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Knowledge of Continuing Professional Development and Its Influence on Participation among Midwives at a Tertiary Hospital in Lusaka, Zambia

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Abstract

Background: Continuing Professional Development (CPD) is mandatory for midwives in Zambia to maintain licensure, yet low submission rates persist. Understanding the role of knowledge in influencing participation is crucial for designing effective interventions. This study assessed the knowledge of the CPD process among midwives and examined its influence on participation at the Women and Newborn University Teaching Hospital (WNH-UTH) in Lusaka, Zambia. **Methods:** A descriptive cross-sectional study was conducted. Using simple random sampling, 300 midwives were recruited. Data were collected with a structured self-administered questionnaire that assessed sociodemographic characteristics, knowledge of CPD (purpose, governance, points, timelines), and CPD participation. Knowledge was categorized as adequate (≥60% correct) or inadequate. Descriptive statistics, chi-square tests, and binary logistic regression were used to examine the association between knowledge and participation at a 5% significance level. **Results:** The response rate was 97% (n = 300). Overall, 79.3% (n = 238) of midwives had adequate knowledge. However, substantial gaps existed: 75.0% incorrectly believed the NMCZ solely managed CPD, and 50.7% wrongly thought points could be submitted at any time. CPD participation was low (44.3%). In bivariate analysis, adequate knowledge was significantly associated with participation (47.9% vs. 30.6%; p = 0.015). In multivariable logistic regression, adequate knowledge was the only significant predictor, with midwives having 2.44 times higher odds of participating compared to those with inadequate knowledge (aOR = 2.44, 95% CI: 1.28 - 4.65, p = 0.007). **Conclusions:** The study found that midwives' knowledge of the CPD process significantly affects their participation. However, issues like heavy workloads and lack of support also play a role. There-

fore, while targeted educational interventions to address specific knowledge gaps are needed, improving CPD uptake will likely require broader strategies that tackle these practical and systemic challenges.

Keywords

Continuing Professional Development, Knowledge, Participation, Midwives, Zambia

1. Introduction

Continuing Professional Development (CPD) is a cornerstone of lifelong learning for nurses and midwives, essential for maintaining competence, improving patient outcomes, and meeting regulatory requirements [1]. In Zambia, the Nursing and Midwifery Council of Zambia (NMCZ) mandates that all registered midwives earn a minimum of 20 CPD points annually and submit evidence of these activities prior to licence renewal [2]. Despite this regulatory framework and awareness campaigns conducted since 2014, a significant proportion of midwives fail to comply. At the Women and Newborn University Teaching Hospital (WNH-UTH) in Lusaka, an average of 55% of midwives submitted their CPD records late between 2021 and 2024, and an additional 9% did not submit at all [3].

Across sub-Saharan Africa, low participation in mandatory CPD among nurses and midwives has been attributed to a range of systemic and individual barriers. Studies from Ethiopia, for example, show that nurses' engagement in CPD remains low (34.4%), with financial and time constraints along with limited access to information and resources, significantly hindering participation [4] [5]. In Namibia, time constraints, staff shortages, limited access to digital technologies, lack of funding for CPD, and a shortage of accredited CPD service providers are major barriers to nurses' compliance with CPD requirements [6]. A multi-country qualitative evaluation in Malawi, Tanzania and South Africa similarly identified lack of sustainable financial resources, limitations in CPD coordination, healthcare worker shortages, and a mismatch between CPD offerings and practitioners' needs as key obstacles [7]. In Rwanda, while 97.3% of nurses and midwives recognised the importance of CPD, procedural and technological barriers including limited practical knowledge about CPD implementation, curtailed their engagement [8]. A scoping review of CPD programmes across African hospitals further confirmed that financial constraints, staff shortages, inequitable training selection, and infrastructural limitations for e-learning are the most pervasive barriers to effective CPD implementation [9]. Beyond nurses and midwives, similar barriers such as cost, workload, location, rostering, lack of employer support and technological problems, have been documented among other healthcare cadres in Africa, such as radiographers in Malawi [10].

While these studies have collectively mapped the landscape of CPD challenges,

much of the existing literature has focused on broad structural and resource-related barriers such as funding deficits, staffing shortages, and access to training opportunities, rather than on the role of practitioners' knowledge of the CPD process itself. A critical prerequisite for CPD compliance is accurate knowledge of the programme's requirements, governance, and procedures. Without accurate knowledge, midwives cannot navigate the system effectively, irrespective of their motivation. Yet, few studies have systematically examined the depth and accuracy of healthcare workers' knowledge of the CPD process, and even fewer have quantitatively tested whether such knowledge independently predicts participation. In Zambia, no prior study has systematically assessed midwives' knowledge of the CPD process, nor has the link between such knowledge and actual participation been empirically examined. The persistent low submission rates at WNH-UTH, despite regulatory efforts, point to the possibility that fundamental knowledge gaps are undermining participation, but this hypothesis has not been tested.

This study therefore aimed to: 1) assess the level of knowledge of the CPD process among midwives at WNH-UTH; and 2) determine whether knowledge is significantly associated with CPD participation. By isolating knowledge as a potential key lever, a dimension largely overlooked in prior barrier-focused research, the findings are intended to inform targeted educational and policy interventions that can improve CPD uptake.

2. Methods

2.1. Study Design and Setting

A descriptive cross-sectional study was conducted at the Women and Newborn University Teaching Hospital (WNH-UTH) in Lusaka, Zambia. WNH-UTH is a 500-bed tertiary referral and teaching hospital dedicated to maternal and neonatal care.

2.2. Population and Sampling

The study population comprised all qualified and licensed midwives employed at WNH-UTH. The sampling frame was constructed using the official register of the NMCZ for the 2024 practising year. Specifically, we included only those midwives who had successfully renewed their annual practising certificate for 2024 and whose employer of record was listed as WNH-UTH. Midwives who were employed at the hospital but had not renewed their 2024 certificate, whether due to lapsed licensure, administrative delays, or other reasons, were excluded from the sampling frame. This decision was made because the study aimed to assess knowledge and participation among actively licensed midwives who were eligible to engage in CPD for the current licensing cycle. A sample size of 308 was calculated using the formula for finite populations [11]. Proportional allocation was applied across six departments, and within each department, simple random sampling was used to select participants. A total of 300 midwives participated, yielding a response rate of 97%.

2.3. Data Collection

Data were collected over six weeks using a structured, self-administered questionnaire. The instrument contained sections on socio-demographic characteristics, knowledge of the CPD process (five items covering the meaning of CPD, the responsible regulatory body, point requirements, and submission timelines), and participation in CPD activities (whether the midwife had participated and submitted the CPD booklet). The questionnaire was developed based on an extensive literature review and was piloted among 30 midwives at a comparable facility. To ensure content validity, the questionnaire items were mapped directly onto the NMCZ Continuing Professional Development framework and reviewed by a panel of two midwifery education experts and two regulatory board members. The pilot study achieved a Cronbach's alpha of 0.79.

2.4. Variables

The primary independent variable was **knowledge of the CPD process**. Knowledge was measured as a composite score from the five knowledge items (possible range: 0 - 5 correct, corresponding to 0% - 100%). A score of ≥60% correct was classified as "adequate knowledge," and below 60% as "inadequate knowledge." This cut-off aligns with common practice in health professions education research, where 60% is typically used to denote basic competency or sufficient understanding of core procedural information [adapted from Bloom *et al.* [12]; similar thresholds used in Miller's [13] framework for clinical knowledge assessment]. The dependent variable was participation in the CPD programme, defined as a "Yes" if the midwife reported having engaged in at least one CPD activity and submitted the CPD form for licence renewal, and "No" otherwise. This two-part definition of CPD participation was chosen for three practical reasons. First, the NMCZ requires not just learning but documented evidence, without submission, no points are awarded, and licence renewal is impossible. Second, our preliminary discussions with midwives revealed that some attend activities but never complete the administrative step, effectively making their effort invisible to regulators. Third, separating the two would have obscured the real-world meaning of compliance: a midwife who learns but does not submit is, in the eyes of the mandate, the same as one who does nothing at all. Therefore, we considered a midwife as having participated only if she or he both 1) engaged in at least one recognised CPD activity (e.g., workshop, skills training, clinical meeting presentation) and 2) submitted the completed CPD form for licence renewal. All others were classified as non-participants. This composite definition aligns with regulatory expectations and captures the full behavioural chain required for compliance.

2.5. Data Analysis

Data were analysed using R-Programming software version 4.5.2. Socio-demographic characteristics, knowledge levels, and participation status were summarized using frequencies and percentages. The association between knowledge level

and CPD participation was examined using the chi-square test. Binary logistic regression was performed to quantify the influence of knowledge on participation while adjusting for demographic and professional covariates. All variables showing a plausible association with CPD participation in the literature (age, sex, education, work department, job designation, years of experience, department size, and knowledge level) were entered into a single multivariable logistic regression model. Given the exploratory nature of the study, we did not use automated stepwise selection; instead, we retained all prespecified covariates to adjust for potential confounding, regardless of their bivariate significance. The significance level was set at 5%.

2.6. Ethical Considerations

Ethical approval was granted by the University of Zambia Biomedical Research Ethics Committee (UNZABREC Ref. 6752-2025) and the National Health Research Authority (NHRA-2341/18/06/2025). Institutional permissions were obtained, and all participants provided written informed consent. All eligible midwives received a clear explanation of the study's purpose, procedures, and their rights. The authors explained confidentiality measures, assuring participants that their names and identifying details would not be used. Questionnaires were coded, and completed forms were stored securely. Participation was voluntary, and midwives could decline or withdraw without consequences. Written informed consent was required for enrolment.

3. Results

3.1. Socio-Demographic Characteristics

The median age of the 300 participants was 36 years (IQR: 30 - 42). The majority were female (90.7%) and held a diploma in midwifery (71.7%). Almost all (92.0%) worked in clinical practice, with a median of 6.5 years of professional experience (IQR: 3 - 11 years). The median number of midwives per department was 16 (IQR: 10 - 21). Table 1 summarizes the baseline characteristics.

Table 1. Baseline characteristics of the study participants (n = 300).

Characteristic	n (%)
Age (years)†	36 (30 - 42)
Sex	
Female	272 (90.7)
Male	28 (9.3)
Highest education level	
Certificate	30 (10.0)
Diploma	215 (71.7)
Degree	49 (16.3)
Masters	6 (2.0)

Continued

Work department	
Administration	24 (8.0)
Clinical practice	276 (92.0)
Job designation	
General midwife	243 (81.0)
Ward manager	27 (9.0)
Clinical instructor	10 (3.3)
Nursing officer	20 (6.7)
Years worked as a midwife†	6.5 (3.0 - 11.0)
Number of midwives in department†	16.0 (10.0 - 21.0)

†Median (IQR).

3.2. Knowledge of the CPD Process

Overall, 79.3% (n = 238) of midwives demonstrated adequate knowledge of the CPD process, while 20.7% (n = 62) had inadequate knowledge. However, item-level analysis revealed important gaps (Table 2). Although 97.3% correctly identified the full meaning of CPD and 89.7% knew the 20-point minimum, a majority (75.0%) incorrectly believed that CPD for midwives is managed solely by the NMCZ. Additionally, half of the respondents (50.7%) incorrectly thought that CPD points could be submitted at any time of the year, revealing a critical misunderstanding of the submission deadline.

Table 2. Correct responses to CPD knowledge items (n = 300).

Knowledge statement	n (%)
CPD stands for Continuous People Development	
False	288 (96.0)
True	12 (4.0)
CPD stands for Continuous Professional Development	
False	8 (2.7)
True	292 (97.3)
In Zambia, CPD for midwives is only managed by the NMCZ	
False	75 (25.0)
True	225 (75.0)
CPD points can be submitted at any time of the year at NMCZ	
False	152 (50.7)
True	148 (49.3)
A minimum of 20 CPD points qualifies for license renewal	
False	31 (10.3)
True	269 (89.7)

3.3. Participation in CPD Activities

Less than half of the midwives (44.3%, n = 133) reported having participated in

CPD activities and submitted their CPD forms for licence renewal. Among those who participated, the most frequently undertaken activities were clinical meeting presentations (65.4%), skills training (62.4%), nursing patient education (60.9%), and workshops (51.9%). The majority (81.2%) of those who submitted their forms did so on time (Table 3).

Table 3. Participation in CPD activities among respondents (n = 133).

Characteristic	n (%)
CPD activities participated in	
Seminars	
No	76 (57.1)
Yes	57 (42.9)
Conferences	
No	84 (63.2)
Yes	49 (36.8)
Skills training	
No	50 (37.6)
Yes	83 (62.4)
Workshops	
No	64 (48.1)
Yes	69 (51.9)
Nursing patient education	
No	52 (39.1)
Yes	81 (60.9)
Post-basic/post-graduate education	
No	73 (54.9)
Yes	60 (45.1)
Research publication	
No	89 (66.9)
Yes	44 (33.1)
Book authorship	
No	92 (69.2)
Yes	41 (30.8)
Case presentation	
No	66 (49.6)
Yes	67 (50.4)
Clinical meeting presentation	
No	46 (34.6)
Yes	87 (65.4)
Submitted CPD points to NMCZ on time	
No, submitted late	25 (18.8)
Yes, submitted timely	108 (81.2)

3.4. Association between Knowledge and CPD Participation

In bivariate analysis, knowledge of the CPD process was the only variable significantly associated with participation (Table 4). Among midwives with adequate knowledge, 47.9% participated, compared to only 30.6% of those with inadequate knowledge ($\chi^2 = 5.95$, p = 0.015). Other factors such as age, sex, education, work department, job designation, years of experience, and department size showed no significant association with participation.

Table 4. Bivariate association between CPD knowledge level and participation.

Knowledge Level	Participated n (%)	Not Participate n (%)	p-value
Adequate	114 (47.9)	124 (52.1)	0.015
Inadequate	19 (30.6)	43 (69.4)	

After adjusting for all demographic and professional covariates in multivariable logistic regression, adequate knowledge of the CPD process remained a strong and independent predictor of participation. Midwives with adequate knowledge had 2.44 times higher odds of participating in CPD compared to those with inadequate knowledge (aOR = 2.44, 95% CI: 1.28 - 4.65, p = 0.007). None of the other variables reached statistical significance in the final model (Table 5).

Table 5. Multivariable logistic regression of factors associated with CPD participation.

Variable	aOR (95% CI)	p-value
Age (per year)	1.00 (0.97 - 1.04)	0.954
Male sex (vs. female)	1.49 (0.66 - 3.36)	0.342
Education (Ref: Certificate)		
Diploma	1.02 (0.45 - 2.33)	0.955
Degree	1.33 (0.47 - 3.79)	0.588
Masters	2.27 (0.35 - 14.57)	0.388
Work department: Admin (vs. Clinical)	7.94 (0.84 - 75.34)	0.071
Job designation (Ref: Nursing officer)		
General midwife	11.35 (0.92 - 139.42)	0.058
Ward manager	6.48 (0.58 - 72.94)	0.130
Clinical instructor	9.19 (0.57 - 148.60)	0.118
Years worked as midwife	0.98 (0.93 - 1.04)	0.485
Number of midwives in department	1.00 (0.99 - 1.02)	0.837
Adequate CPD knowledge (vs. inadequate)	2.44 (1.28 - 4.65)	0.007

CI = Confidence Interval; aOR = Adjusted Odds Ratio.

4. Discussion

This study aimed to assess midwives' knowledge of the CPD process at a major

Zambian tertiary hospital and to determine whether that knowledge influences their participation. The findings show that only 44.3% of midwives had participated in CPD and submitted their evidence for licence renewal—a figure strikingly similar to the 34.4% CPD engagement rate reported among nurses in Ethiopia [4]. In the multivariable analysis, adequate knowledge emerged as the only measured factor significantly associated with participation, with 2.44-fold higher odds of engagement. This suggests that, in this dataset and setting, knowledge of how the CPD system works is a key gateway to compliance.

Importantly, while 79.3% of midwives achieved an overall adequate knowledge score, item level analysis revealed substantial functional gaps. Three quarters of respondents incorrectly believed that the NMCZ is the sole manager of the CPD programme, and half thought CPD points can be submitted at any time. These gaps in procedural and governance knowledge mirror findings from a multi country qualitative evaluation in Malawi, Tanzania and South Africa, where healthcare workers often understood the CPD mandate but struggled with accreditation processes and submission timelines [7]. In Rwanda, similarly, Nyiringango *et al.* [8] found that practical knowledge about CPD implementation lagged behind positive attitudes, a phenomenon that appears to repeat itself in Zambia.

The strong, independent association between knowledge and participation, with no demographic or professional characteristic reaching significance in the final model, suggests that the primary barriers to CPD uptake in this context are not intrinsic to individual midwives but are embedded in the information environment. This interpretation aligns with a systematic review by Merry *et al.* [5], which noted that in low and lower middle-income countries, weak dissemination of CPD information and lack of clarity about governance often undermine participation even when regulations exist. Likewise, a study in Meru County, Kenya, found that knowledge gaps in clinical competencies directly affected CPD uptake and clinical performance, reinforcing the notion that accurate information is a prerequisite for meaningful engagement [14].

Across sub–Saharan Africa, low CPD engagement is a persistent challenge. A review of CPD status in WHO Afro region member states identified inequity of CPD distribution, healthcare worker shortages, and limited participation as major threats [15]. In Zambia specifically, access to CPD resources, including laptops, reliable internet, and structured learning opportunities, has been described as "one of the main challenges for Zambian nurses", with many activities conducted via smartphones and limited IT access constraining the quality and reach of CPD [16]. An Ethiopian study by Wehabe *et al.* [4] further identified financial constraints (AOR 3.1), lack of access to CPD information (AOR 0.3), time constraints due to family commitments (AOR 3.35), and insufficient CPD resources (AOR 0.15) as significant predictors of low engagement. Although these specific barriers were not measured in the present study, they likely operate in the Zambian context as well and may help explain why even midwives with adequate knowledge still struggle to participate.

Taken together, these regional comparisons suggest that knowledge alone is rarely sufficient. Even when information is accurate, practical obstacles, such as heavy clinical workloads, limited financial support for training, lack of employer provided CPD opportunities, and unsupportive management, can prevent midwives from converting knowledge into action [4] [7]. This multi layered reality is reflected in a qualitative study in Kenya, where nurses reported that simply providing CPD opportunities does not guarantee participation; tailored efforts are needed to dismantle institutional and external barriers [17]. Similarly, a study on CPD access for emergency obstetric and neonatal care providers in Rwanda highlighted that even when midwives recognised the value of CPD, inadequate infrastructure and limited programme availability restricted their actual uptake [18].

The finding that no demographic or job related variable predicted participation is, in itself, instructive. It suggests that the factors driving CPD compliance are not "who you are" but rather "what you know" and, by extension, "what systems and supports are in place". This is consistent with the work of Mlambo *et al.* [1], who emphasised that a supportive learning environment, including clear communication and accessible resources, is essential for CPD participation. In the Zambian context, a national leadership and management CPD programme for frontline nurses and midwives has shown that blended learning can be effective when accompanied by institutional commitment and structured mentorship [19]. Such models could be adapted to address the specific knowledge gaps identified in the present study.

These findings have direct and urgent implications for policy and practice. The NMCZ and health facility managers must move beyond general awareness campaigns and focus on building comprehensive, functional knowledge. Educational interventions should specifically address the misconceptions identified: the multi-stakeholder nature of CPD governance, the strict submission timeline, and the procedural steps for earning and recording points. Integrating simple, visually engaging job aids, mandatory in-service orientation sessions, and structured mentorship programmes could help bridge the knowledge gap. Furthermore, hospital management should take proactive responsibility for disseminating accurate, timely CPD information, rather than relying solely on the NMCZ. The regression results also hint, though not statistically significant, that certain job cadres may have higher odds of participation, which warrants further investigation with larger samples.

The limitations of this study should be acknowledged. The cross-sectional design cannot establish causality; it is possible that participation in CPD also reinforces knowledge, creating a bidirectional relationship. The single-site setting limits the generalizability of the findings to other facilities, although WNH-UTH is typical of large public tertiary hospitals in Zambia. The measurement of participation relied on self-report, which may be subject to recall or social desirability bias. Nonetheless, the high response rate and the robust multivariable analysis strengthen confidence in the primary finding. More importantly, this study meas-

ured only a limited set of barriers—primarily knowledge. It did not capture key contextual factors such as workload, access to CPD opportunities, cost, managerial support, or the availability of IT resources. These unmeasured barriers are likely to play a substantial role in shaping actual participation and should be investigated in future mixed methods and multi-site research.

5. Conclusion

In a setting where CPD is legally required but compliance is low, midwives' knowledge of the CPD process, as the only measured factor, showed a significant association with CPD participation. While this finding highlights the importance of accurate information, it does not mean that other factors are unimportant. Unmeasured barriers such as heavy clinical workloads, limited access to affordable CPD opportunities, personal costs, and the level of managerial support, may also play a substantial role in shaping whether midwives engage with CPD. Therefore, improving knowledge alone is unlikely to be a complete solution. Efforts to strengthen CPD uptake should combine targeted education with broader strategies that address the practical and systemic challenges midwives face in their daily work.

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Conflicts of Interest

The authors declare no conflicts of interest.

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