

Determinants of cord care practices among mothers in Benin City, Edo State, Nigeria

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Abstract

Background: Mothers care for their infants' umbilical cord stump in various ways. Different cord care practices have been documented; some are beneficial while others are harmful. Who and what influence the cord care practiced by mothers have, however, not been fully explored particularly in the study locale.

Objective: The objective of this study was to determine the factors that influence cord care practices among mothers in Benin City.

Materials and Methods: The study subjects included 497 mothers who brought their babies to Well Baby/Immunization Clinic at the University of Benin Teaching Hospital (UBTH), Benin City, Edo State, between July and August 2009. A structured questionnaire served as an instrument to extract information on their biodata and possible determinants of cord care practices.

Results: Significantly older women ($P=0.023$), educated mothers ($P=0.029$), and those who had male babies ($P=0.013$) practiced beneficial cord stump care practices. Beneficial cord care practice increased with increasing maternal educational status. The best predictors of beneficial cord care practices are maternal level of education ($P=0.029$) and infant's sex ($P=0.013$). The use of harmful cord care practices was more common among mothers who delivered outside the Teaching hospitals. Most (71.2%) of the mothers were aware of hygienic/beneficial cord care. The choices of cord care methods eventually practiced by mothers were influenced mainly by the disposition of nurses (51.3%), participants' mothers (32.0%), and their mothers-in-law (5.8%). There was no significant relationship between cord care practice on one hand and maternal parity, tribe, and socioeconomic classes on the other.

Conclusion/Recommendation: The need for female education is again emphasized. The current findings strongly justify the need for public enlightenment programs, using the mass media and health talks in health facilities, targeting not only women of reproductive age but also secondary audience like their mothers, mothers-in-law, nurses, and attendants at health facilities. Proper hygiene including proper hand washing techniques while caring for newborns along with vaccination of infants and their mothers will help prevent infections including tetanus while prompt health-seeking behavior is advised to improve outcome should such infections occur.

Key words: Cord care, Choice, Influence, Mothers, Benin city

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Introduction

In developing countries, isolated cases and epidemics of cord infections continue to occur.^[1-3] A number of factors contribute to the high incidence of neonatal tetanus and infections in these countries.^[4-6] Some are traceable to unhygienic circumstances and deliveries conducted by untrained birth attendants.^[3] Harmful cord care practices have also been implicated.^[3,4,7]

In a study of 149 cases of neonatal tetanus (NNT) admitted into the University of Calabar Teaching Hospital, 49 (33%) were also found to have septicemia. A comparison of the clinical features of the septicemic and nonsepticemic neonates showed umbilical cord infection to be an indicator of septicemia.^[1]

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Mothers care for their infants' umbilical cords in various ways especially after discharge from hospital. Several studies have been conducted to document different cord care practices;^[8-11] where some of these are beneficial others are not. Who and what influence the choice of cord care practiced by these mothers have, however, not been fully explored particularly in the study locale.

It is envisaged that the knowledge of these factors could assist in stream lining the content of health education campaigns against harmful cord stump practices and reinforce beneficial ones.

Materials and Methods

The study was carried out at the Well Baby/Immunization Clinic of the University of Benin Teaching Hospital (UBTH), Benin City, Edo State, between July and August 2009. Subjects consisted of mothers of healthy infants attending the Well Baby/Immunization Clinic in UBTH. A structured questionnaire was administered to them with the aim of documenting information on subject's age, parity, educational status, and tribe. It was also of essence to determine what constituted cord care for their infants and who influenced their choice of care. Cord care which involved the use of methylated spirit alone was considered beneficial while other forms of cord care were taken as poor (nonbeneficial). Poor cord care includes the use of hot compress, herbs, native chalk, salt, sand, saliva, palm oil, menthol-containing balm, petroleum jelly, and toothpaste alone or in combination. These practices were mainly done after discharge from hospital (at home).

The socioeconomic status of the families were classified in accordance with the method described by Olusanya *et al.*^[12] Ethical approval was obtained from the Ethics Committee of UBTH and informed consent obtained from each subject.

Data collected were entered into the Statistical Package for Scientific Solutions (SPSS) version 16. The results were cross-tabulated as frequency tables and contingency tables. Means, standard deviations, and ranges were used as appropriate to describe continuous variables. Chi-square was used to test the strength of association where appropriate. Binary logistic regression was used to assess the roles of the various variables on cord care practice. Odds ratios were also calculated for the variables. Significance of each test was presumed for P value <0.05 .

Results

Four hundred and ninety seven subjects were studied. Their ages ranged between 17 and 42 years (mean of 29.10 ± 4.91 years). All the age groups practiced more

of nonbeneficial cord care than beneficial [Table 1]. The reasons given for applying these substances to the cord are mainly to promote cord separation and to prevent bleeding from the stump. However, individuals practicing beneficial cord care were commonly the older age groups (36 years and above) (34.0%) in comparison with the younger age groups. A significant relationship exists between cord care practice and maternal age ($\chi^2=11.31$, $df=4$, $P=0.023$).

Maternal parity ranged between one and eight, with modal parity being one. Nonbeneficial cord care practice was highest among the mothers with parity 4 (82.9%) followed by those with parity 3 (81.6%). No significant relationship exists between cord care practice and maternal parity [Table 2].

The main tribe in the study group was the Binis (39.8%). Others included the Igbos (14.4%), Esans (12.9%), Yorubas (6.8%), and other minor tribes of Nigeria. No significant relationship exists between cord care practice and maternal tribe [Table 2].

Majority (73.4%) of the mothers had at most a secondary education while 26.6% had tertiary education. Only one (0.2%) mother had no formal education. The use of beneficial cord care practice increased with increasing maternal educational status. Maternal level of education is a predictor of beneficial cord care practice ($P=0.029$) [Table 2].

The socioeconomic status of the families (classified using the method of Olusanya *et al.*^[12]) had 14.5% of the families as belonging to the upper social class or elites (classes I and II), 38.6% as middle class (class III); and 46.8% families as the low socioeconomic group (classes IV and V). Nonbeneficial cord care practice was highest among the low socioeconomic group (82.4%). However, the relationship between cord care practice and socioeconomic class of the families was not statistically significant [Table 2].

Most of the mothers appear well off with 44.3% delivering in private hospitals and 34.4% in teaching hospitals. Mothers who had their babies in teaching hospitals were more likely

Table 1: Relationship between cord care practices and maternal age

Parameter	Beneficial cord care practice (%)	Nonbeneficial cord care practice (%)	P value
Mothers' age bracket (in years)			
16 – 20	1 (6.3)	15 (93.7)	
21 – 25	22 (20.2)	87 (79.8)	
26 – 30	31 (15.9)	164 (84.1)	P=0.023
31 – 35	31 (24.4)	96 (75.6)	
≥36	17 (34.0)	33 (66.0)	

Table 2: Binary logistic regression models of determinants of cord care practices using beneficial and nonbeneficial cord care practices as dependent variables

Parameters	Beneficial cord care practice (%)	Nonbeneficial cord care Practice (%)	β	<i>t</i>	OR	<i>P</i> value
Maternal LOE						
At most 2 ^o	62 (17.0)	303 (83.0)	-0.622	4.786	0.471	0.029*
Tertiary	40 (30.3)	92 (69.7)				
Socioeconomic class						
Upper and middle	61 (23.1)	20 (76.9)	0.389	1.973	1.407	0.160
Lower	41 (17.6)	192 (82.4)				
Place of delivery						
Orthodox	97 (23.2)	321 (76.8)	0.125	0.147	4.472	0.701
Nonorthodox	5 (6.3)	74 (93.7)				
Parity						
1-4	94 (20.5)	364 (79.5)	-0.033	0.147	1.001	0.753
≥ 5	8 (20.5)	31 (79.5)				
Tribe						
Bini	40 (20.2)	158 (79.8)	-0.084	0.129	0.968	0.720
Nonbini	62 (20.7)	237 (79.3)				
Infant sex						
Male	60 (25.2)	178 (74.8)	-0.559	6.132	1.724	0.013*
Female	42 (16.2)	217 (83.8)				

LOE = Level of education, OR = Odds ratio, 2^o = Secondary education

to carry out cord care practices that are considered beneficial to their babies.

Of the 497 infants whose mothers were recruited, 238 (47.9%) were males while 259 (52.1%) were females, giving a male to female (M: F) ratio of 1: 1.1. Beneficial cord care practice was more among male infants (25.2%) than the female ones (16.2%). Infant's sex is also a predictor of beneficial cord care practice ($P=0.013$) [Table 2].

Majority (71.2%) of the mothers were aware of beneficial cord care practices. However, most of them used nonbeneficial (79.5%) rather than beneficial (20.5%) methods. The number of mothers who were aware of the beneficial cord care practice and yet used other substances (76.8%) greatly out-numbered those who used methylated spirit only (23.2%); ($P=0.036$). The choice of cord care practices eventually embarked upon by the mothers (participants) was mainly influenced by other caregivers Table 3; these were mainly their attending nurses at antenatal clinic (51.3%), their mothers (32.0%), and their mothers-in-law. Nurses' influence was dominant among those who carried out beneficial cord care practice.

Using the binary logistic regression model, the role of such variables as maternal education, family socioeconomic class, place of delivery, parity, tribe, and infant's sex were assessed against beneficial and nonbeneficial cord care practices.

Of the variables, the determinants of beneficial cord care practice were maternal education and infant's sex [Table 2].

Table 3: Probable source of influences on choice of cord care

Influences on choice of cord care	Frequency (%)
Nurse	255 (51.3)
Mother	159 (32.0)
Mother-in-law	29 (5.8)
Sister	13 (2.6)
TBA	10 (2.0)
Others	31 (6.2)
Total	497 (100.0)

Discussion

Factors that influence cord care practices among mothers in Benin City include maternal age, maternal educational status, and gender of infants.

The older mothers practiced more of beneficial cord care than the younger ones. This may have stemmed from experience gathered over time from previous deliveries. Besides, the younger mothers are more likely to be influenced by other caregivers.

The use of beneficial cord care practice increased with increasing maternal education. This may perhaps underscore further the importance of female education in ideal healthcare seeking attitude. Most of the mothers delivered in private clinics and teaching hospitals suggesting that they are well off to be able to access such facilities. Though not statistically significant, more of those delivering in tertiary hospitals practiced beneficial cord stump care practices. This

may be because they are more likely to be able to afford it. In consonance with what was found by Ambe *et al.*^[8] and Joel-Medewase *et al.*^[9] where the use of harmful agents was more common among mothers of babies delivered in the traditional birth attendants' places, maternities, and private hospitals, in this study these substances were used more in infants delivered in similar settings as well as State hospitals in comparison with teaching hospitals. Mothers delivering outside orthodox health facilities are less likely to benefit from improved ANC and to such extent are more prone to nonbeneficial practices. They are also more likely to be influenced by other caregivers and stuck to tradition. Most (71.2%) mothers were aware of hygienic/beneficial cord care. The choices of cord care methods eventually practiced, particularly nonbeneficial ones, were determined mainly by influences of nurses (51.3%), participants' mothers (32.0%), and their mothers-in-law (5.8%). These are indeed important personalities in the lives of these mothers and it is therefore not surprising that they would defer to them. They could therefore be targeted in the campaign against the use of harmful substances in the treatment of the umbilical cord stumps in babies. More male infants were treated with beneficial cord care than the female infants probably because of the preference of the male child over the female one in this part of the world.^[13,14] Son preference is favoritism toward male children with concomitant disregard for daughters. This discrimination in many cases occurs before the birth of a girl child. Sons are preferred because of their rights to both family inheritance and extension of family lineage and name while a girl loses her identity with marriage.^[13,14] The effects of son preference ripple into other spheres such as parental care, nutrition, and education.^[13,14] In the traditional African homes sons would be given better food than daughters^[14] and the income made available to the mother/caregiver for a female newborn may be less than what is provided for her male counterpart.

In conclusion, several factors influence cord care practice in Benin City. There is need to emphasize female education because of its associated benefits. The current findings strongly justify the need for public enlightenment programs, using the mass media and health talks in health facilities, targeting not only women of the reproductive age group but also secondary audience like their mothers, mothers-in-law, nurses, and attendants at health facilities. Also, proper hygiene including proper hand washing techniques while caring for newborns along with vaccination (following

the nationally recommended immunization schedule for children and women of the reproductive age group) will help prevent many infections including tetanus. Should such infections occur, prompt health-seeking behavior is advised to improve outcome.

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