Active management of the third stage of labour: knowledge and challenges of obstetric caregivers in selected health facilities in Fako Division, Cameroon

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Research Article

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Abstract

Background: In Cameroon, the decrease in MMR (Maternal Mortality Ratio) from PPH (Postpartum Haemorrhage) despite reported use of the Active Management of the Third Stage of Labour (AMTSL) is slower than required to achieve the Third Sustainable Development Goal (SDG3) hence the need to question obstetric caregivers' competence in AMTSL, as well as the factors hindering its proper use

We therefore aimed to assess obstetric caregivers' knowledge about AMTSL, as well as the determinants and barriers of AMTSL in selected hospitals in Fako Division, Cameroon.

Methods: This was a hospital-based cross-sectional study of 150 participants recruited in 27 health facilities in Buea, Limbe and Tiko health districts from January 15, 2020, to March 31, 2020. Participants' socio-demographic and qualification characteristics, knowledge and challenges, and the references guiding their practice of AMTSL were collected using a structured questionnaire. AMTSL knowledge was categorized as poor or good and the determinants of good AMTSL knowledge were evaluated. The data was analyzed in SPSS version 25.0.

Results: Of the 150 caregivers interviewed, only 48.7% had good knowledge of AMTSL. In logistic models, participants' use of AMTSL increased Good knowledge of AMTSL (AOR: 12.96, CI: 1.12 -150.3, $p=0.04$). Unavailability of drugs and/or equipment, insufficient staff coverage and lack of knowledge and training of the staff were the major challenges reported.

Conclusion: Obstetric caregivers in Fako division have knowledge gaps and face numerous challenges in AMTSL use, which could account for the consistently high MMR from PPH. Filling this knowledge gap and mitigating the challenges of these caregivers would certainly accelerate progress towards the achievement of SDG3.

Background

Despite the great role played by the Active Management of the Third Stage of Labour (AMTSL) over the years to reduce the burden of Postpartum Haemorrhage (PPH) and Maternal Mortality Ratio (MMR) [1], the MMRs in many low and middle-income countries are still quite high. For example, in Nigeria, it is 814 per 100,000 live births, Tanzania (398 per 100,000 live births), Ethiopia (353 per 100,000 live births), Ghana (319 per 100,000 live births) in 2015 [2] and Cameroon (467 per 100,000 live births) in 2018 [3]. This high MMR in Cameroon concurs with the consistently high burden of PPH despite the utilization of AMTSL as demonstrated by studies conducted at the Douala General Hospital and the University Teaching Hospital Yaoundé in 2008 and 2013 that reported prevalences of primary PPH of 1.68% and 4.1% respectively [4]. A prevalence of primary PPH of 13.9% was reported at the University Teaching Hospital Yaoundé in 2014 [5], and 23.6% in the Bonassama District Hospital in 2015 [4, 6], which are quite high. Nevertheless, Cameroon has shown great improvement in their MMRs over the years as reported in the Demographic and Health Surveys (DHS); from 784 per 100,000 live births in 2014 [7] to 467 per 100,000 live births in 2018 [3]. However, despite this great improvement, this consistently high MMR and

prevalence's of PPH displays slow progress towards achieving the Third Sustainable Development Goal (SDG3).

However, it has been shown that the AMTSL practice of obstetric caregivers in Cameroon and other low and middle-income countries is not consistent with the recommendations of the International Federation of Obstetrics and Gynaecology (FIGO), especially keeping in mind that a satisfactory level of knowledge and skills, a critical judgment and access to good equipment are mandatory for every birth attendant to perform AMTSL [1]. Moreover, studies conducted in Ethiopia, Nigeria and Ghana highlighted inadequate knowledge, lack of training, communication difficulties between more- and less-experienced caregivers, inadequate staff coverage and other socio-demographic factors as some of the causes of these lapses [8–10]. This, together with the high MMR and prevalence of PPH in Cameroon despite reported AMTSL use, therefore, raised the argument that AMTSL may not be properly done by the obstetric caregivers. We thus hypothesized that the knowledge and practice of AMTSL by caregivers is low while the challenges are numerous in selected hospitals in Fako Division, Cameroon. This highlighted the necessity to study AMTSL knowledge, practice and challenges of obstetric caregivers in some selected hospitals in Fako Division, Cameroon.

This study aimed to assess obstetric caregivers' knowledge about AMTSL, as well as the determinants and barriers of AMTSL in selected hospitals in Fako Division, Cameroon

Materials And Methods

This was a hospital-based cross-sectional study carried out from January 15, 2020, to March 31, 2020. Obstetric caregivers in selected health facilities in Buea, Tiko and Limbe health districts were enrolled in the study. The selection criteria were as follows; health facilities with a maternity unit, health facilities with registered information at the District Health Offices and health facilities with greater numbers of obstetric caregivers.

Those who gave written consent filled a self - administered semi-structured questionnaire to collect data on their knowledge of AMTSL, the challenges they faced concerning its use, the recommendations they had for better AMTSL practice and the references guiding their practice of AMTSL. The questionnaire was adapted from similar studies carried out in Nigeria (2015, 2018) and Ethiopia (2015, 2018) [9–13] and the standardized KAP (Knowledge, Attitude and Practice) questionnaire from KAP manual published in 2014 by Food and Agricultural Organization (FAO) [14]. The criteria for scoring obstetric caregivers' knowledge of AMTSL was adapted from a similar study in Ethiopia [10]. The maximum score was 25, and the knowledge was categorized as good or poor. (Table 1)

Table 1: Criteria for scoring obstetric caregivers' knowledge of AMTSL

Data collected was entered in CPro version 7.3 and analyzed using SPSS version 25. Categorical variables were presented as frequencies and percentages, while continuous variables were expressed as means and standard deviations. Chi-square or Fisher Exact test was used to compare categorical variables where appropriate and Logistic regression was used to identify factors independently associated with knowledge of AMTSL. *P*-values <0.05 were considered statistically significant.

Results

The present study included 150 obstetric caregivers recruited from 27 health facilities in Buea, Limbe and Tiko health districts, of whom, 62 (41.3%) were nurses, 56 (37.3%) midwives, 26 (17.3%) general medical practitioners and 6 (4%) were obstetricians (Fig 1).

Fig 1: Study Consort

Participants' age ranged from 21 to 67 years with a mean age of 34.19 ±9.27 years. Most of the participants, 76 (50.7%) were in the age group 21 to 30 years. A great majority of the participants were females, 121 (80.6%). The mean work experience was 7.77 (±7.52) years with 50 (33.3%) caregivers having between one to two years of work experience and 43 (28.7%) having more than 10 years of work experience. Furthermore, a majority of the caregivers, 91 (60.7%) worked in unclassified healthcare facilities (Health centres), 46 (30.7%) in Primary healthcare facilities (District hospitals) and 13 (8.7%) in a (Secondary healthcare facilities) Regional Hospitals. (Table 2)

Table 2: Sociodemographic and characteristics of the study population (n=150)

Also, the majority of caregivers, knew about AMTSL, 146 (97.3%), reported using AMTSL, 141 (94.0%) and had received training on AMTSL, 126 (84.0%) notably with 73 (58.9%) at the Medical/nursing/midwifery School and 38 (30.6%) at job training workshops (Table 3)

Table 3: Training information of participants on AMTSL

Globally, only 73 (48.7%) caregivers had good knowledge of AMTSL (Fig 2), of whom 22.7% (34/150) were midwives, 12% (18/150) were general medical practitioners, 12% (18/150) were nurses and 2% (3/6) were Obstetricians (Fig 3).

Fig 2: Global or overall knowledge level on AMTSL

Fig 3: Distribution of good knowledge level on AMTSL per profession

Only 45.3% of the caregivers knew all the three components of AMTSL (66.7% of obstetricians, 55.4% of midwives, 46.2% of general medical practitioners and 33.9% of nurses). However, up to 94.6% of the

Caregivers knew of oxytocin as the first line uterotonic drug recommended for AMTSL, 91.1% knew that the recommended dose of the uterotonic of choice for AMTSL was 10 IU (of oxytocin) and 77.9% of them reporting IM route as the recommended route to administer the drug during AMTSL (Table 4).

Table 4: Knowledge of Caregivers on AMTSL (MCQs and Likert scale) (n=150)

Caregivers who reported using AMTSL were 13 times more likely to have good knowledge of AMTSL compared to those who reported not using it (AOR: 12.96, 95%CI: 1.12 - 150.3, $p=0.04$). The profession and training on AMTSL were confounders (Table 5).

Table 5: Determinants of good knowledge of AMTSL (n=150)

Insufficient staff coverage, 31 (22.8%), unavailability of drugs and/or equipment, 23 (19.9%) and lack of knowledge and training of the staff, 17 (12.5%) were the major challenges reported. Furthermore, the challenges varied significantly between caregivers ($p=0.013$) (Table 6).

Table 6: Challenges of caregivers to AMTSL practice (n=136)

Organization of training programs, seminars and workshops on AMTSL following the standard and updated guidelines was the major recommendation proposed by caregivers, 61 (45.9%). Provision of an adequate supply of oxytocin and other delivery equipment, 21 (15.8%) as well as improvement in staff coverage, 21 (15.8%) were both greatly recommended too (Table 7).

Table 7: Recommendations to improve AMTSL practice (n=133)

The use of Standard Operating Procedures (SOPs), charts and/or posters on AMTSL, 76 (69.7%) pasted on the walls in the maternity ward was the main reference guiding the caregivers' practice of AMTSL. Only six per cent of caregivers reported using WHO or evidence-based practice guidelines to guard their practice of AMTSL. That notwithstanding up to 12 (11%) of respondents did not have any reference guide of their practice of AMTSL (Table 8).

Table 8: Reference guide of AMTSL practice (n=109)

Discussion

Knowledge of caregivers on AMTSL

In our study, we observed an overall good knowledge level on AMTSL in 48.7% of caregivers. This was very high compared to 7.0% and 10% of caregivers reported in separate studies in Tanzania and 37.7% reported in Ethiopia [10,11,13]. Our finding was, however, lower than the 51.5% reported in Ethiopia and 57.8% and 66.7% reported in studies carried out in Nigeria [9,10,15]. In that line, midwives were the most knowledgeable group with 22.7% of them with good knowledge of AMTSL. They were followed by general medical practitioners (12%), nurses (12%) and lastly obstetricians (2%). Despite having comparable MMRs to, and better MMRs than some of the countries in the studies aforementioned, this low knowledge level of caregivers on AMTSL is worrisome indicating that AMTSL practice may not be adequate. A possible explanation could be the lack of workshops on AMTSL and/or inadequate pre-service and/or in-service training on AMTSL. Also, the studies carried out in Nigeria, Ethiopia and Tanzania [9,10,11,13,15] principally assessed midwives and nurses, meanwhile our study assessed physicians, midwives and nurses. Besides, physicians in the studied health facilities are usually called up to manage complicated third stages of labour and hence take less part in uncomplicated deliveries [16].

When assessing the caregivers' knowledge of the components of AMTSL, we observed that less than half of the caregivers (45.3%) knew all the three main components of AMTSL. Our finding was higher than that reported in South Africa (36.0%) [17] but was however very low compared to findings in Tanzania (70.1%), Ethiopia (63.2% and 58.0%) and Lesotho (62.2%) [10,11,16,18]. The majority of respondents were able to state at most 2 of the components correctly. A possible explanation could lie in the difference in the questionnaire used in our respective studies. Ours had open-ended questions while theirs had multiple choice questions for one to select the right answer. This reduced the chance of guess work.

The Guideline Development Group (GDG) of WHO considered the use of uterotonics as the main intervention within AMTSL, and, in our study, administration of uterotonics was the most frequently reported AMTSL component by the caregivers. This shows that despite not knowing all the components of AMTSL, many knew the most important component.

Determinants of knowledge of caregivers on AMTSL

The fact that caregivers' use of AMTSL was the only factor independently associated with good knowledge of AMTSL in our study contrasted with a similar study carried out in Ethiopia [16] where the profession of the caregivers was the only independently associated factor to a good knowledge of AMTSL. Caregivers who reported using AMTSL were more likely to have good knowledge on it as compared to those who reported not using it. This can be explained by the saying practice makes perfect, as their regular use of AMTSL has urged them to know all about it to ensure adequate practice and thus has improved their knowledge on the subject.

Challenges to AMTSL utilization

Insufficient staff coverage (22.8%) was the major challenge to the use of AMTSL faced by caregivers. This challenge was also reported by caregivers interviewed in similar studies carried out in Ghana and

Tanzania [8,11]. Unavailability of drugs and equipment, as well as lack of knowledge and training on AMTSL, were also major challenges reported in Tanzania, Ghana and Nigeria [8,11,15].

The recommendations for better practice of AMTSL proposed by the caregivers under study were in line with the challenges they reported; with the organization of training programs, seminars and workshops on AMTSL following the standard and updated guidelines, provision of an adequate supply of oxytocin and other delivery equipment as well as improvement of staff coverage being the major recommendations they proposed.

Our study also revealed that 11% of caregivers did not have any reference guiding their practice of AMTSL. Moreover, only six per cent of the caregivers reported using guidelines from international bodies like WHO or evidence-based practice to guide their practice of AMTSL. The Majority of them used standard operating procedures (SOPs), charts and/or posters on AMTSL (69.7%) pasted on the walls in the maternity ward as the main reference guiding their practice of AMTSL confirming the hypotheses that most caregivers rely more on standard operating procedures (SOPs) (usually pasted on the walls of maternity units) rather than actual (updated) guidelines or directives on AMTSL [19]. Therefore, there was no scientific backing of their practice [20].

Strengths and limitations

A qualitative arm of this study could enlighten us more on the challenges faced by caregivers on the practice of AMTSL.

Our study included physicians (obstetricians and general medical practitioners), which only a few studies in sub-Saharan Africa have done.

Finally, our study was the first to assess obstetric caregivers' knowledge on AMTSL, the challenges they face in its use and the determinants of good knowledge on AMTSL in Cameroon.

Conclusion

There is a knowledge gap in AMTSL among obstetric caregivers in Buea, Limbe and Tiko health districts with less than half having good knowledge.

Caregivers' use of AMTSL was the only determinant of good knowledge of AMTSL identified in these health districts.

Challenges reported by the caregivers in the practice of AMTSL included the lack of training and workshops, insufficient staff coverage and the unavailability of drugs and/or equipment.

These challenges could account for the high MMR from PPH in Cameroon despite AMTSL use as well as the slow progress towards achieving SDG3.

Declarations

Ethical approval and consent to participate

Approvals for this study were obtained from the Institutional Review Board (IRB) of the Faculty of Health Sciences of the University of Buea (FHS-UB), [Ref. No. 2020/1057-01/UB/SG/IRB/FHS]; the Regional Delegation of Public Health for the South West Region [Ref. No. R11/MINSANTE/SWR/RDPH/PS/496/786], the District Medical Officers (DMOs) of Buea [Ref. No. FVoI2/L/MINSANTE/RDPH SW/DHS Buea/159], Limbe [Ref. No. 413B/SWR/RDPH/DMOL/33] and Tiko Health Districts, [Ref. No. 2020/28II/MINSANTE/RDPHSW/THD-65] and the Directors of the selected health facilities.

All eligible participants were informed on the aim and objectives of the study and possible adverse effects (time-consuming to fill questionnaires) after which the information sheet was given to each of them. Participants were given opportunities to ask questions for clarity. Participants who accepted to be part of the study gave written consent. No material or financial incentives were given to encourage participation in the study. Confidentiality was ensured by coding and keeping the data collected very securely through the use of passwords only accessible to the principal investigator. No information on identification such as names was obtained from the participants, rather codes were used to make sure it could not be traced back to them

Consent for Publication

Not applicable

Availability of data and materials

The authors declare that data sufficient to produce the presented results will be made available on reasonable request to the Department of Obstetrics and Gynaecology, Faculty of Health Sciences, University of Buea. Data requests can be submitted through the corresponding author.

Conflicts of interest

The authors declare having no conflict of interest.

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Not applicable

Author's contributions

Tih William Ntchompbopughu: Conception of the topic, designed the protocol, carried out data collection, drafted the manuscript.

Egbe Obinchemti Thomas: Conception of the topic, Supervised, interpreted the results, revised and edited the manuscript.

Tendongfor Nicholas: Data analysis, review and editing of the manuscript.

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Tables

Table 1: Criteria for scoring obstetric caregivers' knowledge on AMTSL [10]

Caregivers' Knowledge	Scoring(N)	Aggregate score (%)
Poor	<20	<80
Good	20-25	≥80

Table 2: Socio-demographic characteristics of the study population (n=150)

Variables	Frequency	Percentage (%)
Age groups		
21-30 years	76	50.7
31-40 years	40	26.7
41-50 years	25	16.7
>50 years	9	6.0
Mean ($\pm$ SD) years	34.19 ($\pm$ 9.27)	
Sex		
Female	121	80.7
Male	29	19.3
Marital status		
Married	74	49.3
Single	76	50.7
Profession		
General medical practitioner	26	17.3
Midwife	56	37.3
Nurse	62	41.3
Obstetrician	6	4.0
Work experience (years)		
1-2 years	50	33.3
3-5 years	32	21.3
6-10 years	25	16.7
>10 years	43	28.7
Mean ($\pm$ SD) years	7.77 ($\pm$ 7.519)	
Workplace		
Health centre (Unclassified)	91	60.7
District hospital (Primary care centre)	46	30.7
Regional hospital (Secondary care centre)	13	8.7

AMTSL: Active Management of the Third Stage of Labour **SD:** Standard deviation,

Table 3: Training information of Participants on AMTSL

Variables	Frequency	Percentage (%)
Do you know AMTSL		
No	4	2.7
Yes	146	97.3
Have you ever received training on AMTSL		
No	24	16.0
Yes	126	84.0
If yes where (n=124)		
At Jobsite training workshop	38	30.6
When observing my colleague performing it	7	5.6
From job aid references	6	4.8
At medical/nursing/midwifery school	73	58.9
Do you use AMTSL		
No	9	6.0
Yes	141	94.0

AMTSL: Active Management of the Third Stage of Labour

Table 4: Knowledge of Caregivers on AMTSL (MCQs and Likert scale) (n=150)

Variable	General medical practitioner n (%)	Midwife n (%)	Nurse n (%)	Obstetrician n (%)	Total n (%)
The first line uterotonic recommended for AMTSL is (n=149)					
Others	1 (4.0)	2 (3.6)	5 (8.1)	0 (0.0)	8 (5.4)
Oxytocin**	24 (96.0)	54 (96.4)	57 (91.9)	6 (100.0)	141 (94.6)
The recommended dose of that drug during AMTSL is (n=146)					
Others	5 (19.2)	2 (3.6)	5 (8.6)	1 (16.7)	13 (8.9)
10 IU**	21 (80.8)	54 (96.4)	53 (91.4)	5 (83.3)	133 (91.1)
The recommended route to give that drug during AMTSL is (n=149)					
Others	4 (15.4)	12 (21.4)	15 (24.6)	2 (33.3)	33 (22.1)
Intramuscular**	22 (84.6)	44 (78.6)	46 (75.4)	4 (66.7)	116 (77.9)
Three main components of AMTSL (n=150)					
Not aware	14 (53.8)	25 (44.6)	41 (66.1)	2 (33.3)	82 (54.7)
Aware**	12 (46.2)	31 (55.4)	21 (33.9)	4 (66.7)	68 (45.3)
Within how long should AMTSL be completed (n=134)					
Others (<5mins and >10mins)	3 (13.0)	17 (30.8)	15 (28.9)	2 (50.0)	37 (27.6)
5 to 10 minutes**	20 (87.0)	38 (69.1)	37 (71.2)	2 (50.0)	97 (72.4)
The main goal of AMTSL is to (n=145)					
Increase uterine contractility	0 (0.0)	2 (3.7)	1 (1.6)	0 (0.0)	3 (2.1)
Facilitate placental separation	1 (4.2)	3 (5.6)	6 (9.8)	1 (16.7)	11 (7.6)
Prevent PPH	4 (16.7)	14 (25.9)	16 (26.2)	3 (50.0)	37 (25.5)
All**	19 (79.2)	35 (64.8)	38 (62.3)	2 (33.3)	94 (64.8)
Administer 10 units of IM oxytocin after delivery of the anterior shoulder (n=143)					
Disagree	20 (76.9)	27 (50.9)	37 (63.8)	4 (66.7)	88 (61.6)
Agree**	6 (23.1)	26 (49.1)	21 (36.2)	2 (33.3)	55 (38.5)
Administer 10 units of IM oxytocin immediately after delivery of the placenta (n=140)					
Agree	9 (36.0)	13 (24.5)	21 (37.5)	1 (16.7)	44 (31.4)
Disagree**	16 (64.0)	40 (75.5)	35 (62.5)	5 (83.3)	96 (68.6)
If oxytocin is not available, administer 0.5 mg of Ergometrine IM (n=131)					
Agree	19 (82.6)	50 (92.6)	42 (87.5)	4 (66.7)	115 (87.8)
Disagree**	4 (17.4)	4 (7.4)	6 (12.5)	2 (33.3)	16 (12.2)
If oxytocin is not available, administer 600 micrograms of Misoprostol (PO) (n=123)					
Disagree	12 (54.6)	14 (28.0)	15 (32.6)	3 (60.0)	44 (35.8)
Agree**	10 (45.4)	36	31	2 (40.0)	79 (64.2)

		(72.0)	(67.4)		
Clamp and cut the cord after 1-3 minutes following delivery of the baby (n=139)					
Disagree	7 (28.0)	9 (16.4)	12 (22.2)	1 (20.0)	29 (20.9)
Agree**	18 (72.0)	46 (83.6)	42 (77.8)	4 (80.0)	104 (79.1)
Wait for a strong uterine contraction (2-3 minutes) before delivering the placenta (n=143)					
Disagree	2 (7.7)	17 (32.0)	9 (15.5)	1 (16.7)	29 (20.2)
Agree**	24 (92.3)	36 (68.0)	49 (84.5)	5 (83.3)	114 (79.8)
Wait for a gush of blood before applying controlled cord traction CCT (n=140)					
Disagree**	6 (25.0)	14 (26.0)	22 (39.3)	3 (50.0)	45 (32.3)
Agree	18 (75.0)	40 (74.0)	34 (60.7)	3 (50.0)	95 (67.9)
Controlled cord traction (CCT) is done during the contraction (n=139)					
Disagree	6 (24.0)	16 (19.7)	16 (29.6)	0 (0.0)	38 (27.3)
Agree**	19 (76.0)	38 (70.3)	38 (70.4)	6 (100.0)	101 (72.7)
Uterine massage is done immediately after delivery of the placenta (n=145)					
Disagree	2 (8.0)	1 (1.8)	5 (8.5)	0 (0.0)	8 (5.5)
Agree**	23 (92.0)	54 (98.2)	54 (91.5)	6 (100.0)	137 (94.5)
Uterine massage is done every 15 mins in the first hour, then every 30 mins in the next hour following delivery of the placenta (n=139)					
Disagree	6 (26.0)	18 (33.3)	10 (17.2)	1 (25.0)	35 (25.2)
Agree**	15 (74.0)	36 (66.7)	48 (82.8)	3 (75.0)	104 (74.8)

****:** Correct response; **AMTSL:** Active Management of the Third Stage of Labour; **PPH:** Postpartum Haemorrhage

Table 5: Determinants of good knowledge on AMTSL (n=150)

Variables		Knowledge on AMTSL n (%)			Univariate analysis	Multivariate analysis	
		Poor	Good	Total	<i>p</i> -value	AOR (95% CI)	<i>p</i> -value
Profession (n=150)							
General practitioner	medical	8 (10.4)	18 (24.7)	26 (17.3)	<0,001	0.28 (0.04-1.85)	0.187
Midwife		22 (28.6)	34 (46.6)	56 (37.3)		0.65 (0.12-3.50)	0.611
Nurse		44 (57.1)	18 (24.7)	62 (41.3)		2.17 (0.39-12.03)	0.374
Obstetrician		3 (3.9)	3 (4.1)	6 (4.1)		1	
Have you ever received training on AMTSL (n=150)							
Yes		60 (77.9)	66 (90.4)	126 (84.0)	0,037	1.05 (0.34-3.26)	0.932
No		17 (22.1)	7 (9.6)	24 (16.0)		1	
Do you use AMTSL (n=150)							
Yes		69 (89.6)	72 (98.6)	141 (94.0)	0,034	12.96 (1.12-150.30)	0.040
No		8 (10.4)	1 (1.4)	9 (6.0)		1	

AMTSL: Active Management of the Third Stage of Labour, **AOR:** Adjusted Odds ratio;
CI: Confidence interval,

Table 6: Barriers of caregivers to AMTSL practice (n=136)

Variables	General medical practitioner n (%)	Midwife n (%)	Nurse n (%)	Obstetrician n (%)	Total n (%)	p-value
Challenges on the implementation of AMTSL (n=136)						
Unavailability of drugs/equipment	5 (21.7)	11 (20.8)	5 (9.3)	2 (33.3)	23 (16.9)	0.013
Mother's refusal to cooperate	0 (0.0)	5 (9.4)	6 (11.1)	0 (0.0)	11 (8.1)	
Placenta accreta/retention	0 (0.0)	9 (17.0)	8 (14.8)	0 (0.0)	17 (12.5)	
Insufficient staff coverage	7 (30.4)	9 (17.0)	15 (27.8)	0 (0.0)	31 (22.8)	
Complications such as bleeding	1 (4.3)	1 (1.9)	5 (9.3)	0 (0.0)	7 (5.1)	
Lack of knowledge and training of staff	6 (26.2)	2 (3.8)	6 (11.1)	3 (50.0)	17 (12.5)	
No challenge	4 (17.4)	16 (30.2)	9 (16.7)	1 (16.7)	30 (22.1)	

Bold, Statistically significant, **AMTSL**, Active Management of the Third Stage of Labour
p-values from Chi-square and Fisher Exact test

Table 7: Recommendations to improve AMTSL practice (n=133)

Variable	General medical practitioner n (%)	Midwife n (%)	Nurse n (%)	Obstetrician n (%)	Total n (%)
Suggestions for reinforcement of AMTSL (n=133)					
Perform abdominal massage and controlled cord traction	1 (4.0)	1 (2.0)	1 (1.9)	0 (0.0)	3 (2.3)
Proper health education and adequate assessment of women before delivery	0 (0.0)	4 (8.2)	5 (9.4)	0 (0.0)	9 (6.8)
Trainings//Workshops and seminars/Update of information	17 (68.0)	22 (44.9)	17 (32.1)	5 (83.3)	61 (45.9)
Adequate supply of oxytocin and other delivery equipment	4 (16.0)	8 (16.3)	9 (17.0)	0 (0.0)	21 (15.8)
Improve staff coverage	2 (8.0)	6 (12.3)	13 (24.5)	0 (0.0)	21 (15.8)
None	1 (4.0)	8 (16.3)	8 (15.1)	1 (16.7)	18 (13.4)

Table 8: References guiding AMTSL practice (n=109)

Variable	General medical practitioner n (%)	Midwife n (%)	Nurse n (%)	Obstetrician n (%)	Total n (%)
Reference at workplace on how to perform AMTSL (n=109)					
Use of partograph	1 (4.3)	7 (16.3)	2 (5.3)	0 (0.0)	10 (9.2)
Presence of charts, SOPs and posters in the maternity	18 (78.4)	28 (65.1)	25 (65.7)	5 (100.0)	76 (69.7)
WHO/Evidence based practice	3 (13.0)	1 (2.3)	2 (5.3)	0 (0.0)	6 (5.5)
From experienced staff	0 (0.0)	0 (0.0)	2 (5.3)	0 (0.0)	2 (1.8)
Capacity building programs and hospital meetings	0 (0.0)	3 (7.0)	0 (0.0)	0 (0.0)	3 (2.8)
None	1 (4.3)	4 (9.3)	7 (18.4)	0 (0.0)	12 (11.0)

AMTSL, Active Management of the Third Stage of Labour, **SOPs**, Standard Operating Procedures

Figures

Figure 1

Study Consort

Figure 2

Global knowledge level on AMTSL

Figure 3

Distribution of good knowledge level on AMTSL per profession