

Midwives' practice and perception of labour and delivery care at the Mulago National Referral Hospital, Uganda

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Abstract

Background/Aims The majority of maternal deaths occur during labour, delivery, or within the first 4 hours after birth. This can be reduced by the care that midwives provide. At Mulago Hospital, little is documented on midwives' current practice and their perception of care offered during labor and delivery. The number of maternal and neonatal deaths as a result of preventable causes such as postpartum haemorrhage, obstructed labour, ruptured uterus and sepsis remains high. The aim of this study was to document the current practice of midwives, explore midwives' perception towards practice and identify factors that influence practice during birth in Uganda, to identify possible areas for improvement.

Methods A cross-sectional study was conducted of midwives working in the three labour wards at the Mulago National referral hospital: the general ward, the private ward and the midwifery-led ward. Midwives' perceptions were explored using a semi-structured questionnaire, which asked midwives about their current practice and their perception of the care offered.

Findings Care was found to be lacking in several areas. Only one-fifth (20.0%) of midwives reported always checking temperature every 4 hours. Only 20.5% reported that women are always supported in being mobile during labour. Less than half of the midwives (44.4%) knew the recommended drugs for managing the third stage of labour. Infection prevention practices were poor. Only 54% of midwives knew how to prepare magnesium sulphate for management of severe pre-eclampsia and eclampsia. Overall, the general labour ward was found to have the most gaps in midwives' knowledge. Lack of continuing education, supplies, teamwork and clinical guidelines were reported to affect practice. Staff shortages and midwives' decisions being underlooked by obstetricians were also reported to affect practice.

Conclusions Overall, the study found that midwifery practice is suboptimal in key areas such as infection prevention, use of a partograph, and management of pre-eclampsia and eclampsia. Continuous professional development, provision of resources, and strengthening teamwork are recommended to improve maternal health outcomes at Mulago Hospital.

Key words: Labour; Delivery; Midwifery practice; Perception towards practice; Healthcare services

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Introduction

Morbidity and mortality of mothers and their newborns is a major concern in reproductive health. Midwifery practice contributes to maternal and newborn birth outcomes and is defined as the care provided to childbearing women, newborns, infants and families during pregnancy, birth, and the postpartum period (Renfrew et al, 2014). Midwifery practice involves actions that provide timely prevention and management of complications, discussion with colleagues, respect for women's individual conditions, and working in partnership with women to empower them and their families (Campbell and Graham, 2006). Merdad and Ali (2018) found that over half of maternal deaths in

sub-Saharan Africa occur during the intrapartum and early postpartum period. Within the Mulago National referral hospital, little is known about the clinical practices of midwives, which, if practices are not up to standard, may contribute to the high maternal mortality rates.

The Uganda Bureau of Statistics estimated Uganda's maternal mortality ratio at 336/100 000 live births (Uganda Bureau of Statistics, 2016). The main causes of maternal death are postpartum haemorrhage, pre-eclampsia, eclampsia and sepsis (Uganda Bureau of Statistics, 2016). Despite evidence that 7/10 women in Uganda now give birth in a health facility with support from a skilled birth attendant, the annual maternal mortality ratio reduction between 1990 and 2015 in Uganda is only 3% (United Nations Population Fund, 2017; United Nations Children's Fund, 2019). Renfrew et al (2014) suggested that the most important aspect of the birthing process for women was to give birth in a safe, clinically sound environment and to be cared for by kind, competent staff. This perception was supported by Downe et al (2018), who found that the quality of care by skilled midwives was important to the birthing process.

Uganda has training institutions for midwives that provide qualifications at the following levels: Certificate, Diploma, Bachelor, Masters, and Doctorate. Uganda also provides in-service training, continuous professional development, to keep professionals updated on information concerning the provision of health care services. Continuous professional development is not compulsory, but the Uganda Nurses and Midwives Council is working on a framework where nurses and midwives will be required to have gained 50 development credits within a 3-year period in order to renew their practice licenses (Uganda Nurses and Midwives Council, 2016).

This study investigated current midwifery practice and midwives' perception towards the care offered during labour and delivery in the Mulago National referral hospital. In 2012, the maternal records in the Department of Obstetrics and Gynaecology reported 161 deaths out of the 25 000 total deliveries (0.64%) (data on file). In the 2016/2017 report, there was a reported reduction in this rate (0.57% in 2016 and 0.51% in 2017) (data on file). Although there has been a welcome decline in maternal deaths, it is slow. Evidence has demonstrated that the presence of an adequate number of midwives, who are well-equipped with modern emergency obstetric care skills, such as a partograph or the practice of active management of the third stage of labour, contributes to the reduction of maternal and newborn morbidity and mortality (Högberg, 2004; World Health Organization, 2012). This study was undertaken to help identify gaps in midwifery practice and the factors that may influence practice at Mulago in order to improve maternal health outcomes.

Methodology

This was a cross-sectional study that used a semi-structured questionnaire for data collection. The study was conducted in the Mulago National referral and teaching hospital, the largest hospital in Uganda. It offers highly specialised services that are not available in any other hospital in the country, including obstetric fistula repair, orthopaedic surgery, and a special care neonatal unit (EA Health, 2020). There are approximately 2200 employed staff, of which 946 (43%) are nurses and midwives (data on file). The study was carried out in the three labour wards of the hospital: the general labour ward, the private labour ward and the midwifery-led unit. The general and private wards provide both high and low risk services, whereas the midwifery-led unit only provides low risk services.

The general labour ward admits approximately 80 mothers per day, with an average of 70 births per day, and has a total of 44 midwives. This unit receives mothers from all health centres and hospitals around and beyond Kampala. The private ward admits approximately six mothers per day, has an average of around five births per day and has a total of 26 midwives. The midwifery-led unit acts as a model unit for teaching purposes (midwives and doctors). It admits approximately 30 mothers per day, delivers approximately 25 children per day and has a total of 16 midwives.

These labour wards offer 24-hour services, with the help of other team members such as obstetricians and gynaecologists.

Sampling

The sample size, calculated using Yamen's 1967 formula of proportions, was found to be 71. A total of 63 out of 71 midwives responded, a response rate of 88.7%.

The sampling interval was obtained using the size of the population (N) divided by the size of the required sample (n) to obtain the sampling width (k). The sampling interval is the standard distance between the lists used for the sample (Polit and Beck, 2004). In this study, the interval was $86/71=1.2$. This meant that every midwife that was on duty and had a consent form signed was enrolled to participate in the study. During the recruitment period, the selection of midwives was carried out on a daily basis using consecutive sampling. Revisits were made to each unit until the sample size was reached.

Inclusion criteria

The study included midwives with 6 months' experience and above, working in the wards where the study was conducted and who had consented to participate in the study. Midwives with more than 6 months experience were selected in order to ensure that the answers accurately reflected the general practices of the unit over time.

Data collection

A semi-structured, self-administered questionnaire was used. The tool was piloted in a separate government hospital and adjustments made to ensure that the questions were clear to the participants. The principal investigator delivered the questionnaires to the participants in their respective wards after a planned appointment. The questionnaire contained three sections, A, B and C. Section A asked respondents for their sociodemographic data, including their qualification level, age, and whether they had recently attended in-service training. Section B asked midwives about care services provided during labour and delivery and was split into two sections: general care and specific care. The questions were a mix of closed and open-ended. The specific care items were adapted from the Ministry of Health (2012) and Jhpiego (2008). Midwives were asked whether they performed the items on the list. Those that answered 'yes' were then asked how often they provide these services, using a Likert scale. Section C asked midwives to report factors influencing the care offered to mothers during labour and delivery, including an open-ended question on the challenges when working with obstetricians and gynaecologists, and factors of the healthcare setting that influence the quality of care given on the ward.

Ethical considerations

Written permission to carry out the study was granted by Mulago Hospital ethics research committee (Approval of Protocol MREC: 485). Written informed consent was obtained from the participants; their autonomy, privacy and confidentiality were respected during the study.

Data analysis

Data were entered into the computer using EPI data software, cleaned and exported to STATA software version 11 for analysis with the help of a statistician. Univariate analysis was used to identify care offered by midwives and bivariate analysis was conducted to explore the factors influencing the care. The results are presented using frequency tables and proportions.

Results

A total of 63 midwives completed the questionnaires. **Table 1** reports the distribution of midwives across the wards. The majority (57%) worked in the general labour ward.

Table 2 shows the sociodemographic characteristics of the participants. The majority were registered midwives (76.2%), between 31-40 years old (58.8%), and were Christians (90.5%). Over one-third (34.9%) had never attended in-service training.

Table 3 shows midwives' perceptions of the care that they offer as part of their role in the hospital. Generally, midwives reported that they do not always perform the services

Table 1. Distribution of midwives by ward

Ward	Frequency, <i>n</i> =63 (%)
Private labour	17 (27)
General labour	36 (57)
Midwifery-led	10 (16)

Table 2. Sociodemographic characteristics of participants

Characteristic	Frequency, <i>n</i> =63 (%)
Qualification	
Registered midwives	48 (76.2)
Enrolled midwives	12 (19.0)
Other	3 (4.8)
Age (years)	
20–30	4 (6.4)
31–40	37 (58.8)
41–50	21 (33.3)
>50	1 (1.6)
Level of education	
Secondary	53 (84.0)
University	10 (16.0)
Years since midwifery training	
0–5	11 (17.5)
6–10	16 (25.4)
11–15	16 (25.4)
16–20	12 (19.1)
>20	8 (12.7)
Last attendance at in-service training	
Never attended	22 (34.9)
1 year ago	8 (12.7)
2 years ago	13 (20.6)
≥3 years ago	20 (31.8)
Years working in unit	
0–5	44 (69.8)
6–10	10 (15.9)
>10	2 (3.2)
No response	7 (11.1)

their ward offers. In particular, only 20.0% of midwives reported always measuring temperature every 4 hours and only 27.3% reported always measuring blood pressure every 4 hours.

Table 3. Specific care offered by midwives during labour

Care	Response		
	Total 'yes' responses	Always	Sometimes
		<i>n</i> (%)	<i>n</i> (%)
Timely admission of patients	63	52 (82.5)	5 (7.9)
Appropriate triaging	55	27 (49.1)	21 (38.2)
Critically ill women receive immediate and appropriate initial care	60	44 (73.3)	12 (19.0)
Blood pressure is checked at least every 4 hours	55	15 (27.3)	36 (65.5)
Temperature checked at least every 4 hours	40	8 (20.0)	31 (77.5)
Pulse checked at least hourly	43	16 (37.2)	23 (53.5)
Fetal presenting part and fetal heart rate is checked every 30 minutes	53	21 (39.6)	28 (52.8)
Appropriate pain relief is offered	42	19 (45.2)	21 (50.0)
Physical presence and support by midwife is given	59	30 (50.9)	24 (40.7)
Partographs used for labour	57	21 (36.8)	30 (52.6)
Encouraging bladder emptying	62	46 (74.2)	10 (16.1)
Timely treatment is given to mothers	56	23 (41.1)	31 (55.4)
Maternal resuscitation carried out when necessary	57	34 (59.7)	11 (19.3)
Infection prevention practices carried out	58	37 (63.8)	15 (25.9)
Health education and counselling are undertaken	59	21 (35.6)	31 (52.5)
Complications are identified early and managed promptly	59	31 (52.5)	22 (37.3)
Findings are documented appropriately	56	29 (51.8)	20 (35.7)
Breathing technique instructions are given	51	14 (27.5)	31 (60.8)
Women are supported in being mobile	44	9 (20.5)	31 (70.5)
Oral fluids are offered and encouraged	62	33 (53.2)	22 (35.5)

Midwives were asked which two first-line drugs should be used in the prevention and management of postpartum haemorrhage. The correct response is oxytocin and misoprostol. **Table 4** shows the results of this section of the questionnaire. Many (44.4%) of the participants answered this question correctly. However, only one midwife from the midwife-led ward gave the correct answer.

Table 5 shows the participants' answers to the open-ended question on the key method in diagnosing and managing obstructed labour. Only 19 (30.2%) of the participants correctly included the partograph in their answer.

Participants were asked an open-ended question on how they would manage pre-eclampsia and eclampsia during delivery. Only 54.9% of the participants reported that magnesium sulphate was used for immediate management. Only 43.6% correctly reported that taking blood pressure every 4 hours alongside administration of anti-hypertensive drugs would help prevent pre-eclampsia and eclampsia. Some participants (19.4%) reported that urinalysis is part of preventive measures, while a small number (4.8%) thought timely referral would help in prevention.

Table 4. Midwives' responses to the two first-line drugs used in the prevention and management of postpartum haemorrhage by ward

Drugs	Wards			
	Private	General	Midwifery-led	Total
	n=17 (%)	n=36 (%)	n=10 (%)	n=63 (%)
Oxytocin/misoprostol	14 (82.4)	13 (36.1)	1 (10.0)	28 (44.4)
Oxytocin/ergometrine	1 (5.9)	15 (41.7)	7 (70.0)	23 (36.5)
Oxytocin/tranexamic acid	0 (0)	2 (5.6)	0 (0)	2 (3.2)
Others	2 (11.8)	6 (16.7)	2 (20.0)	10 (15.9)

Table 5. Midwives' knowledge about diagnosis and management of obstructed labour by ward

Method	Wards			
	Private	General	Midwifery-led	Total
	n=17 (%)	n=36 (%)	n=10 (%)	n=63 (%)
Mentioned partograph use	5 (29.4)	13 (36.1)	1 (10.0)	19 (30.2)
Did not mention partograph	12 (70.6)	23 (63.9)	9 (90.0)	44 (69.8)

Table 6. Midwives' knowledge of how magnesium sulphate is mixed

Answer	Wards			
	Private	General	Midwifery-led	Total
	n=17 (%)	n=36 (%)	n=10 (%)	n=63 (%)
Correct preparation	10 (58.8)	21 (58.3)	3 (30.0)	34 (54.0)
Did not know	7 (41.2)	15 (41.7)	7 (70.0)	29 (46.0)

How magnesium sulphate is mixed

Participants were asked how to prepare magnesium sulphate, the drug used to manage pre-eclampsia and eclampsia during delivery. The results are shown in **Table 6**. Only 54.4% of the participants reported the correct dilution of the drug, which is as follows: 4g of the drug (equivalent to 8 ml of 50% solution of magnesium sulphate) is added to 12 ml of either water or saline, to make 20 ml of a 20% solution.

Prevention of infection

Midwives were asked about their practices to prevent infection- they were first asked how they prevent infection in their practice and the results are shown in **Table 7**. The majority of midwives (63.5%) responded with antibiotic use, which is not a preventative measure. The antibiotics given included ampicillin, ceftriaxone, erythromycin, intravenous flagyl. Many (52.4%) reported that they provide education to women on hygiene and cleaning, which can help prevent infection. Many (41.3%) reported that using aseptic techniques during labour can prevent infection.

Table 8 shows the midwives' response to the open-ended question of the single most important infection prevention method. Only 19.0% correctly responded with handwashing.

Table 7. Midwives' responses on methods for prevention of infection

Method	Frequency, n=63 (%)
Use of antibiotics	40 (63.5)
Health education on hygiene/cleaning	33 (52.4)
Aseptic techniques during labour	26 (41.3)
Handwashing	19 (30.2)
Decontamination of instruments	12 (19.0)
Minimal vaginal examination	4 (6.3)
Avoiding sharp instruments	3 (4.8)
Good clinical practice	3 (4.8)
Proper mixing of Jik (disinfectant)	2 (3.2)
Giving treatment where necessary	2 (3.2)
Using alcohol for hand hygiene	2 (3.2)
Proper disposal of waste	1 (1.6)
Maintaining space between patient beds	1 (1.6)
Applying tetracycline to the baby's eyes	1 (1.6)

Table 8. Midwives' responses on the most important method for infection prevention by ward

Item	Wards			
	Private, n= 17 (%)	General, n= 36 (%)	Midwifery-led, n= 10 (%)	Total, n=63 (%)
Handwashing	4 (23.5)	7 (19.4)	1 (10.0)	12 (19.0)
Other	13 (76.5)	29 (80.6)	9 (90.0)	51 (81.0)

Table 9. Challenges faced by midwives when working with obstetricians and gynaecologists

Challenges	Frequency, n=63 (%)
Obstetricians do not respect/value decisions made by midwives	19 (30.2)
Absenteeism	10 (15.9)
Few qualified obstetricians and gynaecologists, majority are residents	8 (12.7)
Other obstetricians are rude	10 (15.9)
Lack of teamwork	4 (6.3)
Suspicion that midwives are practicing unethical behaviour (such as accepting bribes)	2 (4.1)
Ward rounds are not done at the same time	3 (4.8)
Leave non-technical work to midwives	1 (1.6)
Poor communication system	1 (1.6)
They give too many instructions	1 (1.6)
Usually no treatment space for mothers	1 (1.6)

The private ward had the largest proportion of midwives with the correct answer (23.5%) compared to the general and midwifery-led wards (19.4% and 10.0%, respectively).

Table 9 shows the challenges reported by midwives in working alongside obstetricians and gynaecologists. The major challenges included; obstetricians not respecting or valuing the contributions of midwives (28.6%), absenteeism (15.9%) and rudeness of some obstetricians (15.9%). Lack of teamwork was reported by only 4 (6.3%) of the participants.

Table 10 shows the midwives' responses when asked about the factors that affect their practice, specifically regarding the facilities and resources available. A large majority (96.8%) reported that there were not enough midwives to staff the wards and many (77.8%) reported

Table 10. Factors that affect practice	
Resources	Frequency, n=63 (%)
Staffing level	
Lack of midwives	61 (96.8)
Equipment	
Lack of availability	52 (82.5)
Equipment is old	7 (11.1)
Not autoclaved in time	1 (1.6)
Overcrowding	1 (1.6)
No regular servicing of equipment	1 (1.6)
Supplies	
Inadequate	49 (77.8)
Adequate	10 (15.9)
Drugs	
Poor availability	50 (79.4)
Good availability	11 (17.5)
Communication system within the hospital	
Always a failure	38 (60.3)
Language problems	1 (1.6)
Lack of training	1 (1.6)
No feedback	2 (3.2)
No system available, midwives must use personal phones to communicate	1 (1.6)
Referral system	
Not appropriate	22 (34.9)
Patients enter hospital without referral	2 (3.2)
Problems with coordination between health facilities	1 (1.6)
Health personnel do not accompany mother	1 (1.6)
Need to sensitise drivers on emergencies	1 (1.6)
Need to be revised	1 (1.6)
Sometimes delays referring patients	2 (3.2)
Transport problems	2 (3.2)

that the supplies were inadequate for the needs of the ward. The majority (79.4%) reported poor drug availability on their ward.

Discussion

This study identified a number of gaps in the midwifery practices at Mulago Hospital. Of those that offered the service, only 27.3% of midwives reported always measuring blood pressure every 4 hours and only 20.0% reported always measuring temperature every 4 hours. Only 36.8% of midwives always used a partograph during labour and only 35.6% always offered health education and counselling following delivery. There were also issues with the knowledge of the midwives in some areas. Less than half (44.4%) of midwives correctly identified the two first line drugs used for management of postpartum haemorrhage and less than one-third (30.2%) reported that they use a partograph for the diagnosis and management of obstructed labour. Infection prevention practices were generally poor, as in all cases many nurses did not report using methods such as antibiotics, health education or handwashing for prevention of infection in their ward. Factors reported to affect care on the wards included lack of supplies (77.8%), staff shortages (96.8%), and failures in the communication system of the hospital (60.3%).

The majority of respondents were 31–40 years old (58.8%), ranging from 0–15 years in service. The majority of participants (69.8%) reported that they had been working for the unit for 0–5 years. This could be a result of staff being rotated to different units. One-third (35%) of the participants have never attended any in-service training on emergence obstetric nursing conditions and only 33% had received in-service training in the past two years. This could be the result of an institutional problem where training is not organized for midwives or the result of individual challenges that do not allow midwives to attend scheduled continuous medical education. This is in line with a study in the Soroti District that identified in-service training as a gap in midwifery practice (Kaye, 2000).

The majority (76.2%) of the participants were registered midwives, implying that many have not advanced beyond this qualification level. This reflects the reality of the qualifications of nurses and midwives in Uganda, where the majority are at certificate and diploma level (Uganda Nurses and Midwives Council, 2016).

This study found that practice within the private unit was generally of higher quality. A large majority (82.4%) of the nurses on this ward correctly answered which drugs are used to prevent and manage postpartum haemorrhage, compared to those on the general and midwifery-led wards (36.1% and 10.0%, respectively) and the majority (58.8%) could correctly prepare magnesium sulphate compared to the midwifery-led ward (30.0%). However, infection practice was especially poor across all wards, with only 19.0% of midwives correctly identifying handwashing as the single most important method for preventing infection. Sub-optimal practice may be the result of a lack of continuing professional development in areas such as managing obstetrical emergencies and infection prevention and control. In addition, a lack of guidelines could also be associated with the poor practice. In a study conducted in Western Uganda, only 2% of users could fill a partograph to the required standard (Ogwang et al, 2009). The factors attributed to this were lack of in-service training on partograph use and a lack of guidelines. Another study conducted in Iran found that midwives were not aware of proper infection prevention practice (Tabatabaei et al, 2016). Less than 40% of the midwives had attended an infection control training course, and a similar lack of training may also be responsible for poor infection prevention practice in Uganda. Proper handwashing is the single most important technique that can be applied by all health workers to prevent infection (Pollack, 2001; Pincock et al, 2012). Hand hygiene has remained unacceptably low (Trampuz et al, 2004; Geberemariam et al, 2018). According to Chitimwango (2017), infection control practices are poor among healthcare providers in Zambia.

Poor practice could also be the result of a lack of resources, supplies, drugs, or equipment, such as blood pressure machines. This study found that essential parameters were only regularly measured by a small number of participants (blood pressure was reported as always taken every 4 hours by only 27.3% of midwives, temperature was reported as only always measured regularly by only 20%). Observation of vital signs is important on admission, as

Key points

- The maternal mortality rate in Uganda is still high, despite improvements in the provision of trained birth attendants.
- There was a lack of accurate knowledge in midwifery practice surrounding infection prevention, correct preparation of magnesium sulphate, and the use of a partograph in monitoring labour.
- A third of the midwives had never attended in-service training.
- Midwives identified a lack of staff, training, supplies and communication as affecting their practice.
- Organising continuous professional development training, provision of resources, attitude change and strengthening teamwork are recommended.

these initial values are used as a baseline for comparison with subsequent values (Alden et al, 2013). The necessary frequency for measuring vitals depends on the condition of both the mother and the fetus (Taylor et al, 2013). Suboptimal measurement of vital signs could be the result of a lack of equipment. A system which does not provide the necessary resources often leads to inadequate practice (Awases et al, 2013).

Staff shortages were reported by a large majority of participants (96.8%), which may also contribute to poor practice. According to Vidler (2012), staff shortages can have significant effects on the delivery of effective healthcare. Lack of teamwork was also reported. It has been found that healthcare professionals who work as a team make fewer mistakes, especially when each individual knows his/her responsibility (Xyrichis and Ream, 2008). A lack of teamwork may be a result of the working environment on the ward. Some of the midwives (28.6%) reported that obstetricians undermine their decisions, and, as a result, that they fear to make contributions towards the care they provide.

Limitations of the study

Since the study was undertaken in a single-site hospital, findings may not be generalisable.

Conclusion and recommendations

The practice appeared suboptimal in all three units with most gaps identified in the general labour ward. The reasons highlighted by the midwives included lack of continuing education, supplies, staff shortages, obstetricians under looking the decisions made by midwives and lack of team work. A lack of clinical guidelines to follow and late reporting of mothers to health facility were also thought to affect practice. Organising continuous professional development trainings, provision of resources, attitude change and strengthening teamwork are recommended.

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