

# Determinants of Cord Care Practices among Mothers in Abakaliki, Ebonyi State, South East, Nigeria

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**How to cite this paper:** Asiegbu, U.V., Asiegbu, O.G., Ezeonu, C.T., Ezeanosike, O.B. and Onyire, B.N. (2019) Determinants of Cord Care Practices among Mothers in Abakaliki, Ebonyi State, South East, Nigeria. *Open Journal of Preventive Medicine*, 9, 43-50.

<https://doi.org/10.4236/ojpm.2019.95005>

**Received:** April 23, 2019

**Accepted:** May 28, 2019

**Published:** May 31, 2019

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## Abstract

**Introduction:** Unhygienic cord-care practices are major public health concern because of the associated gross neonatal and infant morbidity and mortality. Various factors have been linked to these practices. This study aims to identify the determinants of cord care practices among mothers in Abakaliki, Ebonyi State, South East, Nigeria. **Methods:** A cross sectional questionnaire based study involving women attending antenatal clinics and those who brought their babies to the immunization clinics of Federal Teaching Hospital, Mile Four Hospital and Maternal/Child Primary Health Care Center, all in Abakaliki. **Results:** Two hundred and seventy three mothers participated in the study. The majority of the participants aged 26 to 35 years (60.07%), had tertiary education (49.45%) and were business women (38.46%). Mothers who had secondary and tertiary education basically applied methylated spirit (p-value 0.0014) and chlorhexidine (p-value 0.0289) as a form cord care while those who had primary or no formal education cared for cord using hot water, Vaseline, close up tooth paste and local herbs. The mothers educational status, occupation and parity also determined the care given the umbilical cord after birth. **Conclusion:** Cord care practices are determined and influenced by several factors in Ebonyi State. Health education and awareness campaigns should be upheld and targeted among women of child bearing age found in women meetings, local markets and primary health care delivery centers especially in the rural setting.

## Keywords

Determinants, Cord Care, Practices, Mothers, Abakaliki

## 1. Introduction

The umbilical cord is a soft, flexible structure that connects the developing fetus to the mother through the placenta from the sixth week of pregnancy until birth [1]. It contains blood vessels through which oxygen and nutrients get to the fetus as well as a means of waste elimination from the fetus [1]. 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 [1]. 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 [2]. 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 [3].

Local perceptions, cultural practices and beliefs, religious background and socioeconomic circumstances influence the trend and what is used for cord care, unfortunately, these are harmful and they include charcoal, baby powder, Vaseline, cooking oil, used motor oil, breast milk, cow dung, chicken faeces and dust [4] [5] [6] [7]. A newly cut umbilical cord can be a pathway for bacteria that can cause newborn umbilical infection, sepsis and death [8] [9] [10] [11].

A clear understanding of the determinants of cord care practices will be helpful in addressing high rates of neonatal deaths from these unhealthy cord care practices. Hence this study aims to identify the determinants of cord care practices among mothers in Abakaliki, Ebonyi State, South East, Nigeria.

## 2. Methods

A cross sectional based study was conducted from June to August 2016. The minimum sample size of 350 was calculated using the formula as cited by Araoye's [12]. These included parous but pregnant women attending antenatal clinics and women who brought their babies to the well-baby/immunization clinics of Federal Teaching Hospital, Mile Four Hospital and Maternal/Child Primary Health Care Center, all in Abakaliki.

An initial pilot study was done at the Primary Health Care center using a structured researcher administered questionnaire; necessary modifications were made before administration of the modified questionnaires to the participants. Information on subject's age, parity, educational status, and ethnic group were retrieved, also what constituted cord care for their infants and who influenced their choice of care were obtained from the administered questionnaire.

Ethical approval was sought for and obtained from the ethical committee Federal Teaching Hospital, Abakaliki, Ebonyi state. A written Informed consent was also signed by the participant after due explanation of the details of the

study. Confidentiality was maintained and voluntary participation upheld.

### 2.1. Inclusion Criteria

- Parous but pregnant women attending antenatal clinics whose last delivery is less than two years.
- Women who brought their babies to the well-baby/immunization clinics of Federal Teaching Hospital, Mile Four Hospital and Maternal/Child Primary Health Care Center, all in Abakaliki.

### 2.2. Exclusion Criteria

- Parous but pregnant women attending antenatal clinics whose babies are more than two years.

The socioeconomic status of the families was classified in accordance with the method described by Olusanya *et al.* [13].

Data analysis was done using Epi Info 7. 1. 3. 10 of CDC Atlanta. Data was presented in Tables and Figures. Student t-test was used for comparison of arithmetic means, while Chi squared test was used for comparison of proportions. Probability value of less than 0.05 was considered statically significant.

## 3. Results

Three hundred and fifty questionnaires were distributed. Of these 273 were returned, giving a response rate of 78%. Seventy seven of these respondents were excluded for incomplete data.

### Demographic Characteristics

The distribution of subjects according to maternal age, maternal level of education, maternal occupation, place of residence, ethnic group, religion and parity is shown in **Table 1**.

The comparison between substances applied in relation to the age of the mother showed no statistically significant difference as seen in **Table 2**.

The relationship between substances applied when compared to the educational level of the mother was statistically significant for all except for cow dung ( $p = 0.0000$ ) and tooth paste ( $p = 0.0768$ ) as shown in **Table 3**.

When substances applied was compared with mothers occupation, Vaseline application was observed to be more in business women (26.7%), this was statistically significant ( $p = 0.0378$ ) as shown in **Table 4**.

The relationship between substance applied and the mother parity was not statistically significant in all but hot water application ( $p = 0.0193$ ) which was seen most in  $\geq$ Para 5 mothers (50%) and methylated spirit application ( $p = 0.0202$ ) and seen most in Para 2 - 4 (**Table 5**).

## 4. Discussion

The majority of mothers who participated in the study were aged 26 - 35 year. This age group used mainly antiseptics to care for the umbilical cord as opposed to

**Table 1.** Sociodemographic data.

AGE IN YEARS	FREQUENCY	PERCENT
<15	4	1.47%
15 - 25	81	29.67%
26 - 35	164	60.07%
>45	2	0.73%
TOTAL	273	100.00%
EDUCATIONAL LEVEL	FREQUENCY	PERCENT
None	7	2.56%
Primary	34	12.45%
Secondary	97	35.53%
Tertiary	135	49.45%
Total	273	100.00%
OCCUPATION	Frequency	Percent
Business woman	105	38.46%
Civil servant	96	35.16%
House wife	72	26.37%
Total	273	100.00%
RESIDENCE	Frequency	Percent
Rural	74	27.11%
Urban	199	72.89%
Total	273	100.00%
ETHNICGROUP	Frequency	Percent
Hausa	5	1.83%
Ibo	261	95.60%
Yoruba	6	2.20%
Others	1	0.37%
RELIGION	Frequency	Percent
Christian	265	97.07%
Muslim	8	2.93%
Total	273	100.00%
PARITY	Frequency	Percent
Para 1	91	33.33%
Para 2 - 4	150	54.95%
Para 5 and above	32	11.72%
Total	273	100.00%

**Table 2.** Relationship between substance applied and mothers age.

Substance applied	Age of mothers in years					Total	$\chi^2$	p-value
	<15	15 - 25	26 - 35	36 - 45	>45			
Dusting powder	1 (25.0%)	1 (1.2%)	1 (0.6%)	0 (0%)	1 (50.0%)	4 (1.5%)	49.1666	0.0000
Local herbs (nchaonwu)	0 (0%)	1 (1.2%)	2 (1.2%)	0 (0%)	0 (0%)	3 (1.1%)	0.3468	0.9866
Cow dung	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0.0000	1.0000
Toothpaste (close-up)	1 (25.0%)	7 (8.6%)	6 (3.66%)	0 (0%)	0 (0%)	7 (5.1%)	7.3276	0.1196
Vaseline	0 (0%)	18 (22.2%)	26 (15.9%)	8 (36.4%)	1 (50.0%)	53 (19.4%)	7.9365	0.0939
Hot water	2 (50.0%)	27 (33.3%)	44 (26.8%)	6 (27.27%)	1 (50.0%)	80 (29.30%)	2.4039	0.6619
Methylated spirit	4 (100%)	65 (80.25%)	136 (82.9%)	20 (90.9%)	1 (50.0%)	53 (82.78%)	3.7273	0.4442
Chlorhexidine	0 (0%)	7 (8.64%)	30 (18.29%)	2 (9.09%)	1 (14.29%)	39 (14.29%)	5.7423	0.2192

p-value < 0.05 is statistically significant;  $\chi^2 < 5$  is not a valid test.

**Table 3.** Relationship between substance applied and educational status.

Substance applied	Level of education					Total	$\chi^2$	p-value
	None	Primary	Secondary	Tertiary				
Dusting powder	1 (14.3%)	0 (0%)	2 (2.1%)	1 (0.8%)		4 (1.5%)	9.2049	0.0267
Local herbs (nchaonwu)	0 (0%)	2 (5.9%)	1 (1.1%)	0 (0%)		3 (1.1%)	8.7401	0.0330
Cowdung	0 (0%)	0 (0%)	0 (0%)	0 (0%)		0 (0%)	0.0000	1.0000
Tooth paste (close-up)	1 (14.3%)	4 (11.8%)	6 (6.2%)	3 (2.2%)		14 (5.1%)	6.8506	0.0768
Vaseline	2 (28.6%)	11 (32.4%)	24 (24.7%)	16 (11.9%)		53 (19.4%)	10.7084	0.0134
Hot water	4 (57.1%)	17 (50.0%)	34 (35.1%)	25 (31.1%)		80 (29.3%)	18.7754	0.0003
Methylated spirit	3 (42.7%)	23 (67.7%)	82 (84.5%)	118 (87.4%)		226 (82.9%)	15.5295	0.0014
Chlorhexidine	0 (0%)	1 (2.9%)	11 (11.3%)	27 (20.0%)		39 (14.3%)	9.0275	0.0289

p-value < 0.05 is statistically significant;  $\chi^2 < 5$  is not a valid test.

**Table 4.** Relationship between substance applied and mothers occupation.

Substance applied	Mothers occupation				Total	$\chi^2$	p-value
	Housewife	Business women	Civil servants				
Dusting powder	2 (2.8%)	2 (1.9%)	0 (0%)		4 (1.5%)	2.4272	0.2971
Local herbs (nchaonwu)	0 (0%)	3 (2.9%)	0 (0%)		3 (1.1%)	4.8533	0.0883
Cowdung	0 (0%)	0 (0%)	0 (0%)		0 (0%)	0.0000	1.0000
Tooth paste (close-up)	4 (5.6%)	8 (7.6%)	2 (2.1%)		14 (5.1%)	3.1954	0.2024
Vaseline	13 (18.1%)	28 (26.7%)	12 (12.5%)		53 (19.4%)	6.5485	0.0378
Hot water	25 (34.7%)	32 (30.5%)	23 (24.0%)		80 (29.3%)	2.4141	0.2991
Methylated spirit	54 (75.0%)	89 (84.8%)	83 (86.5%)		226 (82.8%)	4.2586	0.1189
Chlorhexidine	12 (16.7%)	11 (10.5%)	16 (16.7%)		39 (14.3%)	2.0222	0.3638

p-value < 0.05 is statistically significant;  $\chi^2 < 5$  is not a valid test.

**Table 5.** Relationship between substance applied and mothers parity.

Substance applied	Parity			Total	$\chi^2$	p-value
	Para 1	Para 2 - 4	≥Para 5			
Dusting powder	2 (2.2%)	1 (0.7%)	1 (3.1%)	4 (1.5%)	1.6114	0.4468
Local herbs (nchaonwu)	0 (0%)	2 (1.3%)	1 (3.13%)	3 (1.1%)	2.2956	0.3173
Cowdung	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0.0000	0.0000
Tooth paste (close-up)	4 (4.4%)	7 (4.7%)	3 (9.38%)	14 (5.1%)	1.3523	0.5086
Vaseline	14 (15.4%)	29 (19.3%)	10 (31.25%)	53 (19.4%)	3.8104	0.1488
Hot water	22 (24.2%)	42 (28.0%)	16 (50.0%)	80 (29.3%)	7.8944	0.0193
Methylated spirit	79 (86.8%)	126 (84.0%)	21 (65.6%)	226 (82.8%)	7.8030	0.0202
Chlorhexidine	14 (15.4%)	22 (14.7%)	3 (9.4%)	39 (14.29%)	0.7377	0.6915

p-value < 0.05 is statistically significant;  $\chi^2 < 5$  is not a valid test.

younger mothers who used toothpaste, Vaseline and hot water. Likely reasons might be lack of exposure, first timers or lack of female education. This is similar to a cross sectional survey in Kenya on the knowledge, attitude and practices of mothers and knowledge of health workers regarding care of the newborn umbilical cord by Obimbo, Musoke and Were [6] which also showed that poor knowledge, attitude and practice were associated with young, poor and low educated mothers. They recommended that health education on cord care be given at all levels of contact with mothers.

The educational level of mothers had a strong relationship with the umbilical cord status of their babies. Babies whose mothers had no formal education and those who attained primary level of education used harmful substances applications applied as umbilical cord care compared to those whose mothers had tertiary level of education. This has also been reported by Senarath, U., *et al.* [14] that higher level of education among mothers with new-born babies had a positive impact on clean cord care practice. Also, Abhulimhen-Iyoha and Ibadin [7] similarly found that the best predictors of beneficial cord practices are maternal level of education (p = 0.029).

The occupation of mothers was a strong determinant of cord care among the study group. Mothers who were civil servant cared for cords of their babies better than those who were housewives and business women.

It was observed that women who had just one baby (para 1) generally used methylated spirit and chlorhexidine more than mothers who have had many children. It is likely, that these women who have had many children may have support groups where they discuss and learn from their experiences necessitating their trial and use of other harmful substance with the hope of fast and early cord separation.

## Limitation of the Study

This study was hospital based. Findings may not reflect completely all varieties of cord care practices in the community. Hence, a community based study is recommended.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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