Active management of third stage of labor practice and associated factors among skilled birth attendants in Gamo and Gofa zone, Southern, Ethiopia

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Abstract

Background Active management of third stage of labour is evidence based inexpensive and effective intervention for the prevention of postpartum hemorrhage which is the leading cause of maternal mortality in low and middle income countries. In spite of this technique being espoused in Ethiopia and internationally, its actual practice and factors influencing its practice were yet to be established.Objective The aim of this study was to assess status of active management of third stage of labor practice and associated factors among skilled birth Attendants in public health facilities of Gamo and Gofa zone, southern Ethiopia

Methods Facility based cross-sectional study design was employed on 356 skilled birth attendants working in public health facilities of Gamo and Gofa zone. Semi- structured questionnaire with observational checklist was used to collect the data. Data was checked and entered into Epi info version 7 then exported to statically package for social science version 24 for analysis. Univariate, Bivariate and multivariable analysis with 95% CI was carried out.

Result The finding of the study revealed that 48.1% of the skilled care providers were good practice towards active management of third stage of labour with 95% CI (43-53). Skilled birth attendants having clinical experience of 7 years and above were 2.52 times more likely performed good practice than others [AOR=7.00(95%CI, 1.82,7.75)] and those skilled birth attendants taken in service training were 2.55 times more likely performed good practice than others [AOR=2.55(95%CI, 1.99,6.56)]. In addition to this those skilled birth attendants who were working in favorable delivery rooms were 1.86 times more likely performed good practice than others [AOR= 1.86(95%CI, 1.32-2.24)]

Conclusion The finding of this study showed that the practice of active management of third stage of labour was poor. Clinical year of experience, having conducive delivery room and taking in –service training on active of third management of labour were some of the factors associated with good practice. So crating satisfactory delivery room and providing training on active of third management of labour is very important to enhance their knowledge and skill of birth attendant.

Background

Postpartum hemorrhage and its related complications constitute one of the most common causes of maternal mortality and morbidity (1). Active management of the third stage of labor (AMTSL) is a feasible and inexpensive intervention that can help to save thousands of women’s lives (2).It involves; three interrelated but independent components such as, prophylactic administration of an uterotonic drugs, controlled cord traction and uterine massage (3). Currently, World Health Organization recommends active management of the third stage of labour as a critical intervention for postpartum hemorrhage (PPH) prevention (4).

More than half, of direct maternal deaths are due to hemorrhage, typically in the postpartum period and most maternal deaths due to PPH happen in low-income countries. Besides the death, PPH also causes

serious morbidities such as respiratory distress syndrome, coagulopathy, shock, loss of fertility, pituitary necrosis and anemia in the mother(5).

An estimated half million women die as a result of pregnancy and childbirth related complications in the glob (6). Over 50% of direct maternal deaths are due to hemorrhage, typically in the postpartum period (7, 8).

In Africa, obstetrics hemorrhage is responsible for 30% of the total maternal deaths (9). Sub-Saharan Africa alone accounts nearly 66% of maternal death. In Ethiopia, about 412/100,000 women die as a result of complications related to pregnancy and child birth (10).

Study showed that majority of women who gave birth in a health facility particularly in most of developing countries does not receive appropriate care during third stage of labor (9).

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 so as to prevent maternal mortality and morbidity (11)

Currently in low resource setting countries like Ethiopia AMTSL is considered an important tool for prevention of postpartum hemorrhage (12). So it is important to assess the existing practice of AMTSL and associated factors among skilled birth Attendants.

Methods

Study area and period

The study was conducted in selected public health facilities in Gamo and Gofa zone in south Ethiopia. In Gamo and Gofa Zone there are a total of four public hospitals and seventy seven health centers. The study was conducted among randomly selected 33 health center and 4 hospitals from September 15-May 30, 2018/2019

Study design

Institutional based cross sectional study design was employed

Study population

All skilled care providers who were working in public health institution of Gamo and Gofa zone

Sample size determination

The sample size was determined by using Epi Info 7 menu StatCalc, by considering the following assumptions: confidence level 95%, power 80% and exposed to unexposed ratio of 1:1Finally, the required sample size for this particular study was decided by taking the maximum sample size from the calculation results and by adding 5% non-response rate the final sample size was *356*

Sampling procedure

In this study area there are a total of 81 public health facilitates which gave delivery service. The study was conducted on those randomly selected 37 public health facilitates. 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

Good practice: Obstetric care provider who administer oxytocin with in 1 minute, apply CCT and perform uterine massage correctly in proper sequence (19)

Poor practice:- Obstetric care providers who miss either of administration of oxytocin with in 1 minute, apply CCT and perform uterine massage during correct AMTSL sequence (19)

Data collection tool

Both interview and observational cheek list was used. The questionnaire was designed in English. All skilled attendants who were working in labour wards of selected public health facilitate and who fulfilled eligibility criteria was included. Data was collected by using pretested and semi-structured questionnaires with observational checklists to assess the practice. Nine data collector was recruited and investigators supervised the data collection process.

Data quality control

Before data collection data Collectors and supervisors was trained on the objective, benefit of the study, individual's right, Informed consent and techniques of the interview for two days.

Than to assure the data quality the questionnaire was pre-tested on 5% of sample size outside the study area. After pre-testing further adjustments to the data collection tool was made to improve clarity, understandability, and simplicity of the messages. All of the questionnaires were checked for completeness and accuracy before, during and after the period of data collection. Throughout the course of the data collection, interviewers were supervised; regular meetings were held between the data collectors and the investigators together. The collected data was again reviewed and checked for completeness before data entry.

Data analysis and interpretation

Data was cleaned and stored for consistency and entered in to Epi info version 7 software. For analysis the data was exported to SPSS version 24.0 software. Descriptive statistics was carried out and the finding was presented using tables and figures. Bivariate logistic regression was carried out to see the association of each of the independent variables with the outcome variables. Thereafter, the multivariable logistic regression method was used. P- Value of <0.05 and 95% confidence level was used as a difference of statistical significance.

Ethical Consideration

Ethical clearance was obtained from Arba Minch University College of medicine and health science institutional review board. An official letter of cooperation was written by the College of Medicine and Health Sciences to Gamo Gofa Zone and Zonal health department, and administrators of each hospital and health centers. 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 is giving. Moreover, the confidentiality of information was guaranteed by using code numbers rather than personal identifiers and by keeping the data locked.

Results

Socio-demographic characteristic of obstetric care providers

A total of 356 obstetric care providers were participated in the study, with 97% response rate. Mean age of the respondents was 25.8 SD± 3.54) years. Almost above the half of respondents were midwife 251(72.8%) followed by health officers 57(16.7%), Majority of the study participants 137 (39.7%) were from the Gamo ethnic group and 179 (51.9%) were Orthodox Christianity religion followers. Regarding the marital status of respondents 229(66.4%) was married (*Table 1).*

Clinical experiences of obstetric care providers and health facility characteristics

From the total respondents majority of health care providers 151(45.5%) were having a work experience of 3–5 years. Above the half of respondents have not heard about training on active management of 3rd stage of labour 203(58.8%). From those who heard training majority 113(32.8%) of the health care providers were taken in service training followed by pre- service training 29(8.4%). Almost all of the health care providers 326(94.5%) believe that proper management of active 3rd stage of labour can prevent post-partum hemorrhage (*Table 2).*

Knowledge of obstetric care providers on active management of third stage of labour

From the total of 345 health care providers almost all of the health care providers 328(95.1%) correctly answered the dose of oxytocin. In addition to this 331(95.9%) of health care provider correctly mentioned the root of oxytocin for the management of 3rd stage of labour. From the total respondents 240 (69.5%) of have good knowledge to wards active management of third stage of labour followed by 105(30.5%) poor knowledge to wards active management of third stage of labour (Table 3).

Practices of obstetric care providers on active management of third stage of labour

Almost all of 87% (n = 300) the Study participant were examined the abdomen to rule out the presence of another baby with all three observation before administering oxytocin drugs. Majority 94.2% (n = 325) of the Study participant gave the uterotonic drugs within one minute after delivery of the baby. Majority of health care providers 67.2 %(n = 232) performed essential components of active managements of 3rd stage of labour in three observation and 260(75.4%) can perform CCT correctly. The overall practice of 3rd stage of labour was measured using three independent components such as provision of oxytocin within 1 min of delivery of baby, controlled cord Traction/CCT/ and uterine massage immediately following the delivery of the placenta based on this the finding showed that 325(94.2) of health care providers provide oxytocin within 1 min of delivery of baby followed by 260(75.4) and 289(83.8) controlled cord Traction/CCT/ and uterine massage immediately following the delivery respectively (*Table 4)*.. The finding of this study presented that 166(48.1) of the health care providers were good practice towards active management of third stage of labour with [95 % CI (43–53)] followed by 179(51.9) of poor practice (*figure 1)*

Factors Associated with practice of Active management of third stage of labour

The result of multivariable analyses showed that respondents with clinical experience of 7 years and above were 2.52 times more likely performing good practice than others with [AOR = 7.00(95%CI, 1.82, 7.75)] and respondents taken in service training on active management of third stage of labour were 2.55 times more likely performing good practice than others with [AOR = 2.55(95%CI, 1.99, 6.56)]. In addition to this those health care providers who were working in favorable delivery rooms were 1.86 times more likely perform good practice than others with [AOR = 1.86(95%CI, 1.32–2.24) *(Table 5)*

Discussion

The result of this study presented that 94.2 % of health care provider provides 10 IU of oxytocin with one mint, CCT 75.4% and uterine massage 83.8% respectively. It is comparable with the study conducted in Tanzania which revealed that 87.4% of health care provider provides 10 IU of oxytocin within one mint, CCT 92% and uterine massage 72.4% respectively (13). The finding is also similar with study conducted in Addis Ababa, Ethiopia which showed that 77.9% had given oxytocin with in the first minute, 89% used controlled cord traction, and 86% performed uterine massage with in the first minute after delivery (14).

The finding of this study revealed that the overall practice of Active management of 3rd stage of labour was 48.1% with [95 % CI (43–53)]. The finding of this study is higher than the study conducted in Hawassa, Ethiopia, which showed that 15.7% study participant had good practice on active management of third stage of labors (15). The discrepancy might be due to the presence of updated guide line and improvement of hospital infrastructures which is necessary or input for the provision of active management of third stage of labour. But the finding of this study is comparable with other study conducted in Addis Ababa, Ethiopia which showed that 47% of health care provides had good practice towards Active management of third stage of labour(14). It is also lower than study conducted in Maternity hospital in Albania which showed that 78% of health care provider practice active management of third stage of labour (16). The discrepancy might be due to the difference in knowledge and skill of health care provider or it 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. The finding of this study is higher than study conducted in Kenya and Nigeria which showed that 31.5% and 28.3%of health care providers use Active management of third stage of labour practice respectively(17,18). The most communally mentioned components of third stage of labour in this study was Administration of oxytocin 72.2%, Apply control cord traction 94.2, uterine massage 76.2% and all components 67.2%. The finding of this study is lower than study conducted in Kenya which showed that the most commonly mentioned components of active management of third stage of labour was administration Oxytocin 76.9% and controlled cord traction 96.5%(17). The discrepancy might be due to the difference in health care providers' knowledge and attitude to utilize active management of third stage of labour.But the finding of this study is somewhat comparable with study conducted in Nigeria which exhibited that the most communally mentioned component by respondents included administration of prophylactic oxytocic 88.4%, controlled cord traction 74.5% and Uterine massage following placental delivery 61.2% (18).

The result of multivariable analyses showed that respondents with clinical experience of 7 years and above were 2.52 times more likely performing good practice than others and respondents taken in service training on active management of third stage of labour were 2.55 times more likely performing good practice than others. In addition to this those health care providers who were working in favorable delivery rooms were 1.86 times more likely perform good practice than others.

The finding of this study was the same as the study conducted in Kenya which showed that, availability of a fridge, availability of standards documents, training, type of training and knowledge of health care on AMTSL was some of the factors associated with practice of AMSTL (17). Similarly the finding of this study is in line with the study conducted in others part of Ethiopia which presented that the obstetric care providers who had taken pre/in-service training were more skill full than non-trained obstetric care providers to practice active management of third stage of labour(20).

Conclusions

As we know that Obstetric hemorrhage is the world's leading cause of maternal mortality, causing 24% of maternal deaths annual. Active management of third stage is simple and practical intervention to reduce the incidence of PPH. It is globally endorsed, and widely promoted for more than a decade as part of programs to reduce maternal mortality.

In this study, the practice of obstetric care providers towards active management of third stage of labor is still low. Since absence of taking training, short years of working experience and having Absence of favorable labour and delivery room was associated with the obstetric care provider's poor practice, the governmental and non-governmental organizations which works in health related activities should plan to give both pre/in service trainings on active management of third stage of labor related themes. And in addition to this the governmental and non –governmental organization working to reduce maternal and child morbidity and mortality should fulfill infrastructure which is necessary for creating favorable labour and delivery room

Declarations

Ethical approval and consent to participant

Ethical clearance was obtained from Arba Minch University College of medicine and health science institutional review board. An official letter of cooperation was written by the College of Medicine and Health Sciences to Gamo Gofa Zone and Zonal health department, and administrators of each hospital and health centers. 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 is giving. Moreover, the confidentiality of information was guaranteed by using code numbers rather than personal identifiers and by keeping the data locked

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Availability of data and material

The datasets used and/or analyzed during the current study available from the corresponding author on reasonable request.

Consent for publication

Not applicable

Author's contribution

BW and AB conceived the study and undertook statistical analysis. BW and DM supervised the study design and statistical analysis. BW, KG and TG contributed to the writing of the manuscript and both authors approved the submitted version of the manuscript.

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Competing interests

The authors declare that they have no competing interests.

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Tables

Table 1. Socio-demographic characteristics of the obstetric care providers in Gamo and Gofa zone public health facility, south, Ethiopia, 2018/2019

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
Others	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

Table 2. Clinical experiences of obstetric care providers and health facility characteristics in Gamo and Gofa zone, South, Ethiopia 2018/2019

Variables	Frequency	Percent (%)
Clinical working experience		
≤ 2 years	125	36.2
3-5 years	157	45.5
≥ 6 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 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 MMR		
Yes	321	93.0
No	24	7.0
Do you have conduciveness of delivery room in your institution		
Yes	151	43.8
No	194	56.2
Number of staff in your hath facility		
1-3	20	5.8
4-6	183	53.0
≥7	142	41.2
Do you have availability of drugs for the management of AMTSL		
Yes	325	97.8
No	10	2.9
If you say yes which drugs		
Oxytocin alone	136	39.4
Ergometrn alone	8	2.3
Misoprostol alone	2	0.6
All drugs have available	196	56.8
Do you have storage facility for oxytocin		
Yes	326	94.5
No	19	5.5
Do you have stander document to manage AMTSL		
Yes	140	40.6
No	205	59.4
Do you have stander document to manage PPH		
Yes	112	32.5
No	233	67.5

Table 3. Knowledge of obstetric care providers on active management of third stage of labor in Gamo and Gofa zone south, Ethiopia, 2018/2019

Variables		Frequency	Percent
Know the dose of oxytocin	Yes	328	95.1
	No	17	4.9
Know the recommended route of oxytocin administration	Yes	331	95.9
	No	14	4.1
What is your role immediately after delivery of fetus			
A. Administration of oxytocin drugs	Yes	33	9.6
	No	312	90.4
B. Check the presence of other baby	Yes	325	94.2
	No	20	5.8
C. Uterine massage	Yes	21	6.1
	No	324	93.9
When we administer oxytocin drugs			
A. After delivery of anterior shoulder	Yes	7	2.0
	No	338	98.0
B. Within one mint after delivery of the baby	Yes	325	94.2
	No	20	5.8
C. Within 3 mint after delivery of the baby	Yes	24	7.0
	No	321	9.3
D. After placenta delivery	Yes	8	2.3
	No	337	97.7
What are the essential components of active management of third stage of labor	Yes		
Administration of oxytocin	Yes	249	72.2
	No	96	27.8
Apply control cord traction	Yes	325	94.2
	No	20	5.8
Uterine massage	Yes	263	76.2
	No	82	23.8
All	Yes	232	67.2
	No	113	32.8
What Uterotonic drugs known for management of AMTSL			
Oxytocin	Yes	336	97.4
	No	9	2.6
Ergometrn	Yes	325	94.2
	No	20	5.8
Misoprostol	Yes	323	93.6
	No	22	6.4
All	Yes	314	91.0
	No		

Table 4. Observational checklist to assess the practice of obstetric care providers on active management of third stage of labor in Gamo and Gofa zone public health facility south,

Ethiopia, 2018/2019

st of cheek list	Observational cheek list to asses practice				
	Observation 1		Observation 2	Observation 3	Over all Observation
CP palpates the abdomen fore continuing to give ytocin	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)
ealth Care provider record ne of uterotonic given ter delivery	Yes	149(43.2)	165(47.8)	164(47.5)	129(37.4)
	No	196(56.8)	180(52.2)	181(52.5)	216(62.6)
ealth care provider ovides oxytocin within 1 n of delivery of by	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)
ealth care provider record se 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)
ealth care provider record ne the cord was clamped	Yes	161(46.7)	158(45.8)	167(48.4)	120(34.8)
	No	184(53.3)	187(54.2)	178(51.6)	225(65.2
CP clamps and cuts cord proximately 3 minutes and ply counter traction to abilize 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)
ealth care provider waits r strong uterine ntraction (2-3 minutes) to ply 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)
ealth care provider applied ntrolled cord action/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)
the placenta delivers, lds it with both hands and ists slowly so the embranes are expelled act.	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)
re provider performs erine massage mediately following the livery 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)
amine the placenta, embranes, and cord for	Yes	305(88.4)	306(88.7)	312(90.4)	285(82.6)

mpleteness	No	40(11.)	39(11.3)	33(9.6)	60(17.4)
ısures uterus doesn’t relax	Yes	301(87.2)	307(89.0)	304(88.4)	278(80.6)
;er stopping uterine ıssage					
	No	44(12.8)	38(11.0)	41(11.9)	67(19.4)
;orm & demonstrate ɔther how to massage the ;rus every 15 minutes for ; 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)

Table 5. Bivariate and multivariable logistic regression analysis of practice of AMTSL among obstetric care providers in Gamo and Gofa zone public health facility, south, Ethiopia, 2018/2019

Variables	Practice of AMTSL Good	Poor	COR(95%CI)	AOR (95%CI)
Sex				
Male	66	68	1.07(0.69-1.66)	0.45(0.74-2.89)
Female	111	110	1	1
Types of training taken				
In –service	82	31	2.47(1.07-5.70)*	2.55(1.99-6.56)*
Pre-service	15	14	1	1
Having conducive environment				
Yes	92	59	2.53(1.63-3.91)**	1.86(1.32-2.24)*
No	74	120	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
Clinical years of experience				
1-3 years	65	138	1	1
4-6 years	68	31	4.66(2.77-7.8)**	1.34(0.57-3.14)
≥ 7 years	33	10	7.00(3.25-15.07)**	2.52(1.82-7.75)*
Do you have 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
Do you have standard document to manage AMTSL				
Yes	81	59	1.94(1.25-2.99)*	0.44(0.15-1.26)
No	85	120	1	1
Knowledge				
Good knowledge	128	112	0.48(0.31-0.74)*	0.62(0.28-1.37)
Poor knowledge	47	58	1	1

*remands as statically significant at p-value of <0.05 ** remands as statically significant at p-value of <0.01

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Figures

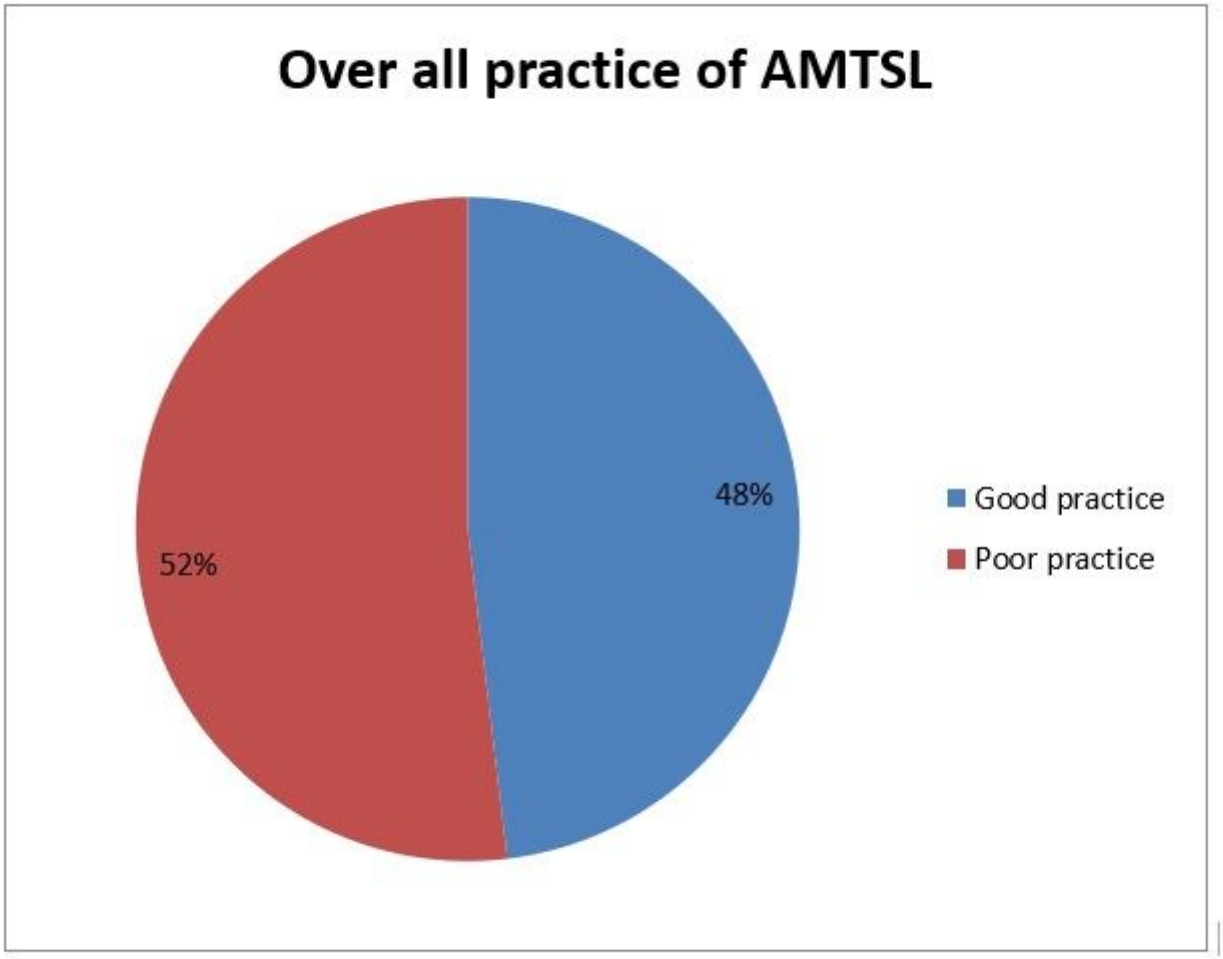

Figure 1

Over all practice of health care providers to wards Active management of 3rd stage of labour in Gamo and Gofa zone public health facility, south, Ethiopia, 2018/2019