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Assessment of Neonatal Care Practices Among Mothers Attending Postnatal Clinic at Mukono General Hospital Mukono District

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ABSTRACT

Uganda's neonatal mortality rate was 20/1000 live births, and the country aims to meet the Sustainable Development Goal of 12 deaths per 1000 live births, or less, by 2030. Countries have decreased newborn deaths, infections, and intensive care unit admissions using the evidenced-based 'Essential Newborn Care' guidelines established by the World Health Organization. To assess the neonatal care practices among mothers attending a postnatal clinic at Mukono General Hospital. Mukono District. A descriptive cross-sectional design was used to assess 385 postnatal mothers at the six-week vaccination services at Mukono General Hospital. Data collection was done using a valid questionnaire. Data analysis included descriptive and binary logistic regression. The majority (65.1%) had good ENC knowledge and practice, whereas a third (34.9%) had poor knowledge and practice. Significant gaps in ENC included timing of breastfeeding 33(17.2%), cord care 32(16.7%), and thermoregulation of small birth weight newborns 6(3.1%). Significant associations with ENC included maternal age (p=0.003), and ENC education postpartum (p=0.020). The overall knowledge and practice of ENC are encouraging in this population, particularly with ENC education given postpartum, and older mothers. However, major gaps included evidence-based cord care, thermoregulation, and breastfeeding, particularly among younger mothers.

Keywords: Neonatal mortality rate, Newborns deaths, Breastfeeding, Postnatal Mothers, ENC.

INTRODUCTION

Worldwide, about 3 million neonates die each year because of lack of appropriate care (UNICEF, WHO, The World Bank, United Nations Population Division. Levels and Trends in Child Mortality: Estimates Developed by the UN Inter-Agency Group for Child Mortality Estimation (UNIGME) New York, USA: UNICEF, WHO, The World Bank, United Nations Population Division [1] Developing countries, like Nepal, face a lot of health challenges as the majority of people are uneducated, poor and less health conscious. As a result, the health status indicators of Nepal still lag far behind those of developed countries. Neonatal mortality rate per thousand live births in Nepal is 24.2 and the majority of neonates die during the early neonatal period. There are numerous unscientific and unhygienic health practices and social taboos in neonatal care that makes the newborn extremely vulnerable [2]. Neonatal morbidity and mortality have remained high in most developing countries and are affecting their attainment of Millennium Development Goal (MDG) 4. Neonatal sepsis is one of the major causes of these deaths, most of which are preventable [3]. Studies in developing countries have shown strong evidence that delivery and newborn care practices have an impact on neonatal sepsis [4]. Inappropriate neonatal care practice has been cited as an important contributor to high neonatal mortality levels and drew attention toward improving newborn care globally [4]. In an effort to combat these alarming rates, World Health Organization (WHO) has put forth a set of evidence based neonatal health interventions called the essential newborn care (ENC) practices. They include clean delivery, cord care, skin and eye care, early and exclusive breastfeeding, thermal protection, and immunization. These interventions have been widely emphasized in policy and rolled out in developing countries. Uganda is grappling with a high neonatal mortality rate of 27 per 1000 live births with neonatal sepsis being the major contributor [5]. Unhygienic delivery and poor newborn care practices coupled with poor accessibility to health facilities in rural areas have been cited as key risk factors [5]. Although urban communities in Uganda have better accessibility to health facilities and higher rates of antenatal care

(ANC) attendance (98%) and report more deliveries under skilled supervision [5] health facilities in urban settings continue to receive large numbers of neonates presenting with symptoms of neonatal sepsis. A survey done in Mulago National Referral Hospital in Uganda in 2012 showed that neonatal sepsis was the most common cause of admission to the neonatal ward (unpublished data). Most of these neonates were born in health facilities and discharged home, only to return to hospital with symptoms of neonatal sepsis. This finding suggests that there are unexplained risk factors not only in the health facilities but also in the communities to which these neonates are discharged. According to the study that was done in Hoima district, applying potentially harmful substances to the newborns' cord, early bathing and giving pre-lacteal feeds were the major drivers of suboptimal practices [6]. The Sustainable Developmental Goals (SDG) provide a new strategy to reduce neonatal mortalities. SDG 3 aims to reduce neonatal mortality to as low as 12 deaths per 1000 live births by 2030. Meeting this target implies the need for implementing achievable strategies efficiently and effectively. The World Health Organization Essential Newborn Care guidelines are evidence based measures that can be used to meet SDG 3. They encompass assessment of the baby, exclusive breastfeeding, cord care, eye care, thermoregulation, management of asphyxia, recognition of danger signs, immunization and care of the low birth weight infant [7]. Neonatal care is a set of practices that aim at improving the health of the newborn. These include initiation of breasting, thermoregulation, clean delivery and cord care, eye care, immunization, recognition of danger signs, care of the preterm/ low birth weight infants and management of newborn illnesses [7]. Approximately, 50 million were dying each year in the late 1980s, but two-thirds of this has been saved through the application of immediate newborn care [8] And Immediate newborn care interventions are part of essential newborn care used to protect against newborn morbidity and mortality by using clean cord care, thermal care including drying and wrapping of the newborn immediately after delivery and delaying the newborns' first bath for at least 24 h or several days to reduce hypothermia risk), and initiation of breastfeeding within the first one hour of birth, management of immediate asphyxia and early sepsis [9].

Statement of Problem

With neonatal mortality rate (first 28 days of life), and post-neonatal mortality rates were 27 deaths per 1,000 live births, each [10]. Most neonatal deaths can be avoided by measures such as clean delivery, resuscitation, management of infections, thermal protection, breastfeeding, and eye care to reduce blindness, but some of these measures are however ignored or forgotten to be explained in details by the health worker especially when mothers are being discharged or admitted in the ward. Although the neonatal mortality rate is reducing because of the interventions provided by the World Health Organization, the mortality rate is still high in Uganda. In Mukono General Hospital as of 2016 handled 6322 deliveries and therefore it's important to assess the neonatal care practices as this research requires and hence contribute to the reduction of neonatal mortality rates in Uganda through increasing mother's literacy on neonatal care practices.

METHODOLOGY

Study Design

The study design was a cross-sectional study research design employing quantitative methods of data collection. The data from a relatively large number of different categories of respondents at a particular time in a qualitative manner. According to [11] this design is used when the study is aimed at collecting data from the respondents thus saves time to collect the necessary information when the design is used, data is collected using mainly interviews and questionnaires and analyzed using descriptive analysis in survey research. Closed form questionnaires were used to generate responses and data for analysis of the neonatal care practices among mothers attending postnatal clinic at mukono General Hospital in Mukono district.

Area of Study

The study was carried out in Mukono Health General Hospital in Mukono district. Mukono district is one of the districts in the central region of Uganda. It is bordered by Kayunga District to the north, Buikwe District to the east, Kalangala District to the southwest, Kira Town and Wakiso District to the west, and Luweero District to the northwest. The town of Mukono is about 21 kilometres by road east of Kampala, the largest and capital city of Uganda. The geographical coordinates of Mukono district are $00^{0}28'50.0'$ N, $32^{0}46'14.0''$ E (Latitude: 0.480567; Longitude: 32.770567). In 2002, the district population growth was estimated at 2.7 per cent per annum. In August 2014, the national population census and household survey enumerated the district inhabitants at 596,804. The facility is located on the Kampala-Jinja highway, in the town of Mukono,

approximately 20 kilometres (12 miles) east of Kampala. The coordinates of the clinic are 0°21'40.0" N, 32°44'49.0" E (Latitude: 0.361123; Longitude: 0.32.746941). The health facility according to Dr. Kasirye, attends to at least 200 outpatients daily. In 2016, Mukono General Hospital handled 6,322 deliveries. The main economic activity in Mukono district is agriculture and the main food crops grown include; cassava, sweet potatoes, maize, millet, ground nuts, peas, soya beans, bananas, simsim and yams. Cash crops include; cotton, coffee, sugar cane and tea. The main language spoken is Luganda and other indigenous languages (Lusoga, Lugisu, Lunyankole etc.)

Study Population

The study population was all mothers with neonates admitted in the hospital from different locations in Mukono district and the target population was all mothers admitted with neonates in the obstetrics ward at Mukono General Hospital.

Inclusion Criteria

All mothers attending postnatal clinic who consented.

Exclusion Criteria

All mothers attending postnatal clinic with very sick and seriously disabled neonates.

Sample Size Estimation

The sample size was calculated using the Fischer etal formula (1998) was applied as shown below:

$$ME = z\sqrt{\frac{P(1-P)}{n}}$$

Where;

ME is Marginal error ≈ 0.05 level

Z is standard deviation, 1.96 which corresponds to 95%

P is Proportion of target population estimate 50% (0.5) was used since there was no available estimated value

n is the sample size

$$n = \frac{Z^2P(1-P)}{ME^2}$$

$$n = \frac{1.96^2 \times 0.5(1-0.5)}{0.05^2}$$

n=384.16 ≈385 mothers

Sampling Technique

The purposive sampling techniques were used in which only mothers with neonates in postnatal clinics were the participants. The postnatal clinic was chosen purposively since it's the clinic in which mothers' delivery are admitted plus the neonates who are sick and therefore the best to collect data on neonatal practices.

Selection of Respondents

All mothers who delivered in the unit within the stipulated time for the research since there is no given time that mothers deliver, the selection of respondents depended on the number of mothers in the postnatal clinic mothers who were informed of the research, procedures, benefits and importance of the research who were therefore be asked for consent and assessed for eligibility criteria. All mothers who consented and therefore met the eligibility criteria were then included as participants in the research.

Data Collection Tools and Methods

A structured written interviewer-administered questionnaire was used to collect the data. The questionnaires were distributed to the individual participants by research assistants and it consisted of (1) socio-demographic characteristics (2) neonatal feeding (3) umbilical cord stump care (4) bathing the newborn. The questionnaires were close-ended items for ticking yes or no, and making of choices among a number of possible alternatives. The completed questionnaires after being administered were collected by the principal investigator from each research assistant in order not to encourage change of information.

Quality Control

Research assistants were taught how to collect and record the data using different methods and pretesting of the research tools was done in the same hospital on a different day before the exact day of data collection and adjustments were made accordingly before the research began. During the study, the researcher explained in detail to the research assistants how to approach the respondents and translation was provided in the local language for proper data collection.

Data Analysis and Data Management

A cross-sectional study design was used in the assessment, while quantitative techniques (questionnaires) were used to analyze the data collected. Raw data was obtained from the questionnaires and the data collected was analysed using MS Excel and presented in the form of charts/graphs, percentages and tables depending on the data analysed.

Ethical Considerations

A copy was sent to the Research Ethics Committee KIUTH for ethical approval, and an introductory letter was requested from the School of Clinical Medicine and Dentistry KIUTH. Permission was requested from the administrator of Mukono General Hospital to conduct the study in the hospital, while in the maternity ward, it was obtained from the In-Charge, and informed consent was obtained from respondents before issuing out questionnaires and serial numbers were used instead of names for equal and utmost confidentiality of the information that was to be given [12].

RESULTS

Table 1: Socio-Demographic Characteristics of Mothers (N=385)

Socio-demographics	n (%)
Age (Years)	
15-20	37 (9.5)
21-25	102 (26.5)
26-30	128 (33.3)
31-35	59 (15.3)
36-40	47 (12.2)
41-45	12 (3.2)
Education	
No formal education	44 (11.5)
Primary dropout	103 (26.7)
Primary	83 (21.5)
Secondary dropout/Vocational	87 (22.5)
Secondary/Vocational	42 (11.0)
Tertiary/University	26 (6.8)
Marital status	
Married	339 (88.0)
Divorced/separated	18(4.7)
Single	28 (7.3)
Occupation	
Salaried worker	28 (7.3)
Domestic services/house wife	36 (9.4)
Manual worker/laborer	16 (4.2)
Agriculture & farmer	273 (70.8)
Small scale business	32 (8.3)
Religion	
Christian	363 (94.3)
Other	22 (5.7)

The majority (33.3%) of participants were aged 26-30 years, with educational status of primary dropout (26.7%), and married (88%). The majority was working in agriculture or farming (70.8%), and with Christian affiliation (94.3%).

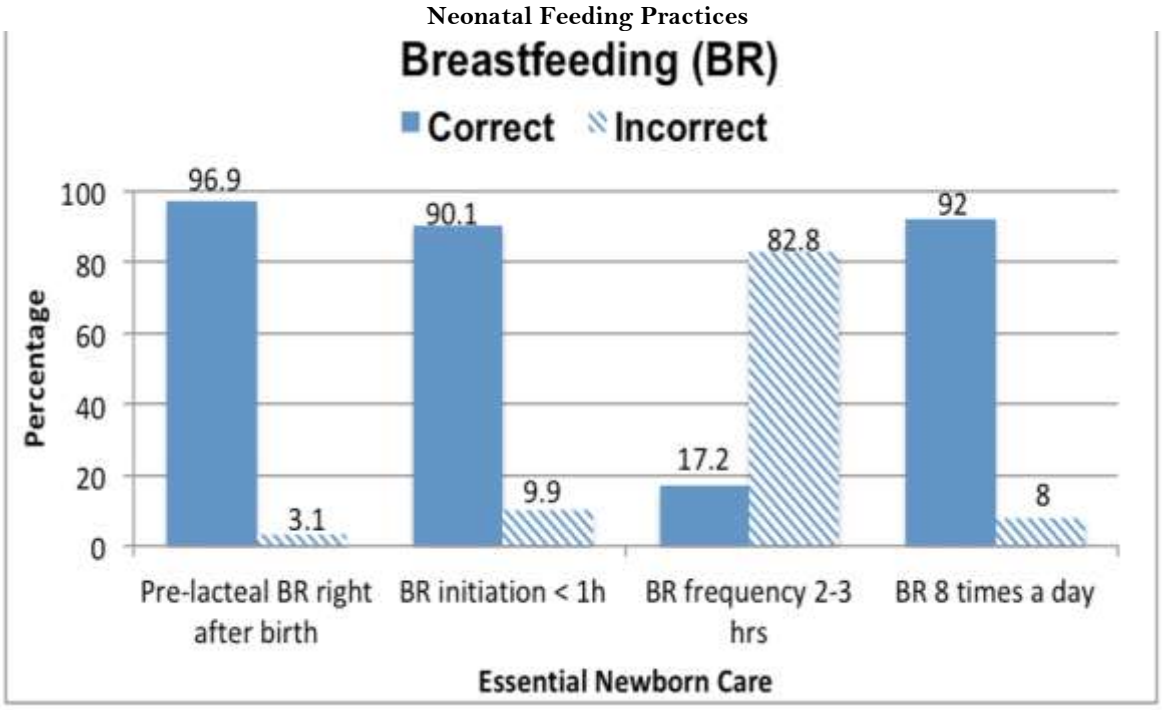

Figure 1: Neonatal feeding practices

Breastfeeding knowledge and practice by the participants was presented (Figure 2). Nearly all (96.9%) knew the value of colostrum to the newborn right after birth. The majority had breastfeeding knowledge and practice within the first hour after birth (90.1%), and breastfeeding eight times a day (92%). However, a limited number (17.2%) reported the correct time for subsequent breastfeeding of every 2-3 hours.

Umbilical Cord Stump Care Practices

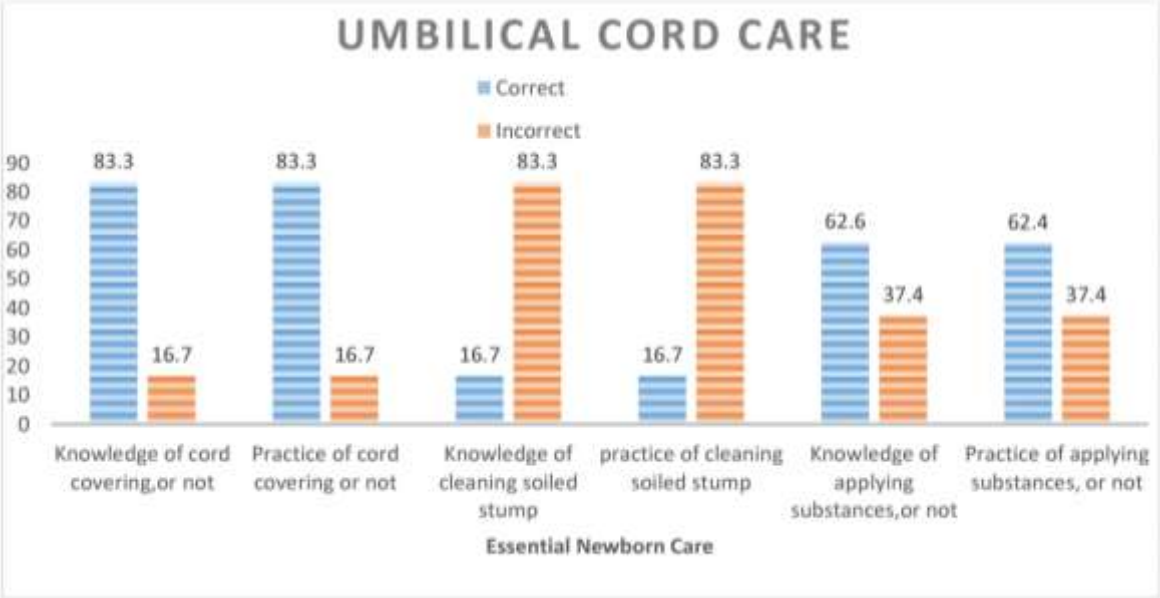

Figure 2: Umbilical cord stump care practices

The participants were asked about their knowledge and practice of umbilical cord stump (Figure 3). The majority (83.3%) knew that a soiled cord stump with urine or stool should be cleaned and dried with a clean cloth instead of water and that over a third (37.4%) reported incorrectly applying substances to the cord stump after cleaning and most mentioned lotion. Results indicated that the majority has the correct knowledge (83.3%) and practice (83.3) of not covering the umbilical cord. However, yet a few (16.7%) reported covering the cord stump.

Neonatal Thermoregulation Practices

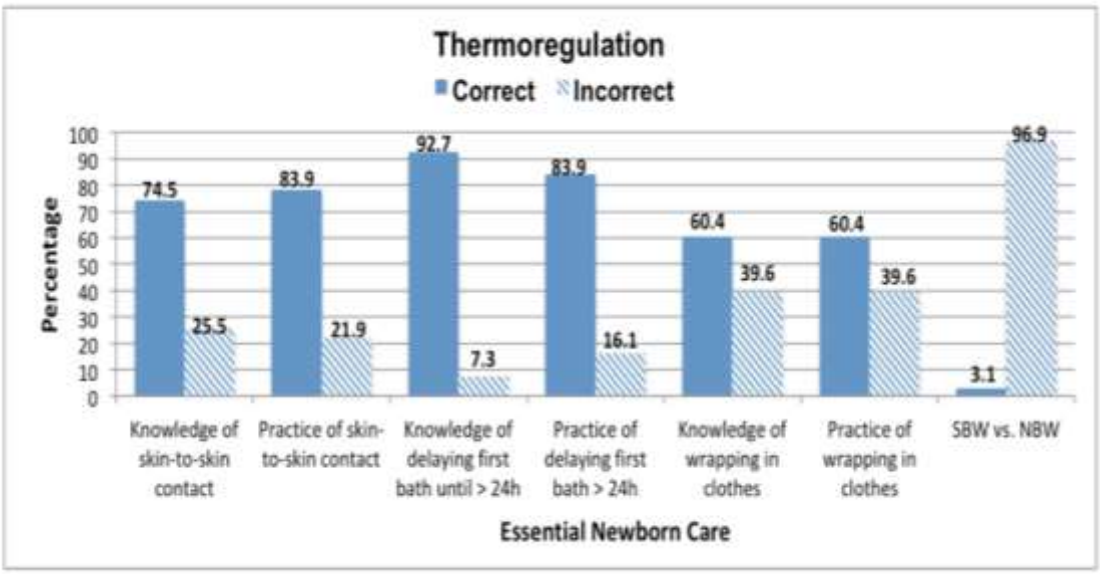

Figure 3: Neonatal thermoregulation practices

The participants were asked to identify the first mode of thermoregulation after birth (Figure 4). The findings showed that the majority (74.5%) correctly identified skin-to-skin contact (SSC) to be the first mode of thermoregulation, whereas nearly a quarter (21.9%) did not practice this method. The majority (92.7%) correctly identified delaying the first bath until after 24 hours, and most did delay the bath (83.9%). The majority (60.4%) knew to wrap the newborn in clothes; however, less than half (39.6%) did wrap the newborn in clothes. The majority (96.9%) failed to recognize that small birth weight (SBW) neonates have increased needs for thermal care than normal birth weight (NBW) newborns.

Overall knowledge and practice of ENC

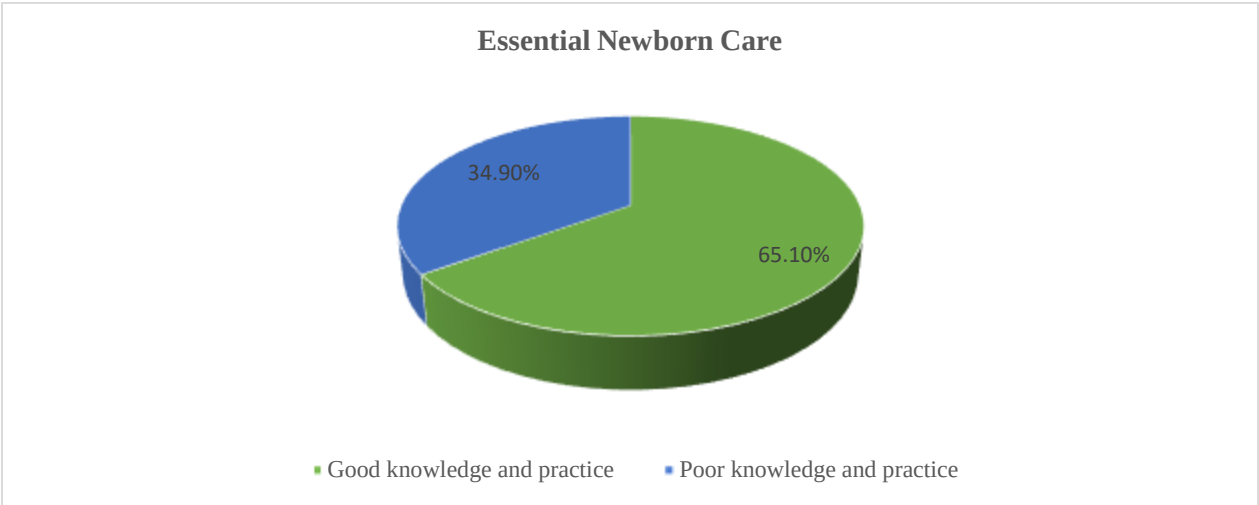

Figure 4: Overall knowledge and practice of ENC

The overall knowledge and practice of ENC are presented in Figure 5. Of the 385 postnatal mothers, 65.1% had good knowledge and practice, while 34.9% had poor knowledge and practice towards essential newborn care.

Table 2: Factors associated with neonatal care practices

Variables	OR	95% CI	p-value
Socio-demographics		(-0.015-0.089)	
Age	1.526	(-0.105-0.097)	0.003
Education	1.454		0.137
Marital status	0.932		0.767
Occupation	1.280		0.136
Religion	6.426		0.085
ANC attendance	4.622	(0.451-47.329)	0.197
ENC education			
During pregnancy	1.413	(0.707-2.827)	0.328
After delivery	2.248	(1.137-4.446)	0.020

ENC= Essential Newborn care**, OR=**Odds Ratio**, CI=**Confidence Interval.

Binary logistic regression was used to identify significant associations between two variables and is presented in Table 2. The findings show that the maternal age is statistically associated with mothers' knowledge and practices of ENC (OR=1.526, CI -0.015-0.089, p=0.003). Participants who received ENC education postpartum are over two times more likely to have good knowledge and practices of ENC (OR=2.248, CI=1.137-4.446, p=0.020) than those who do not receive ENC education postpartum. Other findings that were not statistically significant included marital status (p=0.767), education level (p=0.137), maternal occupation (p=0.136), ANC attendance (p=0.197), and ENC education during pregnancy (p=0.328).

DISCUSSION

Essential Newborn Care is a set of evidence-based guidelines established by the WHO to decrease newborn morbidity and mortality. Our study findings reveal that about two-thirds (65.1%) of participants had 'good' knowledge and practice of ENC, and a third (34.9%) had 'poor' knowledge and practice of all four ENC components. A similar study conducted in Addis Ababa, Ethiopia [13] found a notably higher average of 60.2% with poor ENC knowledge, and the difference could be related to the participants' Socio-demographic variables. The demographics showed that the majority of participants aged 26-30 years (33.3%), and were primary dropouts or had no formal education (38.2%). The majority were also married (88.0%), worked in agriculture or farming (70.8%), and had a Christian affiliation (94.3%). Maternal age and knowledge and practice of ENC may be viewed from different perspectives, as indicated by two studies conducted in sub-Saharan Africa. In the Hoima District of Western Uganda [6] adolescent mothers had sub-optimal knowledge of some ENC components, and this was likely related to premarital and unwanted delivery, lack of support and facing social stigma. In contrast, older mothers of advanced age may have unrealistic practices. In Ethiopia [13], a study on inter-generational transmission of newborn care practices indicated that the majority of multiparty mothers and grandmothers had unrealistic newborn practices, such as covering the newborns and using substances on their skin. These variations suggest the need for consideration of age while disseminating ENC information. Furthermore, in the context of Socio-demographics, maternal educational level was found to be a factor related to ENC knowledge and practice. The majority (26.7%) of participants were primary dropouts, and illiterate (11.5%). A study in the Lawra District of Ghana, on the prevalence and determinants of ENC practices, revealed that mothers who attained at least secondary school were 20.5 times more likely to provide optimal thermal care [14]. Also, in the Mandura District of Northwest Ethiopia, the likelihood of good newborn care practices was more than two times higher among mothers who had attended high school and primary school [15]. The findings of our study could serve as a baseline to promote the knowledge and practice of ENC, especially among illiterate people or those with low educational achievement. Findings from a study in Bangladesh and Ethiopia revealed that mothers knew thermoregulation measures, such as recognition of the first bath [16, 17] while a similar study in Ghana reported a gap in knowledge of

thermal care 34.9% [14]. In Sri Lanka, they found that 69% of mothers were washing their baby's body without drying the wet head, which leads to hypothermia [18]. This finding is most comparable to the study in the Gulomekada District of Eastern Tigry in Ethiopia where 45% of mothers were using poor thermal care practices. In the present study, the thermoregulation measures were correctly practised with their newborns and this may be due to the high number of deliveries (91.8%) in Ugandan health facilities, where skilled birth attendants promote SSC interventions and delay the first bath. In addition, nearly a quarter (21.9%) of the mothers were not placing their neonates in SSC, and many (16.1%) also bathed their newborns 24 hours after birth. Furthermore, very few (3.1%) participants recognized that small birth-weight newborns need more thermal care than normal birth-weight newborns. Being discharged home with a small birth weight newborn, or delivering in the community, possesses a higher risk of neonatal mortality as indicated in a study in Uganda [19]. Neonatal mortality in our country and worldwide is mostly associated with premature and small birth weight newborns as a result of disturbed optimal thermal regulation [20]. Then, it is unfortunate that many mothers in the present study had poor knowledge of thermoregulation in small babies. These findings suggest further strategies to promote maternal knowledge in the best care of this vulnerable population such as continuous SSC and kangaroo care. There was a predominance in the correct practice of umbilical cord care in this study specifically for the practice (83.3%) of not covering the cord, and not applying a substance to the stump (62.6%). It is also important to note in the present study that; very few applied clean waters to a stump when it was soiled with urine or stool (16.7%) and the majority (83.3%) support the idea of using a dry cloth to clean a soiled stump and apply lotion. Similar studies in Bangladesh and Ghana reported gaps in knowledge of cord care 36.8% [14]. Moreover, high proportions of poor knowledge and practice were reported in studies of Gulomekada District of Eastern Tigray in Ethiopia with 60% of mothers applied butter or oil to the cord stump after cleaning [21], and a prospective study in North Western Ethiopia where unclean cord care was high at 85.2% [22]. Special considerations are needed to bridge the gap in the prevention of neonatal infection, which is among the three leading causes of neonatal mortality. In addition, further studies are needed to link the poor practice of cord care with incidences of systemic sepsis and omphalitis in the neonatal period, which is mostly observed in our health facilities. The results indicate that the majority practised some ENC components of breastfeeding correctly. Specific interventions included pre-lacteal breastfeeding right after birth (96.9%), and breastfeeding initiation within the first hour (90.1%). The majority (92.0%) also knew to breastfeed eight times a day, yet only a few (17.2%) recognized the frequency of breast feeding to be every 2-3 hours, while the majority (82.8) indicated poor knowledge and practice of feedings every 2-3 hours. Conversely, most mentioned breastfeeding when their baby cries, or more often (undefined time) Similarly, in Bangladesh, a study revealed that mothers had correct knowledge on early initiation of breastfeeding and the importance of colostrum [23]. In the same vein a study in Ghana reported 73.7% of mothers provided adequate breastfeeding [14]. The findings finally suggest that ENC education after birth is an important covariate with knowledge and practice. In an Ethiopia study [13], ENC education was more effective after birth than during whereas, a study conducted in the UK by Pillay stated that various teaching approaches, such as on-site teaching sessions on newborn care organized support groups, and community-based newborn care packages targeting parental roles, help prevent neonatal mortality [24]. Therefore, strategies to improve education on essential newborn care after birth, are highly needed, especially in low socio-economic settings, where the majority of people have a lower educational background.

CONCLUSION

The study findings show that over a third of participants had poor knowledge and practice, which is inconsistent with WHO ENC guidelines. Significant gaps were found in cord care, thermoregulation of small birth weight newborns, and timing of breastfeeding; therefore, an emphasis should be placed on these components. Whereas, factors strongly associated with ENC knowledge and practice included education of ENC post-delivery and maternal age. Further study is needed to find the relationship between poor knowledge and practice related to neonatal complications.

Recommendations

The ENC implementers are mainly mothers and HCPs; therefore, more research is needed to indicate the magnitude and status of ENC knowledge and practice at the national level and link it to the neonatal complications during the postnatal period. It is also recommended that the different institutions, in collaboration with the Ministry of Health and Education, organize educational programs to increase the awareness of the ENC components, especially for delivered mothers.

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