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Knowledge And Practices of Umbilical Cord Care Among Mothers Attending Post Natal Clinic At Kampala International University Teaching Hospital, Bushenyi District

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ABSTRACT

Globally, 2·9 million new born babies die of neonatal sepsis each year which as a result of poor cord care, in sub-Saharan Africa, it has been reported that about 3.3 million neonataldeaths occur annually of which more than 30% are caused by infections of which some of these start as umbilical cord infections and neonatal sepsis accounted for 60% of neonatal admissions atKIUTH in 2019/2020.To determine knowledge and practices on umbilical cord care among post-natal mothers at KIUTHA cross-sectional study design was used to determine the knowledge and practices on umbilical cord care among post-natal mothers Primary data was be obtained using a structured questionnaire administered in English and Runyankole languages. Data was entered into Microsoft Excel in which it was sorted, organized and checked for completeness then imported into STATAv15 for statistical analysis. Descriptive statistics were computed for each categoricalvariable. To test for associations between the categorical variables that was found to be statisticalassociated with knowledge and practices were tested in a multivariate logistic regression analysis.The level of significance was set at 5% and a p value of less than 0.05 was considered statisticallysignificant. The results were presented in tables as frequencies and /or percentages, means, adjusted odds ratios, 95% confidence intervals and p values.The study population was largely made up of middle aged mothers between 21 – 30yrs (52.98%), with majority having obtained Primary level education at 36.90% and 41.07% of peasantry background with majority of para 2-3 (63.10%). Majority of the mothers 124 (73.81%)have heard about standard umbilical cord care while 44 (26.91%) where oblivious of standard umbilical cord care. Maternal knowledge on umbilical cord care improved with increased education and better source of income (peasant, salary employment or business) (OR 2.5, 95% CI 2.1 – 2.9, p=0.04) and income source or mother's occupation (OR 1.5, 95% CI 0.5 – 2.4, P=0.04)showed significant independent association with good knowledge on postnatal umbilical code care. Mothers attending Hoima Regional Referral Hospital have optimal knowledge of umbilical cord care for new born babies, however the level is limited by lack of sufficient education about the subject. Umbilical cord care practices KIUTH are not standardized with different materials and methods of care preferred by different mothers althoughthe preferences are determined by a range of social and economic factors.

Keywords: Knowledge, Practices, Umbilical Cord Care, Mothers

INTRODUCTION

Globally, 2·9 million new born babies die of neonatal sepsis each year which as a result of poor cord care and has emerged as a principal challenge to further reductions in neonatal mortality [1]. Severe cord sepsis is one of the top three causes of neonatal death worldwide causing 13 % of all neonatal death [2]. In sub-Saharan Africa, it has been reported that about 3.3 million neonatal deaths occur annually of which more than 30% are caused by infections of which some of these start as umbilical cord infections [3].According to a study done in Zambia, optimal umbilical cord care practices for newborns during the first week of life, especially in settings with poor hygiene, has the potential to avoid these preventable neonatal deaths and that harmful traditional cord-care practices are often cited as an important public health concern [4]. [5], reported that the umbilical cord area supports

growth of some innocuous or beneficial microorganisms (commensals) whereas others are harmful for example, Clostridium tetani and therefore its necessary to properly care for the cord after birth. Sources of these bacteriainclude the mother's birth canal, the environment in which the neonate is delivered and hands of the person assisting with the delivery [6-8]. Cord infection may be localized to the umbilical cord (omphalitis) or, after entry into the blood stream, become systemic [9]. [10], reported that nearly a third of the neonatal deaths are associated with infectionsfor example omphalitis and this proportion is higher in areas and countries where nearly half of the births occur at home, such as Uganda and infections of the umbilical cord stump (omphalitis) are a significant contributor to these infections in new born babies in developing countries.In Uganda, over 50% of the mothers apply various substances to the cord of their babies to quickenthe healing and most of the mothers do not bathe their babies within the first 24 hours of birth [11].

Methodology

Study design

The study applied a across sectional descriptive study employing quantitative data collection methods.

Study area

The study was conducted at the postnatal ward of KIU-TH in Bushenyi District, Western Uganda.

Study population

The study population were mothers in postnatal ward at KIU-TH.
These mothers were considered to have best information about the subject since at that momentthey were nursing babies after delivery in real time

Sample Size Determination

The sample size was calculated using the Cochran equation (1963:75); that is

$$n_0 = \frac{Z^2 pq}{e^2}$$

Where;
n is the desired sample size,
Z - The value for Z is found in statistical tables which contain the area under the normal curve.
e.g. Z = 1.96 for 95 % level of confidencee = is the desired level of precision=5%
p is the estimated proportion of an attribute that is present in the population.
24.0% is the percentage of mothers whose children develop umbilical cord infections in Ugandain a study done at Naguru hospital [12].

q = (1-p)

q= 1-0.24 = 0.76

$$\text{Sample size, } n = \frac{(1.96)^2 \times 0.24 \times 0.76}{0.05 \times 0.05}$$

$$n = \frac{0.357504}{0.0025}$$

n= 143

Therefore, to cater for incomplete forms the sample size to be considered will be 150168 mothers were recruited for the study after their consent

Sampling Procedure

Convenience sampling method was applied for the study. This was in light of the time available for the study, therefore mothers in the postnatal ward who consented to the study were consideredat convenience until 168 mothers were realized surpassing the desired target of 150 mothers.

Inclusion criteria

All mothers nursing days old babies with umbilical cords still attached in postnatal ward at KIU- TH.

Exclusion criteria

Mothers that met the inclusion criteria but dint consent to participate in the study

Data Collection procedures

Primary data was be obtained using a structured questionnaire administered in English and Runyankole languages. A questionnaire that was developed based on the objectives of the study, and pretested at Ishaka Adventist Hospital – Teaching Hospital for quality assurance purposes andvalidation was used for data collection. From initial contact with a mother, formal introduction was conducted after exchange of greetings,purpose of the study was clearly communicated, to some in Runyankole, and mothers were clearlyinformed of their right to stop the discussion at any time they felt like. A facilitated question and answer session then followed until the full

questionnaire is filled. The process was always concluded with a formal appreciation from the Research assistant to the mother.

Data Analysis

The data collected was entered into Microsoft Excel in which it was sorted, organized and checkedfor completeness then imported into STATAv15 for statistical analysis. Descriptive statistics werecomputed for each categorical variable. To test for associations between the categorical variablesthat was found to be statistical associated with knowledge and practices were tested in a multivariate logistic regression analysis. The level of significance was set at 5% and a p value of less than 0.05 was considered statistically significant. The results were presented in tables as frequencies and /or percentages, means, adjusted odds ratios, 95% confidence intervals and p values.

Ethical considerations

Permission was sought from the university and KIU-TH authorities to collect data required for thestudy. A written consent form explaining the rationale for the study, benefits, and rights of respondents and confidentiality to protect the respondents was presented to the respondents for them to provide consent before participation in the study.

RESULTS

The median age of the 168 mothers interviewed was 24 yrs (range 17 to 45 years). 102 (60.71 %)were married, 49 (29.17%) single and 17 (10.12%) divorced or separated. Median maternal paritywas 2 (range 1 -7). 21 (12.50%) of the mothers where illiterate, of those who had received an education; 62 (36.90%) had a primary education, 48 (28.57%) secondary and 37 (22.03%) tertiary qualification. Majority of the mothers in the study were peasants 69 (41.07%), while 41(24.40%) had salaries or formal employment and 58 (34.53%) sourced their livelihood through trade and business as shown in Table 1.

Table 1: Demographics of the mothers studied

Characteristic (N=168)	Categories	Frequency(n)	Percentage (%)
Age of caregivers (yrs)	<20	13	7.74
	21 – 30	89	52.98
	31- 40	66	45.28
	>40		
Caregivers' education level	None	21	12.50
	Primary	62	36.90
	Secondary	48	28.57
	Tertiary	37	22.03
Occupation of caregivers	Peasant	69	41.07
	Salaried / Employed	41	24.40
	Business / Trader	58	34.53
Religion of caregivers	Catholic	69	41.07
	Protestant	57	33.93
	Moslem	07	4.17
	Pentecostal	35	20.83
Mothers' Marital status	Single	49	29.17
	Married	102	60.71
	Divorced / Separated	17	10.12
Occupation of caregiver's spouse	Peasant	51	30.36
	Salaried/ Formally employed	28	16.67
	Business / Trader	73	43.45
	Other	16	9.52
Type of family	Monogamous	141	83.93
	Polygamous	27	16.07
Attended Antenatal care in the last pregnancy	Yes	168	100.0
	No	0	0
Parity	Para 1	49	29.17
	Para 2-3	106	63.10
	≥4	13	7.73

Majority of the mothers 124 (73.81%) have heard about standard umbilical cord care while 44 (26.91%) where oblivious of standard umbilical cord care, whereas only 21 (12.50%) have had a health education about the subject with majority 147 (87.5%) having never had such an education.Majority of the mothers 109 (64.88%) considered Tying, cutting, and cleaning the cord with methylated spirit as the standard procedure of cord care while 38 (22.62%) considered use of herbsonly and 11 (6.55%) allowed the cord to dry on its own. Methylated spirit is known by mothers asthe most appropriate substance for cord cleaning 117 (69.64%) while 23 (13.69%) knew salt solution as the most appropriate substance and 22 (13.10%) picked herbal preparation with a fraction of 06 (3.57%) knowing hot water as the appropriate as shown in Table 2.

Table 2: Showing Knowledge of cord care among the mothers interviewed for the study

Characteristic (N=168)	Categories	Frequency (n)	Percentage (%)
Have you ever heard about standardumbilical cord care?	Yes -	124	73.81
	No -	44	26.91
Ever attended any health educationon cord care	Yes -	21	12.50
	No -	147	87.5
What are the standard of componentsof standard cord care	Use of herbs on cord only -	38	22.62
	Keep baby away to visitors-	03	1.79
	Tying, cutting, and cleaning with methylated spirit -	109	64.88
	Allow cord to dry on its own -	11	6.55
	Others -	07	4.16
What substances are used for cordcare	Salt solution -	23	13.69
	Methylated spirit -	117	69.64
	Hot water -	06	3.57
	Herbal preparation -	22	13.10
	Do not know -		
	Others -		
What are the benefits of cord care	Quick cord separation -	53	31.55
	To prevent infection -	115	68.45
	To prevent abdominal pain -		
Level of Score of the Level of knowledge of care	Good -	126	75.0
	Poor -	42	25.0

88.10% of the mothers at KIU-TH use Cord clamp to the tie the umbilical cord after delivery while11.90% of them have used a string of cloth. Majority of the mothers 69.66% of them used methylated spirit for cord cleaning while herbal preparations where preferred by 18.45% of the mothers as 10.7% and 1.19% used salt solution and hot water respectively. Cord stump cleaning was the most practiced method by mothers at 51.19% while 24.40% cleaned the cord base beforestump as 12.50% cleaned the material used to tie the cord and 11.91% cleaned surrounding skin only.

Table 3: Showing practices of cord care among mothers interviewed

Characteristic (N=168)	Categories	Frequency(n)	Percentage (%)
Material used in tying cordafter delivery	Cord clamp	148	88.10
	String of cloth	20	11.90
	Tailor's thread	0	0
Substance (s) used for cordcleaning	Salt solution	18	10.7
	Hot water	02	1.19
	Herbal preparation	31	18.45
	Methylated spirit	117	69.66
Care of the hands during cord care	Wash hands with water	28	16.67
	Wash hands with soap and water	130	77.38
	Clean hands on cloth/wrapper	03	1.79
	Clean hands with clean handkerchief	07	4.16
Method of cord cleaning	Clean cord base before stump	41	24.40
	Clean cord stump only	86	51.19
	Clean the material used to tie the cord	21	12.50
	Clean surrounding skin only	20	11.91
Frequency of cord cleaning	Morning, afternoon, evening	94	68.11
	Once daily	0	0
	After each nappy is changed	07	4.17
	Several times a day	67	27.72
Level of practice	Good	91	54.17
	Poor	77	45.83

Table 4: Relationship between maternal knowledge on postnatal cord care with education andincome source

Characteristic	Good knowledge (%)	Poor knowledge (%)	P - value
Mother's education			
None	31.7	68.3	<0.001
Primary	50.1	49.9	
Secondary	53.8	46.2	
Tertiary	55.3	44.7	
Parity			
Para 1	39.3	60.7	0.02
Para 2-3	35.6	64.4	
≥4	35.9	64.1	
Age of mother			
<20	49.3	50.7	0.01
21 - 30	63.1	36.9	
31- 40	73.8	26.2	

DISCUSSION

This study presents a view of cord-care knowledge and practices of mothers attending KIU-TH. The desire to care for the umbilical cord of an infant appears to be universal in all cultures. Of interest was the description of the knowledge and a range of practices applied to the newly cut cord and the substances applied to the umbilical cord to infants born at the facility. The study population was largely made up of middle-aged mothers between 21 – 30yrs (52.98%),with majority having obtained Primary level education at 36.90% and 41.07% of peasantry background with majority of para 2-3 (63.10%). This demographic outlook is similar to that observed by [13]. Majority of the mothers 124 (73.81%) have heard about standard umbilical cord care while 44 (26.91%) where oblivious of standard umbilical cord care, whereas only 21 (12.50%) have had a health education about the subject with majority 147 (87.5%) having never had such an education.Majority of the mothers 109 (64.88%) considered Tying, cutting, and cleaning the cord with methylated spirit as the standard procedure of cord care while 38 (22.62%) considered use of herbsonly and 11 (6.55%) allowed the cord to dry on its own. Methylated spirit is known by mothers asthe most appropriate substance for cord cleaning 117 (69.64%) while 23 (13.69%) knew salt solution as the most appropriate substance and 22 (13.10%) picked herbal preparation with a fraction of 06 (3.57%) knowing hot water as the appropriate. The study observes a disconnect where most mothers have heard about standard umbilical cord care albeit with a low education level about the same subject of only 12.5%. This observation is similar that of [14]. in a systemic review of cord care knowledge in low-income countries. The study also observes majority of mothers knowing methylated spirit as the most appropriate substance of cord care cleaning, however with majority (41.07%) being of a peasant background. Therein is a challenge of cost versus need to use disparity as also observed by [15] in a similar study of a rural Uganda setting. Mothers at KIU-TH applied a range of practices caring for the umbilical cord of their babies, with88.10% of them use Cord clamp to the tie the umbilical cord after delivery while 11.90% of themhave used a string of cloth, a 69.66% majority of them used methylated spirit for cord cleaning while herbal preparations were preferred by 18.45% of the mothers as 10.7% and 1.19% used saltsolution and hot water respectively. Cord stump cleaning was the most practiced method by mothers at 51.19% while 24.40% cleaned the cord base before stump as 12.50% cleaned the material used to tie the cord and 11.91% cleaned surrounding skin only. Similar findings have been previously reported in other settings among adolescent mothers and among women of the generalreproductive age group in Uganda by [16-20]. The study has been able to observe that maternal knowledge on umbilical cord care improved withincreased education and better source of income (peasant, salary employment or business). After logistic regression analysis, maternal education (OR 2.5, 95% CI 2.1 – 2.9, p=0.04) and income source or mother's occupation (OR 1.5, 95% CI 0.5 – 2.4, P=0.04) showed significant independent association with good knowledge on postnatal umbilical code care. Maternal knowledge of cord care improved with increasing age of the mother and the number of times she has given birth (parity). After logistic regression, all the 3 variables maintainedindependent significant association with maternal knowledge of cord care (maternal education level OR 1.7, 95% CI 1.4 – 3.2, p<0.001; parity OR 1.5, 95% CI 0.3 – 3.3, p=0.02; Age OR 1.3, 95% CI 1.2 – 3.1, p=0.01). The study was able to also show that maternal application of good care practices improved with age and number of times a mother gave birth. Logistic analysis shows that all the three variables remained independently significant associated with appropriate cord care (maternal education level OR 1.5, 95% CI 1.2 – 2.8, p<0.001; parity OR 1.2, 95% CI 0.1 – 2.8, p=<0.001; Age OR 1.4, 5% CI 1.1 – 2.6, p=<0.001).

CONCLUSION

Findings from this study have been able to reveal that mothers attending KIU-TH have optimal knowledge of umbilical cord care for new born babies, however the level is limited by lack of sufficient education about the subject. The study has also established that Umbilical cord care practices by mothers at KIU-TH are not standardized with different materials and methods of care preferred by different mothers althoughthe preferences are determined by a range of social and economic factors.

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