Knowledge and practice of immediate new-born care among midwives in central zone public health Facilities, Tigray, Ethiopia: cross sectional study.

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Research note

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Abstract

Objective The objective of this study was to assess knowledge and practice of immediate newborn care among midwives in governmental health facilities of central zone of Tigray regional state, 2016. Results The mean age of the study participants was 34.1 years. Majority of the participants (83%) were diploma midwives. The score of knowledge of participants on immediate newborn care was 17.7% good and 25.2% poor. More than half (52.4%) of midwives practiced immediate newborn care. Midwives working in health center have 82% lower odds of newborn care compared to those working in hospital (p=0.000, OR=0.18 (0.07, 0.43).

Introduction

New-born is completely tiny and powerless, and dependent on other [1]. Crying after delivery is an indicative of establishing active breathing [2]. Babies die after birth because they have difficulty of adapting to extra uterine life [3]. There are 20 countries with the highest neonatal mortality rates worldwide, out of this 16 are found in Africa including Ethiopia. One in eleven children in sub-Saharan Africa dies before celebrating their fifth years [4, 5, 6].

Even though becoming new-born is not a disease, huge numbers of new-borns are dying immediately after birth [3]. Evidences showed that the day of birth is the riskiest time that is a child is 500 times more likely to die in the first day of life [4]. One million neonatal deaths occur on their day of birth [5, 7]. Knowledge and practice of health care providers is essential in improving the survival of new-born and reduces neonatal mortality and morbidity [8].

In Ethiopia 37 neonates died per 1,000 live births [9]. Similarly in Tigray region, there are 32,098 live births. Even though midwives are more likely to attend labour and provide new-born care, 3,515 (11%) neonates died at health facilities [10]. In Ethiopia specifically central zone of Tigray region health facilities there is no clear information regarding the knowledge and practice of midwives towards immediate newborn care. Therefore, it is crucial to assess the knowledge and practice of midwives towards immediate new-born care and provide well targeted intervention.

Methods

Institutional based cross-sectional study design was conducted from January-June, 2016 in central zone public health facilities of Tigray region. Central zone have 54 public health centers and 6 hospitals with 210 midwives working there.

A sample of 150 currently working midwives was included in the study. The sample size was determined using single population proportion formula. It was computed by considering 50% (p = 0.5) prevalence of knowledge and practice, 95% CI, and 5% margin of error. This resulted in 150 sample size after including 10% for non-response rate. Correction formula was used since the source population was less than the sampled population.
All public health facilities were included in the study. Final study subject was selected using convenience sampling method and midwives working in health facilities during the data collection time were included in the study.

Structured questionnaire was adapted with modification from different related literatures (1, 8, 11, 12, and 13). Observation checklist was adopted from save the children international [14]. The questionnaire and checklist were prepared first in English then translated to Tigrigna and retranslation to English. Questionnaire was pre-tested on 5% of the same source population other than the sampled population. Based on the pre-test, questions were revised, edited, and those found to be unclear or confusing were modified. Finally, structured closed ended Tigrigna version questionnaire was used for data collection. Moreover, checklist was used to assess immediate new care practice of the midwives.

Data was collected by face to face interview and non-participatory observations. Data collectors were 5 BSc Midwives. They were trained for two days on the study instrument and data collection procedures. Additionally, two BSc Nurses, and assisted the data collectors.

**Operational definition**

**Knowledge:** Refers to the knowledge response of midwives to the structured questions on the steps of new-born care, that is good knowledge when they respond correctly to >75% of the knowledge questions (>8 steps), fair knowledge respond to 51-74% (5-8 steps) and poor knowledge respond to <50% (<5 steps) of the 10 cares given to immediately born baby.

**Practice:** Refers to the performance of midwives according to prepared checklist regarding new-born care. If the midwives performed the task at least 50% or above median (Responded >20 questions) of the steps in the checklists was considered as practiced, and not practiced if performed 50% or below median (<=20 questions) of the tasks in the checklists.

The collected data was entered in to SPSS version 21.0. Variables with p-value less than 0.3 on bivariate analysis were entered in to the multivariable analysis and adjusted odds ratio with 95% CI was used to ascertain the association between dependent and independent variables. The level of significance was taken at $\alpha <0.05$. Finally, result was presented in texts, and tables.

Ethical clearance and approval was obtained from research ethics committee of department of nursing and midwifery, Addis-Ababa University. Official cooperation letter was written from Tigray health bureau to each woreda health office and written permission was obtained from each respondents.

**Results**

**Participants’ socio-demographic characteristics**

Totally 147 midwives were participated in the study which gives a response rate of 98%. Among the respondents 88 (59.9%) were from health center and 59 (40.1%) from hospitals. One hundred seventeen
(79.6%) were females and 35(23.8%) of the participants were in the age group of 25-29. Orthodox Christianity was the dominant religion consisting of 135(91.8%). Majority (83.0%) of the respondents were diploma, 55 (37.4%) respondents had work experience of 1-5 years and 49.7% were married.

**Participants Knowledge on immediate newborn care**

Participants responded that the advantage of early initiation of breastfeeding; 97(66%) said, it prevents the newborn from hypoglycemia and 91(61.9%) of respondents know the advantage of colostrum on preventing new-born baby from infection. Among all, 137(93.2%) of respondents had knowledge on the appropriate time of initiation of breastfeeding for the newborn baby.

Most of the respondents know on placing the newborn on mother’s abdomen 122(83%) immediately after delivery and 127(86.4%) of midwives had knowledge of providing TTC eye ointment on both eyes. *(Table S1)*. When the respondents asked about the immediate new-born complications, majority of them identified hypothermia, hypoxia and infection *(Table S2)*. Around 9(6.15) of mothers wash babies before 24 hours of delivery *(Table 1)*.

**Table-1: Knowledge of midwives on care given to immediately born baby in central zone, Tigray, Ethiopia, 2016**
| Variable                                                                 | Frequency (N=147) | Percent  |
|--------------------------------------------------------------------------|-------------------|----------|
| **Knowledge of midwives on advantage of skin-to-skin contact**            |                   |          |
| Prevent hypothermia                                                      | 64                | 55.8%    |
| Help baby stay warm                                                      | 84                | 57.1%    |
| Bonding                                                                  | 40                | 27.2%    |
| Help expel placenta and uterine contraction                              | 2                 | 1.4%     |
| **Knowledge of midwives on measures to be taken for baby unable to cry after delivery** |                   |          |
| Suck the baby                                                           | 136               | 92.5%    |
| Call a help and start resuscitation                                     | 105               | 71.4%    |
| Start cardio-pulmonary resuscitation                                     | 10                | 6.8%     |
| Burping                                                                  | 3                 | 2.0%     |
| Oxygen administration                                                    | 4                 | 2.7%     |
| **Knowledge on time of bathing for immediately born baby**              |                   |          |
| Before 24 hour of delivery                                              | 9                 | 6.1%     |
| After 24 hour of delivery                                               | 110               | 74.8%    |
| I do not know                                                           | 5                 | 3.4%     |
| Counsels mother to wash at home after 24 hour                            | 23                | 15.6%    |
| **Knowledge on the importance of providing eye ointment**               |                   |          |
| Prevent eye infection                                                    | 57                | 38.8%    |
| Prevent blindness                                                        | 12                | 8.2%     |
| Prevent conjunctivitis                                                   | 21                | 14.3%    |
| Prevent from STI                                                         | 23                | 15.7%    |
| Prevent Gonorrhoea                                                       | 2                 | 1.4%     |
| Prevent syphilis                                                         | 8                 | 5.5%     |
| As prophylaxis                                                           | 8                 | 5.5%     |
| Prevent dryness of eye                                                   | 1                 | 0.7%     |

The overall Knowledge of midwives on immediatenewborn care was 17.7%, 57.1% and 25.2%, good, fair and poor knowledge respectively.

**Participants practice of newborn care**

Around 146(99.3%) of respondents have prepared cord tie and clamp before delivery, but 98% of midwives did not prepared baby identification material (**Table 2**).

**Table-2: Practice of midwives on immediate newborn care in central zone, Tigray, Ethiopia, 2016**
| Variable                                                                 | Frequency N=147 | Percent |
|--------------------------------------------------------------------------|----------------|---------|
| **Washes hands with soap and water, dried with a clean dry**             |                |         |
| Perform task completely                                                  | 36             | 24.5%   |
| Unable to perform task completely                                       | 111            | 75.5%   |
| **Wipes the eyes and face when the head is delivered**                   |                |         |
| Perform task completely                                                  | 94             | 63.9%   |
| Unable to perform task completely                                       | 53             | 36.1%   |
| **Clean eyes immediately after birth with swab soaked in sterile water, using separate swab for each eye** |                |         |
| Perform task completely                                                  | 44             | 29.9%   |
| Unable to perform task completely                                       | 103            | 70.1%   |
| **Delivery surface covered with sterile dry towel**                      |                |         |
| Perform task completely                                                  | 135            | 91.8%   |
| Unable to perform task completely                                       | 12             | 8.2%    |
| **When baby not cried within 30 minute of delivery, called help and prepared for steps of resuscitation** |                |         |
| Perform task completely                                                  | 42             | 85.7%   |
| Unable to perform task completely                                       | 7              | 14.3%   |
| **Use appropriate size of mask for resuscitation**                      |                |         |
| Perform task completely                                                  | 45             | 91.8%   |
| Unable to perform task completely                                       | 4              | 8.2%    |
| **Cord Tie**                                                             |                |         |
| Perform task completely                                                  | 84             | 57.1%   |
| Unable to perform task completely                                       | 63             | 42.9%   |
| **Cord cut with sterile scissor or surgical blade.**                     |                |         |
| Perform task completely                                                  | 99             | 67.3%   |
| Unable to perform task completely                                       | 48             | 32.7%   |

About 146(99.3%) of participants in this study were not practiced to put baby identification bands on the wrist and ankle after delivery. Majority of the respondents, 145(98.6%) have immediately dried the whole body of baby including the head and limbs but 14(9.5%) of respondents have not removed wet cloth used to dry the baby. Most 145(98.6%) of respondents were administered vitamin K to the new-born immediately.

Overall 52.4% of midwives practiced immediate newborn care appropriately.

**Factors associated with immediate newborn care**
Variables which have p-value less than or equal to 0.3 in Bivariate analysis were entered to multi-variable analysis. The multi-variable analysis result showed that work environment was significantly associated with practice of new-born care that is midwives working at health center were 82% lower odds of new-born care compared to those working in the hospitals (Table 3).

Table 3: Multivariable analysis of variables with practice of newborn care, among Midwives working in central zone, Tigray, Ethiopia, 2016.

| Variables                  | Practiced New-born Care | COR (95% CI) | AOR (95% CI) | P-Value |
|----------------------------|-------------------------|--------------|--------------|---------|
| Marital status             |                         |              |              |         |
| Single                     | 23(48.9%)               | 24(51.1%)    | 1            | 1       |
| Married                    | 48(65.8%)               | 25(34.2%)    | 2.00(0.94, 4.23) | 1.90(0.79, 4.58) | 0.15 |
| Divorced                   | 2(16.7%)                | 10(83.3%)    | 0.20(0.04, 1.05) | 0.22(0.04, 1.26) | 0.09 |
| Widowed                    | 4(26.7%)                | 11(73.3%)    | 0.38(0.10, 1.36) | 0.40(0.09, 1.73) | 0.22 |
| Religion                   |                         |              |              |         |
| Orthodox                   | 74(54.8%)               | 61(45.2%)    | 1            | 1       |
| Muslim                     | 3(25.0%)                | 9(75.0%)     | 0.27(0.07, 1.06) | 0.19(0.04, 0.89) | 0.036 |
| Working environment        |                         |              |              |         |
| Hospital                   | 46(78.0%)               | 13(22.0%)    | 1            | 1       |
| Health Center              | 31(35.2%)               | 57(64.8%)    | 0.15(0.07, 0.32) | 0.18(0.07, 0.43) | 0.000 |
| Educational status         |                         |              |              |         |
| Diploma                    | 60(49.2%)               | 62(50.8%)    | 1            | 1       |
| Degree                     | 17(68.0%)               | 8(32.0%)     | 2.2(0.88, 5.47) | 1.10(0.32, 3.72) | 0.87 |
| Knowledge on Newborn care  |                         |              |              |         |
| Fair                       | 43(51.2%)               | 41(48.8%)    | 1            | 1       |
| Good                       | 16(61.5%)               | 10(38.5%)    | 1.52(0.62, 3.75) | 1.42(0.48, 4.17) | 0.52 |
| Poor                       | 18(48.6%)               | 19(51.4%)    | 0.90(0.42, 1.96) | 1.3(0.51, 3.33) | 0.57 |
| Training on newborn care   |                         |              |              |         |
| Yes                        | 15(71.4%)               | 6(28.6%)     | 1            | 1       |
| No                         | 62(49.2%)               | 64(50.8%)    | 0.38(0.14, 1.06) | 0.48(0.14, 1.65) | 0.25 |

Discussion

According to this study, even though 85.7% of respondents had received in service training, participants had poor knowledge regarding care of new-born at birth (25.2%). This is in line with similar study done in Sudan [1]. This indicates that midwives in both study area have knowledge gap on immediate new-born care.
The knowledge of study participants on immediate new-born care of this survey were good (17.7 %), fair (57.1%) and poor (25.2%). This is relatively lower than study done in Egypt (8). This might be related to the educational status of respondent's, there was presence of degree and speciality in the study done in Egypt.

About 99.3% of participants in this study were not practiced to put baby identification bands on the wrist and ankle after delivery. This is consistent with the study done in Khartoum, Sudan (1). This will increases misshaping or exchange of babies in busy delivery room or time.

Practice of respondents towards immediate new-born care in this study were 52.4% which is relatively higher than the study done in Sudan [1]. This might be due to the descriptive statistics used at both study areas, that is the study done in Sudan had taken mean where as in this study practice was calculated from median.

This study result indicated that midwives working at health center were 82% lower odds of new-born care compared to those working in the hospitals. This is different from the same study done by MAISHA program in Tanzania [12]. This might be due to difference in socio-demographic characteristics.

**Conclusion and recommendation**

Based on the finding midwives had knowledge and practice gap on immediate new-born care. Statistically significant difference of new-born care was observed among the midwives working in the health center and hospital. In-service training and capacity building of the midwives related to knowledge and skill on newborn care is crucial. Special focus should provide to include immediate new-born care on pre-service training curriculum at college level.

**Limitation**

Sampling procedure used for this study was convenience so it is limited to talk with this to the general population. The sample size used might not be enough to detect the statistical difference between the dependent and outcome variable. The nature of study design could not show seasonal variation and temporal relationship of cause and effect. Absence of similar literature in Ethiopia.

**List Of Abbreviations**

CI—Confidence Interval

SPSS—Statistical package for social science

**Declarations**

*Ethics approval and consent to participate*
Ethical clearance and approval was obtained from the research ethics committee of department of nursing and midwifery, college of health science, Addis-Ababa University. Official cooperation letter was written from department of nursing and midwifery to Tigray regional health bureau. Then Tigray regional health bureau sent written cooperation letter to all of the district health bureaus of central zone and hospitals. Each district health bureaus wrote official letter to each health facilities under their control. Health facility managers gave written permission to the maternal and child health department head. After explaining about the purpose, and the possible benefit of the study; written permission was obtained from each respondents. Confidentiality of the respondent was maintained throughout the study.

Consent for publication

Not applicable for this section

Availability of data and material

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

Competing interests

The authors declared that they have no competing interests.

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Addis Ababa University. The funder has no role in the design, analysis and interpretation of the results.

Authors’ contributions

TTG carried out the conception and designing the study, performed statistical analysis and wrote the manuscript. AG participated in the conception and designing the study, performed statistical analysis and wrote the manuscript. RM participated in designing the study, analysis, reviewing and editing the final draft and manuscript. MH participated in the conception and designing the study, performed statistical analysis and wrote the manuscript. All authors read and approved the final manuscript.

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References
1. Faiza Ali, Nasor Taha. Assessment of knowledge, attitude and practices of nurse midwives towards immediate care of the newborn in Khartoum state teaching hospitals. Journal of American Science. 2013; 9(9).
2. Gary Cunningham; Kenneth J. Leveno; Steven L. Bloom; John C. Hauth; Larry Gilstrap III; and Katharine D. Wenstrom. Williams Obstetrics. 22nd ed. McGraw-Hill. 2007.
3. WHO. Neonatal and perinatal mortality: country, regional and global estimates. Geneva, Switzerland, 2006.
4. WHO. The World health report: Make every mother and child count. Geneva, Switzerland, 2005.
5. UNICEF. Progress Report. Key finding Committing to Child Survival: A promise Renewed, 2014.
6. Federal republic of Nigeria ministry of health. Saving newborn lives in Nigeria: Newborn health in the context of the integrated maternal, newborn and child health strategy, revised 2nd edition. Yaliam press. Abija, Nigeria, 2011.
7. Dazhzen You, Phillip Bastian, Jingxian Wu and Tessa Wardlaw. Levels and Trends in child mortality: Estimates Developed by the UN Inter-agency Group for Child Mortality Estimation. United Nations Children’s Fund UN Plaza, New York, 2013.
8. Neamaabd El Fattah1 and Nagwa A. Zein El Dein. Assessment of Quality of Nursing Care Provided Immediately after Birth at University Hospital in El kom-Minoufiya, Egypt. Life Science Journal. 2012; 9(4).
9. Demographic and health survey preliminary report, Ethiopia, Central statistics Agency - Addis Ababa, Ethiopia and ICF, Calverton, Maryland USA, 2011.
10. Federal ministry of health policy planning directorate. Health and health related reports. Addis Ababa: Federal ministry of health; 2011.
11. Deepak Louis, Praveen Kumar and Ashish Gupta. Practitioners’ Series Knowledge and practices of healthcare providers about essential newborn care and resuscitation in a district of Haryana. J Indian Med Assoc. February 2013. vol 111(2).
12. Nanthini Subbiah, Jyoti Sarin, Jeeva S and Geetanjali. Effectiveness of educational intervention on neonatal resuscitation among nursing personnel. Population – Perspectives and Issues, 2012, 35(1).
13. MAISHA program. MAISHA Quality of maternal and new-born care study. Key findings: immediate essential new-born care and resuscitation. Tanzania, 2010-2012.
14. Deborah Ar., Diana B., Susan G., and Phyllis L. Saving new-born lives care of the new-born training guide. Save the children federation, 2005. USA.

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