

THIRD STAGE OF LABOR PRACTICE AND ASSOCIATED FACTORS AMONG SKILLED BIRTH ATTENDANTS WORKING IN GAMO AND GOFA ZONE PUBLIC HEALTH FACILITY, SOUTHERN, ETHIOPIA

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ABSTRACT

BACKGROUND: The third stage of labor is the most perilous for the woman because of the risk of postpartum hemorrhage (PPH). Proper management of the third stage of labor is an effective intervention to prevent maternal mortality.

OBJECTIVE: This study aimed to assess the status of active management of the third stage of labor practice and associated factors among obstetric care providers working in public health facilities of Gamo and Gofa zone, southern Ethiopia

METHODS: In this institution-based cross-sectional study, 356 health care providers who were working in public health facilities of the Gamo and Gofa zone were involved. Interviews were administered; a pre-tested and semi-structured questionnaire with an observational checklist was used to collect data. Epi Data version 3.2 was used to code and enter data, which were analyzed using SPSS version 24. Descriptive statistics were calculated for each variable, and binary logistic regression analysis with 95% confidence intervals (CIs) was carried out to determine the associations between predictor variables and outcome variables.

RESULT: The finding of the study revealed that 48.1% of health care providers have a good practice on active management of the third stage of labor. Clinical years of experience (AOR = 4.32; 95%CI: (2.78-9.10)), having taking in-service basic emergency obstetric care (B-EmOC) training (AOR = 2.34; 95%CI: 1.87-4.46), and having a conducive delivery room (AOR=1.86 95% CI 1.32-2.24) were significantly associated with good practice active management of the third stage of labor.

CONCLUSION: The finding of this study showed that the practice of active management of the third stage of labor was low. Clinical years of experience, having a satisfactory delivery room, and taking in-service training were some of the factors associated with good practice toward active management of the third stage of labor. Providing competency-based the use of up-to-date clinical guidelines, and ensuring regular training will be needed to improve the practice of the third stage of labor.

KEY WORDS: Active management, Third stage of labor, Practice, Ethiopia

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INTRODUCTION

Postpartum hemorrhage (PPH) is the leading cause of maternal mortality, accounting for approximately 35% of all maternal deaths¹. Currently, the World Health Organization recommends active management of the third stage of labor as a critical intervention for PPH prevention². Active management of the third stage of labor (AMTSL) is a feasible and inexpensive intervention that can help to save thousands of women's lives¹. It involves three interrelated but independent components: prophylactic administration of a uterotonic drug, controlled cord traction, and uterine massage³.

Worldwide, the majority of direct maternal deaths are due to hemorrhage, typically in the postpartum period. Besides death, PPH also causes serious morbidities such as respiratory distress syndrome, coagulopathy, shock, loss of fertility, pituitary necrosis, and anemia in the mother.

⁴⁻⁶. In Africa, obstetrics hemorrhage is responsible for 34% of the total maternal deaths⁷. Sub-Saharan Africa alone accounts for nearly 66% of maternal death. The majority of these deaths occur within a few hours of delivery and in most cases are due to postpartum hemorrhage⁷⁻⁸

In Ethiopia, approximately 1.3 million women become pregnant every year, and unfortunately, a skilled provider assists only 26 % of births during delivery⁹. This has been a primary factor in the maternal mortality ratio (MMR) remaining high for the past decade. The current MMR for Ethiopia is 412/100,000 live births., Obstetric hemorrhage is one of the contributing factors of maternal mortality⁹.

Literature showed that the majority of women who gave birth in a health facility particularly in most developing countries do not receive appropriate care during the third stage of labor⁴. Since all laboring women were at risk for PPH, health care providers need to possess the knowledge and skills to practice active management of the third stage of labor to prevent maternal mortality and morbidity¹⁰.

Currently, in low resource countries like Ethiopia, active management of the third stage of labor is

one of the most important tools to prevent postpartum hemorrhage. Therefore, this study aimed to assess the status of active management of the third stage of labor practice and associated factors among obstetric care providers working in public health facilities of Gamo and Gofa zone, southern Ethiopia

METHODS

Study setting and Study period

Gamo and Gofa are Zones within the South Nations, Nationalities, and Peoples' Region (SNNPR) of Ethiopia. The administrative center of Gamo is Arba Minch and the administrative center of Gofa Zone is Sawla. The study was conducted in selected public health facilities in Gamo and Gofa zone in south Ethiopia from September 15- May 30, 2018/2019

Study design

A health facility-based cross-sectional study design.

Study population

All obstetric caregivers who were working in a public health institution of Gamo and Gofa zone.

Inclusion criteria

Those selected obstetric caregivers who were working in a public health institution of Gamo and Gofa Zone.

Exclusion criteria

Those obstetric health care providers who were not present during the data collection period.

Sample size determination

The sample size was calculated using a single population proportion formula by considering the following assumptions: 95% confidence level, the margin of error (0.05), P(Percentage of the appropriate practice of AMTSL) = 32.8%¹³. The required sample size after adding a 5% non-response rate was 356.

Sampling Procedure

There are 81 public health facilities which provide delivery service in the study area. 37 public health facilities were selected randomly. The allocation of the sample to health facilities was made proportionally based on the number of health

care providers. Individual participants in each of the health facilities were selected by using simple random sampling until the required sample size at each health facility was obtained.

Operational definitions

Active management of third stage labor (AMTSL): is the administration of oxytocin within 1 minute of delivery of the baby, clamping and cutting of the cord within 2-3 minutes of delivery of baby, assisted delivery of the placenta through controlled cord traction, and massaging of the uterus immediately after delivery and subsequent massage every 15 minutes for the first 1-2 hours.

Good practice: A caregiver who performed at least all of the following during observation: Administered right dose of oxytocin within one minute of childbirth, delivered the placenta using controlled cord traction, massaged the uterus immediately, and massaged uterus every 15 minutes for the first 1-2 hours after the delivery was said to have a good practice on AMTSL; otherwise was considered poor practice.

Data collection procedures

The birth attendants were observed during the active third stage of labor and a self-administered questionnaire filled by the birth attendant. Obstetric care providers did not know the specific skill being observed. Finally, the observational checklist and the self-administered questionnaire of each study participant were combined according to the coded information on the questionnaires. In the data collection process, 6 data collectors (BSC midwives) supervised by 3 MSc Midwives were involved.

Data quality control

Both interview and observation were used on the same participant. All data collectors were working outside the study area. Before starting the actual data collection, one-day training was given for both data collectors and supervisors on objectives, approach to study subjects, and how to use the questionnaire. The pretest was conducted with 5% of the total sample size outside the study area 2 weeks before starting actual data collection. The reliability of the questionnaires was checked via

SPSS by reliability index measurement for practice questions (Cronbach's alpha) which was 0.79. During data collection data collectors were first to observe at least three deliveries while care providers practice the third stage based on checklist and they would ask the same participants and supervision was done by field supervisors. Overall activities was controlled by the principal investigator.

Data analysis and interpretation

First, the collected data were checked manually for completeness. Then the data was cleaned and stored for consistency and entered into Epi Data version 3.1 software. For analysis, the data was exported to the statistical package for social sciences (SPSS) version 24.0 software. Descriptive statistics with percentages were employed. All variables were analyzed in bivariate logistic regression and those variables having P-value less than 0.25 were entered into multivariable logistic regression analyses. In multivariable logistic regression analyses variables with P-value, less than 0.05 were considered as significant. Hosmer-Lemeshow goodness of fit test was used to check the model fitness. Adjusted odds ratio with 95% confidence interval was used to determine the presence and direction of the association between covariates and the outcome variable

Ethical Considerations

Ethical clearance was obtained from the college of medicine and health science institutional review board of Arba Minch university. The College of Medicine and Health Sciences wrote an official letter of cooperation to the Gamo and Gofa Zone and Zonal health department, and administrators of each hospital and health center. Informed consent was obtained from each study participant and each study participant was informed about the objective of the study and confidentiality of the information she/he was giving. Moreover, the confidentiality of information was guaranteed by using code numbers rather than personal identifiers and by keeping the data locked.

RESULT

Socio-demographic characteristic of Study Participants 345 obstetric care providers participated in the study, with a 97% response rate. The mean age of the respondents was 25.8 (standard deviation (SD)± 3.54) years. The majority of the respondents, 211 (61.1%) were females and the rest of 134 (38.8%) were male. The majority were midwives in profession 251(72.8%). Of these, 130 (37.7%) were diploma holder midwives Above half 179 (51.9%) were Orthodox Christians. (Table 1).

Table 1. Socio-demographic characteristics of the obstetric care providers in Gamo and Gofa zone public health facility, Southern Ethiopia

Variables	Frequency	Percent (%)
Age		
20-25	190	55.1
26-30	114	33.0
31-35	34	9.9
≥36	7	2.0
Sex		
Male	134	38.8
Female	211	61.1
Profession		
Midwife	251	72.8
Health officer	57	16.7
Nurse	37	10.7
Religion		
Orthodox	179	51.9
Protestant	131	38.0
Muslim	24	7.0
Other	11	3.2
Ethnicity		
Gamo	137	39.7
Gofa	75	21.7
Waleyta	22	6.4
Amhara	50	14.7
Oromo	31	9.0
Others	30	8.7
Marital status		
Married	229	66.4
Divorced	13	3.8
Single	101	29.3
Widowed	2	0.6
Educational status		
Diploma midwife	130	37.6
Bsc Midwife	121	35.0
Diploma Health officer	37	10.7
BSc health officer	20	5.79
Diploma nurse	27	7.82
Bsc Nurse	10	2.89

Attitude and clinical experiences of obstetric care providers

From the total respondent's, the majority of health care providers, 151(45.5%) had work experience of 3-5 years followed by less than or equal to 2 years' experience 125 (36.2%). More than half of the respondents have not heard about training on active management of the third stage of labor 203 (58.8%). Almost all of the health care providers 326 (94.5%) believe that proper management of an active third stage of labor can prevent post-partum hemorrhage. Above half 194, (56.2%) of health care providers mentioned that labor and delivery ward is not satisfactory to attend labor and delivery (Table 2).

Table 2. Clinical experiences of obstetric care providers and health facility characteristics in Gamo and Gofa zone, Southern Ethiopia

Variables	Frequency	Percent (%)
Clinical working experience		
≤ 2 years	125	36.2
3-5 years	157	45.5
> 5 years	63	18.3
Have you ever heard AMTSL training		
Yes	142	41.2
No	203	58.8
If you say yes which types of training you have taken		
In-service	113	32.8
Pre-service	29	8.4
Do believe that proper usage of AMTSL can prevent post-partum hemorrhage		
Yes	326	94.5
No	19	5.5
Do believe that AMTSL is important to prevent maternal mortality		
Yes	321	93.0
No	24	7.0
Do you have conducted delivery room in your institution		
Yes	151	43.8
No	194	56.2
Number of staff in labor and delivery unit		
1-3	20	5.8
4-6	183	53.0
≥7	142	41.2
Do you have the availability of drugs for the management of AMTSL		
Yes	325	97.8
No	10	2.9
If you said yes which drugs		
Oxytocin alone	136	39.4
Ergometrn alone	8	2.3
Misoprostol alone	2	0.6
All drugs are available	196	56.8
Do you have a storage facility for oxytocin		
Yes	326	94.5
No	19	5.5
Do you have a standard document to manage AMTSL		
Yes	140	40.6
No	205	59.4
Do you have a standard document to manage PPH		
Yes	112	32.5
No	233	67.5

Practices of obstetric care providers

Almost all, 87% (n=300) of the study participants examined the abdomen before administering oxytocin drugs. The majority 94.2% (n=325) of the study participants gave the uterotonic drugs within one minute after the delivery of the baby.

The majority of health care providers -67.2 % (n=232) performed essential components of active management of the 3rd stage of labor in three consecutive observations and 260 (75.4%) performed CCT correctly (Table 3).

Table 3. Observational checklist to assess the practice of obstetric care providers on active management of the third stage of labor in Gamo and Gofa zone public health facility southern Ethiopia

Items on check list	Observational check list to assess practice				
		Observation 1	Observation 2	Observation 3	Overall Observation
Health care provider palpates the abdomen before continuing to give oxytocin	Yes	318(92.2)	317(91.9)	317(91.9)	300(87.0)
	No	27(7.8)	28(8.1)	28(8.1)	45(13)
The health care provider provides oxytocin within 1 minute of delivery of the baby	Yes	245(71.0)	241(69.9)	235(68.1)	325(94.2)
	No	100(29)	104(30.1)	110(31.9)	20(5.8)
Health care provider records dose of uterotonic given	Yes	251(72.8)	259(75.4)	260(75.4)	209(60.6)
	No	94(27.2)	86(24.9)	85(24.6)	136(39.4)
Health care provider clamps and cuts cord for approximately 3 minutes and applies counter traction to stabilize the uterus	Yes	310(89.8)	303(87.5)	303(87.5)	277(80.3)
	No	35(10.2)	42(12.2)	42(12.2)	68(19.7)
Health care provider waits for strong uterine contraction (2-3 minutes) to apply CCT	Yes	300(87.0)	243(70.4)	300(87.0)	216(62.6)
	No	45(13.0)	102(29.6)	45(13.0)	129(37.4)
Health care provider applies controlled cord Traction/CCT/ correctly	Yes	283(82)	280(81.2)	279(80.9)	260(75.4)
	No	62(18)	65(19.1)	66(19.1)	85(24.6)
As the placenta delivers, holds it with both hands and twists slowly so the membranes are expelled intact.	Yes	309(89.6)	304(88.1)	309(89.6)	290(84.1)
	No	36(10.4)	41(11.9)	36(10.4)	55(15.9)
The care provider performs uterine massage immediately following the delivery of the placenta	Yes	310(89.9)	312(90.4)	312(90.4)	289(83.8)
	No	35(10.1)	33(9.6)	33(9.6)	56(16.2)
Examine the placenta, membranes, and cord for completeness	Yes	305(88.4)	306(88.7)	312(90.4)	285(82.6)
	No	40(11.)	39(11.3)	33(9.6)	60(17.4)
Ensures uterus doesn't relax after stopping uterine massage	Yes	301(87.2)	307(89.0)	304(88.4)	278(80.6)
	No	44(12.8)	38(11.0)	41(11.9)	67(19.4)
Inform & demonstrate to the mother how to massage the uterus every 15 minutes for the first two hours	Yes	221(64.1)	262(75.9)	170(49.3)	144(41.7)
	No	124(35.9)	83(24.1)	175(50.7)	201(58.3)

The finding of this study presented that 166(48.1) of the health care providers demonstrated good practice towards AMTSL

Factors Associated with the practice of Active management of the third stage of labor

The result of multivariable analyses showed that

clinical years of experience, having a satisfactory delivery room, and taking in-service training were some of the factors associated with good practice towards active management of the third stage of labor. Respondents with clinical experience 5 years and above were 4.32 times more likely to demonstrate good practice than others (AOR = 4.32; 95%CI: (2.78-9.10). Respondents having in-service basic emergency obstetric care (B-EmOC) training were

2.34 times more likely performing good practice than others with (AOR = 2.34; 95%CI: 1.87-4.46)., Respondents having a satisfactory delivery room were 1.32 times more likely performing good practice than others with (AOR=1.86 95% CI 1.32-2.24. Additionally , health care providers having good knowledge of AMTSL were 3.42 times more likely performing good practice than others AOR=3.42 95% CI 2.78-9.21) (Table 4)

Table 4. Bivariate and multivariable logistic regression analysis of the practice of AMTSL among obstetric care providers in Gamo and Gofa zone public health facility, southern Ethiopia

Variables	Practice of AMTSL		COR (95%CI)	AOR (95%CI)	P-Value
	Good	Poor			
Sex					
Male	66	68	1.07(0.69-1.66)	0.45(0.74-2.89)	
Female	100	111	1	1	
Qualification					
BSc midwife	38	83	0.78(0.40-1.52)	0.84(0.22-3.48)	
Diploma midwife	89	41	3.37(1.94-7.15) **	1.41(0.39-5.08)	
BSc nurse	9	8	1.93(0.65-5.76)	0.49(0.53-4.52)	
Diploma nurse	9	11	1.40(0.50-3.94)	0.81(0.10-6.59)	
BSc HO	21	36	1	1	
Types of training taken					
In -service BEMOC	81	32	1.56(1.03-4.60) *	2.34(1.87-4.46) *	0.03
Pre-service	18	11	1	1	
Having a conducive delivery room					
Yes	92	59	2.10(1.63-3.91) **	1.86(1.32-2.24) *	0.02
No	74	120	1	1	
Clinical years of experience					
1-5 years	162	120	1	1	
>5 years	4	59	19.91(3.44-21.1) **	4.32(2.78-9.10) *	0.001
Do you have the standard document to manage PPH					
Yes	64	48	1.71(1.09- 2.69) *	0.91(0.31-2.27)	
No	102	131	1	1	
Knowledge					
Good knowledge	146	94	6.60(2.411-11.78) *	0.42(0.78-9.21)	
Poor knowledge	20	85	1	1	

DISCUSSION

In this study, the overall AMTSL practices were 48.1% with [95 % CI (43-53)]. This is lower than the study conducted in the Amhara region of Ethiopia, which showed 61.2%¹² of providers used AMTSL practices. The discrepancy might be due to the study area because the previous study focused only on referral hospitals and used only one observation to check practice of the third stage of labor. This study focused on both health centers and hospitals; additionally, it used three observations to check practices of the third stage of labor. But this result is comparable with similar studies conducted in Addis Ababa and Hawassa, Ethiopia which showed that 44.47% of health care providers demonstrated good skills towards AMTSL^{13,14}. However, the finding of this study is lower than a study conducted in maternity hospitals in Albania, which showed that 78% of health care providers have a good practice of active management of the third stage of labor¹⁵. The discrepancy might be due to the difference in knowledge and skill of health care providers, or to socio-economic and socio-cultural difference. Additionally, discrepancies might be due to the difference in study period and methods of data collection because this study used three observations to know the status of AMTSL practice. But, the number of those utilizing good practice are higher than studies conducted in Kenya and Nigeria, which found 31.5% and 28.3% of providers utilized good practice respectively^{16,17}. The discrepancy might be due to socio-economic and cultural differences. Besides that, it might be due to the knowledge of health care providers. There might be a difference in the health care delivery systems.

The finding of this study showed that 94.2% of health care providers provide oxytocin within 1 minute of delivery and the most communally used route of oxytocin administration was intramuscular (IM), which is comparable with other studies conducted in Ethiopia¹²⁻¹⁴. This result was different from the study conducted in the Albanian maternity hospital, which showed that 56% of health care providers gave the uterotonic after cord

clamping; intravenous oxytocin was usually the drug used, and 71% clamped the cord within one minute¹⁵. The discrepancy might be due to the difference in hospital protocol and guidelines used to manage active management of the third stage of labor. Similarly, the findings of the current study showed that health care provider provides oxytocin within 1 min of delivery of baby 94.2%, health care provider applied controlled cord Traction/CCT/ correctly, 75.4%, care provider performs uterine massage immediately following the delivery of the placenta 85.3%. The finding is different from a study conducted in Addis Ababa, Ethiopia, which showed that 77.9% had given oxytocin in the first minute, 89% used controlled cord traction, and 86% performed uterine massage within the first minute after delivery¹³⁻¹⁴. The discrepancy might be due to the presence of updated guidelines and improvement of hospital infrastructures, which is necessary or input for the provision of active management of the third stage of labor.

This study is similar to a qualitative study conducted in India, which found that the majority of health care providers use uterotonic drugs within one minute of labor delivery, control cord traction (CCT), and uterine massage following the delivery of the placenta¹⁸.

The result of multivariable analyses showed that respondents with clinical experience 5 years and above were 4.32 times more likely to perform good practice than others and respondents having in-service BEmOC and other related pieces of training were 2.34 times more likely to perform good practice than others. Also, respondents having satisfactory delivery were 1.32 times more likely to perform good practice than others were. This was consistent with a study conducted in the Amhara region Ethiopia¹².

CONCLUSION

In this study, the practice of obstetric care providers toward active management of the third stage of labor is still low. Because training, length of years of working experience, and having the presence of

a satisfactory delivery room were factors associated with the practice of the third stage of labor, the governmental and non-governmental organizations which work in health-related activities should plan to give both pre/in-service pieces of training on active management of the third stage of labor-related themes. In addition to this, the governmental and non-governmental organizations working to reduce maternal and child morbidity and mortality should fulfill infrastructure, which is necessary for labor and delivery.

LIST OF ABBREVIATIONS

AMTSL: Active management of third stage labor, BEmOC: basic emergency and obstetric care, PPH; Postpartum hemorrhage: WHO: World Health Organization, CCT: controlled cord traction, (ICM: international Confederation of Midwives, FIGO: International Federation of Gynecology and Obstetrics

COMPETING INTERESTS

The authors declare that they have no competing interests.

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