Mothers' knowledge on essential newborn care at Juba Teaching Hospital, South Sudan

Lucy A Meseka[a], Lucy W Mungai[b] and Rachael Musoke[c]

a Department of Paediatrics and Child Health University of Nairobi

b Senior lecturer/Paediatric Endocrinologist, Department of Paediatrics and Child Health, University of Nairobi.

c Professor, Department of Paediatrics and Child Health, University of Nairobi.

Correspondence: Lucy Meseka cobiemeseka82@gmail.com

Introduction: Globally neonatal mortality remains high and in South Sudan is estimated at 52/1000 live births.

Objective: To identify the gaps in the knowledge and practices of essential newborn care among postnatal mothers at Juba Teaching Hospital and to determine the socio-demographic factors that influenced these.

Methodology: A hospital-based cross-sectional study among 384 postnatal mothers using consecutive sampling, a pretested questionnaire to assess knowledge and a three point Likert scale to find out to which practices mothers did, or did not, agree.

Results: 45% of mothers were aged between 25-34 years; 23.9% had some secondary school education; 70% were multiparous and 82% had attended an antenatal care clinic. 90% knew about breastfeeding on demand and 74% about exclusive breastfeeding. Only 18.2% of mothers knew the cord should be cared for while uncovered; 90% used warm clothing and 33% kangaroo care for thermoregulation. Only 20.8% identified BCG and OPV as birth vaccines; 3.4% believed vaccines were harmful. Hypothermia was the danger sign least frequently identified by the mothers (41.4%).

Conclusion: Adequate knowledge was found regarding breastfeeding with knowledge gaps existing in cord care, immunization, eye care and thermoregulation. Positive practice was found concerning breastfeeding, cord care, eye care and immunization. Socio-demographic factors were not found to be associated with maternal knowledge on newborn care.

Key Words: Essential newborn care, Immunization, South Sudan

Introduction

It is estimated that globally neonatal mortality contributes to 45% of under-five deaths [1], the leading cause being prematurity. Up to two thirds of these deaths could be prevented by practising effective measures at birth and during the first week of life. Most deaths occur in the first 24 hours of life [2]. In South Sudan the neonatal mortality was estimated at 52/1000 live births in 2010 [3] and 39/1000 live births in 2013 [4].

'Essential newborn care' is a set of recommendations from World Health Organization (WHO) [5] designed to improve the health of the newborns through interventions pre-conception, during pregnancy, and postnatally. It includes thermoregulation, clean delivery and cord care, initiation of breastfeeding, immunization, eye care, recognition of danger signs, care of the preterm / low birth weight infant and management of newborn illnesses.

This study aimed to identify the gaps in the knowledge and practices towards essential newborn care among postnatal mothers at Juba Teaching Hospital and to determine the associated socio-demographic factors.

Methodology

A cross-sectional descriptive study was conducted from November 1st to December 15th 2015 among postnatal mothers with term neonates admitted in the postnatal wards at Juba Teaching Hospital.

Consecutive sampling was used to select 384 informed and consenting mothers from the medical records. Information on mothers' socio-demographic status, antenatal and birth history and knowledge of WHO essential newborn care practices was collected on a pretested questionnaire and assessed on a three-point Likert scale (agree, neutral and disagree).

Statistical testing was done using Chi square tests to compare dependent and explanatory variables related to responses to practices.

Data were analysed using STATA version 12.0 software. Scoring systems was used to analyse maternal knowledge. The level of knowledge was cross tabulated against the maternal variables. The variables that were significantly associated with poor knowledge at bivariate analysis were analysed further using multivariate logistic regression to determine the independent factors associated with poor knowledge.

Kenyatta National Hospital, University of Nairobi

Table 1. Maternal Socio-Demographic characteristics

Variables	Frequency (n)	Percent (%)
Maternal age - years		
18-16	25	6.5
25-19	134	35
34-25		45.2
45-35	51	13.3
Marital status		
Married	255	66.4
Unmarried	129	33.6
Mother's occupation		
Employed	157	40.9
Unemployed	227	59.1
Mother's education		
No formal education	62	16.2
Some primary education	68	17.7
Complete primary education	54	14.1
Some secondary education	92	23.9
Complete secondary education	63	16.4
Tertiary	45	11.7
Mother's religious beliefs		
Christian	333	86.7
Islam	51	13.3

Ethics and Research Committee and the Directorate of Research and Planning, Ministry of Health, Republic of South Sudan gave ethical approval.

Consent forms were signed by all mothers, after an explanation of the study and the voluntary nature of participation. Confidentiality was guaranteed.

Results

Maternal socio-demographic characteristics

The mean age of the mothers was 26.2 years (SD± 6.3) and of the fathers 32.7 years (range 20 – 60 years SD ±6.9). The mothers' marital, educational and employment status, and religious beliefs are shown on Table 1.

Education on newborn care

82% of the mothers had attended an antenatal care (ANC) clinic. The median gestational age at first ANC visit was 3 months. Education on newborn care was provided (mostly by nurses and midwives) to 63.5% of mothers during the antenatal period and to 55% in the postnatal period. Table 2 shows the variation in education on different topics of newborn care given in the ante- and post-natal periods.

Table 2. Education on newborn care

Variable	During pregnancy n (%)	After delivery n (%)
Education on newborn care		
Yes	244 (63.5%)	210 (55%)
No	140 (36.5%)	174 (45%)
Information provided by:		
Doctor	12 (5 %)	20 (10%)
Nurse/midwives	232 (95%)	156 (74%)
Family/friends	0 (0.0%)	34 (16%)
Essential newborn care information received:		
Cord care	232 (60.4 %)	207 (53.9%)
Thermoregulation	180 (46.9%)	193 (50.3%)
Breastfeeding	235 (61.2%)	209 (54.4%)
Immunization	210 (54.7%)	205 (53.1%)
Eye care	165 (42.9%)	193 (50.3%)
Signs of serious illness in newborn	219 (57%)	199 (51.8%)

Knowledge on essential newborn care - see Table 3.

Only 18.2% of mothers correctly answered that the umbilical stump should be uncovered; 37.8% said (incorrectly) that substances could be applied to the umbilical stump after cleaning. Of these 43% said powder, 14.4% ashes, 2.8% oil and 2.8% alcohol. The modes of thermoregulation identified by the mothers were the use of warm clothing and rooming-in (90.4% and 85.2% respectively).

The majority of mothers knew that babies should be given colostrum; feed on-demand; breastfed exclusively for 6 months, and not given prelacteal feeds. Mothers' knowledge of signs of eye infection were eye discharge 97.4%, red eyes 66.9% and swollen eyes 36.7%. Almost all mothers (94.3%) recognised fever as a sign of serious illness but only 41.1% recognised hypothermia as a sign.

Practices on essential newborn care

Table 4 shows the proportion of mothers agreeing or disagreeing to various statements about practices of essential newborn care.

Factors associated with maternal knowledge on essential newborn care

A multivariable logistic regression model was used to examine the null hypothesis of no association between

Table 3. Mothers' answers to closed questions on newborn cord care cleanliness and thermoregulation

Cord care and cleanliness	Frequency (n)	Percent (%)
Umbilicus stump should be:		
-Covered	295	76.8
-Uncovered	70	18.2
-Don't know	14	3.6
Soiled umbilicus stump should be:		
-Clean with water	289	75.3
-Clean with saliva	0	0
-Apply alcohol or spirit	95	24.7
The cord should be left clean and dry without applying substance:		
-Yes	208	54.1
-No	145	37.8
-Don't know	31	8.1
Baby is kept warm after delivery by:		
-Skin to skin contact	128	33.3
-Wrapping baby in a cloth	347	90.4
Duration between birth and first bath:		
-Hours	169	44.1
-Days	188	49.1
-Don't know	26	6.8
Baby should be nursed in the same room as mother		
-Yes	327	85.2
-No	28	7.3
-Don't know	29	7.6

Table 4. Mothers' responses to recommended practices for essential newborn care

	Agree	Neutral	Disagree
	n (%)	n (%)	n (%)
Cleanliness and cord care			
A previously used razor blade can be washed and used to cut the cord	50(13.1)	7(1.8)	326(85.1)
A dirty umbilical cord can cause infection in your baby	316(82.3)	57(14.8)	11(2.9)
Thermoregulation			
Babies can be covered with clothes to prevent heat loss	373(97.1)	3(0.8)	8(2.1)
Mother-baby skin-to-skin contact prevents the baby from getting cold	218(56.8)	140(36.5)	26(6.8)
The baby can be bathed within the first day of life	159(41.4)	50(13.0)	175(45.6)
Breastfeeding			
The baby should be breastfed at night	349(91.1)	4(1.0)	30(7.8)
Mixed feeds should not be practiced	320(83.3)	24(6.3)	40(10.4)
Eye care			
Substances (apart from those prescribed by doctor) can be applied to infected eye	77(20.1)	34(8.9)	273(71.1)

various maternal characteristics (Table 5). Maternal knowledge was significantly associated with information received from a provider during ANC ($p = 0.036$) and post-delivery ($p < 0.001$). Mothers who received information during ANC were significantly more likely to have adequate knowledge compared to those who reported to not having information from a health care provider $p = 0.034$.

Discussion

To reduce neonatal morbidity and mortality mothers needed to be equipped with correct knowledge on essential newborn care practices. The essential newborn care components studied were cord care, thermoregulation, breastfeeding immunization, eye care and signs of serious illness in newborn. Our study revealed that majority of the mothers had inadequate knowledge on cord care, which were inconsistent with the study in Kenyatta National Hospital which found that the mothers had adequate knowledge on cord care [6]. The variation in the views among mothers was likely due to lack of consensus among health care providers on the best practices of cord care.

Breastfeeding knowledge among mothers was encouraging with most mothers aware of breastfeeding on demand (90.1%), use of colostrum (83%) and exclusive breastfeeding (74%). These findings suggest great emphasis by health care providers on breastfeeding during antenatal care. All pregnant women should attend ANC at the earliest time possible.

Awareness among mothers of the need for vaccine at birth and its benefits was high (91.7%), which is pushed aggressively through the expanded programme on immunization (EPI) in the country. Mothers were less aware of kangaroo (skin to skin contact) as a method of thermoregulation for the newborns and this was due to inadequate dissemination of information on thermoregulation by the health care providers during both antenatal and postnatal periods. The study also found that more than half of the mothers had poor knowledge of practices of cord care; this finding was consistent with Monebenimp et al in Cameroon who also reported that more than half of the mothers had negative practices towards cord care [7].

Our study found that mothers' knowledge of good practices towards breastfeeding were different from those of Rehana et al who found 73% of Pakistani mothers had given prelacteal feeds and exclusive breastfeeding rate was 26% [8].

Table 5. Multivariable logistic regression of factors associated with maternal knowledge on essential newborn care.

	Odds Ratio	P Value	95% CI	
Employment status				
Employed	1.0 (ref)			
Unemployed	0.62	0.064	0.37	1.03
Parity				
Primigravid				
Multiparous	2.13	0.013	1.17	3.86
Number of ANC visits				
< 4 visits				
4 or more visits	3.76	0.347	0.24	59.53
Attendance of ANC				
Yes	1.0 (ref)			
No	2.06	0.589	0.15	28.62
Provided information during ANC				
Yes				
No	2.55	0.009	1.26	5.17
Receive information after delivery				
Yes				
No	3.13	<0.001	1.83	5.33

Conclusions

1. Postnatal mothers were most knowledgeable about breastfeeding and signs of serious illness and least knowledgeable about cord care, eye care, thermoregulation and immunization.
2. Postnatal mothers had a positive knowledge of the good practices towards cord care, breastfeeding, eye care, immunization with negative practice towards thermoregulation.
3. Socio-demographic factors were not associated with inadequate maternal knowledge.

Recommendations

1. Essential newborn care information should be provided to mothers during both the antenatal and postnatal periods.
2. More maternal education is needed during antenatal care on cord care, eye care, thermoregulation and immunization.
3. More health awareness campaigns on essential newborn care are required for the mothers to improve maternal knowledge and practice.

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