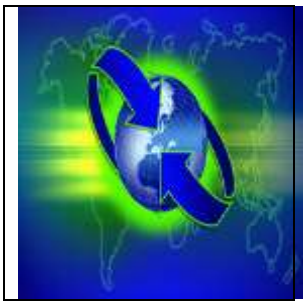

Umbilical Cord Care Practices among Nursing Mothers in Ogoja Local Government Area of Cross River State, Nigeria

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Abstract
The purpose of this study is to assessed umbilical cord care practices among nursing mothers in Ogoja Local Government Area of Cross River State. Two objectives guided the study, from which two research questions were posed and answered. Literature was reviewed according to the variables of the study. The study adopted a survey research design. A multistage sampling technique was used to select two hundred (200) nursing mothers used as respondents in the study. The instrument used for data collection was a structured questionnaire. The instrument was duly validated by relevant authorities. Data collected was analyzed using descriptive statistics. The result obtained from the findings revealed that nursing mothers in Ogoja LGA commonly use hot water for umbilical cord care, and there is a prevalent use of toothpaste among nursing mothers in the study area for umbilical cord care. Based on these findings, it was recommended that the Ministry of Health should launch targeted education campaigns to inform nursing mothers in Ogoja LGA about the risks associated with excessive use of hot water for umbilical cord care. They can collaborate with local health authorities and healthcare providers to develop educational materials and organize community outreach programmes. Furthermore, healthcare providers should undergo training to equip them with the knowledge and skills to advise nursing mothers against using toothpaste for cord care.
Keywords: Umbilical Cord Care, Nursing Mothers, Use of Hot Water, Use of Toothpaste

Introduction

The umbilical cord is a structure made of blood vessels and connective tissues that connects the baby and placenta in uterus. The umbilical cord is cut after birth which separates the mother and her baby both physically and symbolically (Mercer, 2018). In most rural communities in Ogoja Local Government, various techniques have been used for umbilical cord care like thread and strips of cloth, strings, scissors and sharp stone; many authors have suggested leaving the cord stump dry. Different approaches to cord care have been evaluated in terms of their impact on timing of cord separation, bacterial colonization and infection (Apie, Dan, Osaji, Akpa, Ekuri, Akah & Abeng, 2022). Other supportive care to enhance healing

includes exclusive breast feeding, maintenance of warmth and cleanliness. Globally, about 13 million babies are delivered annually, 4 million (3.1%) dies within the first 4 weeks of life (Peter & Johnson, 2020). In developing countries, most of the cord care practices are home-based since two-third of births take place at home (World Health Organization - WHO, 2019). Peter and Johnson (2020) reported that, in African, about 600,000 infants die of neonatal tetanus each year. In untreated cases, case fatality rate approach 100% and a further 460,000 dies, as a consequence of other severe bacterial infection (Peter & Johnson, 2020).

According to Asiegbu, Asiegbu, Ezeonu, Ezeanosike and Onyire (2019), unhygienic cord-care practices are major public health concern because of the associated gross neonatal and infant morbidity and mortality. This function of umbilical cord becomes unnecessary at birth, when the baby is able to breathe, eat, and void by themselves from the bladder and bowel. It is then clamped and cut close to the baby's body, leaving an umbilical stump. It is a painless procedure since there are no nerve fibers in the cord. The stump gradually dries, shrivels and separates from the body, usually between 5 and 15 days after birth with colour change from a yellow-green to black as it dries out (Zupan, Garner & Omari, 2019). During this period, the umbilical cord should be kept clean and dry to avoid infection. Some orthodox health institutions advocate the use of alcohol; others advise keeping the cord clean and dry only (Ireland, Rennie, Hundley, Fitzmaurice & Graham, 2020). These practices have changed over time. In developing countries where hygienic conditions are poor and infection rates are high, topical antiseptics such as chlorhexidine is recommended by World Health Organizations (World Health Organization, 2018).

Other forms of management include sacrifices to the gods (Bannet & Adetunde, 2020). The risk of cord infection is increased by unhygienic cutting of the cord and application of these unhygienic substances such as sand from door post mixed with saliva, herbal preparations and lantern wax. Even babies delivered in hospitals may be affected by traditional practices after discharge which most time leads to umbilical cord infection and dead among the neonates

(Bannet & Adetunde, 2020). When umbilical cord is not properly cared for, infection sets in. Umbilical cord infection is a major cause of death among neonates. In Nigeria, several hospital-based studies have reported cases of umbilical infections. For instance, in Port Harcourt, umbilical cord infection accounted for 10% of neonatal admission and 30% of neonatal death (Apie, Dan, Osaji, Akpa, Ekuri, Akah & Abeng, 2022). A review of umbilical infection in Ibadan showed that it accounts for 18% of neonatal death (Bannet & Adetunde, 2020).

Umar and Aliu (2021) reported of "bundling", which consists of wrapping an infant for prolonged periods in a sheep skin after dried cow dung is applied. This demonstrates the vulnerability of the umbilical cord to infections during the first days after birth. Bemor and Uta (2021), Johnson (2019), also reported severing the cord very close to the base, application of herbs and sacrificial marks on the face and on the anterior abdominal trunk. These measures may or may not have medical properties to heal the cord as they are typically passed by lay person and majority of these substances are merely used as a result of tradition. Some, however have been demonstrated to effect cord healing and one of the most popular examples is the warm compress to reduce inflammatory process and aid healing.

Use of hot water for umbilical cord care among nursing mothers

In caring for baby's cord, it is important to know that a wet cord can attract germs and become infected, thus the cord needs to be kept clean and dry at all times (Dan, Edet & Lale, 2021). Newborns whose cords are yet to fall off do not need to be bathed fully as a necessity. They need to wear clothing that allows air around the cord to keep cord dry. It is also important that caregivers maintain the general good hygiene practices including hand washing with soap and water before handling the baby. The diaper or napkin also should not touch the baby's cord. During diaper change, mothers should ensure that the stool does not get into contact with the baby's cord. It is pertinent to keep the umbilical stump clean. In practice, we see a lot of inappropriate care and it is painful when a baby succumbs to complications from these inappropriate practices. The infected cord and umbilical area can become red and swollen, ooze

pus or infection may spread to the body through the blood. The baby may have tetanus if the umbilical stump is not well taken care of and especially if the mother was not immunized against tetanus. All these are life-threatening and contribute significantly to neonatal mortality.

Paediatricians have warned against the use of hot water for the care of the umbilical cord as this can lead to infections and neonatal death. As noted by Olanike (2021), cord care starts at birth. Olanike noted that after birth, the cord is clamped and cut but a short stump that is left must be well taken care of, to prevent infections. Before now, the practice was to clean the cord frequently with methylated spirit, as frequently as the diaper was changed or more and to always leave the stump outside the diaper. The stump dries and falls off usually in two weeks; it may take longer in some babies. Even the use of hot water is not recommended; it is not a global practice. Proponents of this practice assume that exposing the umbilical cord to hot water may seem like it would accelerate the drying process, causing it to fall off more quickly. However, this is not actually the case.

Apie, Dan, Osaji, Akpa, Ekuri, Akah and Abeng (2022) revealed a positive influence of maternal education level, delivery and maternal knowledge of cord care on neonatal umbilical cord management respectively. It was concluded that the impact of maternal education level, place of delivery, and maternal knowledge of cord care are all the major social factors to which nursing mothers and health care workers must pay due attention to ensure effective delivery of quality patient care.

The trend in the use of recommended and unrecommended substances for cord dressing after the cord has fallen off is again evident in what caregivers used after the umbilical cord had fallen off. Asiedu, Apatu, Tetteh and Hodgson (2019) in a study on Neonatal Cord Care Practices among Mothers and Caregivers in the Volta Region of Ghana, showed that majority (85.7%) of the mothers used substances that have not been recommended for cord dressing such as shea butter and hot water and 14.3% of the mothers used methylated spirit. Responses from the in-depth interviews with the traditional birth attendants (TBAs) supported the results in the

quantitative study, stating that this practice prevents infection from entering the body through the cord. Similarly, Godwin (2023) posited that knowledge, attitude and practice of newborn umbilical cord care by mothers and management outcomes affects the health of newborns in Ikot-Eneobong community by gender of child, age and educational level of mothers. The practice common among the people were use of hot water, methylated spirit and toothpaste.

Use of toothpaste for umbilical cord care among nursing mothers

During pregnancy, the umbilical cord supplies nutrients and oxygen to the developing baby. After birth, the umbilical cord is no longer needed – so it is clamped and snipped. This leaves behind a short stump which dries out and eventually falls off – usually within one to three weeks after birth (Mayo, 2023). The idea of treating the umbilical cord stump is not foreign to Nigeria. A government report says 88 percent of mothers apply some substance to the cord after their babies are born. But the substances they use – including toothpaste, ash and even animal dung – have not been proven to protect against infection. Fewer than 5 percent of newborns in Nigeria are treated with chlorhexidine (Brink, 2017).

The use of toothpaste can leave the umbilical cord vulnerable to infection, which can spread to the whole body of the child (Adejoro, 2021). In their study on Survey of Umbilical Cord care and Separation time in Healthy Newborns in Kano, Mukhtar-Yola, Iliyasu and Wudil (2021), it was revealed that an interesting emerging method of cord care used by more than eight percent of mothers in the study was the application of toothpaste to the cord stump. Babies of such mothers had the shortest mean separation time of 3.12 days. The ingredients of commonly used toothpastes in the study area included sorbitol, hydrated silica, fluoride and cellulose gum. The effects of these constituents on cord tissue need further evaluation. However, the use of some of these constituents in cord care may introduce toxic substances or lead to bacterial contamination of the cord. In order to prevent neonatal morbidity and mortality due to neonatal sepsis and tetanus, it is particularly important to inform mothers, especially primigravida on good cord care practices. They should be instructed to keep the cord clean by washing with warm

water and soap and exposing it to room air. They should not to apply any substance to the cord, and should seek medical attention if there are signs of swelling or redness in the peri-umbilical region or if there are systemic symptoms.

Kalufya, Seif and Masoi (2022) posited that more than half of young mothers 196 (62.2%) had adequate knowledge of cord care, although practice of umbilical cord care was exceptionally poor, as only 21% of them had good cord care practice. Predictors of low knowledge were living in rural areas, having no formal education, and delivering at home. While the predictors of poor umbilical cord care practices were having no formal education, having primary education, being a peasant, business woman, housewife and prime para. Living in urban areas, having a higher education level, and having delivered in a health facility were important factors in having knowledge on cord care, while having a higher education level, being employed, and being a multipara were important factors in maintaining cord in a healthy state. Mukhtar-Yola et al (2021) opined that cord separation time and cord care practices varied. Nigerian mothers often use unorthodox interventions to shorten cord separation time; however, the risk of omphalitis that may result from this is real, leading to the recommendation that each centre should adopt and teach mothers a standard hygienic cord care practice while discouraging the use of herbs and untested materials.

Purpose of the study

The purpose of the study was to assess umbilical cord care practices among nursing mothers in Ogoja Local Government Area of Cross River State. Specifically, the study seeks to:

1. investigate the use of hot water for umbilical cord care among nursing mothers in Ogoja Local Government Area.
2. assess the level to which nursing mothers use toothpaste for umbilical cord care in Ogoja Local Government Area.

Research questions

1. To what extent do nursing mothers use hot water for umbilical cord care in Ogoja LGA?

2. What is the extent to which nursing mothers use tooth paste for umbilical cord care in Ogoja LGA?

Research design and methodology

This study adopted the survey research design, this research approach is specifically designed to systematically collect written or oral data about a group of individuals through the use of data collection instruments such as interviews, questionnaires etc. The population of the study comprised of all nursing mothers in Ogoja Local Government Area of Cross River State, giving a total of 2000 nursing mothers from Primary Health Center Post-Natal Care Registrar. The sample for this study comprised of 200 respondents randomly selected from the two thousand (2000) nursing mothers in the study area using multi-stage sampling technique.

The instrument used for data collection in the study was a questionnaire titled: "Umbilical Cord Care Practice among Nursing Mothers Questionnaire (UCCPNMQ)" and it was divided into two sections. Section A was designed to collect the respondents' personal data. Section B consists of modified four-point likert-type scale of Strongly agree (SA), Agree (A), Disagree (D) and Strongly disagree (SD). It contained ten items measuring the variables of the study. Items 1-5 measured use of hot water for umbilical cord care, while items 6-10 measured use toothpaste for umbilical cord care.

Result and discussion

Research question one

To what extent do nursing mothers use hot water for umbilical cord care in Ogoja LGA? To gauge the extent to which nursing mothers use hot water for umbilical cord care, relevant data were analyzed using descriptive statistical methods. These methods included frequency counts, calculating simple percentages, and deriving measures such as mean and standard deviation. The results of the analysis are presented in table 1.

Table 1: Descriptive statistics showing the extent of nursing mothers' use of hot water for umbilical cord care

S/N	Items	SA	A	D	SD	Total	$\bar{X}$	S	Remark
1	I normally apply hot water to my baby's umbilical cord to care for it daily.	68 [34.0]	105 [52.7]	16 [8.0]	11 [5.3]	200 [100]	3.15	0.78	High
2	I believe that newborns whose cords are yet to fall off do not need to be bathed fully as a necessity.	127 [63.3]	53 [26.7]	7 [3.3]	13 [6.7]	200 [100]	3.47	0.85	High
3	I am aware that excessive hot water application on the umbilical cord is dangerous.	13 [6.7]	40 [20.0]	93 [46.7]	54 [26.7]	200 [100]	2.07	0.86	Low
4	My perception is that heat from hot water will make the cord fall off faster	107 [53.3]	48 [24.0]	19 [9.3]	26 [13.3]	200 [100]	3.17	1.07	High
5	I normally apply hot water on my baby's umbilical cord as a way of caring for it every day	23 [11.3]	40 [20.0]	40 [20.0]	97 [48.7]	200 [100]	1.94	1.07	Low
					Grand mean =		2.76	0.93	High

Criterion mean = 2.50; Percentages are in parentheses; SA = Strongly Agree; A = Agree; D = Disagree; SD = Strongly Disagree; $\bar{X}$ = Mean; S = Standard deviation

The result on table 1 shows that nursing mothers use hot water for umbilical cord care to a high extent ($\bar{X}$ = 2.76, S = 0.93). This is because the mean value of 2.85 exceeds the criterion mean value of 2.50. Specifically, nursing mothers reported high extents in using hot water for umbilical cord care in specific ways. These include applying hot water on their baby's umbilical cord as a way of caring for it every day ($\bar{X}$ = 3.15, S = 0.78), believing that newborns whose cords are yet to fall off do not need to be bathed fully as a necessity ($\bar{X}$ = 3.47, S = 0.85), and perceiving that the heat from hot water will make the cord dry up very fast and helps it to fall off faster ($\bar{X}$ = 3.17, S = 1.07). The mean values of these specific practices are above the criterion mean value of 2.50. However, nursing mothers reported a low extent regarding some specific hot water practices in umbilical cord care. These include awareness that excessive hot water application on the umbilical cord is dangerous ($\bar{X}$ = 2.07, S = 0.86) and applying hot water on

their baby's umbilical cord to care for it every day. The mean values of these two practices are below the criterion mean of 2.50.

Research question two

What is the extent to which nursing mothers use toothpaste for umbilical cord care in Ogoja LGA? To understand how much nursing mothers use toothpaste for umbilical cord care, data about the research question were analyzed using descriptive statistics, such as frequency counts, simple percentages, mean, and standard deviation. The result of the analysis is presented on table 2.

Table 2: Descriptive statistics showing the extent nursing mothers use toothpaste for umbilical cord care

S/N	Items	SA	A	D	SD	Total	$\bar{X}$	S	Remark
6	My mother taught me how to apply toothpaste to the umbilical cord when I first gave birth.	17 [8.7]	123 [61.3]	40 [20.0]	20 [10.0]	200 [100]	2.69	0.77	High
7	I have applied toothpaste on my baby's cord before	80 [40.0]	120 [60.0]	0 [0.0]	0 [0.0]	200 [100]	3.40	0.49	High
8	I believe that toothpaste fastens umbilical cord healing	9 [4.7]	44 [22.0]	80 [40.0]	67 [33.3]	200 [100]	1.98	0.86	Low
9	I am aware that toothpaste does not protect against infections	25 [12.7]	27 [13.3]	49 [24.7]	99 [49.3]	200 [100]	2.09	0.97	Low
10	My baby's cord became infected after the application of toothpaste	104 [52.0]	60 [30.0]	27 [13.3]	9 [4.7]	200 [100]	3.29	0.87	High
						Grand mean =	2.69	0.79	High

Criterion mean = 2.50; Percentages are in parentheses; SA = Strongly Agree; A = Agree; D = Disagree; SD = Strongly Disagree; $\bar{X}$ = Mean; S = Standard deviation

Table 2 shows that the overall extent of toothpaste use among nursing mothers for umbilical cord care in Ogoja LGA is high. This result is so because the grand mean value of 2.69 with a standard deviation of 0.79 is higher than the criterion mean value of 2.50. Nevertheless, while some specific use of toothpaste for umbilical cord care was practiced to a high extent, others were not. For instance, there was a high extent of nursing mothers reporting that they were taught how to apply toothpaste on the umbilical cord by their mothers when they first gave birth

($\bar{X}$ = 2.69, S = 0.77). There was also a high extent of nursing mothers' reporting that they have applied toothpaste on their baby's cord before ($\bar{X}$ = 3.40, S = 0.49). There was a high extent where nursing mothers reported that their baby's cord became infected after the application of toothpaste ($\bar{X}$ = 3.29, S = 0.87). On the contrary, there was a low extent in the perception of nursing mothers that toothpaste fastens umbilical cord healing ($\bar{X}$ = 1.98, S = 0.86). Also, there was a low extent of awareness among nursing mothers that toothpaste does not protect against infections ($\bar{X}$ = 2.09, S = 0.97).

Discussion of findings

The first finding of this research reveals that nursing mothers in Ogoja LGA commonly utilize hot water for umbilical cord care. Nursing mothers utilise hot water in caring for their baby's umbilical cord in several ways: applying hot water on their baby's umbilical cord daily, believing that newborns whose cords are yet to fall off do not need to be fully bathed, and perceiving that heat from hot water helps the cord to dry up faster and fall off. However, they exhibit lower utilisation regarding awareness that excessive hot water application on the umbilical cord is dangerous and applying hot water on their baby's umbilical cord daily. This finding is not particularly surprising, given that cultural practices often play a significant role in maternal and infant care. However, the specific methods described, such as daily application of hot water on the umbilical cord, are noteworthy and indicate a reliance on traditional beliefs rather than evidence-based practices. This suggests that while certain aspects of modern healthcare may have been adopted, traditional customs still heavily influence caregiving practices, including umbilical cord care.

The reasons behind the widespread use of hot water for umbilical cord care likely stem from cultural beliefs passed down through generations. In many cultures, including those in Ogoja LGA, hot water is often perceived as having cleansing and healing properties. The belief that applying hot water helps the cord to dry up faster and fall off is consistent with cultural understandings of wound care and healing. Additionally, the notion that newborns do not need to

be fully bathed until the cord falls off reflects cultural norms regarding infant hygiene and care, which prioritize protecting the newborn's delicate skin. The finding also highlights a potential gap in knowledge regarding the risks associated with excessive hot water application on the umbilical cord. While nursing mothers may be aware of the benefits, they perceive from using hot water, such as aiding in cord drying, they may not fully understand the potential harm of excessive heat on the delicate tissue of the umbilical stump. This suggests a need for targeted education and awareness campaigns to provide mothers with accurate information about safe umbilical cord care practices.

The finding also aligns with the finding of Asiedu et al. (2019) that majority (85.7%) of the mothers used substances not recommended for cord dressing such as shea butter and hot water and 14.3% of the mothers used methylated spirit. Responses from the in-depth interviews with the traditional birth attendants (TBAs) supported the results in the quantitative study, stating that this practice prevents infection from entering the body through the cord. The finding also corroborates the finding of Godwin (2023) that knowledge, attitude and practice of newborn umbilical cord care by mothers and management outcomes affect the health of newborns in the Ikot-Eneobong community by gender of child, age and educational level of mothers. The common practice among the people was using hot water, methylated spirit and toothpaste.

The second finding disclosed a prevalent use of toothpaste among nursing mothers in Ogoja LGA for umbilical cord care, with an overall high extent of usage. Specific practices such as being taught by their mothers how to apply toothpaste on the cord and personally applying toothpaste on their baby's cord were reported to a high extent. However, despite these practices, there was also a high extent of reported instances where the baby's cord became infected after toothpaste application. Interestingly, there was a low extent of perception among nursing mothers that toothpaste accelerates umbilical cord healing and a low extent of awareness that toothpaste does not protect against infections. The finding that nursing mothers in Ogoja LGA commonly use toothpaste for umbilical cord care is surprising and concerning. While traditional practices

may vary across cultures, using toothpaste for this purpose is unusual and potentially harmful. The reported high extent of usage indicates a deeply ingrained cultural practice passed down through generations despite the lack of evidence supporting its efficacy or safety for umbilical cord care.

The prevalent use of toothpaste for umbilical cord care likely stems from cultural beliefs and practices within the community. Nursing mothers may have been taught by their mothers or other elder family members that toothpaste has antiseptic properties and can aid in healing the umbilical cord. Additionally, the ease of access to toothpaste compared to medical supplies may contribute to its widespread use, especially in rural areas where healthcare resources may be limited. The finding highlights a disconnect between perception and reality among nursing mothers regarding the effectiveness and safety of toothpaste for umbilical cord care. Despite the high extent of toothpaste usage, there is a low perception that it accelerates umbilical cord healing and a low extent of awareness that it does not protect against infections. This suggests a need for targeted education and awareness campaigns to dispel myths and misconceptions surrounding umbilical cord care practices.

The finding of this study tallies with the finding of Adejoro (2021) that the use of toothpaste can leave the umbilical cord vulnerable to infection, which can spread to the whole body of the child. Mukhtar-Yola et al. (2021) revealed that an interesting emerging method of cord care used by more than eight per cent of mothers in the study was the application of toothpaste to the cord stump. Babies of such mothers had the shortest mean separation time of 3.12 days. The ingredients of commonly used toothpaste in the study area included sorbitol, hydrated silica, fluoride and cellulose gum. The effects of these constituents on cord tissue need further evaluation. However, the use of some of these constituents in cord care may introduce toxic substances or lead to bacterial contamination of the cord. In order to prevent neonatal morbidity and mortality due to neonatal sepsis and tetanus, it is particularly important to inform mothers, especially primigravida on good cord care practices. They should be instructed to keep

the cord clean by washing with warm water and soap and exposing it to room air. They should not apply any substance to the cord, and should seek medical attention if there are signs of swelling or redness in the peri-umbilical region or if there are systemic symptoms.

Conclusion

This study was to reveal the extent to which nursing mothers use diverse umbilical cord care practices in Ogoja LGA. The study revealed both commonalities and disparities in their approaches. While hot water and toothpaste, are frequently employed for cord care, a spectrum of beliefs and behaviours regarding their efficacy and safety exists. The findings of this study are important for targeted education and awareness campaigns to address misconceptions and promote evidence-based practices. Moreover, understanding and respecting local customs is vital for healthcare providers in delivering culturally sensitive guidance on newborn care, ultimately contributing to improve maternal and infant health outcomes in the community.

Recommendations for policy directions

Based on the conclusion of this study, the following recommendations were made:

1. The Ministry of Health should launch targeted education campaigns to inform nursing mothers in Ogoja LGA about the risks associated with excessive use of hot water for umbilical cord care. They can collaborate with local health authorities and healthcare providers to develop educational materials and organise community outreach programmes.
2. Healthcare providers should undergo training to equip them with the knowledge and skills to advise nursing mothers against using toothpaste for cord care. They should provide accurate information and guidance to mothers during prenatal and postnatal visits, emphasising evidence-based alternatives and the potential risks of toothpaste application.

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