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Helping babies survive: Thermal and umbilical cord care practices for neonates in Ado-Ekiti, Southern Nigeria

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Abstract

Newborn care practices immediately after delivery can decrease newborns' risk of diseases and death in early neonatal life. This study assessed thermal and umbilical cord care practices among mothers in randomly selected health care facilities in Ado-Ekiti, Ekiti State. Descriptive quantitative research design was used and 211 mothers were selected through convenience sampling techniques. Semi-structured questionnaire, adapted from a previous study was utilized to collect data which was analyzed using descriptive and inferential statistics. The majority of the respondents were Yoruba aged 20-29 years; 70% of the respondents were aware of the standard cord care practice; 90% agreed that heat should be applied to the newborn's umbilical cord. 70.5% of mothers used methylated spirit to clean the umbilical cord; 39.5% claimed that they used menthol ointment; while 20.5% used the standard prescribed chlorhexidine. On thermal care practices, 10% dried their babies, 39.5% bathed their babies immediately, while 50% of mothers wrapped their newborns in heavy clothing. Factors influencing common thermal and umbilical cord care include religion and cultural preferences. Efforts should be devoted towards providing tailored health education approaches on proper thermal and umbilical cord care practices to mothers and the community at large. *(Afr J Reprod Health 2023; 27[6s]: 36-43).*

Keywords: Essential newborn care, knowledge, thermoregulation, practices, birth

Résumé

Les soins aux nouveau-nés sont des pratiques immédiatement après l'accouchement qui peuvent réduire le risque de maladies et de décès des nouveau-nés au début de la vie néonatale. Cette étude a évalué les pratiques de soins thermiques et de soins du cordon ombilical chez les mères dans des établissements de soins de santé sélectionnés au hasard à Ado-Ekiti, dans l'État d'Ekiti. Une conception de recherche quantitative descriptive a été utilisée et 211 mères ont été sélectionnées par des techniques d'échantillonnage de commodité. Un questionnaire semi-structuré, adapté d'une étude précédente, a été utilisé pour collecter des données qui ont été analysées à l'aide de statistiques descriptives et inférentielles. La majorité des répondants étaient des Yoruba âgés de 20 à 29 ans; 70 % des répondants zétaient au courant de la pratique standard des soins du cordon; 90% ont convenu que la chaleur devrait être appliquée au cordon ombilical du nouveau-né. 70,5 % des mères utilisaient de l'alcool à brûler pour nettoyer le cordon ombilical; 39,5 % ont affirmé avoir utilisé une pommade au menthol; tandis que 20,5 % ont utilisé la chlorhexidine standard prescrite. Concernant les pratiques de soins thermaux, 10% ont séché leurs bébés, 39,5% ont baigné leurs bébés immédiatement, tandis que 50% des mères ont enveloppé leurs nouveau-nés dans des vêtements épais. Les facteurs influençant les soins thermiques et du cordon ombilical courants comprennent la religion et les préférences culturelles. Des efforts devraient être consacrés à la fourniture d'approches d'éducation à la santé sur mesure sur les bonnes pratiques de soins thermiques et du cordon ombilical aux mères et à la communauté dans son ensemble. *(Afr J Reprod Health 2023; 27[6s]: 36-43).*

Mots-clés: Soins essentiels du nouveau-né, connaissances, thermorégulation, pratiques, naissance

Introduction

The neonatal period is a baby's initial 28 days of life after birth and it is described by progression from intrauterine to extra uterine existence[1]. Newborn care practice can also be defined as a set of practices prescribed by the WHO so as to decrease neonatal morbidity and mortality rates.

These practices incorporate cord care (the cutting of umbilical cord with a sanitized instrument and binding it with a disinfected string); thermal care (drying and wrapping the infant following delivery; postponing the infant's first bath for a minimum of six hours in order to decrease the risk of hypothermia); and starting breastfeeding within an hour of birth[2-3].One of the suggested ways to prevent hypothermia, which also causes newborn morbidity and mortality, is to provide thermal care to newborns[4]. Instant cleaning and wrapping, immediate skin-to-skin contact after birth, postponing first bath till after twenty-four hours, proper dressing of the newborn and prompt and frequent breastfeeding are all examples of thermal care techniques[5].

Globally, 2.4 million children died in the first month of life in the year 2020. Annually, approximately over 6700 infants die, representing 47% of all children under five years old[6]. The majority of infant deaths occur in low and middle-income countries. These deaths mostly happen in the first week of life, resulting in about one million deaths within the first 24 hours[7]. Overall, a child's survival is most fragile during the first 28 days of life, which indicate that considerable attention should be accorded to the care of the newborn during this period[8].

Newborns are highly predisposed to infections, especially in the umbilical cord, which is a wet wound and can be an entry point for infections such as tetanus, a common cause of sepsis and newborn death[9]. The unhealed umbilical is a typical entrance point for tetanus spores and 90 percent of newborn tetanus cases appear with symptoms within the first 3-14 days of existence, with the majority occurring at 6-8 days of life[14].Therefore, hygienic cord care is suggested to limit the risk of sepsis, especially infections that occur through the umbilical cord stump[3].

Newborn infection is a leading cause of neonatal death, with a mortality incidence of up to 44 per thousand live births in the north-east zone of Nigeria[10]. Nigeria's neonatal mortality rate in the year 2020 was 35.5 deaths per 1,000 live births, which declined from 65 deaths per 1,000 live births in 1971[11]. Although neonatal death rate has decreased in recent years, the rate of decline has been slow. Available data indicate that both biological and socio-cultural factors influence the health of neonates[12].

Available evidence indicate that a variety of compounds are used to treat the newborns' umbilical cords in different part of the world for the purpose of preventing infection; however, not all are approved by the regulatory bodies[13].

To date, there exists several unclean practices as well as various societal taboos in child care which might put the infant at risk of infections and a higher likelihood of neonatal mortality. The objective of this study was to assess the nature of thermal and umbilical cord care practices for neonates reported by mothers attending selected health care facilities in Ado-Ekiti, in southwest Nigeria.

Methods

A descriptive research design was employed using quantitative approach to determine the thermal and umbilical cord care practices for neonates among mothers in selected health care facilities.

The study was conducted at Okeyinmi Comprehensive Health Centre, Ado- Ekiti and the Basic Health Center, Odo Ado, Ado- Ekiti Nigeria. These health centres were chosen because of their locations at the city centre and also due to their high influx of patients. The health centres are public health facilities whose primary objective is to reduce mother and child mortality at the community level. The health centres have prenatal and postnatal clinics, labour and postnatal ward, a pharmacy and laboratories. Nurses, midwives, physicians, community health extension workers, laboratory technicians and health assistants are among the staff at the health facility. Antenatal and postnatal care, delivery, circumcision, family planning, treatment of childhood ailments (for children under the age of five), and vaccination treatments are among the services provided.

The target population comprised the women attending postnatal clinics in the designated health centres. According to the monthly ward record, a total of 200 mothers visited the Comprehensive Health Center, while the record for

the Basic Health Centre was 170, giving a total of 370 attendance in both Centres. The sample size was determined using the Taro Yamane's formula[14]. The sample size for this study was 192 women, adjusted for a 10% rate of non-respondents and invalid responses, yielding a final sample size of 211.

Selection of the two health facilities was done using simple random sampling technique while convenience sampling technique was used to select participants until the desired number according to the sample size for the study was achieved. The criteria for inclusion for this survey were: women who attend postnatal clinic in the two selected health centres, having at least one child and are willing to participate in the study.

Semi-structured, interviewer-administered questionnaire was adapted from two previous researches[14,15] as well as from relevant literature search. The questionnaire consisting of 29 questions was divided into five sections. The first section elicited information about the demographic characteristics of the participants, such as age, educational level, religion and occupation. Section B assessed the knowledge of mothers about thermal and umbilical cord care practices for neonates. Section C assessed the common thermal care practices for neonates by mothers. Section D was designed to investigate the common umbilical cord care practices for neonates by mothers, while section E identified the factors that influenced thermal and umbilical cord care practices for neonates by mothers.

Face and content validity were used in this study. To improve content validity, a semi structured adjusted questionnaire was developed following a thorough literature review to accurately measure important variables in the study. Questions related to the research were framed in plain language for clarity and easy understanding while experts and professionals extensively analyzed the items in the questionnaire to verify that they can effectively measure the target variables. Before the questionnaire was finally administered, a pre-test was undertaken and required modifications were made. The test-retest approach was used to determine the reliability. A week before the questionnaire was administered, a pre-test was conducted with five people who had comparable characteristics to the research group but were excluded in the final results. The internal consistency reliability was determined by comparing the score obtained. The reliability coefficient of 0.9 obtained was considered acceptable.

Data were gathered from the two selected health care facilities for the duration of 3 months, on their clinic days, which were every Wednesday and Friday. Study participants were met on their clinic days and individual informed consent was obtained. Also, the purpose of the study as well as the necessary guidelines for completing of the questionnaire were explained to all participants. To avoid data loss, the researcher ensured prompt response to the questionnaire by the participant before collecting and collating the results.

The data was analyzed statistically using the SPSS (version 23) program for Windows. Frequencies, percentages and means were used to calculate the descriptive data. For significant variability and connections between research variables, percentages were compared between groups using Chi-square. A p-value of less than 0.05 was found significant.

Ethical consideration

Before the commencement of the study, approval was granted by the Research and Ethics Committee of Afe Babalola University with reference number ABUADHREC/27/04/2019/06. An official letter was also written to the Clinic Managers of the selected Health Centres, with the permission letter attached and consent was granted. Participants were enlightened about the study's goal and given their informed permission before receiving a questionnaire. The participants were also told about the goal of the data collection and the technique utilized to gather it, as well as the fact that there was no risk or cost involved. The participants' names or any form of identity were not requested in the questionnaire, and the information provided by the participants could not be tracked back to them on the gathered data, ensuring privacy and anonymity.

Results

The results in Table 1 shows that 56.0% of the participants were between the ages of 20-29 years while 3.5% were aged 40 years and above. Majority (70%) of the participants were Christians and only 29.5% had received tertiary education.

Table 1: Socio demographic characteristics of respondents

SOCIO-DEMOGRAPHIC DATA	FREQUENCY (n=210)	PERCENTAGES (%)
AGE DISTRIBUTION		
15-19	20	10.0
20-29	112	56.0
30-39	61	30.5
40 and above	7	3.5
RELIGION		
Christian	140	70.0
Muslim	41	20.5
Traditional	19	9.5
Others	40	20.0
ETHNICITY		
Hausa	20	10.0
Igbo	39	19.5
Yoruba	101	50.5
Others	40	20.0
MARITAL STATUS		
Single	18	9.0
Married	159	79.5
Separated	15	7.5
Divorced	8	4.0
EDUCATIONAL LEVEL		
Primary	21	10.5
Secondary	120	60.0
Tertiary	59	29.5
OCCUPATION		
Unemployed	40	20.0
Self-employed	121	60.5
Civil servant	39	19.5

Table 2 shows the participants' knowledge about thermal and umbilical cord care. More than half (59.5%) of the participants agreed that babies should be massaged with oil before their first bath; 70.5%of the participants shared the same room with their babies immediately after birth; while 39.5% had applied either ashes, soothing balm, powder,

Table 2: Knowledge on thermal and umbilical cord care

QUESTION	FREQUENCY	PERCENTAGE
Should the baby be massaged with oil before bath		
Yes	119	59.5
No	81	40.5
Applying oil on head (vertex)		
Yes	200	100.0
No	-	-
Applying turmeric paste on the baby before bathing		
Yes	-	-
No	200	100.0
Exposing baby to the holy smoke after bath		
Yes	-	-
No	200	100.0
Is there room set aside for the mother and baby just after birth?		
Yes	59	29.5
No	141	70.5
Applying toothpaste, ashes or soothing balm or powder, dried cow dung or hot oil over the baby's umbilical cord		
Yes	79	39.5
No	121	60.5
Are you aware of the standard cord care practice? Such as; Cleaning the umbilical cord with methylated spirit, applying Chlorhexidine gel on the umbilical cord daily		
Yes	140	70.0
No	60	30.0
Should heat be applied on the umbilical cord?		
Yes	20	10.0
No	180	90.0

Table 3: Common umbilical cord care practices

QUESTION	FREQUENCY	PERCENTAGE
Which of these do you use to clean the umbilical cord?		
Salt solution	20	10.0
Methylated spirit	141	70.5
Hot water	19	9.5
None of the above	20	10.0
Which of the following components do you apply to the umbilical cord?		
Menthol ointment	79	39.5
Breast milk	40	20.0
Shea butter oil	40	20.0
Chlorhexidine	41	20.5
Which of the following methods of cord cleaning method do you use?		
Clean cord base before stump	100	50.0
Clean cord stump only	60	30.0
Clean surrounding skin only	20	10.0
Clean the material used to tie the cord	20	10.0
How often do you clean the cord?		
Morning	80	40.0
Several times a day	120	60.0
What will you consider as the reason for cord care?		
Infection control	140	70.0
Quick detachment of the cord	60	30.0
For the baby to grow quickly	-	-

dried cow dung or hot oil on their newborn's umbilical cords. With respect to the common umbilical cord care practices, majority (70.5%) of the participants used methylated spirit to clean the umbilical cord while only 20.5% applied the prescribed chlorhexidine on their babies' umbilical cords (Table 3).

Results from Table 4 shows the common thermal care practices among mothers in the study. According to the participants, only 10% of the newborns were dried as soon as possible or before placenta was released although 70.0% of the babies were wrapped before the placenta was delivered. More than one-third of the babies were bath immediately after birth.

Table 5 shows the factors that influence the common thermal and umbilical cord care practices among mothers. More than two-third (70.5%) of the participants denied the influence of religion on their practices. Generally, the study found a significant relationship (p= .000) between age and knowledge of mothers about thermal care practices for neonates in selected health care facilities.

Discussion

The results of the study on the knowledge of mothers regarding thermal and umbilical cord care indicate that more than half of the women massage their babies with oil before the first bath. By contrast, two-third of mothers shared the same room with their babies immediately after birth. These finding was consistent and complied with the recommendation of the American Academy of Paediatrics that mothersand theirbabiesshould share the same room[15,16]. Sharing the same room with babies immediately after birth is recommended so as to allow for proper thermal care and encourage early breastfeeding. The majority of participants had prior knowledge of the standard cord and thermal care practices such as cleaning the umbilical cord with methylated spirit and applying chlorhexidine gel although some mothers still engaged in unhealthy practices such as the applying heat to the umbilical cord stump. These findings were similar to previous related studies where majority of the respondents also had adequate understanding of cord care practices and also used heat application[17-19]. The World Health Organisation recommends that chlorhexidine (4%) be applied to the cord stump daily during the first week of life to decrease the risk of sepsis[20,21]. Chlorhexidine administration to the cord is especially important if dangerous compounds are customarily applied to the cord as indicated in this study, because it can be a safe replacement. Clean, dry cord care is prescribed for all neonates regardless of their birth setting[22].

Table 4: Common thermal care practices

QUESTION	FREQUENCY	PERCENTAGE
Which of the following is commonly carried out?		
Newborn was dried immediately or before placenta was delivered	20	10.0
Newborn was covered before the placenta was released	141	70.5
newborn was dried and covered before the placenta was released	19	9.5
Scheduling of newborn first bath		
Immediately	79	39.5
not immediately	40	20.0
hours after bath	40	20.0
the following day	41	20.5
Wrapping of newborn in heavy clothing and applying a hat is important		
Yes	100	50.0
No	60	30.0
Do you expose the baby's skin to sun light when it becomes yellow?		
Morning	80	40.0
Several times a day	120	60.0
Do you have any challenge with the baby health in the first 28 days?		
Yes	20	10.0
No	180	90.0
What type of water did you use to bath for the baby?		
Cold water	-	-
Warm water	161	80.5
Herb (agbo)	39	19.5

The results show that the majority of respondents use methylated spirit and other substances such as salt water, menthol ointment, breast milk, cow dung and herbs to clean their babies' umbilical cord. This observation is consistent with earlier researches in different States in Nigeria; Borno, Benin City Edo and Yenagoa Bayelsa[23-25], where traditional birth attendants and mothers used methylated spirit, dusting powder, hot water, hot fermentation, rags, vaseline, ash/charcoal and local herbs for umbilical cord care. Also, almost half of the participants

Table 5: Factors that influences the common thermal and umbilical cord care practices

QUESTION	FREQUENCY	PERCENTAGE
Does religion influence your newborn care practices?		
Yes	59	29.5
No	141	70.5
Does your culture influence your newborn thermal and umbilical cord care practice?		
Yes	80	40.0
No	120	60.0
Does the attitude of health care providers influence your decision to seek care and attend prenatal clinics?		
Yes	40	20.0
No	160	80.0
Has financial constraint influenced your new born thermal and umbilical cord care practice		
Yes	-	-
No	200	100.0
Has the poor road network influence your accessibility to the health facility		
Yes	59	29.5
No	141	70.5

cleaned their babies' cord once daily. This finding slightly differed from those of a previous study where 60.8% of the participants cleaned the cord thrice daily[25].

In poorly resourced settings, umbilical cord infections are major reasons for newborn morbidity and consequently a major threat to child survival[26]. This study revealed the common thermal care practices of mothers. Only few of the babies were dried immediately; about two-third were wrapped before placental delivery; some babies were bathed immediately after birth, while half of the participants wrapped their babies in heavy clothing. As shown in the study, religion, culture, health care workers' attitudes and financial constraints are some of the factors that influence the common thermal and umbilical cord care practices of mothers. This is similar to previous studies response where culture, religion and financial constraints influenced the attitudes of participants[27].

Conclusion

The risks associated with harmful thermal and umbilical cord care practices among mothers remain unchanged in our societies. The study highlighted significant results regarding thermal and umbilical cord care practices for newborns in compliance to WHO recommendations. Study findings revealed that majority of the respondents had average knowledge of thermal and umbilical cord care, although this appeared to be without corresponding average level of practice as many of the participants failed to adhere to the recommended standards. Although thermal and umbilical cord care practices among mothers after childbirth showed positive response as majority disagree with the application of ashes, cow dung on the umbilical cord and only few used herbs to bath their babies. It was revealed that culture, religious, health care workers' attitude and financial status could influence the common thermal and umbilical cord care practices of mothers. Therefore, the need for a wider coverage of WHO recommendations in order to prevent harmful thermal and cord care practices while guaranteeing healthy practices. Persistent and intensive education on the significance of appropriate thermal and umbilical cord care practices must be encouraged, particularly during antenatal visits in the health facilities and also during community health outreaches by medical professionals such as nurses and midwives.

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Conflict of interest

The authors hereby proclaim no conflict of interest for this study.

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