

Practice of Nursing Mothers towards Umbilical Cord Care in Calabar Metropolis, Cross River State

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Authors' contributions

This work was carried out in collaboration among all authors. Authors IEU and TO design the study, performed the statistical analysis and wrote the first draft of the manuscript. Authors EEE and GEU managed the analysis and the study. Author DA managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Aim: This study determined how Nigerian nursing mothers deal with umbilical cord care.

Methods: This was a descriptive cross sectional study on 388 Nigerian nursing mothers. Study population was randomly selected using multistage sampling technique. A validated semi-structured questionnaire was performed and data was analyzed using the statistical package for social science (SPSS).

Results: Most mothers (380 (97.9%)) cleaned babies' cord. It was 59 (15.2%) mothers who did not clean the cord at every time of changing the diaper. Regarding hand hygiene, only 88 (22.7%) washed their hands with soap. Only 217 (55.9%) cleaned the base of the cord first before the cleaning the surrounding skin. A razor was used to cut the cord in 186 (47.9%). Cord was clamped in 373 (96.1%), and cord clamp was made by tying the cord. A few mothers (131 (22.8%)) used chlorhexidine to the cord disinfection, while 116 (29.9%) still used herbs. There was a significant

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relationship between levels of education, income, number of children on cord care practice (P=0.00, 0.00, 0.019).

Conclusion: Many women in this area dealt with the cord in their own way and the incidence of chlorhexidine use, which is a recommended disinfection, was very low. Safety cord procedure/disinfection should be urgently educated. The present data may be useful to further making health policy strategy regarding cord hygiene in this area. This data may be also generalizable to any other developing countries.

Keywords: Chlorhexidine; practice; nursing mothers; umbilical cord and care.

1. INTRODUCTION

The umbilical cord is covered in a layer of amnion continuous with that covering the placenta which is thin and mucoid in nature [1]. During pregnancy, the placenta supplies all material for fetal growth and removes waste products. Blood flows through the umbilical cord from the placenta and brings all nutrients and oxygen to the fetus and carries away carbon dioxide and metabolic wastes [1,2,3,4]. After delivery of the infant and after the placenta has separated from the mother's womb, the umbilical cord is cut using a sterile technique, and the newborn must make the essential transition to extra-uterine life, [1].

The umbilical vessels are still patent for a few days following birth which provides direct access to the bloodstream. The devitalized tissue of the cord stump can be an excellent medium for bacteria, especially if the stump is kept moist or if unclean substances are applied to it [1,5,6,3,7,8, 9,10,11].

The umbilical cord is a common route of entry for systemic infection in the newborn infant, keeping the cord clean is therefore imperative if infection is to be prevented [11].

In Nigeria, A study carried out by Obuekwe [12] stated that various materials have been used by mothers and other care givers for umbilical cord care in developing countries. These range from varieties of tools used to cut the cord to substances applied. These tools are usually items that are available in the home, such as scissors, knives, broken glass, sharp stones or used razorblades which are rarely clean or boiled before use [12]. Thus it is important to know that approaches to cord care differ and have been evaluated in terms of their impact on timing of cord separation, bacterial colonization and infection.

Practice is a habit that has been formed by an individual depending on the knowledge they

have acquired which then becomes something a person becomes used to if otherwise changed. This research viewed literature on practice nursing mothers had regarding umbilical cord care. A qualitative study in northern Ghana showed that a wide variety of tools were used in cord cutting, the most commonly used being razor blades or scissors. That study reported that a wide variety of materials were applied while the cord was dressed, traditional materials used were shea butter, ground shea nuts, herbs, local oil and red earth [13]. These unhygienic birth practices with low rates of mother being immunized against tetanus accounts for the high incidence of neonatal tetanus in Nigeria [14]. [15], in a study in Bangladesh observed that more than 80% of women delivered at home. In 6% of cases, blades from a clean-delivery kit (CDK) were used to cut the cord; in 90% of cases, the blades used were from another source; in 4% of cases, other instruments such as bamboo strips and scissors were used to cut the cord. In 51% of cases, a substance (e.g. antibiotic powder/ointment, alcohol/spirit, mustard oil with garlic, boric powder, turmeric, and chewed rice) was applied to the stump after the cord was cut. A study carried out by [16] indicated the material used on the umbilical cord; 279 (62%) used cord clamp to tie the umbilical cord, 187 (41.6%) used sterile scissors/surgical blades to sever the cord and 224 (49.8%) of the respondents used Methylated spirit to clean the cord. However, a large percentage of 69.8% added other substances other than methylated spirit to the umbilical cord. With regards to various materials added, "Ndodop" was commonly used by the respondents accounting for 33.3%. Tooth paste "Close Up" was used by 16 (3.6%) of the respondents.

There is a common practice carried out by mothers in rural setting where they used cattle dung to treat umbilical cord stump of children. Some use soil, ash, and other types of concoction. In a study carried out in Port Harcourt by Opara, Jaja, Okari, One hundred

and fifty nine (75.5%) mothers cleaned the cord at least four times daily. A study carried out by [17] showed that 63.33% wash hands before handling stump and wash and clean napkins after each motion.

Another study carried out in India by Shalini Hajela, showed that with regards to umbilical cord care, 83.6% of the participants used for the study had correct Knowledge, Attitude and Practice regarding cutting of umbilical cord and 52.4% had correct knowledge of care of umbilical cord even though this figure is a little more than half it still shows the need to emphasis effective cord care procedures. Cord care practice by mothers in south-western Nigeria, Showed that the care given by mothers to the cord of 160 infants (82.9%) was considered fair, while that of 33 (17.1%) was poor. The poor treatment consisted of the use of hot water fermentation, menthol containing substance M, hot lantern application. [18] carried out a study on cord care practices in a rural community in Nigeria. The researchers used a cross sectional design and 2000 mothers who brought their sick neonates to the clinic were interviewed using a structured questionnaire. The findings revealed that 60% of the neonates had umbilical infection. About 68.3% managed the cord stump based on culturally recommended therapies such as herpes, salt and saliva, breast milk and sand from door post. The researchers therefore, concluded that there is a strong need to give appropriate education and counseling to caregiver on standard cord care hence the need for this research.

A study carried out by [19] showed that Fikree, Ali, Durocher, and Rahbar reported that low socio-economic mothers in settlements applied different substances to the cord such as surma, ghee and powder (not known what is this powder), which might cause a tetanus infection. Also the study reported that another practice of cord care that has been found in this study, either in combination with using antibiotic or as a separate practice, was wiping the umbilical cord and the stump with alcohol. The informants noticed that alcohol is as useful as sulphur in hastening the cord healing process. A study carried out by [20] showed that the practice carried out by nursing mothers was the use of warm water and cotton, Oil and at times nothing to the umbilical cord. Another study carried out by [21] showed that Two hundred (95.3%) used methylated spirit to clean the cord but 69 (32.4%) applied other substances after cleaning with methylated spirit also one hundred and fifty nine

(75.5%) mothers cleaned the cord at least four times daily. 60.9% of methylated spirit and 25.3% used hot compress [22].

Furthermore, Studies conducted in Nepal, Bangladesh and Pakistan have shown that cleansing the cord with Chlorohexidine(CHX) a widely used antiseptic, significantly reduces incidence of omphalitis and mortality in newborns. A formative study on the potential for the use of CHX for cord care in Ethiopia, only one respondent out of all depressed willingness to use a product that would prevent infection of the cord, this showed a strong potential for promoting CHX in Ethiopia [23]. [24] carried out a study in Konduga local Government Area of Borno State, Nigeria on practices of cord care in the area Findings revealed that substances used by mothers in cord care include, the application of hot fermentation, use of rag and lantern wax, use of Vaseline, ash, charcoal, groundnut oil, palm oil, mangrove oil, use of powder and red sand indicating that the practice level was low.

In Nigeria and particularly Cross River State, little or no studies has been done on knowledge, attitude and practice of nursing mothers towards umbilical cord care majority are on incidence of neonatal deaths which is related to umbilical infections in the newborn. Most of the literature reviewed were based on evidence gotten from the hospital setting this research seeks to carry out its study on a community level thereby bridging the gap towards cord care practice. This study will also provide a foundation on which behavior change communication programme can be designed and may be implemented by policy makers in the country and the state as a whole to ensure proper cord care is practiced nationwide. The few studies mentioned show the need for nursing mother's knowledge attitude and practice should be looked in order to improve proper cord care practice. This will go a long way in reducing the morbidity or mortality in the newborns and thereby improve their knowledge, attitude and practice.

2. RESEARCH METHODS

2.1 Research Design

This study was a descriptive cross-sectional in design.

2.2 Description of Study Area

The area of study will be Calabar metropolis in Calabar, Cross River State, Nigeria. Calabar is also called "Canaan City". The original name for

Calabar was Akwa Akpa. Administratively the city is divided into Calabar Municipal and Calabar South LGAs. It has an area of 406 square Kilometers (157 sq mi) and had a population of 371,022 at the 2006 census. The first study population will be in Calabar Municipal. It is also called Efik Eburutu and Kalabar.

2.3 Study Population

The study population for this research work were Nursing mothers who visit Ikot Ansa health center in Calabar Municipality and also mothers who visit the health center in Ekpo Abasi in Calabar South which is within Calabar metropolis, irrespective of their tribe, religious belief and level of education.

2.4 Sample Size Determination

The formula of Armitage and Berry, 1994 was used to determine the sample size because the study population is more than 10,000 and it gives you more precise estimates of population parameters and their differences and gives more powerful statistical test. This formula can be used to achieve a degree of precision or power though it does not guarantee absence of bias.

The sample size will be calculated using this formula;

$$n = \frac{z^2 pq}{d^2}$$

$$n = \frac{1.96^2 \times 0.5 \times 0.5}{0.05^2}$$

$$n = 384.16$$

$$n \approx 400$$

The sample size for this research was approximately 400. This is to accommodate no response within the study population.

Where

n = Minimum sample size

Z = Standard normal deviation set at 1.96

P = Proportion of persons in the population with factors under study, 0.5

d² = Degree of accuracy desired, 0.05

q = proportion of persons in the population without factors under study (q=1-P)

The inclusion criteria will be:

- Mothers aged between 15 and 49.

- Mothers who have been discharged after child birth and visiting Ikot Ansa and Ekpo Abasi Health care centers at the time of the study

2.5 Sample Technique

The sampling technique adopted for this research was a multistage sampling technique. Below are the different stages used for the sampling.

First Stage: Cluster sampling was used because the study population who visit Ikot Ansa and Ekpo Abasi health center are nursing mothers and so this possible because the population is homogenous and approximately the same size.

Second Stage: A purposive sampling technique was used. This is due the fact that purposive sampling represents judgment one makes as well as selective or subjective sampling carried out. This sampling technique allowed the researcher to believe that they have the ability to obtain a high representative sample of the population based on sound judgment which is Ikot Ansa and Ekpo Abasi, this will inversely save time and money.

Third Stage: Random sampling technique was used to select the Nursing mothers who participated in the research by using Balloting technique where numbers were written on a piece of paper. Mothers who randomly pick odd numbers were selected for the study. This helped to remove bias and gave every nursing mother an equal chance of being selected for the study. The respondents for this study were nursing mothers who attend the antenatal clinic weekly at Ikot Ansa and Ekpo Abasi Health center.

2.6 Data Collection Method/ Instrument for Data Collection

Quantitative method of data collection was used to collect data from the respondents who were nursing mothers.

A 36 – itemed semi structured questionnaire was used to collect data from the nursing mothers and the questions were asked in the sections described below. The questionnaire had four sections. The sections are:

- Section A- This section is titled Socio-Demographic information of the participants.
- Section B- The knowledge of Umbilical cord care carried out by mothers.

- Section C- Attitude of the Nursing Mothers towards Cord Care.
- Section D- Practice of the Nursing Mothers towards Cord Care.
- Section E- Materials used by Nursing Mothers towards Cord Care.

2.7 Validity and Reliability of Instrument

Validity: Face and content validity of the instrument (questionnaire) was carried out through the Judgment and supervision of the project supervisor. Corrections and suggestions were made by the supervisor of the research which was incorporated and drafted before the research became effective. Face validity viewed the extent to which the research instrument covered the concepts relating to knowledge, attitude and practice of nursing mothers towards umbilical cord care, content validity tested the extent to which the research instrument applied conceptual models in assessing these variables and the construct validity assessed how the variables in the study were connected in explaining knowledge, attitude and practice of umbilical cord care among nursing mothers.

Test-retest was used to ensure reliability of the study. A pilot study (pre-test) was conducted at Okon ene by distributing twenty (20) copies of the questionnaire to nursing mothers in the town, this was done to determine the relevance of content, clarity of statement, this tested the ability of the respondents to respond properly to the questions. Questions which were not appropriately answered were reviewed in the final questionnaire. Nursing mothers in Ikot Ansa and Ekpo Abasi was chosen so as to ensure the integrity of the questionnaire when used for the main research study in Calabar metropolis, Calabar. Cronbach's coefficient Alpha was used to test for internal consistency of the questionnaire of the pretest done, the research instrument scored 0.713. This meant that contents of the questionnaire were at least 71.3% appropriate/ reliable for this study.

2.8 Data Collection Procedure

The researcher administered the questionnaires with the help of 4 research assistants (1 female and 3 males), this was done under a time frame of 6 days (11th-17th of February, 2017). The researcher ensured that the assistants were debriefed on how the questionnaires should be shared and answered.

For each day used about 64 questionnaires were gotten from the research assistants. Monitoring of sharing the questionnaires was done by each of the research assistants based on instructions from the researcher.

A total of 400 questionnaires were shared. The questionnaires were shared every morning at the beginning of antenatal and postnatal days and informed consent was sought from each respondent. After the questionnaires were retrieved from the respondents only 388 were turned at the end of the distribution.

2.9 Data Analysis

The data collected was analyzed using a developed coding guide in order to facilitate data entry. Each questionnaire was coded and entered into a computer facilitated by a developed coding guide.

The Statistical Package for Social Sciences (SPSS) version 21.0 software package was used for statistical analysis. The data collected were subjected to provide descriptive and inferential statistics using the information obtained and were summarized and presented into tables and charts and Pearson's Chi square.

Knowledge Score: Knowledge scores were computed using 1 for the correct answer and 0 for the wrong answers for each of the knowledge questions on a 24- point scale. For each questions, two answers were available; Yes and No. the maximum score obtainable was 24 while the minimum was 0. An addition of the knowledge score was done by adding together individual knowledge scores. The scores were then classified into two categories by taking the mean of the highest and lowest scores and a value of 20.06 was gotten. This was used to classify respondents into high, average and low levels of knowledge. Scores between 0-6 were low, 7-12 as moderate and 13-24 as high level of knowledge.

Attitude Scores: Attitude scores were computed by awarding a mark for each correct answer to 6 statements which assessed respondents' attitudes to towards umbilical cord care on a 30 point scale. For each item, there were four responses: Strongly Agree, Agree, Disagree, Strongly Disagree and undecided. A composite attitude score was compiled by adding together the individual attitude scores. The scores were then classified into two categories by taking the

mean of the highest and lowest scores and a value of 19.7 was obtained. This was used to classify into poor, fair and good levels of attitude. Scores from 0-6 were low attitude and scores from 7-12 as moderate attitude and 13-24 were regarded as high attitude.

3. RESULTS

3.1 Practice of Nursing Mothers during Umbilical Cord Care Treatment

Table 2 showed that nursing mothers carry out various practice when it comes to care for the cord, this study showed that almost the entire respondents (97.9%) had cleaned the cord of their babies, similarly most if not all (98.5%) of the mothers cleaned the cord with methylated spirit. However, most of the respondents who cleaned the cord cleaned it 3 times daily (43.8%). Results from the study showed that mothers agreed that it was necessary to wash hands before attending to the cord (83.2%) but they also indicated in their response that they didn't wash their hands with soap and water and air dry at all times (22.7%). Only (42.3%) of nursing mothers cleaned the cord base before the surrounding skin.

The level of practice of respondents towards umbilical cord care was good 60.8% with a rating scale of 13 and items of 5. Using a mean score of 14.8 and a standard deviation of 2.0.

Table 3. revealed that majority of the mothers received antenatal care from the General hospital (63.4%), over half of the respondents (59.3%) delivered their last baby at the hospital while (37.9%) delivered at health care centers, however (1.3%) of the respondents had their delivery at the prayer house. Almost the entire number (96.1%) of the mothers responded that cord clamp was used to tie the cord while (47.9%) and (35.8%) of the respondents observed the use of razor blade and sterile scissors respectively to separate the baby from them after delivery. See Table 4.

3.1 Summary of Descriptive Statistics

The mean score for knowledge with standard deviation is (20.06±1.7) using a rating score of 24; 0 as minimum, maximum score 24 (0-24 points). The mean scores show that they respondents have average knowledge regarding standard cord care.

The mean score for attitude with a standard deviation is (19.7±3.9). This was done using a maximum and minimum scale of 0-30 points using a 5 Likert scale (SA-5, A-4, U-3, SD-2, D-1) with a sum of 6 items.

With regards to practice, the mean score and standard deviation is (14.8 ±2.0). This result was gotten using a maximum and minimum scale of 0-13 items.

3.2 Test of Hypothesis

Decision rule: These rules will be used for deciding which hypothesis to accept after the tests statistics at the 0.05 level of significance (Sig). Note: Ho = Null Hypothesis and Hi= alternative hypothesis

Using P-value:

If P-value < 0.05, reject Ho and accept Hi
If P-value > 0.05, reject Hi and accept Ho

Null Hypothesis –Ho:

H₁ There is no significant relationship between number of children and umbilical cord care practice.

H₂ There is no significant relationship between income and umbilical cord care practice.

H₃ There is no significant relationship between educational level and umbilical cord care practice.

Alternative hypothesis-Hi:

H₁ There is significant relationship between numbers of children and umbilical cord care practice

H₂ There is significant relationship between income and umbilical cord care practice

H₃ There is significant relationship between educational level and umbilical cord care practice.

The tables above revealed a significant relationship between age, level of education, income per month, number of children and the practice of umbilical cord care in Calabar metropolis, Cross River State. The calculated p-value and r respectively for age=0.000 < 0.05, and 0.284<1; for number of children= 0.000 <

0.05 and 0.488<1; for income per month= 0.000 < 0.05, and 0.587<1 and for educational level= 0.019 < 0.05 and -0.119<1 were significant at 5% (95% level of confidential interval). Therefore, the relationship between age, income earn per

month, number of children, educational level and umbilical cord care practice among nursing mothers in Calabar metropolis, Cross River State were statistically significant. Hence, null hypothesis in this finding was rejected.

Table 1a. Nursing mothers practice during umbilical cord care

		Frequency	N%
How often do you clean the umbilical cord	3 times daily	170	(43.8%)
	Once daily	5	(1.3%)
	No cleaning at all	1	(0.3%)
	After the nappy is changed	59	(15.2%)
	Whenever it is necessary	153	(39.4%)
Which substance do you use to clean the umbilical cord	Methylated spirit	382	(98.5%)
	Water	6	(1.5%)
	Herbs		(0%)
	Nothing		(0%)
Which of the cleaning methods do you adopt when cleaning the umbilical cord	Cleaning cord base before surrounding skin	164	(42.2%)
	Cleaning cord and surrounding skin at the same time	217	(55.9%)
	Cleaned cord stump only		(0.8%)
	Cleaned the surrounding skin only	3	(0.8%)
		3	(0.3%)
	Cleaned only the material used in tying the cord stump	1	

Table 1b. Nursing mothers practice during umbilical cord care

Variable	Frequency (n%)		Frequency (n%)	
	YES		NO	
Have you ever cleaned your baby's umbilical cord?	380	(97.9%)	8	(2.1%)
What do you do to your hands before caring for the umbilical cord				
It is not necessary to wash hands attending to the cord	65	(16.8%)	323	(83.2%)
Wash hands with Water only before attending to the cord	101	(26%)	287	(74%)
Wash hands with soap and water	154	(39.7%)	234	(60.3%)
Wash hands with soap and water and air dry	88	(22.7%)	300	(77.3%)
Wash hands with soap and water and clean with mother's clothing	16	(4.1%)	372	(95.9%)
Clean hands with baby's wipes	4	(1%)	384	(99%)

Table 2. Descriptive summary

Level	Frequency N=388	Percentage %	X(SD)
Good	236	60.8%	14.8(±2.0)
Poor	152	39.2%	
Total	388	100	

Table 3a. Materials used by mothers in caring for the umbilical cord

Variables		Frequency	N (%)
Where did you receive antenatal care	Primary Health Care Center	73	(18.8%)
	General Hospital	246	(63.4%)
	Teaching Hospital	66	(17%)
	Traditional Birth Attendants	3	(0.8%)
Where did you deliver your last baby	Church	6	(1.5%)
	Prayer House	1	(1.3%)
	Hospital	230	(59.3%)
	Health Care Center	147	(31.9%)
	At Home	4	(1.0%)
Which of the following was used in tying the cord after delivery	Thread	5	(1.3%)
	String of cloth	8	(2.1%)
	Cord Clamp	373	(96.1%)
	I don't know	2	(0.5%)
What was used to separate your baby from you after delivery	Razor blade	186	(47.9%)
	Sterile scissors	139	(35.8%)
	I don't know	63	(16.2%)

Table 3b. Materials used by mothers in caring for the umbilical cord

Variable		Yes%	No%
What materials do you apply after cleaning the cord	Dusting powder	14(3.6%)	374(96.4%)
	Engine oil	58(14.9%)	330(85.1%)
	Palm oil	88(22.7%)	300(77.3%)
	Cow dung	37(9.5%)	351(90.5%)
	Sand	143(36.9%)	245(63.1%)
	Breast milk	72(18.6%)	316(81.4%)
	Salt	87(22.4%)	301(77.6%)
	Iodine	73(18.8%)	315(81.2%)
	Palm wine	-	388(100%)
	Vaseline	72(18.6%)	316(81.4%)
	Dettol	9(2.3%)	379(97.7%)
	Methylated Spirit with cotton wool	204(52.6%)	184(47.4%)
	Warm water	132(34%)	256(66%)
	Herbs	116(29.9%)	272(70.1%)
	Chlorhexidine digluconate	131(22.8%)	257(66.2%)
	Nothing	97(25%)	291(75%)

Table 4. Descriptive Summary

	Mean	Standard deviation
Knowledge	20.06	±1.70
Attitude	19.7	±3.9
Practice	14.8	±2.0

The mean age for nursing mothers in this study is 29.7

Table 5. Correlation between respondents number of children and umbilical care practice

		Number of children
Umbilical cord care practice	Pearson correlation	.488
	Sig. (2-tailed)	0.00
	N	388

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed)

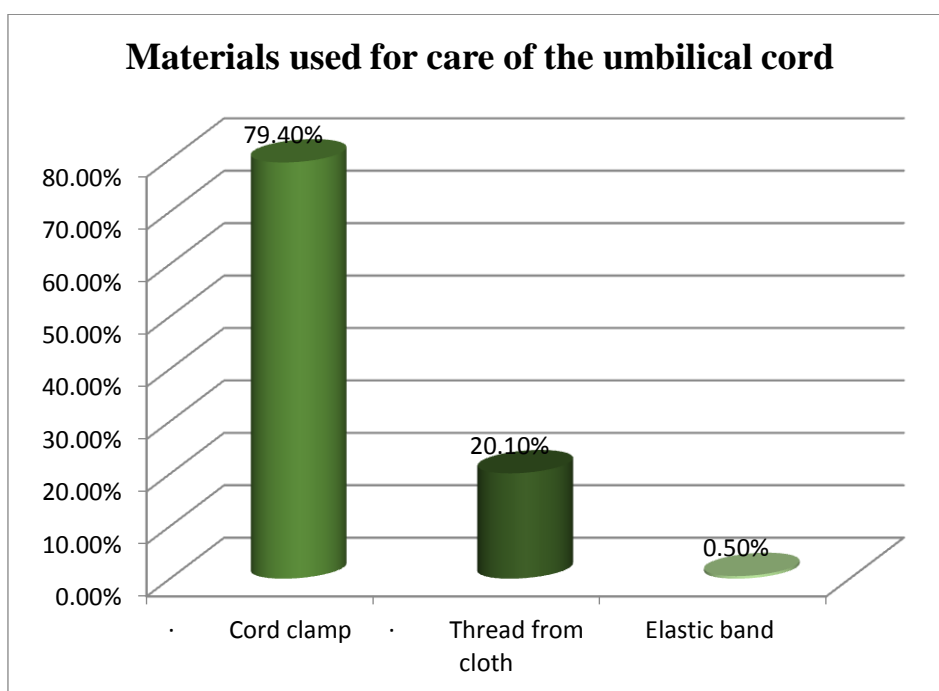


Fig. 1. Materials used for care of the umbilical cord

Table 6. Correlation between respondents income per month and umbilical cord care practice

		Income per month
Knowledge	Pearson correlation	.587
	Sig. (2-tailed)	.000
	N	388

***.* Correlation is significant at the 0.01 level (2-tailed). *** Correlation is significant at the 0.05 level (2-tailed)

Table 7. Correlation between respondents level of education and practice towards umbilical cord care

		Level of Education
Knowledge	Pearson correlation	-.119**
	Sig. (2-tailed)	.019
	N	388

***.* Correlation is significant at the 0.01 level (2-tailed). *** Correlation is significant at the 0.05 level (2-tailed)

4. DISCUSSION

The study showed that respondent's level of practice towards umbilical cord care was good. More than half of the mothers cleaned the cord with methylated spirit which is in consonant with the study carried out by [16] where most of the respondents used Methylated spirit to clean the cord. Also a study carried out in Port Harcourt by Opara, Jaja, Okari, Two hundred (95.3%) of the mothers used methylated spirit to clean the cord. With regards to the technique used to clean the cord, most of the nursing mothers cleaned the cord base and the surrounding skin at the same time this practice can create a medium through

which pathogens can make its way into the umbilical stump and thus can lead to the spread of infection. These findings may not be linked to source of knowledge of cord care where a good percentage of the respondents had knowledge of cord care from the Nurses/Doctors.

On cleaning of the umbilical stump, majority of the mothers cleaned the cord stump only 3 times a day this is not in accordance with [25] which recommends on the average, that the cord should be cleaned often as each diaper is changed. If this is not done it can pose a risk and lead to the base of the cord being moist providing a nutritive culture medium for bacterial

growth if it is cleaned only once a day or even three times daily.

With regards to cleaning the hands before caring for the cord, the study revealed that most mothers did not wash their hands with soap and water and air dry, this low percentage which has been identified by the respondents on clean hand during cord management showed evidence of unhygienic cord care. This finding is contrary to [25] recommendation on hand care which is washing before and after cord care to prevent cord infection particularly neonatal tetanus and omphalitis. A study carried out by [17] showed that 63.33 % wash hands before handling stump and wash and clean napkins after each motion. This finding is in variance with the finding from the study.

Findings from the study showed that cord clamp was used to tie the umbilical cord of the infant as well as the use of sterile blade and surgical scissor to cut the cord. Methylated spirit was the major substance used on the cord while cleaning by mothers. This signified good cord care practice being carried out. This could be linked to the fact that most mothers received antenatal care from the hospitals as well as the fact that most mothers delivered their babies in the hospital thus influencing the material used; this might have had a role to play in the materials used for cord care. A few respondents from the study used harmful materials on the umbilical cord after discharge from the hospital this be due to the fact of the respondents had their delivery at a prayer house or at home, this practice places the baby at risk of umbilical cord infection. This is because the devitalized tissue of the cord stump can be an excellent medium for bacteria especially if it is moist and unclean substances are applied to it [11].

These findings are in coherence with a study carried out by [16] who clearly indicated the material used on the umbilical cord; 279 (62 %) used cord clamp to tie the umbilical cord, 187 (41.6%) used sterile scissors/surgical blades to sever the cord and 224 (49.8%) of the respondents used methylated spirit to clean the cord.

For the respondents who use unsafe/unhygienic materials on the cord, These findings are in agreement with [26] who documented that babies delivered in hospitals may be affected by traditional practices after discharge as care of the cord during neonatal period is provided by mother and mother in-law. This finding is in line

with the report from [24] carried out a study in Konduga local Government Area of Borno State, Nigeria on practices of cord care in the area Findings revealed that substances used by mothers in cord care include, the application of hot fermentation, use of Vaseline, palm oil. Indicating that the practice level was low. This was done in a semi urban setting similar to the area used for the study.

Studies conducted in Nepal, Bangladesh and Pakistan have shown that cleansing the cord with Chlorohexidine(CHX) a widely used antiseptic, significantly reduces incidence of omphalitis and mortality in newborns. This finding is similar to the study where a few mother acknowledge knowing about chlorhexidine and less than half of this mothers actually applied it on the umbilical cord of their babies and majority of them idnt know it can be used to prevent infection.

The more educated the respondents, the more clean cord care would be adopted.

The higher the income, the cleaner cord care will be practiced.

The more children the mothers have, the inclination to carry out clean cord care practice based on the experience they have. There was significant relationship between income, level of education, number of children and cord care practice.

5. CONCLUSION

Many women in this area dealt with the cord in their own way and the incidence of chlorhexidine use, which is a recommended disinfection, was very low. Safety cord procedure/disinfection should be urgently educated. The present data may be useful to further making health policy strategy regarding cord hygiene in this area. This data may be also generalizable to any other developing countries.

CONSENT

Informed consent forms were shared to the participants during the study and anyone that signed was included in the study. Privacy and respect for human dignity was considered to ensure confidentiality.

Only those who agreed to sign the informed consent form was included in the study. Every participant was assured that their response will be anonymous and they will be free from any

harm. Participants who wished to opt out of the study was be free to do so at any stage of the study without allowing their decision to affect them.

ETHICAL APPROVAL

Ethical approval to carry out the study was obtained from Babcock University Health Research and Ethics Committee (BHREC). The purpose of the study was explained to the respondents and a signed consent was obtained from each of the respondents. The respondents wishes and rights was respected at all times, including right to discontinue with the study at any time.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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