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Experiences, barriers and perspectives of midwifery educators, mentors and students implementing the updated emergency obstetric and newborn care-enhanced pre-service midwifery curriculum in Kenya: a nested qualitative study

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Abstract

Introduction To achieve quality midwifery education, understanding the experiences of midwifery educators and students in implementing a competency-based pre-service curriculum is critical. This study explored the experiences of and barriers to implementing a pre-service curriculum updated with emergency obstetric and newborn care (EmONC) skills by midwifery educators, students and mentors in Kenya.

Methods This was a nested qualitative study within the cluster randomised controlled trial investigating the effectiveness of an EmONC enhanced midwifery curriculum delivered by trained and mentored midwifery educators on the quality of education and student performance in 20 colleges in Kenya. Following the pre-service midwifery curriculum EmONC update, capacity strengthening of educators through training (in both study arms) and additional mentoring of intervention-arm educators was undertaken. Focus group discussions were used to explore the experiences of and barriers to implementing the EmONC-enhanced curriculum by 20 educators and eight mentors. Debrief/feedback sessions with 6–9 students from each of the 20 colleges were conducted and field notes were taken. Data were analysed thematically using Braun and Clarke's six step criteria.

Results Themes identified related to experiences were: (i) relevancy of updated EmONC-enhanced curriculum to improve practice, (ii) training and mentoring valued as continuous professional development opportunities for midwifery educators, (iii) effective teaching and learning strategies acquired – peer teaching (teacher-teacher and student-student), simulation/scenario teaching and effective feedback techniques for effective learning and, (iv)

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effective collaborations between school/academic institution and hospital/clinical staff promoted effective training/learning. Barriers identified were (i) midwifery faculty shortage and heavy workload vs. high student population, (ii) infrastructure gaps in simulation teaching – inadequate space for simulation and lack of equipment inventory audits for replenishment (iii) inadequate clinical support for students due to inadequate clinical sites for experience, ineffective supervision and mentoring support, lack/shortage of clinical mentors and untrained hospital/clinical staff in EmONC and (iv) limited resources to support effective learning.

Conclusion Findings reveal an overwhelmed midwifery faculty and an urgent demand for students support in clinical settings to acquire EmONC competencies for enhanced practice. For quality midwifery education, adequate resources and regulatory/policy directives are needed in midwifery faculty staffing and development. A continuous professional development specific for educators is needed for effective student teaching and learning of a competency-based pre-service curriculum.

Keywords Midwifery education, Emergency obstetrics and newborn care, Curriculum, Educators, Students, Mentors

Introduction

Approximately one third of all maternal and neonatal deaths are due to poor quality maternal and newborn care [1]. Midwifery delivered interventions including skilled attendance at birth, provision of emergency obstetric and newborn care (EmONC) and family planning are central to averting the preventable maternal deaths, newborn deaths and stillbirths [2]. However, midwifery education and training in low- and middle-income countries is substandard leading to suboptimal quality of care [3]. The World Health Organization (WHO) recommends that midwifery educators should possess competencies to support theoretical learning, learning in the clinical areas, assessment and evaluation of students and midwifery practice [4]. The International Confederation of Midwives (ICM) defines assessment as a systematic process for collecting qualitative and quantitative data to measure, evaluate or appraise performance against specified outcomes or competencies. On the other hand, it defines evaluation as the systematic process for collecting qualitative and quantitative data to measure or evaluate the overall provision of and outcomes of a course of studies [5]. Evidence suggests that midwifery educators are insufficiently prepared for their teaching role [4, 6]. The ICM recommends that at least 50% of the midwifery curriculum to be practical-based with opportunities for clinical and community experience [5]. In many countries, this does not occur. The inadequately prepared midwifery faculty compounded with a deficient curriculum compared to international standards and limited practical clinical experience for students affect the quality of midwifery graduates and subsequent quality of care [7–11]. As a result, midwifery educators are expected to structure their curriculum and develop learning activities that enable midwifery graduates to learn the knowledge and develop skills and behaviours essential for midwifery practice. The acquired competencies promote the role of the midwife to assess, diagnose, act, intervene, consult

and refer as necessary, including providing emergency interventions [12].

The WHO, United Nations Population Fund (UNFPA), United Nations International Children's Emergency Fund (UNICEF) and ICM recommend that skilled health personnel (includes midwives) as part of a team should be competent to perform all the signal functions of EmONC, to optimize the health and well-being of women and newborns [13]. Competency as defined in the Global Standards for Midwifery Education by ICM refers to the combined utilisation of personal abilities and attributes, skills and knowledge to effectively perform a job, role, function, task, or duty [5]. However, evidence shows that midwifery graduates are inadequately prepared with limited support and lack requisite competencies needed to function adequately as skilled health personnel after graduation [7–9, 14, 15]. Thus, midwifery graduates should achieve essential clinical competence – defined as a combination of knowledge, skill, attitude, judgment and ability needed for providing safe and effective care without any need for supervision [16]. Key barriers leading to suboptimal clinical competence include a deficient and largely didactic curriculum, educators/faculty who are less confident with clinical teaching compared to theoretical classroom teaching, inadequate teaching resources/equipment, insufficient clinical exposure of students for practice, absence of clinical supervisors and mentors and poor relationship with qualified hospital/clinical staff [3, 7–9, 14, 15, 17–19].

Emergency obstetric and newborn care training helps improve the knowledge and skills of skilled health personnel, change in clinical practice and improved maternal and newborn health outcomes [20]. The Kenya national Ministry of Health (MoH) included EmONC training for skilled health personnel in the National Health Policy 2014–2030 and Health Sector Strategic Plan 2018–2023 as a priority to improve the quality of maternity care and subsequent maternal and newborn health outcomes [21, 22]. Introducing the training at pre-service

with a supporting curriculum has the potential for greater returns on midwifery investments [23]. Funded by Foreign, Commonwealth and Development Office, Liverpool School of Tropical Medicine supported the Kenya MoH through the Nursing Council of Kenya and Kenya Medical Training College to conduct a detailed review of their national training syllabi and curriculum respectively. Curriculum content integrating EmONC and teaching methods were updated [24] aligned to the WHO and ICM competencies for midwifery practitioners and educators. This approach was designed to shift from the largely theoretical training to a competency-based skills training for graduates. This was followed by a bundle of interventions to build/strengthen the capacity of the training institutions and midwifery educators. The programme equipped the training colleges' skills laboratories with EmONC training equipment. Blended (virtual and face-to-face) learning workshops for educators focusing on teaching (theory and practical/clinical EmONC skills), students' assessments and giving effective feedback were conducted to improve their capacity to deliver the updated EmONC-enhanced curriculum. Supportive follow-up mentoring of midwifery educators in sampled colleges was implemented to build their professional skills in teaching, assessments and effective feedback. This bundle of interventions was evaluated and demonstrated improved educators' knowledge, skills and confidence in teaching and EmONC skills [24, 25]. Consequently, midwifery students' knowledge and skills in EmONC improved before graduation [26]. Although the investments were promising, understanding experiences of educators and students is critical for a successful and sustainable implementation of the pre-service competency-based curriculum, scale up and uptake of the bundle of interventions.

Previous studies largely evaluated the changes in knowledge, skills and confidence of educators and students after programme training interventions [24, 25, 27, 28]. However, studies focusing on experiences of the target group (either the educators or student group only) after midwifery educator capacity strengthening interventions are limited [29–32]. Experiences of students and educators enable midwifery educators to improve the design of the courses and support systems in place for effective teaching and learning [18, 33]. Exploring students' experiences is critical in determining what students find important and promoting their learning process [32, 34]. This is relevant in designing training programmes that facilitate students' learning and application of acquired competencies into practice.

This was a nested qualitative study within the broader cluster randomised controlled trial that assessed the effectiveness of a pre-service EmONC-enhanced midwifery curriculum delivered by trained and mentored

midwifery educators in Kenya [35]. The objectives of this study were to explore the experiences, barriers and understand the perspectives of educators, students, and external mentors for educators to successfully implement an updated EmONC-enhanced curriculum during pre-service training. Findings are relevant to improve the design, delivery, uptake and scale-up of the pre-service midwifery programme for competent midwifery graduates as part of accelerating progress towards achieving maternal and newborn health sustainable development goals and universal health coverage.

Methods

Study design

This was a qualitative descriptive study using focussed group discussions (FGDs) and field notes nested within a cluster randomised controlled trial reported in a separate paper [35]. Qualitative descriptive studies generate data that describe the 'who, what, and where of events or experiences' from a subjective perspective [36]. Qualitative studies in trials are important in interpretation of trial findings and enhances the understanding of how contextual barriers and facilitators may influence outcomes [37, 38]. Insights from qualitative studies can also inform implementation if the intervention is successful. This is because they can help trialists 'to be sensitive to the human beings who participate in trials' [38]. The objective was to understand the experiences of educators, students and mentors, challenges encountered and opportunities for improving the delivery and implementation of the updated EmONC-enhanced midwifery curriculum in Kenya.

The Kirkpatrick model is an effective tool with four levels for evaluating training programmes [39]. Level 1 (Participants' reaction to the programme experience) helps to understand how satisfying, engaging and relevant participants find the experience. Level 2 (Learning) measures the changes in knowledge, skills and confidence after training. Level 3 (Behaviour) measures the degree to which participants apply what they learned during training when they are back on job or impact of training to their practice. This level is critical as it can also reveal where participants might need help to successfully implement what was learned. Level 4 (Results) measures the degree to which targeted outcomes occur because of training. The findings from this study are further analysed using the Kirkpatrick model at level 1 (experiences of educators and students) and level 3 (application of what was learned and areas for further support and investment) to improve the quality of pre-service midwifery education and training.

The focus group discussions explored the experiences of educators with the updated content, clinical teaching and skills demonstration, peer teaching and support,

clinical supervision and mentoring of students, and effective feedback. Also, institutional challenges/bottlenecks and support required to implementing the updated curriculum. Students feedback on the teaching of the updated curriculum, clinical placements, clinical support supervision and mentoring during placements was documented. Mentors' experiences and perspectives on the uptake of mentorship intervention by educators were explored. Additional components from mentors included strengths observed during the mentorship intervention (educators and institutional); bottlenecks experienced in the mentoring intervention and opportunities for support and improvement. The study is reported in accordance with the COnsolidated criteria for REporting Qualitative research (COREQ) (Supplementary Material) [40].

Study setting

This study was conducted in 20 (12 intervention arm and 8 control arm colleges) of the 52 KMTCs randomly selected in Kenya offering the integrated nursing and midwifery training programme in Kenya (Kenya Registered Community Health Nursing – KRCHN programme). This is the predominant direct entry programme offered at diploma level for nursing and midwifery workforce in the country. Each KMTC has two intakes of 50 students each per year (March and September), thus approximately 50 final year nursing and midwifery students are expected to graduate per intake. The duration of the diploma programme is three years with no internship period after graduation. Midwifery content and clinical placements are distributed across the three years of training. Students are posted to the respective hospitals (offering comprehensive EmONC services) attached to the training colleges for their clinical placements for practice and clinical experience. This is critical to reinforce theoretical learning, develop their clinical skills and attitudes for practice. A common curriculum by KMTC approved by the Nursing Council of Kenya is used for midwifery education in all colleges.

Intervention

Liverpool School of Tropical Medicine supported the review and update of the predominant nursing and midwifery training curriculum for training of nurse midwives at diploma level in Kenya in 2020/2021. The curriculum review and update were conducted by selected midwifery educators and practitioners. The output was a pre-service curriculum with EmONC content. Following the review, midwifery educators from both study arms (intervention and control) received training on the new content to strengthen their capacity to deliver the EmONC-enhanced curriculum. Training used Liverpool School of Tropical Medicine's adapted Emergency Obstetric

Care and Newborn Care Skilled Health Personnel training package [41]. This package has been used by LSTM in collaboration with MoH in over 15 low- and middle-income countries to strengthen the capacity of maternity care providers for quality EmONC service delivery [42]. Educators in the intervention study arm received additional mentoring and peer support on teaching and EmONC skills every three months for 12 months.

Mentoring support intervention

This was conducted every three months after the training for 12 months in the intervention colleges. A group of eight experienced EmONC faculty consisting of midwifery educators and obstetricians were recruited and trained as mentors. Educators were from university or midwifery training colleges not included in the study and they did not form part of the master trainers. They received a virtual one-day mentorship training facilitated by the corresponding author and an LSTM – UK senior MNH specialist experienced in EmONC capacity strengthening and pedagogy. Training focused on introduction to mentoring, building effective working relationships, giving effective feedback, handling difficult situations during mentorship, and teaching methods. The training used interactive lectures, discussions, and case studies. Mentorship sessions were a full day intervention per college for educators and focused on teaching skills, EmONC skills and drills and giving effective feedback to promote learning among students especially on performance of critical lifesaving EmONC skills or scenarios.

Structured participant observation of teaching sessions (theoretical or practical) and support by mentors for midwifery educators were also conducted in the intervention study arm at 3, 9 and 12 months after the training. Key elements of good quality teaching and learning were observed including: [1] teaching style, [2] use of visual aids, [3] teaching environment and [4] student involvement using a standardized observation checklist [43].

LSTM's lead researcher (corresponding author) based in Nairobi Kenya conducted quality assurance visits to some of the mentoring sessions for all mentors. At the end of the mentoring visit, debrief sessions were held by the mentor, mentees, and the campus administration as necessary. The debrief provided feedback and areas that needed institutional support to promote quality teaching and learning. On occasions where the lead researcher was not present at the mentoring visit, the mentor recorded and shared field notes on key strengths observed, areas for further support and the action points proposed by the mentees for development.

Participants

A convenience sampling approach was used to select participants that were already enrolled in the trial to take part in the FGDs. Twelve [12] intervention arm educators, eight [8] control arm educators and eight [8] mentors participated in the FGDs. Each training college was represented by one midwifery educator.

A total sample of 146 final year nursing-midwifery students (KRCHN March 2020 class), the first group to be taught the updated EmONC-enhanced curriculum participated in the study. Due to the variability in the number of students per college, 20 clusters of 6–9 students, selected through stratified systematic sampling who participated in the knowledge and skills assessments participated in the debrief sessions.

Data collection

Three virtual FGDs were conducted at six months of the implementation (February 2022) with the intervention and control colleges' educators and mentors by the corresponding author using semi-structured interview guides. The adapted interview topic guides were piloted and validated in a previous study [28]. These guides were also reviewed by study team members with experience in qualitative research. Each FGD lasted between 60 and 90 min. Respondent/member validation/check was routinely applied during the interview discussions to ensure that participants' responses were accurately interpreted [44]. The FGDs were audio-recorded with permission from participants and transcribed verbatim in English. New emerging data from educators and mentors was routinely collected during the study implementation period. This strategy was employed due to the information power from a sample of participants but with rich relevant information for the study in qualitative research [45]. Although the corresponding author was not a faculty member with the KMTC, his status was known to the participants.

Two debriefing sessions moderated by the corresponding author and two independent assessors per college were held with students immediately after completing the knowledge and skills assessments between December 2022 and March 2023. The independent assessors were midwives and obstetricians working as midwifery educators in public or private training institutions and/or in clinicals and experienced EmONC faculty. They worked in pairs per college and were blinded to the intervention implemented and study arms. Details on the assessments are reported in a different paper [35]. In the first debrief, lasting between 30 and 60 min, were conducted immediately after the assessments by the corresponding author and the two assessors with the students for every college. These were confidential and not recorded to allow students express themselves freely on their experiences

with the completed assessments, curriculum content covered, clinical placements and support received during maternity clinical placements. The second debrief lasted between 15 and 30 min and included the available institutional midwifery faculty/administration, students and the research team. Field notes were taken during the students debrief sessions by the corresponding author. Due to the potentially sensitive nature of the students' feedback in the first debrief, general findings were shared with the college midwifery faculty and administration during the second debrief. Areas of strengths, opportunities and weak sections that needed additional support for improvement were highlighted.

Data management and analysis

Preparation for data analysis involved a rigorous process of transcription of recorded FGDs. Data analysis was led by the lead researcher, but the other authors contributed by reviewing the transcripts and quality checks. Collaborative thematic framework analysis by Braun and Clarke (2006) was used as it provides clear steps to follow, is flexible and uses a very structured process and enables transparency and team working [44]. Due to the small number of transcripts, computer assisted coding in Microsoft Word using the margin and comments tool was applied for the FGD transcripts and manual coding of text for the field notes. The six steps by Braun and Clarke in thematic analysis were conducted: (i) familiarising oneself with the data – the lead researcher listened to all of the audio recordings while reviewing the transcripts, looking for recurring issues/inconsistencies and, identifying possible categories and sub-categories of data; (ii) generating initial codes – both deductive (using topic guides/research questions) and inductive coding (recurrent views, phrases, patterns from the data) were conducted to derive the codes and enhance transparency of the study. The lead researcher generated a comprehensive list of codes. A second author with expertise in qualitative research separately analysed a selection of transcripts and then compared codes, agreed codes and broad themes; (iii) searching for themes by collating initial codes into potential sub-themes/themes; each transcript was reviewed to refine sub-themes/themes and an exhaustive list of sub-themes/themes was generated (iv) reviewing themes by generating a thematic map (code book) of the analysis; data were mapped to identify prevalence (new and old) of themes; again, two authors compared and validated the interpretations using one transcript (v) defining and naming themes through repeated, systematic and collaborative analysis of transcripts (ongoing analysis to refine the specifics of each sub-theme/theme, and the overall story the analysis tells); and (vi) writing findings/producing a report – findings were written up as descriptive accounts with

illustrative quotes from the transcripts. Trustworthiness was achieved by (i) respondent validation/check during the interviews for accurate data interpretation; (ii) using a criterion for thematic analysis; (iii) returning to the data repeatedly to check for accuracy in interpretation; (iv) quality checks and discussions with the study team with expertise in mixed methods research [44, 46].

Reflexivity

Due to the sensitive nature of the feedback from educators, students and mentors, the lead researcher had good awareness of who and where to address the emerging concerns from the study. These concerns together with programme achievements, challenges and best practices were disseminated to the KMTC management during the joint LSTM – MoH programme knowledge, management and learning dissemination events and policy forums. There was real benefit in the lead researcher being a near-peer to the participants as he was a male midwife educated and trained in Kenya and Uganda and an Associate Fellow of the Higher Education Academy, United Kingdom. He could relate to certain aspects of the educators and students' experience of skills teaching and clinical placement as he had previous experience both as a midwifery student and adjunct faculty in the two countries. This also helped him to ask for points of clarification about certain aspects of the midwifery academic experience, educator and student experience, particularly around clinical skills teaching, organisation of clinical placements and midwifery support during the clinical placements. In addition, this allowed him sufficient distance to ask questions and not take the discussion contents personally. Use of multiple methods of data collection (knowledge surveys, direct observations through objective structured clinical evaluation of skills and debriefing after students assessments/field

notes) enhanced triangulation of findings to give detailed descriptions and broad perspectives important in understanding the implementation of the updated EmONC-enhanced curriculum [46].

Eight of the 14 research team members who participated designing the study, data collection and data analysis were midwifery and obstetric faculty staff, with only two being from KMTC. They reflected that they found some comments about the educators and students experiences with clinical teaching and support supervision troubling as they held teaching roles in their respective training institutions.

Results

Demographic characteristics of participants

All 20 midwifery educators were nurse-midwives by profession with majority ($n=12$, 60%) being holders of a bachelor's degree and aged 40–49 years ($n=9$, 45%) and half of the midwifery educators being male ($n=10$, 50%). Majority of mentors were males ($n=7$, 87.5%), holders of master's degrees ($n=5$, 62.5%) and aged 40–49 years ($n=4$, 50%). Equal number of mentors were either obstetricians ($n=4$, 50%) or midwives ($n=4$, 50%) (Table 1).

Experiences of educators, mentors and students on the implementation of the updated curriculum

The experiences from educators, external mentors and students are presented and organized into four broad themes: (1) relevancy of updated EmONC-enhanced curriculum to enhance practice, (2) continuous professional development opportunities for midwifery educators, (3) effective teaching and learning strategies and, (4) effective collaboration between school and hospital staff for effective training.

Relevancy of the updated EmONC-enhanced curriculum to enhance practice

Experiences on the EmONC content in the curriculum revealed three major sub-themes: (i) positive reactions to the EmONC content, (ii) demand for EmONC training and, (iii) approaches and time constraints in delivery of the content.

Positive reaction to EmONC content Integrating EmONC within the pre-service midwifery curriculum was acknowledged as important and relevant to potentially improve the quality of midwifery care. Educators found the content useful and integrated it within their classroom and clinical teaching. Educators also reinforced the importance to introduce students to the EmONC-enhanced curriculum so that when they complete their training programme, they have the know-how and confidence to deal with obstetric emergencies.

Table 1 Demographic characteristics of study participants

Characteristics	Educators (N=20) (n (%))	Mentors (N=8) (n (%))
Age (years)		
30–39	5 (25%)	3 (37.5%)
40–49	9 (45%)	4 (50.0%)
50 and above	6 (30%)	1 (12.5%)
Gender		
Male	10 (50%)	7 (87.5%)
Female	10 (50%)	1 (12.5%)
Cadre		
Nurse midwife	20 (100%)	4 (50.0%)
Obstetrician	-	4 (50.0%)
Qualifications		
Advanced diploma	4 (20%)	-
Bachelor's degree	12 (60%)	3 (37.5%)
Master's degree	4 (20%)	5 (62.5%)

“During the clinicals they have been able to apply the skills they have been taught. The EmONC has been of great help, they don't panic when they see an emergency. They are able to attend to clients with confidence, even when they are alone. When the other qualified staff is not available or maybe they have a shortage, they are able to support care and not just be spectators.” Educator, intervention colleges FGD.

Mentors recounted that students loved to participate actively in skills demonstrations as it helped in mastery of skills and application of learned theory. Students recalled that skills demonstrations were conducted in the classroom/skills lab before their clinical placements. This was useful as they could link theory to practice and apply the learned skill when in the clinical placements. They found the EmONC content relevant in the maternity ward placements when they experienced complicated maternal cases that required specific EmONC care. The classroom knowledge and skills demonstrations in EmONC built their confidence in anticipating, detecting and handling obstetric emergencies.

“And my students are appreciating it. It is very important for these people to have this knowledge and they usually tell me they have not gotten any experience as good as the one that is being introduced by the EmONC” Educator, control colleges FGD.

“They were feedback reports of students in clinical placement in various areas.... One of the students was able to use one of the skills of manual removal of a placenta. I did not believe that with the training they would have such confidence.” Mentor, FGD.

Demand for pre-service EmONC training Reports from both intervention and control colleges showed that there was demand for EmONC training from students in upper classes who had completed the midwifery theory and clinical placements without the practical EmONC skills training. This was to build their skills and confidence in handling emergency obstetric cases before exiting the training programmes.

“And we were able to go through it, it was really intense. We were able to go through it with the teachers themselves, the lecturers and then with the students. And I think after that the word went around, the students started demanding that they also be taken through the skills” Educator, intervention colleges FGD.

Approaches and time constraints to deliver EmONC skills

Major approaches used to deliver EmONC within the updated curriculum were either as a blocked 5-day training during an ‘EmONC week’ (only by two colleges, one from each study arm) or specific skills taught within the topic lesson plans in the classroom/skills lab. Although EmONC content was taught in classroom/skills labs, time was cited by educators from both study arms as a key challenge in delivering the content effectively. This was largely due to the reduced time from the initial 3.5 year-nursing and midwifery curriculum to 3 years. As a result, each college had to design their teaching activities to accommodate the EmONC skills within the available limited curriculum time – either as a blocked course for five days or specific skills demonstrated within the topics taught. In addition, staffing levels within institutions in both study arms was a critical factor in the adopted approach to deliver the EmONC content.

“The curriculum is very comprehensive in terms of the EmONC training. But at the same time, we have reduced the number of years in that the curriculum is currently three years, instead of the three and a half. That time is too little to teach the theory sessions and then have the practical skills demonstrations, but we try to combine it during the teaching sessions. I find that it is a bit inadequate.” Educator, control colleges FGD.

Team teaching was identified as a potential solution used in two institutions to deliver blocked EmONC training during the EmONC weeks. The team-teaching included faculty from nursing and midwifery, clinical medicine (reproductive health) and integrated with a few hospital staff.

Students identified that skills demonstrations were often provided in the classroom/skills lab but they had limited opportunities for repeated return demonstrations. This they claimed was due to the inadequate time for the skills demonstrations in the classroom. Hence, practical learning was expected to take place during their clinical placements or at their own time in the skills labs. During the OSCE assessments, gaps were identified in student's ability to identify, set up or use the right equipment for skills practice.

Continuous professional development opportunities for midwifery educators

Educators from both study arms acknowledged the training on EmONC and teaching techniques as a capacity strengthening and professional development opportunity. They found the training important as it built/strengthened their skills and confidence in applying different interactive teaching techniques for theory and

skills to promote learning and helped educators in lesson planning.

"I feel more confident teaching alongside my colleague in terms of teaching midwifery skills through the demonstrations and both in the skills lab and follow up in the clinical area." Educator, control colleges FGD.

There were initial fears and anxiety on the role and conduct of mentorship intervention among educators. Mentors reported that some educators initially were reluctant of the initiative as they thought it was a supervisory, assessment or audit visit for fault finding.

"They (educators) thought that it (mentorship) was more of supervision than support. They thought it was an assessment" Mentor, FGD.

Despite the initial anxiety and fears about the role of mentorship intervention, the mentoring support in the intervention colleges was greatly accepted and welcomed after understanding the goals and the implementation strategy by the mentors. Educators and mentors also acknowledged the administrative and logistical support received from the institutional managers to participate in the mentorship programme. Educators were enthusiastic and reported the mentoring intervention as supportive, encouraging and was greatly appraised for building the confidence of the educators particularly in EmONC skills teaching/demonstrations to students.

"And us as the lecturers it has really boosted our confidence in terms of our skills lab sessions...We had not been very confident in our skills lab sessions." Educator, intervention colleges FGD.

Educators and students liked the use of external mentors drawn from other institutions with different expertise and experiences in midwifery and obstetrics during the lessons. Intervention stimulated and encouraged consultations and updates for capacity strengthening in midwifery, obstetrics and gynecology through the interactive mentoring sessions. Mentors complemented the educators during the teaching sessions of the updated curriculum in both theory and skills demonstrations. Students were also encouraged and actively participated in the teaching sessions as they could ask questions and receive feedback on topical concerns. Improved teaching techniques were effective in promoting confidence and learning among both educators and students.

"We have been able to learn a lot. It is through that mentor support that we have been updated about

the resuscitation of the newborn, the current practices, shoulder dystocia, the best way to teach the skills....mentor demonstrated and updated us on the content like magnesium sulphate use and management of eclampsia and pre-eclampsia. We were able to be updated and shown how to train the student on the same." Educator, intervention colleges FGD.

Although educators were flexible in planning and scheduling the mentoring visits, mentors expressed challenges with time constraints in some colleges in scheduling and completing the mentoring activities. This was largely due to the shortage of faculty and competing school activities involving examinations, students' follow-up, and other administrative/management responsibilities.

Mentors identified that educators were more knowledgeable in theory compared to skills teaching and thus the need for regular hands-on refresher trainings to improve their skills teaching capacity. To promote the mentoring programme, the mentors and educators formed a WhatsApp community of practice group where resources including current guidelines, policies, updates, relevant literature and books could be shared. This platform promoted peer to peer support and sharing of best practices.

Effective teaching strategies

Participants mentioned effective strategies which aided their teaching and learning experiences presented as sub themes below.

Peer teaching and support/team teaching effective for learning Peer teaching and support emerged as a key solution to complement the strengths and weaknesses of the educators and students. This included teacher – teacher, teacher – hospital staff, or student – student as below.

Teacher peer teaching and support Educators highlighted the value in peer teaching and support although this was practiced in a few colleges. This included teacher-to-teacher or teacher-to-hospital midwife for theoretical or clinical skills teaching. Occasionally, midwifery educators collaborated and conducted team teaching of skills with the clinical medicine faculty. It improved interaction and mentoring for colleagues. This was largely in the skills teaching although was also observed and applied in some theoretical sessions. For those who had an opportunity to practice, they commended the approach as an opportunity for them to complement their strengths and weaknesses in skills teaching. In addition, this provided an avenue for them to receive supportive feedback from colleagues to improve their teaching skills.

“And us as the lecturers it has really boosted our confidence... It really built our confidence and now when we go through our peer-to-peer teaching, if one of us is not confident in a particular skill we even go through it ourselves first, we correct each other, we improve each other, and I think that is something unique and we appreciate.” Educator, intervention colleges FGD.

“I was very impressed when I found that they had called in one midwife staff from the labour ward, to come and help them demonstrate (EmONC skill). We agree it was a resource that they could tap on... they need to do that practice with the staff and other competent people in the clinical area before teaching.” Mentor, FGD.

Educators reported that they consulted with one another on emerging updates on specific topics before teaching. Where resources allowed, educators combined with hospital staff to jointly deliver specific EmONC skills to students. This promoted peer support and was beneficial in ensuring that the classroom teaching resonated with the clinical practice.

Student facilitators for peer teaching and support Educators in a few colleges used students to facilitate teaching to their fellow students particularly in EmONC skills. Those identified as student facilitators were either (i) those pursuing advanced diploma qualification in midwifery (ii) senior students in a similar nursing and midwifery programme or (iii) more competent student peers from the same class. Coaching of student facilitators by educators was also acknowledged to strengthen their confidence and competence. Student facilitators also provided personalised support for their peers with specific weaknesses in skills during/after practical teaching sessions. Educators found this approach beneficial as it encouraged active interaction and engagement between learners and promoted learning. Educators observed that students learnt faster from their colleagues as it also motivated the weaker students to strive to achieve similar competencies as their peers. In one of the intervention colleges, student facilitators were integrated in the hospital team to participate by facilitating some EmONC skills sessions to the qualified maternity staff during their weekly continuous professional development activities in the hospital.

“The students are divided into groups with each lecturer so that the lecturer demonstrates, and the students give the return demonstrations, and we ensure that everyone is hands-on. And as we are with the students, we pick those good students who have managed to master the skills very well and encour-

age them to mentor the other students.” Educator, intervention colleges FGD.

“You see, for the students, they will learn better from one another, rather than me. I think that is proven. When you learn from someone who is almost a peer, you are able to understand better. Sometimes a lecturer will be using a language, they may see as if a language is difficult for them. But when they extend the content among one another, they are able to understand it better.” Educator, control colleges FGD.
“On this peer teaching, when we have an EmONC demonstration, when we have one lecturer doing a demonstration, we invite others (lecturers) to participate. Normally we use the senior students who have done that content and have already been assessed. We request them to help the other students and mentor them and supervise.” Educator, control colleges FGD.

Participatory teaching methods Educators and students commended the use of active and participatory teaching techniques to enhance learning. Consequently, mentors observed that mentorship improved the teaching practices of the educators including use of audio-visuals in teaching to promote learning. These included skills demonstrations with return demonstrations, use of small groups discussions for assignments and skills teaching and overall engagement/interaction with learners during teaching sessions. Educators expressed increased confidence and competence in leading EmONC skills teaching. They also integrated videos in the teaching of EmONC skills. However, mentors reported that use of scenarios and facilitating clinical teaching for students was irregularly practiced by the educators. Low confidence of educators in select skills was highlighted as a barrier contributing to low uptake of some of the effective interactive teaching techniques.

“After we taught (classroom), we went to the skills lab where we demonstrated with the students where I think we got the feedback from the students and they really appreciated those sessions.” Educator, intervention colleges FGD.

It was also observed by mentors that in some colleges, educators trained in EmONC only participated in theoretical teaching but not practical skills teaching. This was because some specific courses/lessons, for instance, obstetric emergencies, were assigned to a specific educator. Others recounted that the training received was short/inadequate and needed more refresher trainings to build more confidence.

“The biggest gap there is the fact that the lecturers trained are not teaching the practical part of it. Some were trained but they were not teaching. And there was only one teaching abnormal delivery, who was given all the tasks of demonstrating the skills. And I found that to be a challenge to keep up with the curriculum” Mentor, FGD.

Although there was remarkable improvement in skills teaching, mentors observed that the large number of students was a barrier to effective skills teaching with return demonstrations.

Feedback for effective learning Effective feedback in teaching and learning was also highlighted. Educators from both study arms reported that feedback after clinical skills assessments was provided to improve the students. Observations during the students’ feedback sessions provided strong sentiments both critical of and appreciating the quality of the teachings and support students receive from their teachers. Some students acknowledged the constructive feedback received from educators with clear corrective measures to promote learning. However, some expressed fears that some educators provided feedback that was inappropriate, untimely and ineffective for learning and development. For some, they felt the feedback received was demeaning, disrespectful and discouraging for learning and received in an inappropriate environment.

“For the effective feedback to the students, we usually give the feedback as they demonstrate as we support them. We also have OSCE of the clinical areas and after that assessment we give marks, then we are also able to give the feedback to the students and the shortcomings of the students” Educator, control colleges FGD.

Educators integrated online platforms for receiving anonymous feedback on teaching sessions. However, this was sparsely used by educators from both study arms.

“... we have frequent interaction with the students, generally, in all lessons, they give feedback online, because now we have the Google platform where we can quickly get surveys and get feedback from the students.” Educator, intervention colleges FGD.

Effective collaboration between school and hospital staffs for effective training

Collaboration between colleges and hospitals emerged as an important theme that promoted effective learning. This included collaboration between educators and

hospital midwives to jointly support and mentor students in their clinical placements and co-facilitating EmONC skills teaching (due to faculty shortage, deficiencies in some skills and to align theoretical classroom teaching with clinical teaching and practice). Other collaborations included support with hospital equipment for skills training where appropriate and co-assessment of students in their clinical placements. Educators emphasized the need for strong collaborations between the training institutions and hospitals for the benefit of the students.

“When we are doing the skills lab, for our students, during the skills lab time, sometimes we invite the midwives from the clinical area to help us demonstrate the skills. And we feel this is important for the students to have a contact with the clinical midwives so that when they get to the clinical area, they are already familiar with each other, and this improves on their confidence, and they appreciate.” Educator, intervention colleges FGD.

“At the clinical area, there is also a day that we go through the EmONC skills together using mannequins....We usually involve everyone – the midwives, the medical officers, the clinical officers and also to appreciate the teamwork in managing the mothers and the neonates...” Educator, intervention colleges FGD.

“I was very impressed when I found that they had called in one midwife staff from the labour ward, to come and help them demonstrate (EmONC skill). We agree it was a resource that they could tap on... they need to do that practice with the staff and other competent people in the clinical area before teaching.” Mentor, FGD.

Challenges in implementing the updated pre-service midwifery curriculum

Challenges in implementing the EmONC-enhanced curriculum in pre-service institutions are presented in four themes below: (1) midwifery faculty shortage and workload, (2) infrastructure gaps in simulation teaching, (3) inadequate clinical support for students and, (4) limited resources to support effective learning.

Midwifery faculty shortage and workload

The ICM defines a midwifery faculty as a group of qualified individuals who teach students in a midwifery programme. This includes the following: midwife teachers; experts from other disciplines; and clinical preceptors/teachers [5]. Midwifery educators from both study arms reported an acute shortage of qualified nursing and midwifery educators to support the midwifery training programme. This shortage was attributed to the large

number of nursing and midwifery students in the programme, heavy nursing and midwifery content to be covered, multiple academic activities including teaching, support supervision/mentoring of students, conducting theoretical and clinical assessments and other non-academic administrative roles. Due to the heavy workload, educators indicated that participating in effective teaching for skills and supervision/mentoring of students in the clinical areas during their clinical placements for experience and learning was a challenge. Shortage of midwifery faculty was also highlighted as a key challenge in the uptake of peer teaching and support among educators due to competing priorities and workload. To mitigate the shortage of qualified midwifery educators, institutions relied on hospital nurses and midwives to provide support to students during their clinical placements.

“Having only four lecturers from KMTC is a really big challenge. Out of those four lecturers, one is the head of department and the other is a deputy principal....So we manage to do only one students’ follow-up in a placement of maternity” Educator, intervention colleges FGD.

“Now when we come to the EmONC skills demonstrations, it has been mandatory that we must take the students to the skills lab and include it as well in teaching. But unfortunately, with demonstrations, we cannot do a complete full EMOC because of the shortage of the staff trained to do the same.” Educator, control colleges FGD.

Mentors also emphasized the need for professional development for all midwifery faculty in the institutions. This was attributed to the fact that fewer educators were confident to conduct EmONC skills teaching effectively and no clinical mentors/preceptors specifically assigned to support clinical teaching and learning of students while in their clinical placements. For institutions that offer advanced diploma training for midwives, educators reported that students pursuing the advanced diploma midwifery programmes were requested to support with clinical skills teaching and demonstrations.

Due to the shortage of educators and competing institutional activities, mentors observed that occasionally, it was difficult to have a whole group of midwifery educators participating in the mentorship programme on the intervention day within the institution. Mentors and educators also reflected that the acute shortage of midwifery faculty negatively influenced the quality of training and education including teaching, support in clinical placements for skills acquisition and assessments.

“And also we are few, it is overwhelming when we have to do the EmONC activities and the other teaching activities and the other college activities.” Educator, control colleges FGD.

Infrastructure gaps in simulation teaching

All colleges reported availability of EmONC training equipment although some could benefit from replenishment or repairs. For most colleges, they reported effective collaboration with the hospitals’ staff for support in skills teaching when required. However, there were challenges with the availability of skills labs/classrooms, inadequate space in the skills lab for skills teaching/demonstrations and storage of equipment, worn out equipment that needed replenishment/repairs or lack of consumables. There were also gaps in skills lab equipment inventory with sporadic/infrequent monitoring of equipment availability and functionality through dedicated audits. To mitigate against the inadequate/lack of skills labs, some colleges modified teaching classrooms to act as skills labs for skills demonstrations during teaching sessions while others modified the multi-purpose halls for skills demonstrations with students.

A common feature across all the colleges was that the skills labs were not freely accessible to students for skills practice because of (i) lack of dedicated skills lab technicians (ii) overwhelmed educators participating in teaching, assessments, students’ follow-up during clinical placements and other administrative roles, (iii) inadequate time for skills teaching and practice and (iii) security of the equipment in the skills lab.

“The challenge we have is infrastructure. We have a small skills lab...We organise our classes where we teach, we organise the sessions there and the equipment and we are able to teach them well” Educator, intervention college FGD.

“At the same time, when you are teaching this skill, the time is so limited. The students cannot practice enough, and you can’t leave the students in the skills lab on their own, because of the security and safety of our equipment. So they need somebody to be there all the time maybe to demonstrate and do a return demonstration...Because you have other activities to attend to. Maybe you have another class or you need to be somewhere else. So it becomes a challenge because these students want to engage and you are involved in other activities” Educator, control colleges FGD.

Skills lab personnel for safe keeping and maintenance of training equipment, support skills lab functionality and students for skills demonstrations were sparsely available

across the study colleges. Although the skills labs were almost adequately equipped with training equipment in all colleges, mentors also identified that educators were often unfamiliar with how to utilise some equipment in the skills labs. This was highlighted to contribute to low skills lab utilisation for skills teaching and demonstrations.

“The lecturer is there though they do not visit the skills lab frequently. Some of the lecturers don’t know what is in the skills lab such as the EmONC kit and where to find it and how to use them (equipment).” Mentor, FGD.

Inadequate clinical support for students

Across the two study arms, students experienced inadequate support during their clinical placements. Most times, students reported that they largely participated by observing provision of emergency obstetric care services and rarely were they involved in the care. Educators confirmed that feedback from students showed that there was a variation or conflicting information from the classroom teaching and the hospital practices in some health facilities. Four main sub-themes under the theme were: (i) inadequate hospitals for clinical experience, (ii) hospital staff trained on EmONC, (iii) ineffective supervision and mentoring support for students and (iv) no clinical mentors to support clinical teaching and learning.

Inadequate comprehensive EmONC hospitals for clinical experience High numbers of students and training schools (nursing/medical and clinical medicine programmes) vs. inadequate high volume/comprehensive EmONC health facilities for clinical experience and learning was highlighted as a major challenge. As a result, alternative options of hospitals away from the training region or lower level/basic EmONC health facilities were integrated and formed part of the clinical placement sites for students. Congestion of different cadre of students in clinical placements was a key factor that inhibited effective learning. At the basic EmONC health facilities, students commented that most of the time, they completed their placements without experiencing and/or participating in the management of some obstetric cases like obstructed labour, shoulder dystocia, breech presentation and newborn resuscitation in birth asphyxia. It was also observed that some students completed their clinical placements without having clinical placements and participating in care of obstetric emergencies in a comprehensive EmONC hospital.

Untrained hospital staff in EmONC In some hospitals, educators enthused about the availability of EmONC-

trained midwives who supported students while in their clinical placements. This promoted harmony between the classroom teaching and clinical practice which enhanced positive student learning and experience.

“In fact, when we go for clinical supervision, we find that they are being taken through the skills, they speak in one language which is a real advantage to us and I think the challenge comes when we start taking our students out of this hospital then the supervision becomes challenging.” Educator, intervention colleges FGD.

“Clinical supervision, we are lucky, all the midwives in labour ward are trained in EmONC and help to train our students. Our students are giving us positive feedback when it comes to EmONC” Educator, control colleges FGD.

However, outdated clinical practices were also observed and learned by students in clinical placements in some training hospitals they were attached to. This was attributed to lack of/irregular training or professional development opportunities on EmONC for healthcare workers working in maternity.

“When the students have given us feedback about the clinical area, they have been giving us very negative feedback about the clinical practices which are going on...We had realised the staff had not been updated about the EmONC, all of them and the county nurse was notified and she has given me a feedback that they are planning to put a nurse there who has done the training, the on-job training. Also, they are planning in the next financial year to include the EmONC training to at least update the midwives working in the maternity area.” Educator, intervention colleges FGD.

Ineffective supervision and mentoring support for students Feedback from educators and students revealed sporadic supervision visits by educators with no standard schedule for students support in most colleges, inefficient/lack of mentoring support in clinical placements by educators and hospital staff, untrained hospital staff providing clinical support. Students revealed that most visits by educators were only conducted towards the end of the clinical placement to prepare students for their clinical placement assessments. Locally developed institutional specific monitoring forms/tools for supervisory visits to be completed by the students and the visiting educator were available in only two of the 20 participating colleges. Most times, students were pessimistic about clinical teaching and learning as they expressed that their educa-

tors only visited and enquired about their general welfare including accommodation and upkeep while out of college for their clinical placements. Also, students rarely had opportunities to express challenges they experienced in their clinical placements including clinical teaching. Surprise findings included educators not involved in teaching midwifery also participating in the supervisory visits. The FGDs revealed that some ineligible and clinically inexperienced educators participated in the clinical supervisory visits for financial gains. Some educators also acknowledged that they lacked the clinical experience to provide mentoring support to the students.

“So, as I say the specific mentoring within the clinical placement might not be very much applicable in our setups because of the workload. So, we rely on the staff that are within the hospital to do the mentoring, us what we do is basically clinical supervision and mentoring, but it will not be as comprehensive as it would be if we had a specific mentor within the hospital centre.” Intervention college FGD.

“Okay the only challenge I would say is when it comes to the clinical supervision outside the (college training hospital). I don’t know why people are seeing money instead of teaching. You find that people are not qualified or trained in EmONC in midwifery teaching, but they want to make a follow-up.” Intervention college FGD.

No clinical mentors to support clinical teaching and learning Availability/lack of clinical mentors to support students during their clinical placements was highlighted by both educators and students. There were no dedicated clinical mentors employed by the colleges to support students while on clinical placements. Instead, colleges relied on hospital staff who had other primary duties in the clinical departments to provide mentoring support to students. Students and educators reiterated that for cases where they had a hospital staff assigned as a mentor, this was a secondary role that depended on the ward/unit activities.

“We have a big challenge when it comes to mentoring because we don’t have full-fledged mentors who are specifically handling students. What we have is somebody in the hospital, but that person has some other duties or some other roles.” Intervention college FGD.

“It would have been better if we had mentors within the clinical placements who could be staying with the students for quite some time compared to lecturers having to go back to the clinical placement and mentor the students.” Intervention college FGD.

“With clinical supervision and mentoring, we are still working on it so much, though we still have these bottleneck issues in term of the mentors in the hospital. We do not have them specifically to support students.” Control college FGD.

Limited resources to support effective learning

Although some colleges received some administrative support to engage hospital staff to support during EmONC skills teaching and mentoring of students, financial constraints emerged as a key challenge for institutionalizing and sustaining the initiatives. Educators reported limited resources by institutions to support academic functions to promote learning among students. Key areas affected were (i) clinical support supervision visits by educators for students during their clinical placements, (ii) recruitment of additional dedicated educators, clinical mentors and skills lab technicians to support clinical teaching and mentoring, (iii) refresher training for educators to update their knowledge and skills (iv) facilitating hospital staff and clinical mentors to effectively support institutional educators with skills/clinical teaching and mentoring of students, (v) expand skills lab infrastructure and replenishment of skills training equipment and consumables, (vi) motivation/support for student facilitators during their dedicated mentoring of colleagues and (vii) facilitated coffee/lunch breaks for students to fully participate in scheduled EmONC trainings.

“On clinical supervision, we have been going to the other clinical placement sites that they have been giving us. When the students are rotating within the college training hospital, we are able to do two or more supervisions but there is a challenge when we take our students far away because we cannot be facilitated to do supervisions more than twice in one place.” Intervention college FGD.

Mentors’ perspective on the future of mentorship

Mentors strongly recommended the institutionalizing of the mentoring intervention within the training institutions as part of the continuous professional development for educators. Mentors from the KMTC emphasized the need to institutionalize intervention in respective regions and establish regional hubs for refresher trainings for educators to strengthen their knowledge, skills and confidence. To consolidate learning, mentors expressed the need for blocked time for EmONC training – preferably for final year students before their exit into service delivery; encourage team/peer teaching and skills demonstrations for midwifery and clinical medicine students;

develop a critical mass of student facilitators to support fellow students at free time and ensure access to the skills labs for skills practice. Appropriate recognition of the student facilitators and highly competent educators who supported mentoring of their colleagues was recommended as motivation for the selfless support of the passionate faculty. Importantly, it was emphasized that updates and guidelines should be jointly disseminated to the pre-service and in-service midwifery workforce to promote seamless classroom teaching and clinical practice.

Discussion

Main findings

Our study explored experiences of educators, students and mentors (Kirkpatrick level 1) and application of what was learned into practice (Kirkpatrick level 3) in the implementation of an EmONC-enhanced curriculum. Challenges and areas for further support and investment to improve the quality of pre-service midwifery education and training were also identified. Key experiences include: (i) educators and students reacted positively to the EmONC content, (ii) the capacity strengthening training and mentoring of educators improved their knowledge, skills and confidence in teaching the EmONC-enhanced curriculum (iii) students applied the acquired EmONC knowledge and skills in their clinical practice during their clinical placements. Key interventions and improvements reported include: (i) educators improved their teaching skills by integrating participatory teaching methods (ii) educators adopted peer teaching and team teaching in their practice and (iii) improved feedback mechanisms between educators and students. Despite the positive reaction to the updated curriculum and capacity strengthening initiatives, key challenges with (i) midwifery faculty shortages (ii) high number of students in the programme (iii) inadequate time for delivery of the updated curriculum and (iv) inadequate clinical support for students in the clinical placements were identified. Strong collaborations between the training institutions and hospital staff were critical for strengthening the quality of pre-service education. However, resources including teaching infrastructure, supporting faculty and equipment replenishment were identified as key to the successful implementation of a competency-based curriculum.

Interpretation of our findings

Our findings are important as they are aligned and respond to WHO's 7-step action plan to improving the quality of midwifery education [17], ICM's global standards for midwifery education [5] and the global strategic directions for nursing and midwifery 2021–2025 [47].

This study demonstrated that a mentorship intervention improved educators' knowledge, skills and confidence in skills teaching and integration of feedback mechanisms during teaching sessions. The mentorship intervention provided a much valued and needed opportunity for continuous professional development to update/improve their competencies for effective teaching. Joint specific programmes involving clinical midwives who participate in mentoring students during their clinical placements are important for enhanced learning and optimal clinical practice. Mentoring has been shown to improve skills acquisition, understanding of the professional role, personal and professional development. Mentoring relationships for student to student (peer), midwife to student, and midwife to new graduate midwife have been evaluated [48–51]. However, studies evaluating the role of mentorship for midwifery educators are limited.

Our findings are similar to other studies that showed that midwifery educators were not competent enough in their professional teaching roles particularly skills teaching [7, 9, 18, 52]. Challenges identified include an overwhelmed faculty compared with the high numbers of students in the programme. This is a barrier to effective theory and practical skills teaching, clinical mentoring and support, assessments and providing effective feedback for learning and improvement. In addition, teaching infrastructure (skills labs and equipment) and hospital placement sites are inadequate and overstretched. This finding is similar to other studies conducted in LMICs [10, 15, 18, 53–55] and may impact the uptake and scale-up of the mentorship programme in the future. Overstretched hospital placement sites and inadequate teaching infrastructure have been shown to have a direct negative impact on the quality of education and midwifery graduates produced for service delivery [3, 17]. In competency-based education, active learner participation and accountability must be encouraged [56]. Training programmes are expected to integrate simulation skills training in their curricula before the clinical placements for clinical practical experience. Evidence shows that simulation and skills training make the students feel prepared and confident before clinical practice [31]. Although ICM recommends institutions to consider students vs. teacher ratios for effective training and education, the actual ratios are not prescribed. Therefore, training schools should design curriculum and programmes with a balanced context-specific teacher-student ratio, including clinical preceptors-student ratio, appropriate teaching and evaluation methods to promote learning and available resources for effective education as recommended by the ICM [5].

Our study findings compare to other studies where there is weak, ineffective or lack of supervisory follow-up

support during the clinical placements for clinical experiences [18, 19, 32, 52, 53, 55, 57]. Curriculum implementation in the clinical area is a critical component to effective pre-service midwifery education and quality of midwifery graduates [7]. Clinical placements are essential for quality pre-service training and education and development of clinical competence [58]. During the clinical placements, students are exposed to the real practical settings and expected to apply the knowledge and skills acquired from classroom teaching under supervision. This experience helps students to develop mastery and right attitudes for practice. The International Association for Health Professions Education emphasizes that direct supervision and mentorship of students positively affects student development and patient outcome. For impact, supervision should be structured with regular scheduled meetings, provide essential constructive feedback regularly and should be aligned to students' learning outcomes in the clinical placement [59]. In addition, effective supervisors/clinical teachers should have good interpersonal skills, good teaching skills and be clinically competent and knowledgeable [59, 60]. Competent and updated educators and clinical midwives in training hospitals are critical for effective support of learning for midwifery students through supervision and mentoring in the clinical settings. Evidence shows that learning opportunities for students during clinical placements increase when there is joint support from academics/faculty and recognized, motivated preceptors in the clinical environment [29, 61–63]. The collective team of qualified individuals who teach students in a midwifery programme (midwife teachers; experts from other disciplines; and clinical preceptors/teachers) are important faculty to prepare competent midwifery workforce [5].

Our findings showed that peer education was an approach practiced by both educators and students in theory and clinical skills teaching. Evidence suggests that peer education creates a safe supportive learning environment, learners view near-peer teachers as effective role models and increases confidence among learners and teachers [64]. Peer education as a complementary method in teaching along with the didactic approach have been found appropriate and effective [65]. Peer teaching increase student's confidence and performance in clinical practice and improve learning in the psychomotor and cognitive domains [65, 66]. When effectively used, students can share skills, experiences, and knowledge as equals. Also, it encourages feedback between students and saves time for the educators/preceptors [67]. Although the use of students' peer teaching is associated with positive outcomes, students should be provided with adequate supervision and coaching by faculty and clinical mentors. Peer teaching approach can be ineffective with poor student learning due to incompatible students'

personalities and learning styles [66]. Therefore, careful consideration and support is required for this approach in midwifery education and training.

A one-off training in EmONC for final year midwifery students before graduation can consolidate the knowledge and skills learned over the years through classroom and clinical experience. However, learning opportunities on patients can be limited. Therefore, simulation-based education can facilitate learning hands-on clinical examination and procedural skills, using mannequins and realistic part-task and high-fidelity simulators prior to approaching patients [68]. Evidence has shown that simulation trainings improve knowledge, skills, self-efficacy, and satisfaction in learning. Additionally, they can reduce anxiety among learners before exit into the workforce [69–71]. However, resources (human, financial and infrastructure – space, equipment, and consumables) are essential to support the initiative across all the colleges. Sustainability should be considered, and midwifery education managers must therefore plan and allocate resources to implement the EmONC updated midwifery curriculum for optimal impact.

Strengths and limitations

To the best of our knowledge, this was the first study that explored experiences of educators, their mentors and students on the implementation of an EmONC-enhanced midwifery curriculum in Kenya. The study was conducted in KMTC, the largest trainer of the nursing and midwifery workforce in Kenya. Findings led to the 2024 KMTC nursing and midwifery curriculum review and allocation of 40-hours of EmONC specific content implemented in all the public mid-level training colleges in Kenya. This is to allow each institution to teach/facilitate EmONC training for final year midwifery students as a blocked standardised training to consolidate the knowledge/skills learned during the programme. The FGDs were considered adequate due to their information power for qualitative research (indicating that the more information the sample holds, relevant for the actual study, the lower amount of participants is needed) [45, 72]. Qualitative data was collected from multiple groups (educators in both study groups, mentors and students) and this enhanced data triangulation and improved the credibility of the findings [73]. Use of both inductive and deductive coding demonstrated rigor and helped uncover new themes/patterns in data, was more objective, reliable, flexible and adaptable to new information [44, 74]. The study was conducted in sampled public mid-level nursing and midwifery training colleges and may affect the generalizability of the findings. As such, it may not be representative of the experiences of all the nursing and midwifery educators and students in Kenya.

Implications

Our findings showed the value of training and mentorship interventions improved educators' knowledge and skills. For effective education, curricula reviews should be followed with specific capacity strengthening of educators to deliver the updated curricula. To achieve this, sustainable, specific, and relevant skills-based professional development programmes should be designed and targeted to ensure that midwifery faculty are competent to provide quality education. To strengthen practical skills training, midwifery educators should keep their own clinical skills up to date in clinical practice on a regular basis – annually to demonstrate evidence and complement professional development. Relevant policy and opportunities for clinical experience by educators to improve their supervisory roles in the clinical areas for midwifery students should be considered.

Training programmes should ensure that students have sufficient midwifery practice experience in facility-based and community settings to attain the current ICM Essential Competencies for Midwifery Practice. For adequate preparation of competent midwifery graduates, support in skills acquisition through simulation training and supervision and mentoring during clinical placements for practice should be strengthened. Educators and clinical mentors should be regularly updated to deliver a harmonised competency-based curriculum. Opportunities for structured constructive feedback should be provided to enhance student learning of key clinical skills.

Future research on return on investments is needed. The impact of an updated EmONC-enhanced curriculum delivered within the pre-service education and strengthened midwifery faculty on maternal and newborn health outcomes is needed.

Conclusion

Midwifery faculty and students reacted positively to the updated competency-based curriculum as relevant for practice. Training and mentoring intervention improved educators' competencies to deliver the updated EmONC-enhanced curriculum. The study reveals an overwhelmed midwifery faculty and an urgent demand for students support in clinical settings to acquire the international ICM competencies for practice. There are regulatory challenges: high number of students verses faculty, lack of clinical practice for the midwifery academic faculty and lack of mandatory regular professional development opportunities for specific clinical and teaching skills competencies for educators. Ineffective clinical supervision and mentoring of students during clinical placements due to low numbers of competent faculty hinders effective student learning. Although the bundle of interventions was effective in improving institutional capacity, a policy for regular professional development of midwifery

educators is needed for sustainability. Midwifery training institutions should refocus resources towards educator recruitment, skills training equipment, training and deployment midwifery educator and clinical mentors for optimal return on investments.

Supplementary Information

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Supplementary Material 1

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Author contributions

DNS and CA conceptualised and designed the study protocol; designed the mentoring intervention and data collection tools. DNS, PN and AU conducted the FGDs and student debrief sessions. DNS coded and analysed the data and interpreted the results, drafted the primary manuscript, reviewed, and prepared it for publication. ANL provided qualitative expertise on methods, analysis, interpretation of findings and substantively reviewed the draft manuscript. SBZ, HA, CM, ET, EN, LW, LN, IB and CB participated in the design of the study procedures and substantively reviewed the drafts and final manuscript. CA obtained funding for the study, provided oversight in investigation, analysis, interpretation and substantively reviewed the manuscript drafts. All the authors read and approved the final manuscript.

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Data availability

The transcripts/datasets generated and/or analysed during the current study are not publicly available due to the confidentiality of the data but are available from the corresponding author on request.

Declarations

Ethics approval and consent to participate

The study was approved by Liverpool School of Tropical Medicine's Research and Ethics Committee (REC 20–050), Moi University/Moi Teaching and Referral Hospital Institutional Research and Ethics Committee (IREC) (IREC FAN: 0003764), Kenya Medical Training College (KMTC/ADM/74/Vol VI) and National Commission for Science, Technology, and Innovation (License No: NACOSTI/P/21/8931). Study participants received an electronic detailed study information booklet containing all information about the study. Written informed consent was obtained from participants. Participation was voluntary with an option to withdraw at any time with no consequences. Transcripts were anonymized with pseudonyms used to maintain confidentiality. Assessments and debrief meetings were conducted in a designated private space within the colleges for privacy.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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