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Research Article

Prevalence of new born care practice and its associated factors among women who gave birth in the last one year in Adigrattown, Adigrat, Tigray, Ethiopia, 2018/19

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Abstract

Background: Newborn care is a set of comprehensive recommendations designed by the World Health Organization to improve health of the newborn through intervention before conception, during pregnancy, soon after birth and during the postnatal period. Lack of effective use of the recommendations of the health care providers may lead to increased neonatal mortality. The first hours are crucial because multiple organ system is making the transition from intrauterine to extra uterine functions. The care given immediately after birth is simple but important.

Objective: To assess practice of new born care and its associated factors among women who gave birth in the last 12 months in Adigrat Town, Adigrat ,Tigray ,Ethiopia, 2019.

Methods and materials: Community based Cross-sectional study was conducted from Nov 2018 to January 2019 in Adigrat Town. We used a Systematic random sampling technique and 389 were selected for the study area. 35 items standard questionnaires were used and three grade twelve students were employee to collect the data. Data was checked for completeness, consistency, coded and entered in to SPSS version 22 for analysis and we got ethical clearance from the Adigrat University College of medical health science.

Result:-A total of 389 women responded to the questionnaire and its response rate was 100%. And the mean age and standard deviation was 27 (+SD 5.9) years. Majority 319(82%)of them were married.39.8 % of mothers knew the normal (8-10) breastfeeding practice and 96.9% mothers initiated breast feeding with in the first one hour. 96.1 % used new blade to cut the umbilical cord and only 54.2% correctly reported that umbilical stump should be uncovered. 96.6% applied substances identified by the mothers were butter.55% of mothers reported that baby should be bath after 24 hours of delivery. the modes of keeping the baby warmed by cloth before the expulsion of the placenta was 89.5%.

Conclusion and recommendation:-Marital status, gravidity and parity have significant association with newborn care. The Town health office should use multi-gravida mothers to share their experience on newborn care practice for primi-gradiva as health development army.

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Introduction

Background

Newborn care is a set of comprehensive recommendations designed by the World Health Organization (WHO) to improve health of the newborn through intervention before conception, during pregnancy, soon after birth and during the postnatal period [1]. It includes thermoregulation, clean delivery and cord care, initiation of breastfeeding, immunization, eye care, recognition of danger signs, care of the preterm / low birth weight infant and management of newborn illnesses. Lack of effective use of the recommendations of the health care providers may lead to increased neonatal mortality [1,2].

Neonatal mortality remains high despite a declining proportion of deaths among children under five years of age. World Health Organization 2013 estimated neonatal mortality around 45% of all deaths in under-five mortality [2]. The proportion of child deaths which occur in neonatal period has increased in all WHO regions over the last years, from which the leading cause of death is premature. Up to two third of newborn death could be prevented if skilled health workers perform effective measures at birth and during the first week of life. The majority of deaths occur in the first 24 hours of life [3].

Neonatal mortality still remains a major public health problem and the leading cause of mortality in children under five years of age in Ethiopia.

So That this study was conducted to assess the practice of new born care and its associated factors among women who gave birth in the last 12 months in AdigratTown ,Adigrat ,Tigray ,Ethiopia.

Statement of the problem

Despite the progress towards reduction of under-five mortality globally, newborn deaths have reduced at a slower rate [4]. About 6 million children die before their fifth birthday each year and About 5 million of these deaths occur in the first year of life and nearly 3 million die within the first 28 days of birth and This indicates that about 45% of under-five deaths and 60% of infant deaths account for the neonatal mortality and also Almost all (99%) of these neonatal deaths occur in low income and middle-income countries, with the highest rates occurring in Sub Saharan Africa (29 deaths per 1000 live births in 2015). The majority of these deaths, however, are due to preventable causes [5,6].

In Ethiopia, among the 184,000 children under five who die, 87,000 are babies within the first four weeks of life [9]. Neonatal death accounts for 47% of all deaths in under-five children younger than five years of age. In 2015, 28 per 1000 live births died mainly due to bacterial sepsis of the newborn, birth asphyxia, perinatal respiratory disorder and respiratory distress related to prematurity [4,7]. The risk of death is higher in the first 24 hours of life when more than half of deaths occur and about three–quarters of all neonatal deaths occur within the first week of life [7,8]. It is estimated that about 75% of neonatal deaths could be avoided with simple and low-cost interventions [5]. The neonates are at risk for various health problems even though they born with an average birth weight. Most of the health problems are life-threatening to the neonates. Therefore, they need optimal care for their survival. The WHO Newborn Care (NBC) recommendations are important to reduce the neonatal illness and deaths.

Ethiopia has made tremendous efforts in improving the quality and access to health service by implementing a health extension program [9]. However, attendance of skilled workers during delivery (16.4%) and postnatal care (13%) is still very low. The majority of mothers deliver at home in the presence of traditional birth attendants, which has resulted in many harmful traditional practices applied to the newborn baby by mothers and grandmothers [5,6]. Babies receive little attention until the placenta is expelled. They may or may not be covered in cloth or dried [6]. No skin to skin contact is reported and newborns have often been placed slightly away from the mother's side. Attendants are largely focused on the delivery of the placenta and the related well-being of the mother [6]. Insufficient knowledge of parents during this period could lead to parents' confusion and decreased quality of care [7,10] that in turn threaten the neonatal health and could even lead to neonatal mortality [8]. Therefore, assessing maternal knowledge and practice towards NBC has valuable importance in the healthy development of the newborn. Moreover, there is limited information about postnatal mothers' practices on NBC in Adigrat Town. Studies that assessed practice of recently delivered mothers towards newborn care in the country are mainly confined to rural settings that have a significantly different socio-demographic and economic status and access to health facilities. Thus, the level of practice of essential newborn care in recently delivered women could vary significantly across settings. Therefore, this study aims to assess the practice of new born care and its associated factors among women who gave birth in the last 12 months in Adigrat Town, Adigrat ,Tigray ,Ethiopia.

Rationale of the Study

Although there has been a dramatic improvement in child survival, the burden of mortality in the neonatal period has remained virtually unchanged. Neonatal mortality is still a major cause of death in children under five in Ethiopia, which can be prevented by performing the simple and effective WHO recommendation on essential newborn care practices. Several studies conducted worldwide have shown poor maternal knowledge and negative attitude and practices on essential newborn care, but there is a lack of information on our regions especially in Adigrat Town.

This study was aimed to identify the gaps on practice of new born care and its associated factors among women who gave birth in the last 12 months in Adigrat Town, Adigrat, and Tigray, Ethiopia.

The identified gaps on practices on newborn care can communicated to the health care provider for appropriate interventions that can improve newborn outcome.

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Literature review

Global under five and infant mortality rates have declined over the past four decades, but high neonatal mortality rates have remained relatively unchanged. It is estimated that 7.7 million children under five years die in a year, out of which about 3.1 million babies die in the first four weeks of life and 99% of these deaths occur in low income countries [1-3,11]. Although neonatal mortality rates are also decreasing globally, Africa is experiencing much slower declines than other regions [2].

Each year, at least 1.16 million African babies die in the first 28 days of life and 850,000 of these babies do not live past the week they are born. A vast majority of these deaths are occurring in Sub-Saharan Africa countries and has also shown the slowest progress in reducing newborn deaths, especially deaths in the first week of life [12].

The world health organization guideline defined essential newborn care to encompass cleanliness, thermal protection, and initiation of breathing, Initiation of breast feeding, eye care, immunization, management of illness, and the care of low birth weight infants. For a mother and her family, this means preparing for birth, choosing a safe place for delivery, keeping the process clean, avoiding the cold, initiation and exclusively breast feeding, and understanding and reacting to potential neonatal problems [5].

Therefore, essential newborn care is very important in preventing neonatal deaths, particularly essential care of the normal newborn to prevent illness, extra care of low birth weight babies, and access to quality emergency care for the sick newborn [6].

In Ethiopia neonatal morbidity and mortality rates are among the highest in the world. Around 122,000 newborns die every year and the neonatal mortality rate is 37 per 1000 live births [7,10]. Since nearly 90% of births and majority of deaths take place at home, away from the reach of skilled providers, many newborn deaths can be averted through changes in household level practices regarding delivery and newborn care [10,13]. To change the practice at the household level, new innovative strategies must be developed for safe home deliveries

including essential neonatal care, besides devising means of proper care of the neonate in domestic settings and ensuring proper referral of those neonates who cannot be managed at home [1].

Cleanliness and umbilical cord care

The umbilical cord attaches the fetus to the placenta. After birth the umbilical cord is clamped and cut, it dries and falls off in five to fifteen days. It is an important source of infection in the first few days of life due to unhygienic cord care practices, including cord cutting and tying therefore it is agreed that cord cutting using a sterile instrument is the best practice needed for cord care [9]. Studies from a range of countries showed various substances, including cow dung, ash, oil and butter commonly applied to the umbilical cord in order to promote healing [5]. Dore, et al. recommended the practice of keeping the cord clean and dry without applying anything [6]. After the umbilical cord separates minimal discharge is expected, therefore the area should be kept clean and dry to promote healing [4]. Mothers should be aware of the signs of umbilical cord infection such as pus discharge, reddening around the umbilical stump and/or the surrounding skin. A study conducted in Benin City, Nigeria showed 71.2% of mothers were aware of cord care, 51.3% were influenced by the nurses, 32% of the mother and 5.8 % of the mothers in law [10]

Another study conducted on 307 mothers in an urban slum in Nairobi, Kenya by Obimbo, et al. found that most mothers (91%) knew the need for hygiene during cord cutting, only 28% knew about hygiene while tying the cord, 79% of mothers were afraid of handling the unhealed cord and less than 50% had good knowledge on the postnatal cord care [7].

Thermoregulation

Thermoregulation in neonates is one of the biological adjustments taking place of birth to maintain normal body temperature of 36.5-37.5°C. A newborn regulates temperature much less efficiently than adult and loses heat more easily; low birth weight and premature infant are at greater risk [14]. The World Health Organization defined hyperthermia as auxiliary temperature above 37.5°C and hypothermia below 36.5.^{c} [15]. Hypothermia is a life threatening condition leading to neonatal mortality; therefore prevention and management of hypothermia are the key interventions for reducing neonatal morbidity and mortality. Heat loss occurs through conduction, convection, radiation and evaporation [15]. A study done in Nigeria showed neonatal hypothermia remains a major problem in neonatal practices in sub-Saharan Africa and recommended use of low-technical measures such as kangaroo care, hot water bottles, warm room may be life saving [9].

A study done in Sri Lanka on knowledge and practices in thermoregulation of newborn revealed 63% of babies had hypothermia and 65% mothers had knowledge and its preventive method while 35% had very poor practical application [15].

WHO recommends the "warm chain" which is described in 10 steps to ensure the newborn is not at risk of hypothermia. They include warm delivery, immediate drying, skin to skin contact, breastfeeding, bathing and weighing postponed, appropriate clothing, rooming in, warm transportation and resuscitation, training and awareness raising [14].

Therefore warm chain must be maintained by the mothers at home, whether delivery took place at home or in the hospital. After delivery, practices to prevent hypothermia include rooming in, breastfeeding on demand, and dressing the infant appropriately while early bathing expose

Newborn to hypothermia [14]. WHO recommends bathing after six hours of life and preferably.

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On the second or third day of life [16]. Extra measures like use of radiant heat and incubator care are needed for low birth weight and premature infant because they are at higher risk of hypothermia [14].

Immunization

Immunization is the process whereby a person is made immune or resistant to an infectious disease by administration of vaccine. The Expanded Programme of Immunization was established by World Health Organization 1974 to ensure universal access to the routine recommended childhood vaccine include BCG, Polio, DTP, measles vaccine preventable against tuberculosis, poliomyelitis, diphtheria, tetanus, pertussis and measles[17] , Expanded Programme on Immunization offers routine immunization to infant which includes BCG alive attenuated vaccine given at birth or within the first two weeks and the vaccine efficacy is estimated to be about 51% in preventing any tuberculosis disease and up to 78% in protecting children from meningeal tuberculosis and oral polio or Sabin live attenuated given at birth[18].

A study done in Kenya by Amolo revealed 17.8% of postnatal mothers identified BCG and OPV at birth and 7% of postnatal mothers still believed vaccines were harmful [19]. Uptake of vaccination services is dependent on several factors, including knowledge and attitude of the mothers. Correct knowledge and positive attitude of the mothers on immunization contributes to the achievement of immunization high rates [20].

Breastfeeding

Breastfeeding is the normal way of providing infants with nutrient needed for healthy growth and development, breast milk is the best milk for the newborn [21]. The proportion of breastfed babies is high worldwide; there are wide variations in the duration of breastfeeding with sub-optimal breastfeeding practices still the norm in most countries [9]. WHO recommends initiation of breastfeeding within the first hour after birth and exclusively for six months of age, with continued breastfeeding along with appropriate complementary feeds up to two years of age or beyond [21]. Delayed initiation of breastfeeding was found to be associated with increased neonatal mortality [22]. The lack of exclusive breastfeeding substantially increases the risk of poor newborn and childhood outcome. Globally, less than 40% infants under six months of age were exclusively breastfed, whereas in SSHHS 2010 revealed 45% of infants under six months were exclusively breastfed compared to 21.1% in 2006 [20].

Breastfeeding is of benefit to both mother and the newborn, to mother immediate breast feeding stimulates uterine contraction and delivery of placenta therefore preventing postpartum hemorrhage and for the newborn early breastfeeding provide nutrition, warmth and colostrums which contain immunological factors that prevent infections [23].

A study done in Pakistan showed less than half of the mothers (48%) initiated breastfeeding within two hours of delivery, colostrums were discarded by 43% and pre-lacteal feeds were given by 73%. Rehana, et al. recommend appropriate health education to improve mother's knowledge regarding newborn care practices [20].

Recognition of danger signs

Early detection of the neonatal illness is an important step towards the improving newborn survival. Every year an estimated three million children die during their first month of life and about one third of these deaths occur during the first 24 hours [3]. The majority of these deaths occur at home indicating that few families recognize danger signs of newborn illness, and or majorities of the neonate are not taken to the health care facilities when they are sick. A study done by Dongre, et al. in India showed poor awareness of mothers regarding newborn danger sign and recommend the need for raising awareness building for early recognition and prompt treatment [20]. Different tools to facilitate the identification of these health problems and to reduce neonatal mortality have been introduced into health programs in several countries. Integrated Management of Newborn and Childhood Illness (IMNCI) developed by WHO focuses on assessment of general danger signs of severe illness which includes difficulty feeding, hypothermia, fever, convulsions, difficulty in breathing, jaundice on day one of life [4].

A community survey study done in southwestern Uganda showed poor knowledge on key newborn danger signs where 58.2% of mothers could only identify 1 and 14.8% could identify 2 danger signs, Poor knowledge also associated with delay in care seeking. Waiswa, et al. in Uganda noted delay in primary caregivers bringing newborns to hospital contributed significantly to the newborn mortality [21].

Eye care

Ophthalmia neonatorum is an acute mucopurulent conjunctivitis that occurs in the first month of life, and it appears in the first 2-5days after birth [18]. Newborn presents with eye discharge, lids swelling and /or reddening of the eyes [4]. Traditional practices are still going on by the primary caregiver such as the application of breast milk and other substance to treat eye infections. Rehana et al. study showed 68% of the mothers still used substances in the newborn eyes to prevent eye infections [20]. These have been shown to be ineffective in treating neonatal conjunctivitis and should not be used.

Mothers should be advised to bring their babies to hospital if they notice any eye discharge, swelling or reddening and avoid the use of traditional substance to prevent corneal ulceration and blindness

Conceptual frame work to assess the practice of new born care and its associated factors among women who gave birth in the last 12 months in Adigrat Town ,Adigrat ,Tigray ,Ethiopia,2018/19 Figure 1.

General objective

To assess the practice of new born care and its associated factors among women who gave birth in the last 12 months in Adigrat Town,Tigray ,Ethiopia,2018/2019.

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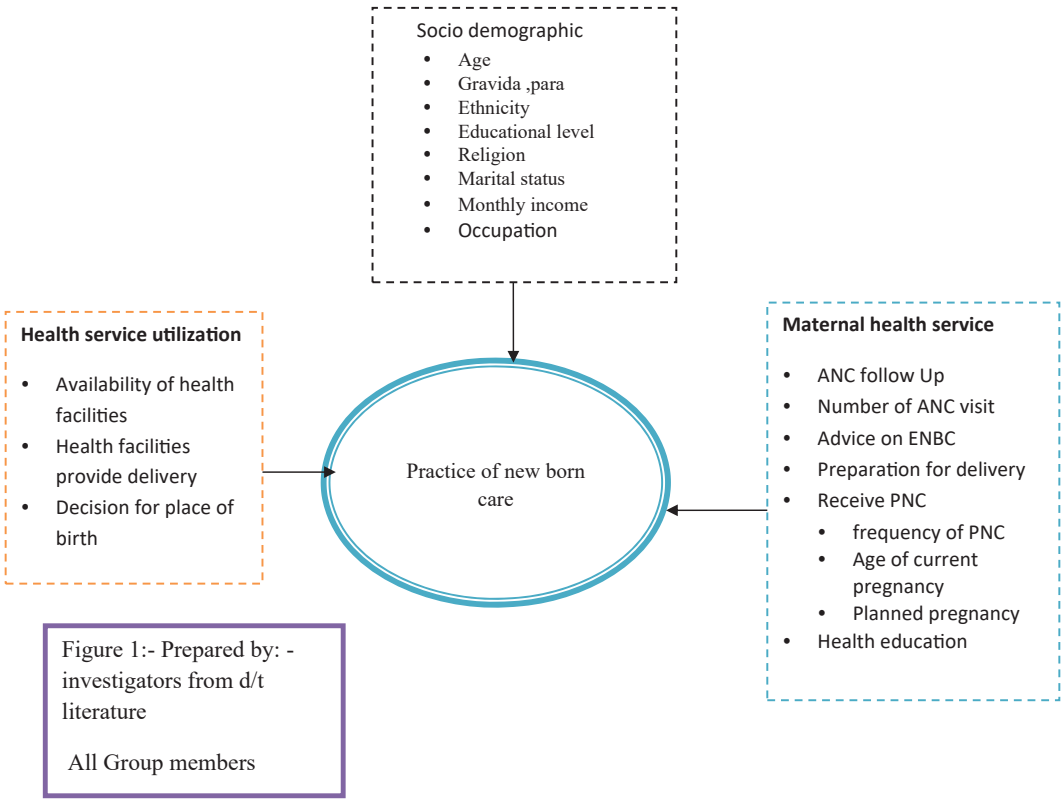

Figure 1: Adopted by Group members from d/t literature.

Specific objectives

To determine the prevalence of newborn care practice among women who gave birth in the last 12 months in Adigrat Town, Tigray ,Ethiopia,2019.

To identifies the associated factors among women who gave birth in the last 12 months in Adigrat Town, Tigray, Ethiopia, 2019.

Methods and materials

Study area

The study was conducted in Adigrat Town, Tigray, Ethiopia, 2018. Adigrat is one of the zonal Towns found in the eastern zone of Tigray Region. It has six kebelles and has one general hospital and two health centers and there are two high schools and 4 elementary schools. Based on the 2018 Adigrat Town administration report, the Town has a total population of 97,723. Of this, 46,909 are men and 50,814 are women and within the last year six month report there was 966 live births. The elevation of Adigrat Town is 2457 M. This Town found 589 Km from the capital city of Ethiopia (Adiss Abeba).

The study was conducted from Dec 2018 to January 30, 2019.

Study design

Community based cross sectional study design was conducted.

Study period

The study was conducted from Nov 2018 to January 2019.

Source of population

The source of population was all reproductive age women who delivered the last one year in Adigrat Town.

Study population

The study population was the reproductive age group who are living in kebelle two and four who has delivered the last one year in Adigrat Town during the data collection time.

Sample population

All mothers sampled mothers during the study period.

Eligibility criteria

Inclusion criteria: Women delivered in the last 12 months in Adigrat Town.

Exclusion criteria: Mothers who have seriously ill during the interview and mothers who gave still birth.

Sampling techniques and sample procedure

The study kebelle was selected by lottery methods from the six kebelle and a list of house hold will be prepared from the selected kebelle. Data collection from each sampled mother collected by systematic random sampling methods until we get the sample size with the interval of two Figure 2.

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Sample size

The sample size was determined by using single population proportion formula by taking 40.6% in Mandura District, Northwest Ethiopia [16] of prevalence of practice on newborn care with confidence interval of 95%, 5% marginal error, and 5% of none response rate, a total of **389** mothers required for the study.

n= (Za/2)2*p (1-p) / d2

Where:- n= estimated sample size, d= desired precision, p= practice of new born care [40.6%=0.406] , Za= 1.96 at confidence level 95% based on different grades and their number.

Then weadded 5% non response rate. n=z2(p-q)/d2 n=1.962 x 0.406 x0.594/ (0.05)2

With this calculation the sample size n=370, and 5% non-response rate (19) is added, it was given a total sample size of 389.

Data collection procedures

Data was collected by using a structured questionnaire. The questionnaires was consisted socio demographic characteristic of mothers and practice on essential newborn care. Questionnaires was developed by adapting variables from different relevant literatures and It was contextualize or modified to the study objectives and translated from English to Tigrigna language. Pretest was done 5% of the sample size in kebelle-one of the Adigrat Town and later not included in the actual study and then necessary correction was done accordingly. Using interview questioners was done to collect the data on assessment of practice of new born care and its associated factors among women who gave birth in the last 12 months in Adigrat Town and the number of sample proportionally distributed according to the number of reproductive age group in selected kebele.

Study variables

Dependent variable: New born care practice

Independent variables: Age, gravid, parity, Ethnicity, Religion, Educational level, occupation, marital status, Monthly income,

Maternal health service

ANC follow up

Number of ANC visit

Advice on ENBC

Preparation for delivery

Receive PNC

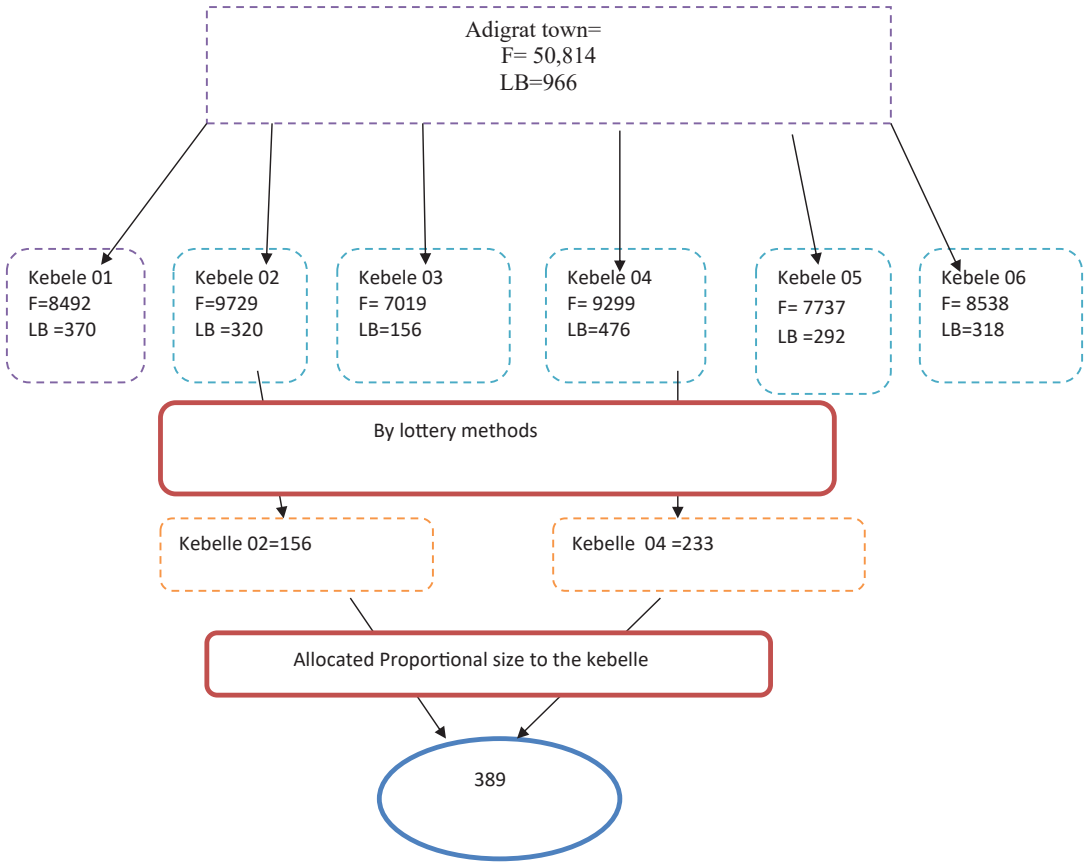

Figure 2: Schematic presentation of Average number of sample size inAdigratTown, Adigrat ,Tigray ,Ethiopia.

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Frequency of PNC

Age of current pregnancy

Planned pregnancy

Health service utilization

Availability of health facilities

Health facilities provide delivery

Decision for place of birth

Health education

Operational definitions

Early Breast feeding: -when the mother gives breast within the first hour after birth.

Baby bathing: - the practice of newborn baby bathing only after 24 hours of birth.

Cord cutting: - the practice of cutting accord with new blade.

Thermal care: - when the new born was dried and wrapped after birth

In this study new born care practice was dichotomized based on the four newborn care practice mentioned above. Those mother who was reported at a least three of mentioned practiced categorized as * **good newborn practice*** otherwise as * **poor newborn care practice***[16].

Data quality assurance

The Questionnaire was translated to local language Tigrigna and Pretest was utilized in 5 % of the estimated sample size to evaluate the clarity, completeness and understandability of the questions in the questionnaire and the validity instrument and the reaction of respondents to the question, on the study populations of mothers delivered in the last 12 months in Adigrat town and care was taken not to include these candidates in the main data. Frequent supervision and monitoring of overall activities of the study was done during data collection. Cleaning data was done, to check consistency and completeness of the data set.

Data analysis procedure

Data was checked for completeness and consistencies. And it was cleaned, coded, entered and analyzed using SPSS for window version 22.Frequencies, proportions and summery statistics were used to describe the study population in relation to relevant variables. Bivariante and multivariable logistic regression analysis was done to assess the association between the dependent and independent variable. At the end adjusted odds ratio with 95% confidence interval and p-value less than 0.05 was considered to declare the association.

Ethical consideration

Ethical clearance and approval was obtained from the institutional Review Board in our college. Information letter and consent forms were presented in English and Tigrigna language. We had consent from each participants and all the information of study participants assured confidentially. The participants told that they have the right to either refuse to participate in the study or withdraw after responding for some of the questions.

Dissemination of the result

The result of this study presented to Adigrat University, College of medicine and Health Science as partial fulfillment of degree of Bachelor in Midwifery. Following this, it disseminated to college of medicine and health science, department of midwifery and Adigrat Town health office.

Result

A total of 389 women responded to the questionnaire, yielding a response rate of 100%. Among study subjects the mean age and standard deviation was 27 (+SD 5.9) years. Near to half 170(43.7%) of the respondents age was from 25-44 years age group. Majority 319(82%) of them were married. About 378(97.2%) was Tigray in ethnicity and 281(72%) are orthodox in religion. Among the respondents 184(47%) was house wives. Near to half percent 174(45.8%) was secondary school in educational status and two hundred sixty two (67.4%) of the mother live within one to four children family members Table 1.

Antenatal and postnatal history

Antenatal care was attended by 100 % of the postnatal mothers interviewed. The frequency of ANC visits were 306 (78.7%) four times and 83(21.3%) three times. Majority of the respondents were 361 (92.8%) visit post natal after delivery and the majority were visit the first 4 hours utilization of health care as PNC was 305(78.4%).

Education on newborn care

The newborn care education was given during antenatal care period. Figure 1 shows newborn care education was provided mostly by nurses and midwives in both antenatal and postnatal periods, only 17.2%was provided by the families and friends during postnatal period. As regard to the newborn care information received, 14.1% of mothers received education on breast feeding and (32.4%) of mothers obtained information on danger sign during antenatal and postnatal. Maternal information on immunization during both antenatal and postnatal periods was 39.1% as in Figure 3.

Breast feeding practice

Table 2 shows that 39.8 % of mothers knew the normal (8-10) breastfeeding practice and 96.9% mothers initiated breast feeding with in the first one hour. Mothers reported 71.7% that pre-lacteal feeds should not be given to the baby. 65.5% & 34.5% of mother provided pre-lacteal their children water and butter respectively and colostrums should be given to the babies was reported by 100 % of the mothers.

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Cleanliness and cord care

Among the mothers interviewed 96.1 % used new blade to cut the umbilical cord and only 54.2% correctly reported that umbilical stump should be uncovered as shown in Tables 3,4. One hundred seventy eight (45.8%) of mothers reported that substances could be applied to the umbilical stump after cleaning and the applied substances identified by the mothers were butter (96.6%) Table 3.

Thermoregulation

Maternal practice on delayed bathing as a method of thermoregulation was 55% of mothers reported that baby should be bath after 24 hours of delivery and 45 % before 24 hours of birth .the modes of keeping the baby warmed by cloth before the expulsion of the placenta was 89.5% and the type of cloth the used were towels. 92.5% of the mother practiced the Placement of baby on mother abdomen at birth.

Table 1: Socio-demographic characteristics of mother in Adigrat Town, Eastern zone of Tigray ,Ethiopia ,2019(n=389).

Age		Frequency	Percent
	15-24	154	39.6
	25-34	170	43.7
	35-44+	65	16.8
	Total	389	100.0
Marital status		Frequency	Percent
	Married	319	82.0
	Single	70	18.0
Ethnicity		Frequency	Percent
	Tigray	387	97.2
	Amahara	11	2.8
	Total	389	100.0
Religion		Frequency	Percent
	Orthodox	281	72.2
	Muslim	42	10.8
	Protestant	16	4.1
	Catholic	50	12.9
Total		389	100.0
Educational Status		Frequency	Percent
Unable to read and write		60	15.4
Able to read and write		31	8.0
	Elementary School	56	14.4
	Secondary School	178	45.8
	Diploma and Above	64	16.5
	Total	389	100.0
Occupation		Frequency	Percent
House Wife		184	47.3
Merchant		75	19.3
Governmental Employee		55	14.1
Daily Labor		39	10.0
Student		36	9.2
Total		389	100.0

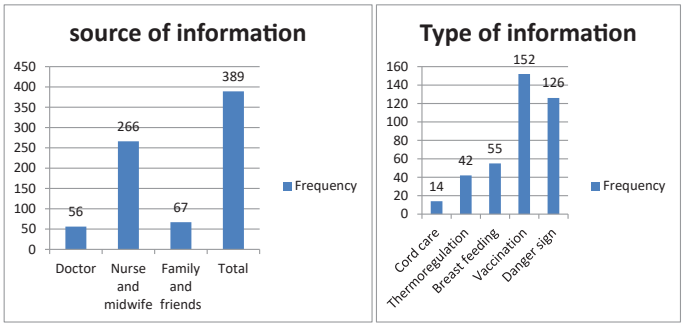

Figure 3: Education on newborn care in Adigrat Town, Eastern zone of Tigray ,Ethiopia ,2019(n=389).

Prevalence of new born care practice

Three hundred forty eight (89.5%) of mothers reported the practice of drying and wrapping the baby before delivery of the placenta. Among the respondents, 374 (96.1%) of them reported the cord cutting with new razor blade. Regarding breast feeding, 377 (96.9%) of mothers began breast feeding within first hour of birth. About 214 (55%) of mothers bathed their baby after 24 hours of birth.

Factors associated with new born care practice

In multivariate analysis; marital status, gravidity and parity were found statistically significant associated with newborn care practice of respondents.

The likelihood of good newborn practice was associated with marital status ,gravidity , parity and ANC visit (AOR=0.05 95% CI : 1.00,3.35),(AOR=0.002 95% CI: 1.50, 5.477),(AOR=0.00 95% CI: 0.14,0.54) respective.

Variables	Category	New born practice		p-value	COR(95% CI)	AOR(95% CI)
		Yes	No			
Marital status	Single	48	22		0.00	0.00
	Married	259	60	.050*	1.98(1.11,3.53)	1.832(1.00,3.35)
Education status	Unable to read and write	45	15			0.00
	Primary education and above	262	67	0.22	0.77(0.40,1.46)	0.60(0.28,1.34)
Gravidity	Primi-Gravida	125	29			0.00
	Multi – Gravida	182	53	.002*	1.26(0.76,2.08)	2.95(1.50,5.77)
Parity	Null parity	158	55			0.00
	Multi-parity	149	27	.000*	0.52(0.31,0.87)	0.27(0.14,0.54)
Number of ANC Visit	1-3 visit	142	30			0.00
	4 visit	165	52	.219	1.49(0.90,2.47)	1.479(0.79,2.76)

Discussion

To reduce neonatal morbidity and mortality mothers needed to be equipped with correct newborn care practice.

Our study found that mothers received new born care education during antenatal and postnatal visit. The main

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source of the information were medical personnel mainly midwifes and nurses and rarely medical doctors due to lack of enough time to run the education for mother during antennal and postnatal visits.

The importance of this was who demonstrated that health education from skilled health provider optimized mothers and newborn care, health, promotes health behavior and health house hold practice [4].

Table 2: Breast feeding practice of mother in Adigrat Town, eastern zone of Tigray, Ethiopia, 2019(n=389).

Pre-lacteal	Frequency	Percent
Yes	110	28.3
No	279	71.7
Total	389	100.0
type of pre-lacteal	Frequency	Percent
Water	72	65.5
Butter	38	34.5
Total	110	100
Colostrums	Frequency	Percent
Yes	389	100.0
Initiation of breast feeding	Frequency	Percent
Within one hours	**377**	96.9
After one hours	12	3.1
Total	389	100.0
Frequency of breast per 24 hrs	Frequency	Percent
<3	13	3.3
4-5	15	3.9
6-7	206	53.0
8-10	**155**	39.8
Total	389	100.0

Table 3: Cleanliness and cord care by mothers at Adigrat Town, eastern zone of Tigray ,Ethiopia ,2019(n=389).

Materials for cord cutting	Frequency	Percent
New Razor blade	**374**	96.1
Used razor blade	15	3.9
Total	389	100.0
Substance apply to cord	Frequency	Percent
Yes	**178**	45.8
No	211	54.2
Total	389	100.0
Type of substance apply to cord	Frequency	Percent
Dung	6	3.4
Butter	172	96.6
Total	178	100.0
New born practice	Frequency	Percentage
Good practice	307	78.9
Poor practice	82	21.1
Total	389	100.0

Table 4: Thermoregulation practice at Adigrat Town, eastern zone of Tigray ,Ethiopia ,2019(n=389).

Time of baby body wash after birth	Frequency	Percent
Before 24 hours	175	45.0
After 24 hours	**214**	55.0
Total	389	100.0
Covering cloth after birth	Frequency	Percent
Before placental expulsion	348	89.5
After placental expulsion	41	10.5
Total	389	100.0
Type of clothing	Frequency	Percent
Towel	318	91.4
Blanket	30	8.6
Total	348	89.5
Placement of baby on mother abdomen at birth	Frequency	Percent
Yes	360	92.5
No	29	7.5
Total	389	100.0

The newborn care practice components studied were breast feeding, cord care and thermoregulation. Our study shows that 96.6% of the mothers applied butter in the umbilical cord.

WHO advocates for hygienic practices while handling the cord of the new born which is a common source of neonatal infection and study conducted in Pakistan stated that applied substance in umbilical cord can cause umbilical cord infection and cause of neonatal mortality [24].

In our study breast feeding practice among mothers was encouraging with all mothers practiced breast feeding and they give 100% colostrums and the initiation of breast feeding with in the first one hour was 96.9% but the frequency of breast feeding was 39.8%. This finding greatly suggest emphasis of health care providers on breast feeding during antenatal care .a study conducted in Ghana suggested that all causes of neonatal mortality could reduced by 16% if breast feeding initiated on first day of life and by 2% if breast feeding is initiated with in the first hours of life [8] .

Ideally, newborn should not be bathed until at least 24 hours after delivery to maintain body temperature and minimize the risk of hypothermia [5]. In this study 55% infant were bathed after 24 hours of birth. One study in Jimma reported that about 58.4% of mothers bathed their babies after 24 hours of birth which is greater compared to the present finding [14]. The socio-economic status of Adigrat Town which is found in Tigray region expected to be lower than Jimma Town which is located in Oromia region could be the possible explanation. However, this finding was higher as compared to study conducted in four regions of Ethiopia which was 25.3% [8]. The same studies conducted in rural Nepal, Ghana and Bangladesh reported that 16.6% 1.2% and 35% of mothers respectively bathed their baby after 24 hours of delivery which is much lower than the present finding [9].

In this study 89.5 % of mothers dried and wrapped their baby immediately after delivery. The same study conducted in four regions of Ethiopia showed that 63.2% of babies dried and

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wrapped before delivery of the placenta [8]. The difference with the above finding could be due to socio-demographic status of the four regions expected to be higher than Tigray region. However, this finding was higher as compared to studies done in Tanzania (27%), Bangladesh (21%) and Ghana (20%) [15]. In this study, 96.1% of mothers reported that cutting of the cord with new or boiled razor blade. This finding found to be higher than the same studies conducted in four regions of Ethiopia (Amhara, Oromia and Southern Nations Nationalities and Peoples Region) which was 63.5% and in Eastern Uganda (57%) [4,8]. The possible explanation for the difference can be the current study conducted at Town level. This finding was almost similar with a study conducted in abroad urban areas of Western Nepal (90.4%), rural areas of Nepal (70.7%), Northern Ghana (90.9%), and Southern Tanzania (95%) [13, 17-19]. The difference with the above findings could be due to the reason that in the current study majority of respondents gave birth at health facilities.

In this study the overall good newborn practice of mothers was found to be 78.9 %.Those mothers who were living in urban area were three times more likely to have good new born care practice than those who were living in rural area [9]. The possible explanation for this could be due to good access and utilization of health service in urban than rural area and mothers in rural areas expected to have lower educational status than mothers in urban areas.

In our study shows us marital status has significant association with newborn care practice by 1.8 times more in married women than single. Where as in a study conducted at Mandura district, North West Ethiopia had no association with newborn care. This could be the socio-demographic characteristic difference between Adigrat Towns with Mandura district, North West Ethiopia [16].

In our study attending secondary school has no associated with good new born practice of mothers where us A study conducted in Jimma showed that women who were at high school and above level were 2.68 times more likely to have good new born care practice than who had no formal education [14].This could be explained our study conducted in Towns and those mothers have equal chance of available information for both group of education.

In our study gravidity and parity were a significant association with newborn care practice where as in astudy conducted Mandura district ,north west Ethiopia has no association with newborn care and in similar study conducted at Western Nepal,Northern Ghana ,Southern Tanzania and Eastern Uganda also no association gravity and parity with new born care. This could be the socio-demographic difference and our study also conducted in Town level and the other study conducted in urban and rural residents [8].

Strengthen and limitation of study

In this study, the strength was using structured questionnaire, applied pretest before actual data collection and the data was collected by group members .Other strengths of this study we did close supervision each other to maintain the data quality and the data collectors were also well oriented on how to data collection.

As the study design is cross sectional, it is difficult to establish cause and effect. As pre-lacteal and initiation of breast feeding might be sensitive to personal bias to recall and it would have been good to be triangulated by using qualitative study such as in-depth interviews or focus group discussions. About recall bias can occur when women were asked about their pre-lacteal, initiation of breast feeding and wrapping and covering of the child before the expulsion of the placenta but due to shortage of time the investigators cannot included the possible solution timely.

Conclusion

This study had showed that the level of good newborn practice found 78.9%. This result may indicate the study conducted only in urban area where all access of information and infrastructure are available. Among the variable that have significant association was marital status, gravidity and parity.

Recommendation

To Adigrat Town health office

The Town health office should use multi-Gravida mothers to share their experience on newborn care practice for primi-gradiva as health development army.

Ethical approval

The study was approved by the Adigrat university college of health science research approval committee. Participation was based on informed verbal consent, documented on the data registration form by the data collectors .

Availability of data

The data available on the hand of the investigators

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Authors' contributions

Author's Contributions MT: MT: AA: had taken a principal role in the conception of ideas, developing methodologies, data

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collection, analyses and write up of the article. All authors read and approved the manuscript. Author 1 MT: Initiated the research, wrote the research proposal, conducted the research, did data entry and analysis and wrote the manuscript. Author 2 MT: Involved had taken a principal role in the conception of ideas, developing methodologies, data collection, analyses and write up of the article. All authors read and approved the manuscript. Author 1 MT: conducted the research, did data entry and analysis and wrote the manuscript.

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