

# Evidence-based intrapartum practice and associated factors among obstetric care providers in selected public hospitals of Addis Ababa, Ethiopia 2020.

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## Abstract

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**Background:** Childbirth is a normal process. In normal birth, there should be scientifically based reasons to interfere with and encouraged practices that are ostensibly supported by the best available evidence. However, studies done in Ethiopia are limited to assessing the magnitude of evidence-based intrapartum care.

**Objectives:** This study assessed the magnitude of evidence-based intrapartum practice and its associated factors among obstetric care providers in selected public hospitals of Addis Ababa City, Ethiopia.

**Methods:** A facility-based cross-sectional study was conducted from March 17 to April 16, 2020, in Addis Ababa, Ethiopia. Study participants were selected using a simple random sampling technique. The data were collected using structured and pre-tested self-administered questionnaires and observational checklists. The magnitude of evidence-based intrapartum care was measured using a standard intrapartum checklist which is adopted from WHO intrapartum care guidelines. Thus, evidence-based intrapartum practice was considered if the obstetric care provider scored greater than or equal to the mean score of intrapartum practice questions.

**Results:** The overall magnitude of evidence-based intrapartum care was 51% (54.6, 63.0) with 95% CI. The odds of evidence-based practice are higher among health care providers with good knowledge [AOR=2.81; 95% CI (1.79, 4.37)], training [AOR=1.73; 95% CI (1.12-2.67)], higher salary [AOR=2.41; 95% CI (1.20-4.84)] and higher educational level [AOR=4.09; 95% CI (1.45-11.55)].

**Conclusion:** The magnitude of evidence-based practice of intrapartum care among obstetric care providers is low in the study area. Educational level, knowledge, attitude, salary, and training were factors statistically associated with evidence-based intrapartum practice.

**Keywords:** Attitude, Evidence-based, Intrapartum care, knowledge, Obstetric care providers

## Background

Intrapartum care refers to the period from the commencement of true labor throughout the first, second, third, and fourth stages of labor, which last from one to two hours after the delivery of the placenta (1). Evidence-Based Practice (EBP) is a problem-solving approach in which the best available evidence is used by integrating research evidence, clinical expertise, and patient values and preferences to improve health outcomes (2). Additionally, evidence-based intrapartum practice is an effective approach to improving the quality of obstetric care. There is a global concern that no evidence-based interventions and practices in labor and birth remain standard practices (3). The world health organization has already emphasized that ineffective and harmful clinical practices should be replaced with evidence-based clinical ones (3). Unfortunately, in many developing countries, some useless or harmful interventions are used as routine care during labor and delivery, whereas beneficial practices are not implemented for a lot of laboring mothers (4). The quality of care provided to women during the intrapartum period is poor even if available. Poor quality of care is a consequence of inadequate skills of attendants, lack of equipment, drugs, and supplies, non-existence of blood transfusion services, ineffective referral systems, and, application of scientifically ineffective practices (5). The growing demand for health care, constrained resources, and evidence of variations in clinical practice during intrapartum have increased governments' interest in measuring and improving the quality of institutional delivery care services in many countries including Ethiopia (6).

Studies have shown that a significant proportion of healthy pregnant women experience at least one clinical intervention during labor and birth, such as labor induction, augmentation, cesarean section, operative vaginal birth, or episiotomy (7). Furthermore, women in normal labor remain to be subjected to ineffective and potentially harmful routine intrapartum interventions, such as perineal shaving, enemas, routine intravenous fluids, antispasmodics, and antibiotics for uncomplicated vaginal births (8). Previous evidence-based related studies reveal some factors affecting the adoption of evidence-based practice (EBP) including the lack of time and resources and conflicts between healthcare professionals and the physical environment. It is necessary to understand and determine healthcare providers' behavior to develop change-effective strategies (9).

Worldwide, approximately 140 million births occur every year. The majority of these are spontaneous vaginal delivery among pregnant women without recognized risk factors for complications, either for themselves or their babies, at the onset of labor. However, in conditions where complications arise during labor and delivery, the risk of serious morbidity and mortality increases for both the woman and the newborn (10). Over a third of maternal deaths and a considerable proportion of pregnancy-related life-threatening circumstances are attributed to complications that arise during labor, childbirth, or the immediate postpartum period, often as a result of hemorrhage, obstructed labor, or sepsis (11).

Most global maternal and newborn deaths are avoidable with quality healthcare provision. It suggests that such an intra-partum-care package can bring maternal mortality below 200 per 100 000 live births (12). To counteract maternal and newborn death; therefore, one of the strategies is providing intra-partum-care principally based on timely and competent care which is demanded in advance by women (13). Of the 136 million women who give birth each year, nearly 20 million experience short or long-term pregnancy-related complications after birth which could also be linked to the routine practices during labor and delivery. These include sepsis, bleeding, uterine rupture, and fistula to mention a few (10).

The obstetric care providers are still using routine intrapartum care interventions not supported by evidence-based practices (14). Such interventions are more likely to cause harm to women during childbirth, such as routine episiotomy, routine uterine exploration, routine fluid infusion for laboring mothers, and also the use of fundal pressure to shorten the second stage of labor (14). Generally, unsafe intrapartum care practices continue to occur despite the availability of best practice initiatives. Therefore, this study aimed to assess the magnitude of evidence-based labor and delivery practices and associated factors among obstetric care providers in selected public hospitals of Addis Ababa city.

## Methods

### Study setting, design, period, and population

The study was conducted in selected public hospitals in Addis Ababa, Ethiopia from March 17 to April 16/2020. Thirteen public hospitals provide labor and delivery services in the study area and the hospitals were

selected based on a lottery method. Hence, Tikur Anbessa Specialized Hospital, St. Paul's Hospital Millennium Medical College, Zewditu Memorial, St. Peter specialized hospital, and Gandhi Memorial Hospitals were selected for the current study.

A facility-based cross-sectional study design was used among obstetric care providers. There were a total of 1600 obstetrics care providers in those selected public hospitals from these 386 study participants were included in the study using a simple random sampling technique. Obstetric care providers with annual leave, maternal leave obstetric care provider who has less than 6 months of work experience, non-volunteers, and seriously ill at the time of the study were excluded from this study. Sample size calculation for obstetric care providers was determined by a single proportion of finite population formula with a 95% confidence level, a margin of error (d) 5%, and by taking 38.2% (P) prevalence of evidence-based intrapartum practice (15). Adding 10% for the non-response rate; the total sample size calculated was 398.

To select a total of 398 obstetric care providers from five public hospitals included in the study, the hospitals were listed along with their respective obstetric care providers. The sample size was allocated proportionally to each hospital based on the number of obstetric care providers. The selection of participants from each hospital was done using a systematic random sampling technique, where lists of obstetric care providers obtained from hospital nursing directors and human resource management were utilized. The probability proportional to size (PPS) formula was applied to ensure proportional allocation of the sample size among different health professionals within the selected hospitals.

### Data collection and tools

Data was collected using a pretested and structured self-administered questionnaire and observational checklist that was adopted from a previous similar study (15). The self-administered questionnaire contained 54 questions arranged into five parts including socio-demographic, organizational-related evidence, knowledge, attitude, and utilization of evidence-based intrapartum care or practice-related questions. The observational checklist also contains twelve items and the questions were designed to elicit a "yes" or "no" response. The checklist was adopted from World Health Organization (WHO) recommendation on intrapartum care.

### Statistical analysis

The collected data was checked for its completeness then it was coded and entered into Epi Data version 4.2 and exported to SPSS Version 25. To see the relative effect of the independent variables on the dependent variable, bivariate, and multivariable logistic regression analyses were carried out. Those Variables whose p-value was less than 0.25 ( $p < 0.25$ ) in bivariate analysis were included in the multivariable logistic regression analysis. The adjusted odds ratio was used to interpret the strength of association at 95% CI. A statistical test of association was considered significant at a p-value of  $< 0.05$ .

### Operational definitions

**Evidence-based intrapartum practice:** obstetric care providers who scored greater than or equal to the mean value of practice-related questions of intrapartum practice (19).

**Adequate knowledge:** - obstetric care providers who scored greater than or equal to the mean value of knowledge-related questions of intrapartum practice (19).

**Favorable attitude:** Obstetric care providers who scored greater than or equal to the mean value of attitude-related questions of intrapartum practice (19).

## Results

### Socio-demographic characteristics of participants

A total of 386 obstetric care providers participated in this study, with a 97% response rate. More than half 214 (55.4%) of the respondents were male and 206 (53.4%) of them were single. The mean age of the respondents was 28.26 (SD± 3.73) years and a range of 22 to 52yrs. More than half of the participants were physicians 215(55.7%) followed by BSc midwives 149(38.6%). Out of the total respondents, 289 (74.9%) of them had monthly salaries of  $\geq 4792$  Ethiopian birr. Furthermore 223 (57.8%) of the respondent had greater than 5 years of work experience. (Table 1)

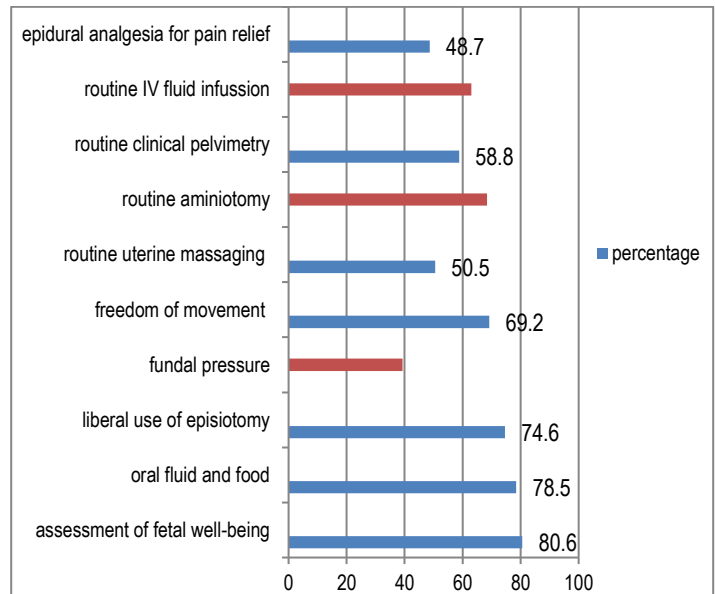
**Table 1:-** Socio-demographic characteristics of obstetric care providers in selected public hospitals of Addis Ababa, Ethiopia March 17 to April 16, 2020 (n = 398).

Variable		Frequency	Percent
Profession	Medical doctor	215	55.7
	Midwife	171	44.3
Educational level	Resident	175	45.3
	MSc	12	3.1
	GP	40	10.4
	BSc	149	38.6
	Diploma	10	2.6
	Year of experience	<5	223
	≥5	163	42.2
In service training	Yes	220	57
	No	166	43

**The magnitude of evidence-based intrapartum practice.**

The magnitude of evidence-based intrapartum practice in the current study was assessed using 18 items of intrapartum practice-related questions and the mean score of the respondents was 12.77 (SD± 3.77). The overall magnitude of evidence-based intrapartum practice was 203 (51%).

The majority of the respondents 303(78.5%), 311(80.6%), 288(74.6), and 285 (73.8%) had good recommended intrapartum practice of providing oral fluid and food, regular fetal well-being assessment, liberal use of episiotomy and digital vaginal examination every four hours respectively. On the other hand, among intrapartum care practices that were not supported by scientific evidence, the most common were; fundal pressure (39.3%), routine clinical amniotomy (58.8%), and routine IV fluid infusion (63%) (Figure 1).



**Figure 1:-** Distribution of recommended and non-recommended intrapartum practice among obstetric care providers in Addis Ababa Ethiopia, 2020 (n = 398).

**Level of knowledge of obstetric care providers**

The level of knowledge of the study participant was assessed using 30 items of knowledge related questions. The good knowledge level of the study participants was 222(57.5%). The mean score of knowledge of obstetric care providers was 18.9 (SD± 6.7) with a minimum and maximum response of 166 and 354 respectively. Majority of the respondents (82.8%) who had good knowledge were residents followed by General Practitioner (75%). (Table 2)

**Level of attitude of obstetric care providers**

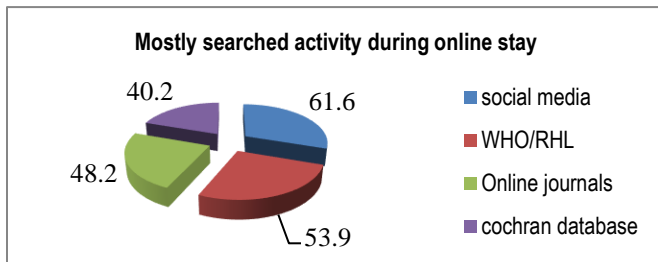
The level of attitude of the study participant was assessed using 8 items of attitude related questions. The level of good attitude of the study participants was 249(64.5%). Regarding the attitude of the care provider the mean score was 30.4 (SD± 4.6). (Table 2)

**Table 2:-** Obstetric care providers level of knowledge and attitude in Addis Ababa public Hospitals, Addis Ababa Ethiopia, 2020 (n = 398)

Educational level	Level of knowledge		Level of attitude	
	Good n (%)	Poor	Good n (%)	Poor
Resident	145 (82.8%)	30	152 (86.8%)	23
MSc	7 (58.3%)	5	8 (66.7%)	4
GP	30(75%)	10	26(65%)	14
BSc	76 (51%)	73	84 (56.4%)	65
Diploma	4 (40%)	6	5 (50%)	5

### Organizational related factors

Of the total study participants, 236(61.14%) had computer access at their workplace. Among those, nearly half 168(43.18%) and 143(36.76%) were using the computers for documentation and scientific reading respectively. Furthermore, 313(81.1%) of the study participant had internet access at their workplace. Among those, the majority 193(61.6%) use the internet for social media and the remaining use internet access for WHO/RHL (reproductive health Library) and online journal searching (Figure 2).



**Figure 2:-** Distribution of study participants by their online mostly searched activities Addis Ababa Ethiopia, 2020

### Factors associated with evidence-based intrapartum care

Obstetric care providers' work experience, knowledge, attitude, profession of the care provider, educational level, salary, and availability of computers for reading and training had an association with evidence-based intrapartum practice in bivariate logistic regression analysis. However, in multivariable logistic regression analysis, only knowledge, attitude, salary, training, and educational level were significantly associated with evidence-based intrapartum practice at a p-value of <0.05 (Table 3).

Respondents with good knowledge of intrapartum care were three times more likely to have good evidence-based intrapartum practice [AOR=2.81; 95% CI (1.79-4.37)]. Similarly, obstetric care providers who had favorable or good attitudes were two times more likely to perform intrapartum care based on the available evidence than those who had poor attitudes [AOR=1.80; 95% CI (1.14-2.86)]. Additionally, obstetric care providers with a monthly salary of < 4000 Ethiopian ETB were 2.41 times more likely to have provided evidence-based intrapartum practice than those who had a monthly salary of ≥ 4791 ETB [AOR= 2.41; 95% CI (1.20-4.84)]. Finally, those respondents who had an educational qualification of a resident were 4 times more likely to have good evidence-based intrapartum practice than diploma midwives [AOR= 4.09 95% CI (1.45-11.55)] (table 3).

**Table 3:-** Bivariate and multivariate logistic regression analysis of factors associated with evidence-based intrapartum practice in public hospitals, Addis Ababa, Ethiopia, 2020, (n = 398).

Variable		Evidence-based intrapartum care		COR	AOR
		No	Yes		
Knowledge level	Good knowledge	56	141	3.36(2.19-5.12)	<b>2.81(1.79-4.37)***</b>
	Poor knowledge	108	81	1	1
Attitude level	Good attitude	53	144	2.17(1.42-3.33)	<b>1.80(1.14-2.86)**</b>
	Poor attitude	84	105	1	1
Training	Yes	98	122	1.51(1.07-2.26)	<b>1.73(1.12-2.67)*</b>
	No	91	75	1	1
Education level	Resident	61	114	6.61(2.54-17.19)	<b>4.09(1.45-11.55)*</b>
	BSc	85	64	2.62(1.01-6.82)	0.43(0.16-1.18)
	GP	18	12	1.42(1.81- 2.51)	0.71(0.39-1.29)
	MSc	5	7	4.33(1.29-14.51)	0.28(0.08-0.98)
	Diploma	8	2	1	1
Salary	<4000	37	14	0.29(0.15-0.57)	<b>2.41(1.20-4.84)**</b>
	4000-4791	25	21	0.66(0.35-1.23)	0.99(0.51-1.96)
	>4791	127	162	1	1

**NB:** variables having a P value ≤0.25 in the bivariate analysis are included in the multivariable analysis.

\*Statistically significant at p-value <0.05

\*\* Significant at p-value < 0.01

\*\*\* Significant at p-value <0.001

### Observational data result

To triangulate the result of the self-administered questionnaire, observational data were collected by directly observing the obstetric care providers while they provide intrapartum care service. A total of 102 delivery were observed during the study period and more than half of the delivery 52(51%) were conducted by midwives. The result showed that only 37(36.3%) of the care providers use WHO recommended partograph to follow the progress of labor. On the other hand, 39(38.2%) of the study participant used fundal pressure during the second stage of labor. Regarding routine IV fluid infusion for laboring mother majority, 61.8% provide routine IV fluid for every laboring mother (table 4).



**Table 4:-** Through direct observation of the level of evidence-based intrapartum practice in public hospitals, Addis Ababa, Ethiopia, 2020 (n= 102)

Variable		Frequency	Percentage
Routine episiotomy	Response		
	Yes	49	48
	No	53	52
Fundal pressure	Yes	39	38.2
	No	63	61.8
Routine uterine exploration	Yes	80	78.6
	No	22	21.4
Routine IV fluid infusion for laboring mother	Yes	63	61.8
	No	39	38.2
Routine suctioning of newborn	Yes	74	72.5
	No	28	27.5
Routine artificial rupture of membrane (ARM)	Yes	42	41.2
	No	60	58.8
Partograph utilization	Yes	37	36.3
	No	65	63.7

## Discussion

One of the strategies to safeguard labor mothers' safety and improve the quality of intrapartum care is the proper application of the best available evidence in practice. However, despite the emphasis on promoting evidence-based or effective care without the unnecessary use of technologies and drugs, intervention rates in childbirth are rising rapidly. The finding of this study showed that the overall magnitude of evidence-based intrapartum practice among obstetric care providers was low in Addis Ababa public hospitals, which was 51% (24).

The proportion of evidence-based intrapartum practice in this study is relatively consistent with studies conducted in Indian tertiary hospitals (48%). The finding of this study was higher than those studies conducted in Sweden (22.7%) and a cross-sectional study conducted in Amhara regional state (38.2%) (19). This difference can be due to differences in the number of hospitals and several clinical departments included in the studies, whereas some of the above studies were conducted in a single hospital. The observed discrepancy in findings between the present study and the previous ones may be attributed to variations in the study population, data collection methods, and procedures employed.

Furthermore, the differences could be influenced by the smaller sample size of the previous studies and potential variations in the study periods. The finding of this study is lower than study conducted in California (74.4%)(29), Iran social security hospital (78%)(28), a multicenter study done in tertiary hospitals in Arab 60% in Egypt, 82% in Lebanon, and 73% in Syria(31). The observed differences in the study findings may be attributed to factors such as cross-cultural variations, divided loyalty among providers, self-selection bias, limited staffing, and additional responsibilities. Additionally, variations could arise from differences in the study area, data collection methods, and healthcare system characteristics, particularly when comparing studies conducted in developed countries with advanced technology and high-quality healthcare institutions.

In this study, there was a significant association between the knowledge and attitude of obstetric care providers and their adherence to evidence-based intrapartum practice. Providers with good knowledge were almost three times more likely to follow evidence-based practices compared to those with poor knowledge, indicating that favorable knowledge positively influenced the delivery of evidence-based intrapartum care. Similarly, providers with a favorable attitude were nearly twice as likely to adhere to evidence-based practices compared to those with a poor attitude (AOR 1.80, 95% CI = 1.14-2.86). This could be attributed to the fact that those with adequate knowledge and a positive attitude were more motivated to apply their knowledge in practice.

Moreover, the educational qualification of the study participants showed a significant association with adherence to evidence-based intrapartum practice, with those holding a residency qualification being nearly four times more likely to adhere compared to others (AOR = 4.09, 95%CI = 1.45-11.55). This finding contradicts studies conducted in Italy and Sweden (24), which could be attributed to variations in study location, participants, data collection tools, sample size, and sampling procedures. Conversely, the current study's results align with a cross-sectional study conducted in Cali, Colombia, suggesting that similarities in the study population might explain the consistency of findings.

The variation in findings could also be influenced by the duration of time since practice may change over time. Obstetric care providers who received on-the-job training might have a stronger motivation for practice due to their access to updated intrapartum-related health information through the training.

According to these findings, rates for the beneficial practices of active management of the third stage of labor and allowing women to move during the first stage of labor were around 87.3% and 71.6% respectively. On the other hand, the finding of this study identifies the rate of partograph utilization; fetal well-being assessment and digital vaginal examination were 36.3%, 34.3 and 32.4 respectively. This finding is different from the study which was conducted in India the rate of partograph utilization was 85.7% (34). This inconsistency might be due to the policy in health care and implemented programs difference and the other reason might be the current study was conducted in higher referral hospitals in which most of the mother needs advanced care.

Regarding the non-beneficial or potentially harmful intrapartum practice, the rate of this research finding identifies 38.2% of the study participants perform fundal pressure during the second stage of labor, 48% of the study participant perform episiotomy routinely and 78.6% of the study participant perform routine uterine exploration after the third stage of labor. The current study finding is not in agreement with an interventional study done in India (37). The observed differences could be explained by variations in the number and types of hospitals included in the studies. Additionally, discrepancies may arise from differences in data collection tools, as the findings of this study were based on direct observation of care providers.

The study findings indicated that obstetric care providers who had access to a computer for reading at their workplace were more likely to engage in evidence-based intrapartum care. This suggests that providers who utilized intrapartum-related health information to update their knowledge were aware of how to incorporate research findings into their clinical practice (38). Their regular reading habits contributed to their motivation to implement new evidence into their practice. In addition clinicians were more attached with patients who increase their likely to use evidence in to practice, probably due to a motive to enhance patient care. Furthermore obstetric care providers who more attached with searching online journals, Cochran database and WHO reproductive health library were increase their likely to use evidence in to practice, probably due to a motive to enhance patient care (39). This was reflected in the study, as trained obstetric care providers were more likely to utilize evidence in their practice compared to those who did not undergo training.

## Conclusions

The study findings indicated a low level of evidence-based intrapartum practice among obstetric care providers in public hospitals in Addis

Ababa. While certain aspects of intrapartum care, such as active management of the third stage of labor, assessment of fetal well-being, and episiotomy under local anesthesia, were effectively performed based on available evidence, practices like fundal pressure and routine uterine massaging were not effectively implemented. The evidence-based intrapartum practice was significantly associated with participants' knowledge, attitude, educational level, training, and salary. To improve evidence-based intrapartum care, it is recommended to provide updated intrapartum care guidelines and offer continuous training opportunities.

## Abbreviations

AFSL: Active First Stage of Labor; AMTSL: Active Management of Third Stage of Labor; AOR: Adjusted Odds Ratio; CCT: Cord Control and Traction; EBP: Evidence-based practice; GMH: Gandhi Memorial Hospital; SPHMMC: St. Paul's Hospital Millennium Medical College; SPSH: St. Peter Specialized Hospital; WHO: World Health Organization; ZMH: Zewditu Memorial Hospital.

## Declarations

### Consent for publication

Not Applicable

### Ethical declaration

Ethical approval was obtained from Addis Ababa University ethical committee and a permission letter was obtained from armed forces hospitals. Informed written consent was obtained from each study participant or their legal guardian(s) for minor Subjects.

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### Authors' contributions

AM, MK: conceptualization, supervision, data entry, and analysis

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## Competing interest

All authors read and approved the final manuscript and declare no competing interests.

## Availability of data and materials

The datasets used in the current study or data collection tool are available from the corresponding author with a reasonable request.

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