc.)	2
Attend short courses of weeks to five months in active learning	3
Other voluntary activities – reading scientific papers in journals, lecturing or teaching if it is not own job description, being an examiner/mentor/preceptor, moderation of external exams, on job self-directed and experiential learning opportunities	1

The nurses and midwives had CPD diaries where the CPD activities were recorded and tracked.

3.8.0 Data collection method

3.8.1 Data collection tools

Data was collected using structured and self-administered questionnaires and a check list that was developed according to the research questions and objectives

The questionnaires included structured questions, covering sections on demographic information, level of CPD practice, and attitudes and factors associated with CPD practice.

The questions had a section on the general characteristics of the respondents (age, sex, seniority in the service, seniority in the profession) and sections that explored different factors hindering participation in continuing education sessions including individual, organizational, and institutional factors.

A Key Informant Guide was used to collect data during the key Informant interviews.

3.8.2 Data source

This study relied on primary data collected from the nurses and midwives and from the key informants.

3.8.3 Research assistants

Research assistants with at least an advanced level of education and who were excellent in writing and speaking English were used to collect data. The research assistants had a thorough one-day training on the protocol and the questionnaire, the interviewing process and how to capture the data needed, data safety, confidentiality and issues of privacy. The training also covered aspects of obtaining an informed consent from the potential study participants to be enrolled in the study for interviews.

The rationale of using research assistants was to allay anxiety and fear of disclosing information among the respondents, since these assistants were not selected among the nurses and midwives.

The rationale for training the research assistants was to help in enhancing data accuracy, correct sample selection, to minimize wastage of the data collection tool, to understand the concepts under the study in the tool and build their confidence during the entire data collection process. Training was intended to also improve their technical skills that helped to minimize information bias.

3.8.4 Pre-testing of the data collection tool

The questionnaire was piloted on ten (10) nurses and midwives working in Oriajini hospital, a not-for-profit hospital in Terego district in Arua region. This helped to test the understanding and flow of the questionnaire and its logical structure. It further tested the validity and reliability of the questionnaire to ensure uniformity of responses and remove ambiguous questions before it was finally used in the actual data collection by the research assistants.

3.8.5 Role of the Principal Investigator in supervision of data collection

The principal investigator participated in a number of activities during the data collection process including careful selection of the research assistants, training the research assistants, supervising

the data collection process, ensuring proper filling of the questionnaires and was always present during data collection.

3.8.6. Data collection procedures.

English was used as the language of data collection and analysis. All questionnaires, interview guides, consent forms, and participant information sheets were prepared in English. Quantitative interviews and qualitative key informant interviews were conducted in English, as all participants were health professionals who are proficient in the language. Qualitative data were transcribed and analyzed in English to maintain consistency and accuracy in interpretation.

3.8.6.1. Quantitative study

The health facilities included in the study were purposively selected to represent different levels of health service delivery within Arua region. Selection was done in consultation with the District Health Office and regional health authorities, taking into consideration facility level (regional referral hospital, general hospitals, and Health Centre IVs), geographical distribution, and the availability of nurses and midwives. The selected facilities were Arua Regional Referral Hospital, Oli Health Centre IV, Adumi Health Centre IV, Kuluva Hospital, and Maracha Hospital.

Potential participants were identified from staff registers of the selected health facilities. Nurses and midwives who were actively employed at the facilities during the study period were considered potential participants. Facility in-charges and nursing officers assisted the research team in identifying eligible nurses and midwives.

The research team first obtained administrative clearance from the District Health Office and written permission from the management of each selected health facility. The study was then introduced to potential participants during departmental meetings or through direct contact at their work stations. Trained research assistants approached eligible nurses and midwives, explained the

purpose of the study, procedures involved, potential risks and benefits, and the voluntary nature of participation.

Eligibility screening was conducted by the trained research assistants based on predefined inclusion and exclusion criteria. Nurses and midwives who met the eligibility criteria and expressed willingness to participate were taken through the informed consent process. Written informed consent was obtained prior to enrolment. Only participants who provided informed consent were enrolled into the study and administered the questionnaire.

Quantitative data were collected by the principal investigator with the support of trained research assistants who had prior experience in health research data collection. The research assistants were trained on the study objectives, data collection tools, ethical considerations, and procedures for administering the questionnaires prior to the commencement of data collection. Quantitative data were collected through interviewer-administered structured questionnaires among nurses and midwives in the selected health facilities. The questionnaires captured information on socio-demographic characteristics, CPD participation, types and frequency of CPD activities, compliance with CPD requirements, and related individual and institutional factors. Data collection was conducted within the health facilities at times convenient to the participants to minimize disruption of service delivery.

3.8.6.2. Qualitative data collection

Key informants for the qualitative component were purposively selected based on their roles and expertise in CPD implementation and nursing regulation. Qualitative data were collected through key informant interviews using a semi-structured interview guide. With the consent of the participants, interviews were audio-recorded to ensure accurate capture of responses. Field notes were also taken during the interviews to document non-verbal cues and contextual information. The audio recordings were transcribed verbatim in English for analysis. The supervisor and colleagues with social science background and expertise in qualitative research methods provided guidance during the design of the qualitative component, development of the interview guide, and analysis of qualitative data. 3.9. Data management and analysis.

3.9.1 Data management

The data collected was stored in a password protected computer database, only accessible to the researchers. The data was processed through a number of steps including sorting, categorizing, coding, entry, cleaning and validation. Data was appropriately recorded and edited to ensure accuracy and consistency. Data was double entered in Epidata software before being transferred to Stata version 16 for cleaning and analysis.

3.9.2 Data analysis plan

The levels of data analysis included descriptive, bi-variate and multivariate analysis.

I. Descriptive analysis

Descriptive or uni-variate analysis involved use of frequency tables and descriptive statistics, constructed to indicate the demographic characteristics of the participants and categorize the needed variables.

II. Bi variate analysis

Bi-variate analysis involved the use of prevalence ratios since all variables were categorical. The association between the dependent variable and the independent variables was assessed by logistic

regression using prevalence ratios with 95% confidence intervals as a fixed level of significance. This analysis gave the crude association between the dependent and independent variable. All the variables that showed statistical significance in the bi-variate analysis, or had a p value less than 0.2 and had a plausible association were included in the multivariate analysis to determine the significant factors associated with CPD practice

III. Multivariate analysis

In the multivariate analysis, p-values were used to explain the level of association or the level of significance as a measure of either rejecting or accepting the hypothesis under test. The p-value was fixed at 0.05. Any p-value found above 0.05 means a statistical relationship between the dependent and the independent variables under study does exist.

3.9.3. Qualitative data analysis

Data from Key Informant Interviews was transcribed in English and thereafter emerging themes were generated. The transcripts were manually coded. The findings are presented as quotes to supplement the quantitative results.

Data from the key informant interviews were audio-recorded, transcribed verbatim in English, and reviewed for accuracy and completeness. An inductive thematic analysis approach was used. The transcripts were read repeatedly to achieve familiarization with the data, after which initial codes were manually generated to capture meaningful units of text relevant to CPD participation. Similar codes were grouped into categories, from which broader themes and sub-themes were developed to reflect patterns across the data. The coding and theme development process was iterative, allowing for refinement and validation of emerging themes. To enhance credibility, themes were discussed and reviewed in relation to the study objectives and quantitative findings. Representative verbatim quotes from key informants are presented to illustrate and enrich the quantitative results

and to provide contextual understanding of the factors influencing CPD participation among nurses and midwives.

3.10 Ethical issues

Ethical approval for the study was sought from Uganda Christian University (UCU) research ethics committee (REC) and the administrators of the facilities involved in the study. The respondents were adequately informed about the relevant aspects of the study such as the aim, participation criteria, likely benefits and potential hazards, before data collection commenced. A consent form was signed by each respondent. The scope of the study, its likely duration, which was approximately 30-40 minutes per respondent was explained to the respondents. Respondents were assured of their right to participate or abstain from participating. Respondents were free to terminate their participation in the study at any time they wished. They only became study subjects after providing an informed consent. The informed consent was signed without coercion or inducement of any kind. Privacy of the respondents and confidentiality to the information provided by the respondents was maintained by not indicating their names on the questionnaire.

3.11 Dissemination of the Results

A copy of the dissertation will be submitted to the Uganda Christian University Directorate of Post Graduate Studies; other copies will be given to all the participating health facilities and the respective health administrators in the region. A copy will be kept by the researcher for reference. Dissemination may also be done through presentation in seminars, workshops and conferences if possible. The study will also be published in a pertinent scientific journal.

3.12. Quality control

For the quantitative study, research assistants were trained on study objectives, tools, and ethical procedures, and the questionnaire was pretested before the main study. Completed questionnaires

were reviewed daily for completeness and consistency, and standard procedures were followed for administration. Data were double entered and verified to minimize errors, ensuring accuracy and reliability.

Key informant interviews were conducted by trained personnel using a pretested interview guide. With participants' consent, interviews were audio recorded and supplemented with field notes. Transcripts were cross checked for accuracy, and an iterative thematic analysis was performed. Coding and emerging themes were reviewed to enhance rigor. Representative verbatim quotes were used to illustrate key findings, and all procedures were documented to maintain an audit trail.

4.0. RESULTS

The study assessed the level of participation in continuing professional development, and associated factors among nurses and midwives working in health facilities in Arua region. Data was collected from January to February 2025. A total of 235 nurses and midwives participated in the study. The age of the participants ranged from 23 to 69 years with a mean age of 41.6 years and standard deviation of 10.98. Majority 77.4% (182/235) of the participants were female and most 67.2% (158/235) were married. About 46.4% (109/235) of the participants were diploma holders and most 53.2% (125/235) were general nurses. The majority 60.0% (141/235) of the participants were on salary grade U7 and had worked at the health facilities for an average of 15.8 years (standard deviation .7 years). Most 63.9% (150/235) were from Arua hospital and 88.9% (209/235) of the staff had no other source of income.

The socio demographic characteristics of the study participants is summarized in table 2.

Table 2. Socio demographic characteristics of the study participants

Variable	Frequency (N=235)	Percentage (%)
Age-group		
23-34	79	33.6
35-46	62	26.3
47-58	88	37.5
59-69	6	2.6
Sex		
Male	53	22.6
Female	182	77.4
Marital status		
Single	40	17.0
Married	158	67.2
Separated/Divorced	17	7.3
Widowed	20	8.5
Education level		
Certificate	95	40.4
Diploma	109	46.4
Undergraduate	25	10.6

Variable	Frequency (N=235)	Percentage (%)
Post graduate	6	2.6
Work cadre		
General Nurse	125	53.2
Comprehensive Nurse	40	17.0
Public Health nurse	1	0.4
Mid-wife	69	29.4
Salary scale		
U7	141	60.0
U5	54	23.0
U4	33	14.0
U3	7	3.0
Years worked since initial qualification		
1-10	92	39.1
11-20	63	26.8
21-30	58	24.7
31-40	22	9.4
Health facility		
Arua hospital	150	63.9
Kuluva hospital	40	17.0
Maracha hospital	25	10.6
Oli HC IV	12	5.1
Adumi HC IV	8	3.4
Other source of income		
Yes	26	11.1
No	209	88.9

4.1. Participation of nurses and midwives in continuing professional development over the last 3 years.

All the participants indicated that they had ever participated in continuing professional development in the past 3 years, however only 38.3% (90/235) scored $\geq$ 50 credit units (Table 3). The proportion of nurses and midwives who acquires the recommended 50 CPD credit units over the last 3 years was 38.3% (90/235).

Table 3. Participation of nurses and midwives in continuing professional development over the last 3 years.

Variable	Frequency (N=235)	Percentage (%)
Ever Participated in any CPD program		
Yes	235	100.0
No	0	0.0
Credit unit scores		
≥ 50 credit units	90	38.3
< 50 credit units	145	61.7

A small fraction of nurses and midwives participated in category 1 formal educational activities leading to qualifications within a minimum of 6 months including certificate courses, diploma courses and post graduate courses (table 4).

Table 4. Participation of nurses and midwives in category 1 formal education activities with minimum of 6 months leading to qualifications over the last 3 years.

ATTRIBUTES	FREQUENCY (N=235)	PERCENTAGES (%)
NUMBER OF CERTIFICATE COURSES WITH MINIMUM OF 6 MONTHS		
NO CERTIFICATE	192	81.7
1 CERTIFICATE	33	14.0
2 CERTIFICATES	3	1.3
3 CERTIFICATES	4	1.7
4 CERTIFICATES	3	1.3
NUMBER OF DIPLOMA COURSES WITH MINIMUM OF 6 MONTHS		
NO DIPLOMA	203	86.4
1 DIPLOMA	32	13.6
NUMBER OF DEGREE COURSES WITH MINIMUM OF 6 MONTHS		
NO DEGREE	217	92.3
1 DEGREE	18	7.7
NUMBER OF POST GRADUATE CERTIFICATE COURSES WITH MINIMUM OF 6 MONTHS		
NO POST GRADUATE CERTIFICATE	233	99.1
1 POST GRADUATE CERTIFICATE	2	0.9

NUMBER OF POST GRADUATE DIPLOMA COURSES WITH MINIMUM OF 6 MONTHS		
NONE	228	97.0
1 POST GRADUATE DIPLOMA	7	3.0
NUMBER OF POST GRADUATE MASTERS' COURSES		
NONE	234	99.6
1 POST GRADUATE MASTER	1	0.4

The participation of nurses and midwives in category 2 informal/formal education activities including self-directed and experienced learning over the last 3 years is summarized in table 5.

Table 5. Participation of nurses and midwives in category 2 informal/formal education activities including self-directed and experienced learning over the last 3 years.

Attributes	Frequency (N=235)	Percentages (%)
Number of times attending refresher courses		
0	134	57.0
1	52	22.1
2	24	10.2
3	10	4.3
4-10	15	6.4
Number of times presenting/facilitating refresher courses		
0	206	87.7
1	11	4.9
2	7	3
3	5	2.1
4-6	6	2.6
Number of times attending workshops		
0	120	51
1	47	20
2	27	11.5
3	20	8.5
4-41	21	8.9
Number of times attending conferences		
None	191	81.3
1	30	12.8
2	8	3.4
3	4	1.7
4-6	2	0.8
Number of times attending symposia		
None	215	91.5
1	14	6.0
2	5	2.1
36	1	0.4
Number of times attending refresher courses		
None	134	57.0
1	52	22.1
2	24	10.2

Attributes	Frequency (N=235)	Percentages (%)
3	10	4.3
4-10	15	6.4
Number of times attending journal clubs		
None	177	75.3
1	19	8.1
2	11	4.7
3	21	11.9
4-33	3	1.3
Number of times attending practical training sessions		
None	77	32.8
1	36	15.3
2	34	14.4
3	26	11.1
4-40	52	26.1
Number of times attending seminars		
None	150	63.8
1	37	15.7
2	19	8.1
3	8	3.4
4-10	21	9.0

About 18.3% (43/235) of the nurses and midwives participated in certificate courses within a minimum of 6 months, 13.6% (32/235) participated in diploma courses, 7.7% (18/235) participated in degree courses, 0.9% (2/135) participated in post graduate certificate training, 13.6% (32/235) had post graduate diploma training and only 0.4% (1/235) had post graduate masters training. Details of the frequency of participating in these activities is shown in table 4.

Similarly, less than half of the nurses and midwives participated in category II informal/formal educational activities including self-directed and experiential learning each of which should run for a maximum of 5 months. About 43% (101/235) attended refresher courses, 12.3% (29/235) presented or/facilitating refresher courses, 49 % (115/235) attended workshops, 12.7% (44/235) attended conferences, 8.5% (20/235) attend symposium, 43% (101/235) attended refreshes courses, 24.7% (58/238) attended journal clubs, 77.2% (158/235) attended practical training, and 36.2% (85/235) attended seminars.

Some nurses and midwives participated in presenting or facilitating different category of meetings. About 14% (33/235) presented/facilitated seminars, 16.6% (39/235) presented/facilitated workshops, and only a few presented/facilitated conferences, symposia, journal clubs and training sessions. Details of the frequency of participating in these activities is shown in table 6.

Table 6. Participation of nurses and midwives in category 2 informal/formal education activities including presenting or facilitating at different category of meetings over the last 3 years.

Attributes	Frequency (N=235)	Percentages (%)
Number of times presenting/ facilitating seminars		
None	202	86.0
1	14	6.0
2	4	1.7
3	5	2.1
4-30	10	4.1
Number of times presenting/ facilitating workshops		
None	196	83.4
1	14	6.0
2	14	6.0
3	4	1.7
4-30	7	2.9
Number of times presenting/ facilitating conferences		
None	231	98.3
1	1	0.4
2	2	0.9
3	1	0.4
Number of times presenting/ facilitating symposia		
None	233	99.1
1	2	0.9
Number of times presenting/ facilitating journal clubs		
None	219	93.2
1	11	4.7
3	1	0.4
4-6	4	1.5
Number of times presenting/ facilitating training sessions		
0	184	78.3
1	12	5.1
2	21	9.0
3	7	3.0
4-56	3	1.3
5	11	3.3

Less than 3% of nurses and midwives participated in research and authorship activities as detailed in table 7.

Table 7. Participation of nurses and midwives in research and authorship activities over the last 3 years.

Attributes	Frequency (N=235)	Percentages (%)
Principal author of a peer reviewed publication		
None	234	99.6
1	1	0.4
Principal author of chapter in a book		
None	231	98.3
1	3	1.3
8	1	0.4
Co-author of a peer reviewed publication		
None	234	99.6
1	1	0.4
Co-author of a chapter in a book		
None	234	99.6
2	1	0.4
Editor of a chapter in a book		
None	230	97.9
1	3	1.3
2	1	0.4
3	1	0.4
Review of an article in a journal		
None	231	98.3
1	1	0.4
2	2	0.9
6	1	0.4
Review of a chapter in a book		
None	229	97.5
1	4	1.7
2	1	0.4
3	1	0.4
Principal presenter of a paper/poster at a congress		
None	234	99.6
1	1	0.4
Principal presenter of a paper/poster at a workshop		
None	231	98.3
1	3	1.3
6	1	0.4
Principal author of a paper/poster at a workshop		
None	234	99.6
6	1	0.4

Attributes	Frequency (N=235)	Percentages (%)
Co-presenter of a paper/poster at a workshop		
None	234	99.6
1	1	0.4
Co-author of a paper/poster at a workshop		
None	234	99.6
15	1	0.4

No nurse or midwife participated in the development of materials such as policies, protocols, regulations, guidelines, and training materials. The other activities study participants participated in were self-directed learning, and attending short courses (table 8).

Table 8. Participation of nurses and midwives in other activities over the last 3 years.

Attributes	Frequency (N=235)	Percentages (%)
Undertake self-directed learning		
None	157	66.8
1	43	18.3
2	10	4.3
3	6	2.6
4-40	19	8.2
Attend short courses of weeks to five months in active learning		
None	185	78.7
1	35	14.9
2	4	1.7
3	3	1.3
4-66	8	3.5

4.2. Attitudes of nurses and midwives about continuous professional development.

The attitudes of nurses and midwives about continuous professional development is summarized in table 9.

Table 9. Attitudes of nurses and midwives about continuous professional development.

Attributes	Frequency (N=235)	Percentages (%)
Does participation in CPD improve knowledge		
Yes	235	100
The education I received to obtain my basic qualification is sufficient for my professional career		
Strongly agree	26	11.1
Agree	42	17.9
Disagree	100	42.6
Strongly disagree	67	28.5
My professional knowledge is sufficient to carry out my duties		
Strongly agree	69	29.4
Agree	138	58.7
Disagree	20	8.5
Strongly disagree	8	3.4
My professional knowledge should be enriched and renewed		
Strongly agree	189	68.1
Agree	40	26.4
Disagree	0	0
Strongly disagree	6	2.6
Through CPD, Nurses/midwives can improve how they make nursing care plans for their clients		
Strongly agree	166	70.6
Agree	67	28.5
Disagree	0	0
Strongly disagree	2	0.9
Nurses/midwives who attend CPD make better decisions during patient care than those who do not attend CPD		
Strongly agree	160	68.1
Agree	62	26.4
Disagree	7	3.0
Strongly disagree	6	2.6

All the nurses and midwives agreed that participation in CPD improves knowledge. About 42.6% (100/235) disagreed and 28.5% (67/235) strongly disagreed that the education they received to obtain their basic qualification is sufficient for their professional career. The majority 68.1% (189/235) strongly agreed that their professional knowledge should be enriched and renewed. Most 70.6% (166/235) strongly agrees that through CPD, nurses/midwives can improve how they make

nursing care plans for their clients. About 68.1% (160/235) strongly agreed that nurses/midwives who attend CPD make better decisions during patient care than those who do not attend CPD.

4.3. Factors associated with Continuing Professional Development among nurses and midwives working in health facilities in Arua region.

Individual, organizational and institutional factors associated with recommended Continuing Professional Development are shown in table 10.

Table 10. Individual, organizational and institutional factors associated with recommended Continuing Professional Development.

Factor	Frequency (N=235)	Percentage (%)
Individual factors that hinder participation in CPD		
Overload of work	204	87.2
Personal demotivation	100	43.0
Disagreement between the work team	115	49.0
Lack of communication and information	202	86.0
Negative experiences with previous CE programs	94	40.0
Not interested in new information	86	36.6
Organizational factors that hinder participation in CPD		
Unsuitable location	176	74.9
Non-supportive and compatible CPD schedule	191	81.3
No flexibility to leave the service	167	71.1
Logistical problems related to the organization	169	72.0
Large and dispersed audience difficult to manage	172	73.5
Content not targeted	172	73.2
No follow-up and evaluation of training sessions	167	71.1
Institutional factors that hinder participation in CPD		
Lack of flexibility of time to attend CPD	201	85.9
Conflicting scheduling requirement to attend CPD	193	82.1
Lack of clinical supervision	159	67.7
Insufficient budget for continuing education	198	84.6

The individual factors that reportedly hinder participation in CPD include overload of work, personal demotivation, disagreement between the work team, lack of communication and information, negative experiences with previous CE programs and lack of interest in new information by some staff members. Organizational factors that were reported to hinder participation in CPD included unsuitable location, non-supportive and compatible CPD schedule,

lack of flexibility to leave the service for training, logistical problems related to the organization, large and dispersed audience that were difficult to manage, lack of targeted training content and lack of follow-up and evaluation of training sessions. The institutional factors that were reported to hinder participation in CPD included lack of flexibility of time to attend CPD, conflicting scheduling requirement to attend CPD, lack of clinical supervision and insufficient budget for continuing education.

There were a number of other factors that either facilitated or hindered participation in recommended Continuing Professional Development (table 11).

Table 11. Other factors associated with recommended Continuing Professional Development.

Factor	Frequency (N=235)	Percentage (%)
Incentives that motivate nurses/midwives to attend a CPD		
Allowances	171	72.8
Certificates	193	82.1
Refreshments	167	71.1
Others	84	35.7
How often are CPDs organized in facilities		
Daily	1	0.4
Weekly	209	88.9
Monthly	18	7.7
Quarterly	7	3.0
Are schedules of CPD convenient for you in most cases		
Yes	86	36.6
No	54	23.0
Sometimes	95	40.4
How easy it is to get permission for a study leave in your district/facility		
Very easy	7	3.0
Easy	29	12.3
Difficult	166	70.6
Very difficult	21	8.9
Not at all	12	5.1
Willingness to further their education given the opportunity		
Yes	213	90.6
If no, why?		
Financial challenges	13	59.1
Social challenges	8	36.4
Fear to study	0	0

Health issues	1	4.6

About 72.8% (171/235) of the nurses and midwives stated that they were motivated to participate in CDP if there is provision of allowances, while 82.1% (193/235) were motivated by provision of certificates and 71.1% (167/235) are motivated by provision of refreshments. Majority 88.9% (209/235) of the participants stated that CPD sessions are organized weekly in the health facilities. Only 36.6% (86/235) of the participants stated that the schedules of CPD were convenient for them. Majority 70.6% (166/235) of the staff stated that it was very difficult to get permission for a study leave in their district/facility. Most 90.6% (213/235) were willing to further their education given the opportunity.

At bivariate analysis, the factors that were significantly associated with attaining 50 CPD credit units by nurses and midwives within 3 years were participants age, marital status, cadre of the staff, highest level of education, salary scale and having other income source p-value should be mentioned every time you talk about significant association (table 12).

Table 12. Bivariate analysis of factors associated with recommended Continuing Professional Development scores.

CHARACTERISTIC	< 50 CREDIT UNITS	≥50 CREDIT UNITS	PREVALENCE RATIO	95% CI	P VALUE
AGE GROUP					
23-34	43(54.4)	36(45.6)	1.0	1.0	1.0
35-46	35(56.4)	27(43.6)	1.04	0.77 - 1.40	0.811
47-58	62xd (70.4)	26(29.6)	1.29	1.01 - 1.65	**0.038**
59-69	5(83.3)	1(16.7)	1.53	1.01 - 2.31	**0.043**
SEX					
MALE	34(64.1)	19(35.9)	1.0	1.0	1.0
FEMALE	111(61.0)	71(39.0)	0.95	0.75 - 1.20	0.671
HEALTH FACILITY					
ARUA RRH	97(64.7)	53(35.3)	1.0	1.0	1.0
KULUVA HOSPITAL	20(50)	20(50)	0.77	0.55 - 1.08	0.129
OLI HC IV	9(75)	3(25)	1.16	0.82 - 1.64	0.404
ADUMI HC IV	2(25)	6(75)	0.39	0.12 - 1.29	0.123
MARACHA HOSPITAL	17(68)	8(32)	1.05	0.78 - 1.41	0.738
MARITAL STATUS					

CHARACTERISTIC	< 50 CREDIT UNITS	≥50 CREDIT UNITS	PREVALENCE RATIO	95% CI	P VALUE
SINGLE	20(50)	20(50)	1.0	1.0	1.0
MARRIED	98(62)	60(38)	1.24	0.89 - 1.73	0.206
SEPARATED/DIVORCED	12(70.6)	5(29.4)	1.41	0.91 - 2.19	0.122
WIDOWED	15(75)	5(25)	1.5	1.00 - 1.24	**0.047**
CADRE					
GENERAL NURSE	86(68.8)	39(31.2)	1.0	1.0	1.0
COMPREHENSIVE NURSE	20(50)	20(50)	0.73	0.52 - 1.01	0.060
PUBLIC HEALTH NURSE	0(0)	1(100)	1.47	2.06- 2.07	**<0.01**
MIDWIFE	39(56.5)	30(43.5)	0.82	0.65- 1.04	0.107
HIGHEST LEVEL OF EDUCATION					
CERTIFICATE	50(52.6)	45(47.4)	1.0	1.0	1.0
DIPLOMA	67(61.5)	42(38.5)	1.17	0.92 - 1.49	0.209
UNDERGRADUATE	22(88)	3(12)	1.67	1.32 - 2.13	**<0.01**
POST GRADUATE	6(100)	0(0)	1.90	1.59 - 2.30	**<0.01**
SALARY SCALE					
U7	71(50.4)	70(49.7)	1.0	1.0	1.0
U5	37(68.5)	17(31.5)	1.36	1.07 - 1.74	**0.014**
U4	30(90.9)	3(9.1)	1.81	1.48 - 2.20	**< 0.01**
U3	7(100)	0(0)	1.99	1.69 - 2.34	**<0.01**
OTHER SOURCE OF INCOME ASIDE SALARY					
YES	23(88.5)	3(11.5)	1.0	1.0	1.0
NO	122(58.4)	87(41.6)	0.66	0.55 - 0.79	**< 0.01**

Participants aged 47-58 and 59-69 years were more likely to score < 50 credit points compared to their counterparts (PR 1.29, 95%CI 1.01-1.65, p value 0.038 and PR 1.53, 95%CI 1.01-2.31, p value 0.043 respectively). Participants who were widowed were more likely to score < 50 credit points compared to their counterparts (PR 1.5, 95%CI 1.00-1.24 p-value 0.047). Participants whose highest level of education was undergraduate or post graduate level were more likely to score < 50 credit points compared to their counterparts (PR 1.81, 95% CI 1.48 - 2.20, p value <0.01 and PR 1.99, 95% CI 1.69 - 2.34, p value <0.01 respectively). Participants who had no other source of income were more likely to score ≥ 50 credit points compared to their counterparts (PR 0.66, 95%CI 0.55 - 0.79, p value <0.01).

In multivariable analysis, salary scale and having an additional source of income were independently associated with achievement of the recommended CPD threshold (≥50 credit units)

(table 13). Compared with staff on the highest salary scale (U7), those on lower scales were significantly more likely to have inadequate CPD credits, including U5 (adjusted PR = 1.30; 95% CI: 1.01–1.66), U4 (adjusted PR = 1.75; 95% CI: 1.44–2.13), and U3 (adjusted PR = 1.84; 95% CI: 1.52–2.24). In addition, participants without an alternative source of income were less likely to have inadequate CPD credits compared with those who had other income sources (adjusted PR = 0.75; 95% CI: 0.62–0.90), indicating better CPD performance among those relying solely on their salary.

Table 13. Factors significantly associated with recommended Continuing Professional Development scores at multivariate analysis.

CHARACTERISTIC	< 50 CREDIT UNITS	≥50 CREDIT UNITS	PREVALENCE RATIO	95% CI	P VALUE	ADJUSTED PREVALENCE RATIO	95% CI	P VALUE
SALARY SCALE								
U7	71(50.4)	70(49.7)	1.0	1.0	1.0	1.0	1.0	1.0
U5	37(68.5)	17(31.5)	1.36	1.07 - 1.74	0.014	1.30	**1.01 -1.66**	**0.040**
U4	30(90.9)	3(9.1)	1.81	1.48 - 2.20	< 0.01	1.75	**1.44 - 2.13**	**<0.001**
U3	7(100)	0(0)	1.99	1.69 - 2.34	<0.01	1.84	**1.52 - 2.24**	**<0.001**
OTHER SOURCE OF INCOME ASIDE SALARY								
YES	23(88.5)	3(11.5)	1.0	1.0	1.0	1.0	1.0	1.0
NO	122(58.4)	87(41.6)	0.66	0.55 - 0.79	< 0.01	0.75	**0.62 - 0.90**	**0.002**

4.4. Findings from Key Informant Interviews.

A total of 6 key informants were interviewed; this number was arrived at following achievement of data saturation. They included the in charges of Adumi health center IV, Kuluva and Maracha hospital, the head of community health department in Arua hospital, and the CDP focal persons.

The key informants noted that CPD is organized at both national and local levels. At the national level, CPD is overseen by the Ministry of Health in partnership with professional regulatory councils (UNMC, UMDPC, AHPC) and NGOs like UPMB. Delivery modes include both physical outreach and virtual platforms (e.g., Zoom, WhatsApp). At the local level, health facilities implement weekly CPDs (commonly on Wednesdays or Fridays) through structured departmental rosters. Sessions are categorized as general (cross-cutting topics) or departmental (unit-specific needs). Coordination varies, with more decentralization for doctors and central oversight for nurses/midwives. A key informant from Arua hospital gave the following comment.

> "*Nationally, what I'm aware of is that Ministry of Health has a CPD desk that communicates to Districts and the districts also organize their own CPDs. But I'm also aware that professional bodies do conduct their CPDs. Bodies like Uganda Medical and Dental Practitioners, Uganda Nurses and midwives' council and the Allied Health Professional Council. CPD may be nationally guided, but its true strength is built in local health facilities where weekly sessions keep practice alive and learning relevant*".

The key CPD stakeholders include internal and external stakeholders. The internal (local) stakeholders include the health facility in-charges, human resource administrators, department heads, nurses, midwives, doctors, and support staff. They play core roles in planning the CPDs as well as participating in the sessions. The external stakeholders include the Ministry of Health, district health authorities, professional councils, partner organizations (e.g., UPMB), and nearby health facilities.

> "*The stakeholders include Ministry of health, districts and also private sector especially the private health service providers. From ministry officials to bedside nurses, CPD thrives when*

every stakeholder from policy shapers to patient carers plays their role in knowledge exchange." KI Adumi HCIV.

"CPD for nurses and midwives is critical in order to maintain their professional competence especially in this era of information technology, changing disease patterns, emerging and reemerging disease out breaks including public awareness of their rights as well as their increasing expectations. The UNMC is responsible for CPD practices, which is monitored from nation to facility level by the various stake holders. It's the responsibility of the UNMC to ensure that nurses and midwives maintain up to date knowledge and skills in order to provide quality services to the public. As such, the council requires 50 CPD credit points in order for the nurses and the midwives to be able to renew their practicing license." KII representative of UNMC in the region.

All the key informants acknowledged that CPD was important and beneficial to the nurses and midwives. Participation in CPD enhances clinical knowledge, refreshes skills, and encourages critical thinking and mentor-ship. It improves clinical decision-making, emergency response, and fosters team-based learning. Furthermore, CPD points are essential for renewal of practicing licenses and promotion at the work place. A key informant from Kuluva hospital stated the following.

"*You know, there are things that we learn in class while others are not learnt in class. There are things that you learn alone individually while others are learnt as a group. So, through CPD, we learn some of these critical topics that one could not have learnt. CPD is not just about acquiring points, it is the pulse of professional growth, transforming forgotten lessons into life-saving actions*."

Participation rate in CPDs is relatively high, ranging from 40% to 85%, influenced by institutional culture, topic relevance, timing, and digital access. Efforts are made to involve all staff cadres, with interactive and peer-led presentations enhancing engagement.

> "*At the facility, the participation and attendance has been very good. We have a register where attendance is tracked every week and every time a CPD is organized. The average attendance is usually about 45% and is mainly constituted by nurses and midwives because they form the biggest number of medical staffs in the facility. Most times it is the staff who are on duty who attend CPDs. When the culture of learning is embraced, participation becomes habitual, CPD turns from a duty into a shared professional rhythm*." KII from Kuluva hospital

CPD activities are largely unfunded or underfunded, relying on limited PHC funds or internal reallocations for basic facilitation (e.g., refreshments). Some external stakeholders provide logistical support or refreshments for national-level CPDs. There is need for investments in digital infrastructure, learning tools, and internet connectivity.

> "*We have not been given funds for CPD. We use the facility resources in terms of infrastructure, human resources and the gadgets for conducting the CPDs. No extra cost is really incurred from the institution. For the CPDs that are externally organized, they plan for it at that level and then provide the refreshments. Even without dedicated funding, the commitment to CPD persists but sustainable impact demands investment in both tools and people.*" KII Arua hospital

CPD activities are documented in diaries for accountability purposes. They are **r**ecognized as essential for awarding CPD credit, monitoring engagement, and supporting professional

registration. Some facilities require minimum CPD points annually and enforce compliance through reminders or warnings.

> *"CPD diaries are relevant to track CPD attendance because for each attendance of CPD sessions, there are credit points that are awarded and these are documented in the diaries. The number of hours attended and the person who has presented are documented. This can be looked at from the diaries over time to see how many times somebody has attended and how many hours somebody has earned in a period of one year and so on. What gets recorded gets recognized, CPD diaries and registers are more than paper trails, they are the foundation for licensing, learning, and leadership*." KII Adumi HCIV

> All the key informants stated that participation in CPD does not compromise patient care. **C**PDs are held early in the day (8:00–9:30 AM) and limited to 1–1.5 hours. Facilities ensure emergency and routine patient service coverage during sessions. Use of digital dissemination (online CPDs) enables participation by off-duty staff. Effective CPD doesn't compromise patient care, it complements it by building more capable, confident, and collaborative teams.

Barriers to participation in CPD include staff shortages, workload pressures, inadequate space, poor internet access, and weather disruptions. Personal barriers include fatigue, domestic responsibilities, off-site duties, and side businesses. Attitudinal barriers include lack of motivation, perceived irrelevance or repetitiveness of topics, and absence of financial incentives.

> *"Fatigue, workload, and poor attitudes are real barriers but the bigger threat is undervaluing the very tool that strengthens healthcare delivery. There is a perception that these are things I already know. Secondly the limited number of staffs hampers participation, for example, you*

find the same staff who is on duty should also attend CPD meanwhile attending for an emergency, that becomes challenging to attend. The other challenge is that we don't facilitate CMEs in terms of refreshments, this makes people to lose interest. Sometimes we schedule the CPDs but you find that the participant hasn't prepared to present." KII Kuluva hospital

A number of recommendations were proposed to improve CPD attendance by the nurses and midwives. Proposed policy and structural measures include making CPD mandatory and integrating it into performance evaluations and promotions. Furthermore, there is need to decentralize CPD accreditation to lower-level facilities like HC IVs. There is need to strengthen ministry oversight and supervision of CPD delivery. Providing incentives such as refreshments, transport refunds, and allowances could improve attendance. There is need to invest in digital and physical infrastructure to support learning. Other recommendations made were to encourage leadership mentorship and peer motivation, promote inclusive, relevant, and engaging topics to sustain interest and to increase staff awareness about the professional value of CPD.

"CPD should be a requirement during performance appraisal processes and should be tracked. About attitude, it should be supportive because this is in relation to personality. Here we would mostly encourage the heads of the department who are closer to the staff since they understand them. To elevate CPD, we must link learning to leadership, refreshment to recognition, and participation to performance." KII Arua hospital.

Participation in CPD is widely valued and regularly implemented despite resource constraints. Strengthening CPD systems in Uganda requires integrated efforts involving policy reform, infrastructure investment, supportive supervision, and attitudinal shifts among health workers.

Despite resource constraints, CPD stands as a resilient pillar in Uganda's health system, proof that learning endures where purpose and passion meet.

4.5. Summary of study findings

The study revealed that while all nurses and midwives in Arua region had participated in CPD activities within the past three years, only about two-thirds attained the recommended minimum of 50 CPD credit units, indicating suboptimal compliance with national requirements. Overall, participants demonstrated positive attitudes toward CPD and acknowledged its importance for professional growth and quality of care. However, effective participation was constrained by a complex interplay of individual, organizational, and institutional factors. Key individual barriers included heavy workload, fatigue, low motivation, domestic and off-site responsibilities, limited communication, negative prior CPD experiences, and perceived irrelevance of some CPD content. Organizational constraints such as inconvenient locations and schedules, limited flexibility to leave duty stations, logistical challenges, poorly targeted training, and weak follow-up mechanisms further limited engagement. At the institutional level, insufficient time allowances, competing service demands, inadequate clinical supervision, and limited funding for continuing education significantly hindered sustained and meaningful CPD participation.

5.0. DISCUSSION

Continuing Professional Development is essential for nurses and midwives to maintain and improve their knowledge, skills, and competencies throughout their careers. In Uganda, CPD practices among nurses and midwives are increasingly recognized as a crucial element for ensuring quality healthcare delivery. However, several challenges and opportunities shape the landscape of CPD in the country. The study assessed the level of participation in continuing professional development, and associated factors among nurses and midwives working in health facilities in Arua region.

All the study participants indicated that they had ever participated in continuing professional development in the past 3 years, however only 38.3% (90/235) scored ≥ 50 credit units. The nurses and midwives in Arua region generally held positive attitudes toward CPD, recognizing its importance for career advancement and quality care. Participation was influenced by multiple interrelated individual, institutional, and systemic factors. The individual factors included overload of work, personal demotivation, disagreement between the work team, lack of communication and information, negative experiences with previous CPD programs and lack of interest in new information by some staff members. Organizational factors that hindered participation in CPD included unsuitable location, non-supportive and compatible CPD schedule, lack of flexibility to leave the service for training, logistical problems related to the organization, large and dispersed audience that were difficult to manage, lack of targeted training content and lack of follow-up and evaluation of training sessions. The institutional factors that hindered participation in CPD included lack of flexibility of time to attend CPD, conflicting scheduling requirement to attend CPD, lack of clinical supervision and insufficient budget for continuing education.

5.1. Proportion of nurses and midwives working in health facilities in Arua region that acquired the recommended 50 CPD credit units over the last 3 years.

All the study participants indicated that they had ever participated in continuing professional development in the past 3 years, however only 38.3% (90/235) scored ≥ 50 credit units. The results show that although most nurses and midwives participate in CPD activities, only 38.3% (90/235) attained the recommended credit points. Each registered or enrolled Nurse or Midwife in Uganda is required to engage and acquire at least 50 CPD credit units over a period of 3 years.

Ongoing training helps professionals stay updated on evolving medical knowledge, technologies, and best practices, leading to improved patient outcomes. The Uganda Nurses and Midwives Council (UNMC) mandates CPD as part of license renewal, making it a professional obligation. CPD enables nurses and midwives to specialize in areas like neonatal care, HIV/AIDS management, maternal health, or emergency care. With health challenges like Ebola outbreaks, COVID-19, and rising non-communicable diseases, CPD equips professionals with updated response skills.

The findings are similar to what has been reported in literature elsewhere. The proportion of nurses and midwives who actively participate in CPD varies significantly by country, region, facility type, and access to resources. While exact global or continental statistics are scarce, several studies and reports give insight into participation trends in health facilities, especially in low- and middle-income countries like those in sub-Saharan Africa. Studies in other parts of Uganda, Kenya, Nigeria, and Ethiopia show that between 30% to 60% of nurses and midwives in health facilities regularly participate in formal CPD activities (Shikuku et al., 2024). A 2018 Kenyan study reported that over 50% of nurses in public hospitals had participated in at least one CPD activity in the past year. In countries like the UK, Canada, and Australia, where CPD is strictly regulated, participation

rates are above 90%, as it's often mandatory for license renewal and linked to professional progression. A 2023 study in Rwanda on Emergency Obstetric & Neonatal Care (EmONC) across 40 health facilities involving 149 nurses and midwives found that 79.9% had acquired fewer than 60 CPD credits (required for license renewal) in EmONC-related training, only about 20% met the requirement, while nearly 100% at health-post level did not (Gakwerere et al., 2024). A cross-sectional study in selected Addis Ababa hospitals showed 34.35% of nurses had participated in CPD activities (Ruhmel et al., 2022). Digital systems and stronger enforcement frameworks support near-universal compliance.

CPD among nurses and midwives in Africa is a growing but unevenly implemented practice. While recognition of its importance is widespread, real progress requires targeted investment in infrastructure, policy enforcement, digital access, and institutional support. With strategic reforms and innovation, Africa can build a more skilled, motivated, and future ready nursing and midwifery workforce.

5.2. The attitudes of nurses' and midwives working in health facilities in Arua region towards continuing professional development

The nurses and midwives in Arua region generally held positive attitudes toward CPD, recognizing its importance for career advancement and quality care. All the nurses and midwifes agreed that participation in CPD improves knowledge. About 42.6% (100/235) disagreed and 28.5% (67/235) strongly disagreed that the education they received to obtain their basic qualification is sufficient for their professional career. The majority 68.1% (189/235) strongly agreed that their professional knowledge should be enriched and renewed. Most 70.6% (166/235) strongly agrees that through CPD, nurses/midwives can improve how they make nursing care plans for their clients. About 68.1% (160/235) strongly agreed that nurses/midwives who attend CPD make better decisions

during patient care than those who do not attend CPD. All the key informants acknowledged that CPD was important and beneficial to the nurses and midwifes. Participation in CPD enhances clinical knowledge, refreshes skills, and encourages critical thinking and mentor-ship. It improves clinical decision-making, emergency response, and fosters team-based learning. Furthermore, CPD points are essential for renewal of practicing licenses and promotion at the work place. Continuing Professional Development (CPD) is essential in enhancing the knowledge, skills, and competencies of nurses and midwives.

Across many countries, particularly in low- and middle-income contexts, studies show that nurses and midwives generally hold positive attitudes toward CPD, recognizing its importance for career advancement and quality care. However, these positive attitudes often contrast with lower levels of participation due to systemic and individual barriers. Among nurses in regional referral hospitals in Uganda, 45% had attended at least one continuing ethics education session. Nearly all respondents (93%) agreed that ethics training was essential to improve knowledge and practice. This shows a strong positive attitude toward continuous ethics learning (Osingada et al., 2015). In a qualitative evaluation involving nurses, midwives, and other health cadres, in Malawi, Tanzania and South Africa, there was strong overall support for CPD, though views were nuanced. Participants stressed that CPD should be relevant to their practice and accessible within the workplace. Barriers such as limited funding, staffing shortages, lack of coordination, and misalignment with their learning needs undermined enthusiasm (Feldacker et al., 2017). A study exploring the perceptions of Kenyan midwives recognized CPD as central to professional growth. Its motivated by desire to learn, solve problems, and collaborate socially (Teekens et al., 2018).

Despite high levels of enthusiasm, participation in CPD remains inconsistent. Although over 70-90% of nurses in many studies express positive attitudes toward CPD, actual participation rates

can be as low as 30–50%, particularly in resource-limited settings. Nurses and midwives often cite time constraints due to high patient loads, limited financial resources to fund training or travel, lack of institutional support or recognition for participation, poor access to structured CPD opportunities, especially in rural settings, and inequity in who receives CPD training, often favoring urban or better-connected facilities. A qualitative study in Kenya found that while midwives were motivated to engage in CPD, their ability to participate was hindered by high workloads and insufficient support from supervisors (Gitonga, 2014). In Addis Ababa hospitals, 34.35% of nurses had participated in CPD, yet most held positive views about its importance and wanted more structured opportunities (Wehabe et al., 2024b). In Malawi, a survey of 183 registered nurse-midwives found high attitude scores with average attitude rating of 78.7% however there was lower implementation that averaged only 57.8% indicating a gap between attitude and practice (Kaseka and Mbakaya, 2022)

This gap highlights the need for policies and workplace cultures that translate attitudes into action through structured CPD frameworks. Across several studies and health systems, nurses and midwives express strong support for CPD. Many believe that CPD enables them to deliver evidence-based and safe care. CPD is viewed as a route to career development and promotions. Many regard CPD as part of their duty to remain competent and accountable. CPD boosts confidence in managing complex clinical situations.

5.3. Factors associated with participation in Continuing Professional Development among nurses and midwives working in health facilities in Arua region

Participation in CPD among nurses and midwives is essential to maintain competence, improve patient outcomes, and keep up with evolving healthcare standards. However, participation is influenced by multiple interrelated individual, institutional, and systemic factors. The Key

informants stated that participation rate in CPDs is relatively high, ranging from 40% to 85%, influenced by institutional culture, topic relevance, timing, and digital access.

At bivariate analysis, the factors that were significantly associated with attaining 50 CPD credit units by nurses and midwives within 3 years were participants age, marital status, cadre of the staff, highest level of education, salary scale and having other income source. Participants aged 47-58 and 59-69 years were more likely to score < 50 credit points compared to their counterparts (PR 1.29, 95%CI 1.01-1.65, p value 0.038 and PR 1.53, 95%CI 1.01-2.31, p value 0.043 respectively). Participants aged 47–58 and 59–69 years were more likely to score below 50 credit points in continuous professional development (CPD) practices among nurses and midwives due to several interrelated factors. First, older health workers may face physical and cognitive limitations, such as fatigue or reduced adaptability to new technologies, which can hinder participation in modern CPD formats like online courses. Second, they may be approaching retirement and therefore less motivated to invest time in professional development activities that do not directly impact their career advancement. Third, many may have limited exposure to structured CPD systems, especially if they trained and practiced during periods when CPD was not mandatory or well institutionalized. Additionally, competing responsibilities, such as family obligations or administrative duties, may limit the time they can dedicate to CPD. These factors collectively contribute to lower CPD engagement and point accumulation compared to their younger counterparts, who are often more tech-savvy, career-driven, and better integrated into evolving professional development frameworks.

Participants who were widowed were more likely to score < 50 credit points compared to their counterparts (PR 1.5, 95%CI 1.00-1.24 p-value 0.047). The loss of a spouse often results in increased emotional stress and a sense of isolation, which can reduce motivation and engagement

in professional activities like CPD. Widowed individuals may also face increased caregiving responsibilities, particularly if they are single parents or caretakers for grandchildren, which can limit the time and flexibility needed to participate in CPD sessions. Financial strain is another key factor, as the loss of a partner's income may reduce the ability to afford CPD related costs such as transportation, internet access, or registration fees for training events. Additionally, social support which plays a critical role in encouraging professional growth may be diminished, further discouraging active participation in CPD. These challenges collectively contribute to lower CPD engagement and point accumulation among widowed nurses and midwives.

Participants whose highest level of education was undergraduate or post graduate level were more likely to score < 50 credit points compared to their counterparts (PR 1.81, 95% CI 1.48 - 2.20, p value <0.01 and PR 1.99, 95% CI 1.69 - 2.34, p value <0.01 respectively). This was possibly due to a combination of complacency, job demands, and misalignment with CPD systems. Those with higher academic qualifications may feel that their formal education already equips them with sufficient knowledge and skills, leading to a lower perceived need for additional CPD engagement. They may also hold senior or administrative positions that come with heavier workloads and limited time for CPD activities. Furthermore, some highly educated professionals may prioritize academic or research activities over structured CPD programs, especially if the available CPD offerings are perceived as repetitive or not aligned with their career goals. In some cases, the CPD systems in place may be designed more with diploma-level practitioners in mind, making them feel less relevant or beneficial to those with advanced training. As a result, these factors can contribute to lower CPD point accumulation among degree and postgraduate-level participants.

Participants who had no other source of income were less likely to score < 50 credit points compared to their counterparts (PR 0.66, 95%CI 0.55 - 0.79, p value <0.01). Participants who had

no other source of income were more likely to score high credit points in continuing professional development (CPD) than their counterparts possibly because they may have viewed CPD as a critical opportunity for career advancement and job security. With limited financial alternatives, such individuals may be more motivated to engage in CPD activities to enhance their skills, remain competitive in the job market, and increase their chances of promotion or better employment. Their reliance on their primary profession as the sole income source may drive a stronger commitment to professional growth and compliance with regulatory requirements.

Multivariable analysis demonstrated that attainment of recommended CPD credits among nurses and midwives was significantly shaped by economic and structural factors rather than individual motivation alone. Both salary scale and engagement in supplementary income-generating activities were independently significantly associated with CPD performance, highlighting how financial security and time availability influence professional development.

Lower salary scale was associated with progressively poorer CPD attainment, with staff in the U3–U5 categories significantly more likely to fall below the recommended 50 credit units compared with those in the highest scale (U7). This pattern suggests that financial constraints play a critical role in limiting CPD participation. Lower paid cadres are more likely to face barriers such as course fees, internet and data costs, travel expenses to attend trainings, and the opportunity cost of taking time away from income generating work. These findings are consistent with adult learning theory, which emphasizes that adults' engagement in learning is highly influenced by competing life demands and resource availability (Merriam, 2001). In resource-limited settings, CPD requirements that rely on self-funded participation may therefore unintentionally disadvantage lower-cadre health workers.

Interestingly, having an additional source of income was associated with poorer CPD attainment, even after adjusting for salary scale. This suggests that while supplementary income may alleviate financial hardship, it may also reflect increased workload and reduced time for professional learning. Nurses and midwives who operate private clinics, businesses, or engage in locum work may prioritize income generating activities over CPD, particularly when CPD is not directly linked to remuneration or promotion. This finding highlights the importance of time, not just money, as a critical resource for continuing education. The participants mentioned a number of individual, organizational and institutional factors that hindered participation in CPD. The individual factors included work overload, personal demotivation, disagreement between the work team, lack of communication and information, negative experiences with previous CPD programs and lack of interest in new information by some staff members. Other personal barriers included fatigue, domestic responsibilities, off-site duties, and side businesses. Attitudinal barriers included lack of motivation, perceived irrelevance or repetitiveness of topics, and absence of financial incentives. Absence of well-organized, regular, and relevant CPD limits participation. Staff may not be informed about available CPD opportunities. These findings are similar to findings in other studies. Perceived relevance of CPD were linked to increased participation in CPD activities among healthcare professionals (Wehabe et al., 2024a). This suggests that when healthcare professionals view CPD is valuable and relevant to their practice and career advancement, they are more likely to engage in learning and development opportunities. Awareness of CPD requirements and its benefits increases participation. Belief in one's ability to learn and apply new knowledge motivates engagement. Those seeking promotion or specialization are more engaged in CPD. Many professionals cite lack of time due to heavy workloads as a key reason for non-participation. Costs

related to course fees, travel, and materials can be prohibitive, especially in low-income settings (Munyaneza et al., 2024).

Organizational factors that hindered participation in CPD included unsuitable location, non-supportive and compatible CPD schedule, lack of flexibility to leave the service for training, logistical problems related to the organization, large and dispersed audience that were difficult to manage, lack of targeted training content and lack of follow-up and evaluation of training sessions. Others included inadequate space, poor internet access, and weather disruptions. Similar findings have been reported in studies in Ethiopia (Wehabe et al., 2024a) and Namibia (Hamukoto et al., 2025).

The institutional factors that hindered participation in CPD included lack of flexibility of time to attend CPD, conflicting scheduling requirement to attend CPD, lack of clinical supervision and insufficient budget for continuing education. Other studies have shown that facilities that allocate time and resources for CPD see higher participation rates. Linking CPD to promotion or salary increases can motivate participation. On-site training or partnerships with training institutions improve access. Furthermore, when facilities are understaffed, the staff are often unable to leave their posts to attend CPD sessions (Wehabe et al., 2024b). A study on CPD in health facilities in Rwanda showed that limited funding for CPD activities, including course fees, travel expenses, and accommodation, can prevent nurses from participating in CPD. Understaffing leads to increased workloads and makes it difficult for nurses to take time off for CPD, even when available. A lack of access to relevant, accredited CPD programs, especially in remote or underserved areas, can hinder participation. Insufficient access to technology, learning materials, and resources can also impede CPD participation (Munyaneza et al., 2024). Other studies have shown that lack of clear CPD policies and guidelines within an organization can create confusion

and discourage participation. In some facilities, the supervisors and managers may not prioritize or actively encourage CPD participation, or they may not provide the necessary support. An organizational culture that does not value CPD or that prioritizes other activities over professional development can negatively impact participation (Hakvoort et al., 2022). A study on facilitators and barriers to nurses' compliance with continuous professional development requirements at a referral hospital in Oshana Region, Namibia showed that inflexible work schedules, including shift work and frequent changes to schedules, can make it difficult for nurses to attend CPD activities. The geographical distance to training locations can be a barrier, especially for nurses working in rural or remote areas. Limited recognition or incentives for completing CPD can reduce motivation for participation (Hamukoto et al., 2025).

The findings from Key Informant interviews highlight that Continuing Professional Development (CPD) in Uganda is a nationally guided but locally implemented initiative, coordinated by the Ministry of Health in collaboration with regulatory councils (UNMC, UMDPC, AHPC), district authorities, NGOs, and local health facilities. CPD is delivered through a mix of physical sessions and digital platforms such as Zoom and WhatsApp, with regular weekly sessions held in health facilities. Participation is driven by both internal stakeholders (facility leaders, health workers) and external stakeholders (MoH, professional bodies, partners). While CPD is recognized as vital for clinical competence, professional growth, license renewal, and workplace promotion, it faces challenges such as underfunding, staff shortages, high workloads, and poor internet connectivity. Despite these barriers, attendance ranges from 40% to 85%, influenced by organizational culture, topic relevance, and staff motivation. Documentation through CPD diaries supports accountability and licensure requirements. Key informants emphasized that CPD enhances teamwork, decision-making, and quality of care without compromising service delivery, especially when sessions are

well-timed and emergency coverage is ensured. Recommendations to improve CPD include policy reforms to mandate participation, incentivization, decentralization of accreditation, mentorship, and investment in infrastructure. Ultimately, the study underscores CPD as a cornerstone of quality healthcare in Uganda, sustained by the commitment of health workers and stakeholders despite systemic limitations.

5.4. Limitations of the study

As the cross-sectional study data on exposure and outcome were collected at the same time, it is difficult to determine cause-and effect relationships. You cannot confidently say whether a particular factor led to increased CPD participation, or vice versa. The study could not track changes in attitudes, practices, or institutional support for CPD over time, and was not able to assess trends or long-term effects. The data collected was self-reported, which can introduce recall bias or social desirability bias. Some health workers may overstate their participation in CPD or under-report barriers due to fear of judgment. The cross-sectional study could not adequately control for all confounding variables since association between a given factor and CPD participation might be influenced by other unmeasured or uncontrolled variables. This was minimized by getting contextual depth regarding why certain factors influence CPD participation from key informant interviews. While the cross-sectional study design was cost-effective and useful for initial assessments, its limitations particularly regarding causality, time trends, and data validity mean it should ideally be complemented by longitudinal or qualitative methods to provide a more comprehensive understanding of CPD engagement among health workers.

6.0. CONCLUSION

From the foregoing, the following conclusions can be made.

- All the study participants indicated that they had ever participated in continuing professional development in the past 3 years, however only 61.7% (145/235) scored $\geq$ 50 credit units.
- The nurses and midwives in Arua region generally held positive attitudes toward CPD, recognizing its importance for career advancement and quality care.
- Participation in CPD is influenced by multiple interrelated individual, institutional, and systemic factors.
- The individual factors that hindered participation in CPD included overload of work, personal demotivation, disagreement between the work team, lack of communication and information, negative experiences with previous CPD programs and lack of interest in new information by some staff members. Other personal barriers included fatigue, domestic responsibilities, off-site duties, and side businesses. Attitudinal barriers included lack of motivation, perceived irrelevance or repetitiveness of topics, and absence of financial incentives.
- Organizational factors that hindered participation in CPD included unsuitable location, non-supportive and compatible CPD schedule, lack of flexibility to leave the service for training, logistical problems related to the organization, large and dispersed audience that were difficult to manage, lack of targeted training content and lack of follow-up and evaluation of training sessions.
- Those who are already better paid were more likely to meet CPD requirements, while those in lower salary scales who often staff the most under resourced facilities are the least able to comply. The institutional factors that hindered participation in CPD included lack of flexibility of time to attend CPD, conflicting scheduling requirement to attend CPD, lack of clinical supervision and insufficient budget for continuing education.

7.0. RECOMMENDATIONS.

Continuing Professional Education is vital for enhancing the competencies of nurses and midwives in Uganda, ultimately improving health outcomes. While there are several practices in place, a multi-stakeholder approach is necessary to overcome existing challenges. Strengthening policy implementation, expanding access and integrating digital tools are key steps toward more effective and inclusive CPD systems. Institutional commitment to provide protected learning time and resources are necessary.

The Uganda Nurses and Midwifes Council should enforce policies requiring evidence of CPD credits for annual license renewal. The council should develop and disseminate standardized, practical CPD guidelines at national and facility levels. The Ministry of Health should provide training opportunities at district or health sub-district levels to reduce travel and accommodation burdens. All CPD providers should leverage online CPD platforms and mobile technology for flexible, low-cost learning, especially in remote areas. They should offer CPD activities that align with health workers duty schedules, such as after shifts or on designated CPD days. Government and partners should allocate funds to subsidize or fully sponsor CPD sessions, especially for lower cadres and rural staff. The government should offer allowances or logistics support to facilitate attendance at CPD workshops or courses. All facilities should budget for CPD and include it in staff development plans. There should be CPD focal persons in each facility to coordinate activities and track participation. Encourage managers and supervisors to support and monitor CPD participation through routine mentor-ship and feedback. CPD records should be incorporated into performance appraisals and career advancement criteria. The health facility in charges should regularly assess the learning needs of nurses and midwives to ensure CPD topics are relevant and

practical. The CPD should be designed to build specific competencies aligned with health system priorities

These findings underscore the need for health systems to adopt more equitable CPD models, including employer-funded CPD, protected learning time, and accessible workplace-based or online learning platforms. Such approaches would help ensure that all nurses and midwives, regardless of salary level or financial pressures, can meet professional development requirements and maintain high-quality patient care.

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Appendix 1: Participants information sheet and informed consent form

Study title: Participation in continuing professional development activities and associated factors among nurses and midwives in health facilities in Arua region.

Principal Investigator: Sr. Tabu Susan

Introduction

I am a student of Uganda Christian University pursuing master of public health leadership (MPHL). I am carrying out a study on **participation in continuing professional education activities and associated factors among nurses and midwives in health facilities in Arua region.** You are being asked to take part in the study because I believe you have enough knowledge on this topic. The information got from you shall be treated with maximum confidentiality. You are free to choose either to participate or not as it is purely a voluntary activity.

Participation in the study

You have been sampled to participate in this study because you are a Nurse/Midwife working in either Arua RRH, Oli HC IV, Adumi HCIV Maracha and Kuluva hospital. As a respondent in this study, you will be asked a few questions related to your own personal characteristics and your participation in continuing professional education activities and associated factors. The interview will take about 30 minutes, and it will be conducted in privacy. You are therefore, kindly requested to provide the necessary information required as sincerely as possible. However, refusal to participate in this study does not affect you in any way or subject you to any penalties.

Risks and benefits: You will participate in a structured interview. We do not expect any risks associated with your participation as a respondent in this study. The responses you provide in this study will inform improvement of CPD activities in the region.

Confidentiality, anonymity and privacy: We are not going to document your names on any of the questionnaires. All the interviews will be conducted in private, without any third parties to listen into the interview.

Voluntary participation: Your participation in the study is voluntary and you may choose to withdraw your participation at any time. You may choose not to participate in this study and choosing not to participate will not affect you in any way.

Costs of participation. You will not be paid to participate in the study. You are not going to incur any costs in order to participate in this study.

Questions and contact information: if you have any question about participation in the study, you can first ask the person who is conducting the interview. You may also call Sr. Tabu Susan the Principal Investigator of the study on telephone number 0772515134. If you have questions about your rights to participate in the study, you may contact the chair of Uganda Christian University Research and Ethics Committee (REC) on phone numbers …….

Informed Consent

I **agree** without any coercion or inducement to participate and give any relevant information that may be useful to the outcome of this study having been reliably assured of my privacy and confidentiality of any information I shall give to the aid of this study. I have therefore understood the purpose of my involvement in this study with an informed judgement.

Participant

Names……Signature….....Date……

Investigator

Names…….....Signature……...……. Date……

Appendix 2: Questionnaire

Study title: Participation in continuing professional education activities and associated factors among nurses and midwives in health facilities in Arua region

Instruction

Tick the correct option that applies to you in the adjacent box.

Socio Demographic information of the nurses/midwives.

1. Your sex.

1. Male ☐ 2. Female ☐

2. How old are you……...years.

3. What is your marital status?

1. Single ☐ 2. Married ☐ 3. Separated/divorced ☐ 4. Widowed ☐

4. What is your cadre?

1. General Nurse 2. Comprehensive nurse ☐ 3. Public health nurse ☐

4. Midwife ☐

5. What is your highest level of education?

1. Certificate ☐ 2. Diploma ☐ 3. Undergraduate ☐ 4. Post Graduate ☐

6. How long have you worked since your initial qualification?.....years

7. What is your salary scale?

1. U7 ☐ 2. U5 ☐ 3. U4 ☐ 4. U3 ☐ 5. U2 ☐

8. Do you have any other source of income apart from salary?

1. YES ☐ 2. NO ☐

Participation in CPD by Nurses/Midwives in Arua

9. Have you ever participated in any CPD program in the last 3 years?

1. Yes ☐ 2. No ☐

If yes, complete the credit score in the last 3 years.

Category I activity: Formal educational activities leading to qualifications. These will be a minimum of 6 months.	**Credit score**
Certificate courses (5)	
Diploma courses (10)	
Bachelor courses (20)	
Post graduate courses • Certificate courses (10) • Diploma courses (15) • Masters and PhD courses (25)	
Category II Activity: Informal/formal educational activities including self-directed and experiential learning. These will be a maximum of 5 months	
Attending seminars, workshops, conferences, symposia, refresher courses, meetings, journal clubs, practical training sessions (1)	
Presenting/facilitating seminars, workshops, conferences, symposia, refresher courses, meetings, journal clubs, practical training sessions (2)	
Participation in research and authorship activities • Principal author of a peer reviewed publication or chapter in a book (10) • Co-author/editor of a peer reviewed publication or chapter in a book (5) • Review of an article/chapter in a book/journal (2) • Principal presenter/author of a paper/poster at a congress, symposium, conference, workshop (2) • Co-presenters/co-authors of a paper/poster at a congress, symposium, conference, workshop (1)	
Development of materials (policies, protocols, regulations, guidelines, training materials) • Lead in the development (10) • Participation in the development (5)	
Undertake self-directed learning (online/distance learning etc.) (2)	
Attend short courses of weeks to five months in active learning (3)	
Other voluntary activities – reading scientific papers in journals, lecturing or teaching if it is not own job description, being an examiner/mentor/preceptor, moderation of external exams, on job self-directed and experiential learning opportunities (1)	
Total credit score in the last 3 years	

10. In your opinion, does participation in CPD improve knowledge level

1. Yes ☐ 2. No ☐

11. The following are attitude questions about CPD for Nursed and Midwives. For each of the questions state whether you agree, strongly agree, disagree or strongly disagree.

		Strongly agree	Agree	Disagree	Strongly disagree
1	The education I received to obtain my basic qualification is sufficient for my professional career				
2	My professional knowledge is sufficient to carry out my duties				
3	My professional knowledge should be enriched and renewed.				
4	Through CPD, Nurses/Midwives can improve how they make Nursing Care Plans for their clients.				
5	Nurses/ Midwives who attend CPD make better decisions during patient care than those who do not attend CPD				

Factors that influence participation in CPD

12. In your view, which of the following individual factors hinder your participation in CPD.

12.1. Overload of work Yes ☐ No ☐

12.2. Personal demotivation Yes ☐ No ☐

12.3. Disagreement between the work team Yes ☐ No ☐

12.4. Lack of communication and information Yes ☐ No ☐

12.5. Negative experiences with previous CE programs Yes ☐ No ☐

12.6. Not interested in new information Yes ☐ No ☐

13. In your view, which of the following organizational factors hinder your participation in CPD.

13.1. Unsuitable location Yes ☐ No ☐

13.2. Non-supportive and compatible CPD schedule Yes ☐ No ☐

13.3. No flexibility to leave the service Yes ☐ No ☐

13.4. Logistical problems related to the organization Yes ☐ No ☐

13.5. Large and dispersed audience, difficult to manage Yes ☐ No ☐

13.6. Content not targeted Yes ☐ No ☐

13.7. No follow-up and evaluation of training sessions Yes ☐ No ☐

14. In your view, which of the following institutional factors hinder your participation in CPD

14.1. Flexibility of time to attend CPD Yes ☐ No ☐

14.2. Scheduling requirement to attend CPD Yes ☐ No ☐

14.3. Lack of clinical supervision Yes ☐ No ☐

14.4. Lack of accompanying measures Yes ☐ No ☐

14.5. Insufficient budget for continuing education Yes ☐ No ☐

15. Which of the following incentives would motivate you to attend a CPD?

1. None ☐ 2. Allowances ☐ 3. Certificates ☐

4. Refreshments ☐ 5. Others Specify ……... ☐

16. How often are CPDs organized in your facility?

1. Daily ☐ 2. Weekly ☐ 3. Monthly ☐

4. Quarterly ☐

17. Are the schedules of CPD convenient for you in most cases?

1. Yes ☐ 2. No ☐ 3. Sometimes ☐

18. How easy is it to get permission for a study leave in your district/facility?

1. Very easy ☐ 2. Easy ☐ 3. Difficult ☐

4. Not at all ☐

19. Given the opportunity, would you willingly accept to further your education?

1. Yes ☐ 2. No ☐

20. If no, why?

1. Financial challenges ☐

2. Social Challenges ☐
3. Fear to study ☐
4. Health issues ☐

Appendix 3. Key informant guide.

Introductory speech

I am investigating the participation in continuing professional education activities and associated factors among nurses and midwives in health facilities in Arua region. Information obtained will be strictly confidential and shall be used for improving health services in the region. Your participation is voluntary and you can withdraw any time at your own discretion.

We will be grateful for your participation.

- How is continuing medical education for nurses and midwives organized nationally and locally?
- Who are the key stakeholders in continuing medical education for nurses and midwives?
- What is the importance of continuing medical education for nurses and midwives?
- Comment on the participation of nurses and midwives in continuing medical education activities in Arua.
- What is the source of funding for CPDs in the health facilities?
- Are CPD Diaries relevant to track CPD attendance among the Nurses/Midwives
- How do the staff balance CPD attendance and patient care at the same time?
- What are the factors hindering the participation of nurses and midwives in the Continuing Education?
- How can participation of nurses and midwifes in Arua in continuing medical education be improved.

Thank you for your time.

Appendix 4. Clearance letters for data collection.

UGANDA CHRISTIAN UNIVERSITY
A Centre of Excellence in the Heart of Africa

22/08/2024

To: Susan Tabu

Arua Regional Referral Hospital
0772515137

Type: Initial Review

Re: UCUREC-2024-953: PARTICIPATION IN CONTINUING PROFESSIONAL EDUCATION ACTIVITIES AND ASSOCIATED FACTORS AMONG NURSES AND MIDWIVES IN PUBLIC HEALTH FACILITIES IN ARUA CITY.

I am pleased to inform you that the Uganda Christian University REC, through expedited review held on **15/08/2024** approved the above referenced study.
Approval of the research is for the period of **22/08/2024** to **22/08/2025.**

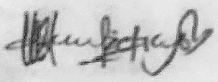
As Principal Investigator of the research, you are responsible for fulfilling the following requirements of approval:

1. All co-investigators must be kept informed of the status of the research.
2. Changes, amendments, and addenda to the protocol or the consent form must be submitted to the REC for re-review and approval **prior** to the activation of the changes.
3. Reports of unanticipated problems involving risks to participants or any new information which could change the risk benefit: ratio must be submitted to the REC.
4. Only approved consent forms are to be used in the enrollment of participants. All consent forms signed by participants and/or witnesses should be retained on file. The REC may conduct audits of all study records, and consent documentation may be part of such audits.
5. Continuing review application must be submitted to the REC **eight weeks** prior to the expiration date of **22/08/2025** in order to continue the study beyond the approved period. Failure to submit a continuing review application in a timely fashion may result in suspension or termination of the study.
6. The REC application number assigned to the research should be cited in any correspondence with the REC of record.
7. You are required to register the research protocol with the Uganda National Council for Science and Technology (UNCST) for final clearance to undertake the study in Uganda.

The following is the list of all documents approved in this application by Uganda Christian University REC:

No.	Document Title	Language	Version Number	Version Date
1	Data collection tools	English	1	2024-07-05
2	Protocol	English	1	2024-07-05

Yours Sincerely



Prof. Peter Waiswa
For: Uganda Christian University REC

Arua Regional Referral Hospital

P.O.Box 3,
Arua City (U)

5th January 2025

SENIOR EXECUTIVE CONSULTANT
ARUA REGIONAL REFERRAL HOSPITAL
06 FEB 2025
P.O. BOX 3, ARUA
UGANDA

No objection
6/2/2025

To The Senior Executive Consultant
Arua Regional Referral Hospital
P.O.Box 3,
Arua City.

Dear Dr/Sir/Madam

REF: REQUEST FOR PERMISSION TO CONDUCT RESEARCH

I hope this message finds you well. My name is Tabu Susan, and I am the Principal Nursing Officer at Arua Regional Referral Hospital. I am currently undertaking a Master's in Public Health training at Uganda Christian University (UCU) in Mukono. I am undertaking a study entitled "Participation in continuing professional education activities and associated factors among Nurses and Midwives in health facilities in Arua" for my dissertation thesis. The study will be conducted among nurses and midwives working at Arua Regional Referral Hospital (ARRH), Kuluva hospital, Maracha hospital, Oli health center IV and Adumi health center IV

I am writing to formally request for permission to conduct the research at the facility under your jurisdiction. The study has been approved by the UCU Research and Ethics Committee (REC). I assure you that all research activities will adhere strictly to ethical guidelines and any specific requirements or protocols you may have. Additionally, any data or findings will be shared in compliance with agreed terms, ensuring confidentiality and proper acknowledgment.

I kindly request your permission to access the study premises and to collect data from your staff for this research. Please let me know if you require further information or documentation. The ethical approval letter is attached for your reference.

Thank you for considering this request. I deeply appreciate your time and support in helping advance this important work. Should you have any questions or require clarification, please feel free to contact me. I look forward to your favorable response.

Sincerely,

Tabu Susan
Principal Nursing officer,
Arua Regional Referral Hospital.

ARUA REGIONAL REFERRAL HOSPITAL
P.O. BOX 3, ARUA
05 JAN 2025
RECEIVED
REGISTRY

Telephone:
CAO 0774162885
DCAO 0772358967
PAS 0772917676

Email: marachadist@vahoo.com

THE REPUBLIC OF UGANDA

OFFICE OF THE
CHIEF ADMINISTRATIVE OFFICER
MARACHA DISTRICT LOCAL GOVERNMENT
P.O.BOX 1,
MARACHA

In any correspondence on
this subject please quote No.**CR/220**

Date: January 30th, 2025

The District Health Officer
Maracha

considered
to planned

ASSISTANT DISTRICT HEALTH OFFICER
MATERNAL CHILD HEALTH (MCH)
04 FEB 2025
P O Box 1 MARACHA

Attn:
Medical Director
Maracha Hospital

Permission Granted

ST. JOSEPH'S HOSPITAL
MARACHA
11 FEB 2025
CHIEF EXECUTIVE OFFICER

INTRODUCTORY LETTER

Reference is made to a letter dated 27th January 2025 from Ms. Tabu Susan (Principal Nursing Officer, Arua Regional Referral Hospital), who is currently undertaking a Master's in Public health training in Uganda Christian University, Mukono requesting for permission to conduct research in Maracha Hospital.

The purpose of this letter is to introduce her to you and ask you to accord her the necessary attention to enable her successfully complete her course.

FOR CHIEF ADMINISTRATIVE OFFICER
30 JAN 2025
MARACHA DISTRICT LOCAL GOVERNMENT
P.O. BOX 1, MARACHA

Edema Stephen Budraa
FOR CHIEF ADMINISTRATIVE OFFICER

Copy:
Tabu Susan - Principal Nursing Officer, Arua Regional Referral Hospital

CHURCH OF UGANDA
KULUVA HOSPITAL
MISSION: TO PROVIDE QUALITY HEALTH SERVICES BASED ON CHRISTIAN FAITH.
Tel: +256-781476762 Email: Kuluvahospital@gmail.com Web: www.kuluvahospital.com P. o. Box 28 ARUA.

FEBRUARY 27TH, 2025

TABU SUSAN

SENIOR PRINCIPAL NURSING OFFICER

ARUA REGIONAL REFERRAL HOSPITAL

RE: PERMISSION TO CONDUCT RESEARCH/DATA COLLECTION.

Topic: PARTICIPATION IN CONTINUING PROFESSIONAL EDUCATION ACTIVITIES AND ASSOCIATED FACTORS AMONG NURSES AND MIDWIVES IN PUBLIC HEALTH FACILITIES IN KULUVA HOSPITAL ARUA DISTRICT.

This letter serves to inform you that the above research proposal was reviewed by Kuluva Hospital and is founded to be satisfactory.

Permission is hereby granted to you to conduct data collection at the facility in partial fulfillment as a requirement for the award of a Master's in Public Health and Leadership.

we wish you well in the study.

Yours faithfully.

KULUVA HOSPITAL
27 FEB 2025
P.O. Box 28 Arua

Edema Stephen
HR/Admin Officer

Cc: Hospital Director
File

ARUA CITY
Mighty City of Opportunities

OFFICE OF THE TOWN CLERK

Plot 47 – 55, Arua Avenue
www.aruacity.go.ug
+256 772 890929

P. O. Box 27, Arua
info@aruacity.go.ug
+256 782 744758

OUR REF: CR/ACC/220/1

27th January 2025

Ms. Tabu Susan
Principal Nursing Officer
Arua Regional Referral Hospital
P O Box 3
ARUA - UGANDA

PERMISSION TO CARRY OUT A RESEARCH FIELD STUDY

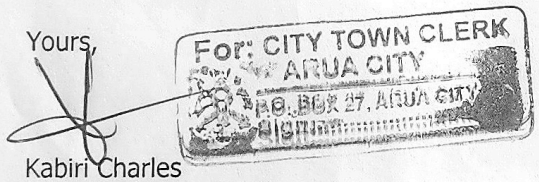
Reference is made to your letter dated 24th January 2025 requesting for permission to carry out a research field study in Arua City on the topic "**Participation in continuing professional education associated factors among nurses and mid-wives in public health facilities in Arua City".**

Permission is granted on the following conditions

1. This should strictly be for academic Purpose.
2. You are expected to report to the City Health Officer, Arua City for information on the data collection.

I therefore request the people concerned to assist you in giving the information and you are requested to deposit a copy of your findings to Central Registry, Arua City.

Yours,



Kabiri Charles
For: TOWN CLERK

CC Prof. Peter Waiswa/Uganda Christian University REC
CC City Health Officer/Arua City

Arua Regional Referral Hospital

P.O.Box 3,

Arua City (U)

27th January 2025

To The Chief Administrative Officer (CAO)
Arua District

Thru: District Health Officer (DHO)
Arua District

Dear Dr/Sir/Madam

REF: REQUEST FOR PERMISSION TO CONDUCT RESEARCH

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Sincerely,

Tabu Susan
Principal Nursing officer,
Arua Regional Referral Hospital.