Original article

Mothers' Knowledge and Practice on Essential Newborn Care at Health Facilities in Garoua City, Cameroon.

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ABSTRACT

Introduction: The burden of neonatal death is still high in developing countries where most of the causes could be prevented.

Objective: To determine the knowledge and practice of mothers on essential newborn care.

Patients and Methods: This was a cross sectional study carried out in four health facilities in Garoua city, Northern Cameroon, from November 2010 to April 2011. Three hundred and forty seven mothers were interviewed using a standard questionnaire. Sociodemographic data were collected and information was gathered on cord care, thermal care, breastfeeding and vaccines, The main outcome was good practices of essential neonatal care.

Results: The mean age of mothers was 25.14 ± 5.70 years. Analphabetism counted for 152 (43.8%). The antenatal history revealed that 211 (60.8%) mothers had at least four ANC. The mean age of their newborns was 14.71 ± 6.40 days. The use of sterile material for cutting umbilical cord was reported by 307 (88.5%) mothers and 5 (1.4%) said they received information on newborn's danger signs. Traditional substances was applied on the cord by 188 (54.2) mothers while eye care without any eye disease was continued for 2 to 7 days by 194 (85.4%) mothers. Six hours delayed first bath was given by 244 (70.3%) mothers and breastfeeding within one hour by 154 (44.3%). BCG and oral Polio vaccine was received by 315 (90.8%) and 316 (91%) newborns respectively. Insecticide-treated bed nets were used by 226 (65.1%) mothers.

Conclusion: This study revealed that mothers were not knowledgeable on danger signs and they had poor practice on breastfeeding, eye care and cord care. The quality of ANC should be enhanced and tutoring of mothers on the practice of essential newborn care at immediate postpartum is necessary.

Key words: Knowledge and Practice, Mothers, Essential Newborn Care, Health facilities.

RÉSUME

Introduction **:** Le fardeau des décès néonataux reste élevé dans les pays en développement où la plupart des causes peuvent être prévenues.

Objectif : Déterminer les connaissances et pratiques des mères sur les soins essentiels du nouveau-né.

Patients et méthodes : Cette étude transversale a été réalisée à Garoua au Cameroun, de Novembre 2010 à Avril 2011. Un questionnaire standardisé a été répondu par 347 mères. Les données sociodémographiques avaient été collectées, ainsi que des informations sur les soins du cordon, les soins de contrôle thermique, l'allaitement et la vaccination. Le critère de jugement était les bonnes pratiques de soins essentiels du nouveau-né.

Résultats : L'âge moyen des mères était de 25.14 ± 5,70 ans. L'analphabétisme comptait pour 152 (43,8%). L'histoire prénatale révélait que 211 (60,8%) avaient eu au moins quatre CPN. L'âge des nouveau-nés était de 14,71 ± 6,40 jours. L'usage de matériel stérile pour la section du cordon et les signes de danger étaient connus par 307 (88,5%) et 5 (1,4%) mères respectivement. L'application de substances traditionnelles sur le cordon était faite par 188 (54,2%) mères, tandis que 194 (85,4%) ont instillé des collyres durant 2 à 7 jours en dépit de la maladie oculaire. Le délai de six heures pour le premier bain était respecté par 244 (70,3%) mères alors que la mise au sein dans la première heure l'était chez 154 (44,3%). Les vaccins BCG et Polio oral étaient reçus par 315 (90,8%) et 316 (91%) nouveau-nés respectivement. La moustiquaire imprégnée d'insecticide était utilisée par 226 (65,1%) mères.

Conclusion : Cette étude a montré que les mères ne connaissaient pas les signes de danger et avaient une mauvaise pratique de l'allaitement, des soins oculaires et du cordon. La qualité des CPN devrait être renforcée et l'accompagnement des mères en postpartum immédiat est nécessaire.

Mots clés: connaissances et pratiques, mères, soins essentiels du nouveau-né, formations sanitaires.

INTRODUCTION

Despite the progress made worldwide in newborn survival, the speed is low in developing countries where the burden of neonatal death accounted for 99% of all deaths [1]. About 50% of the newborns die in their first day of life and 75% by seven days [2]. Many of the causes of death could be prevented. In Cameroon Even though the rate of antenatal consultations (ANC) and the rate of women giving birth in health facilities have increased in the last decade respectively 83% and 64% [3], there is a growing concern about the quality of care provided. In 2009, a study conducted in a health facility in the city capital of the country showed that 80% of health

care providers had no training in World Health Organization essential newborn care (WHO ENC) that is a corner stone of newborn survival [4]. It was also reported that only 30% of health care providers in the 52 health districts were trained in Integrated Management of Childhood Illness program at community [5]. As such, we designed this study with the aim of determining the knowledge and practice of mothers in WHO ENC so as to build a comprehensive approach for intervention to reducing neonatal morbidity and mortality.

MATERIAL AND METHODS

Study setting

The study was carried out in four health facilities at the periphery of Garoua town in the North Region of Cameroon. These facilities were chosen because of their activities on antenatal consultations, deliveries and postnatal care. The total health care providers were 76 as displayed in table 1. The group I health facilities that comprised Djambouto and Laïde medical centers was made up of three general practionners and two specialized nurses in reproductive health. Souari and Kollere health centers forming the group II health facilities had none of these qualified health care providers. Usually mothers consulting these health facilities are followed up till delivery. The National Program on Reproductive Health include in its recommendations malaria prophylaxis with sulfadoxin pyrimethamin tablets, tetanus vaccine and insecticide impregnated bed net that are all given free of charge to each mother consulting at a health facility [6]. Further, the usual practice is that mother should report for delivery with a delivery kit including eye drops, alcohol and vitamin K that will be used for newborn care. The neonate is dried up, weighed and wrapped. He or she receives within one hour of birth eye drops, vitamin K injection and breastfeeding is initiated. Except for those newborns exposed to HIV, the first bath is delayed for at least six hours.

Table I. Qualification of health care providers and distribution of mothers' recruited at the health facilities in Garoua-Cameroon, November 2010 to April 2011.

Parameter	Groupe I health facilities		Group II health facilities	
	Djambouto MC n* = 27	Laïde MC n* = 16	Souari HC n* = 22	Kollere HC n* = 11
Total number of health care providers n = 76				
General practionner	2	1	0	0
Registered nurse	1	8	2	3
Registered nurse specialized in reproductive health	0	2	0	0
Auxiliary nurse specialized in delivery	5	0	2	0
Auxiliary nurse	19	5	18	8
Total number of mothers n = 347				
Number of mothers recruited	88 (25.4)	47 (13.5)	152 (43.8)	60 (17.3)

n*= number of health care providers in each health facility ; MC: Medical Center; HC: Health Center

Methods

The design was a prospective cross sectional study that enrolled mothers at outpatient postpartum clinic and vaccination unit from November 2010 to April 2011. An ethical clearance was obtained from the National Ethical Board. After an informed consent, each mother had an interview conducted by a trained nurse to fill up a questionnaire build for the purpose. Data comprised socio demographic characteristics, history of delivery, knowledge and practice of mothers on essential newborn care. Knowledge was assessed by mothers' reporting of the use of sterile material for cutting umbilical cord, recognition of the application of eye drops instillation and injection of vitamin K. They had to report also if they received at anytime during the course of pregnancy or after delivery, information on any newborn's danger sign namely poor sucking, lethargy or inactivity, fever or hypothermia, respiratory distress, convulsions, vomiting, abdominal distension, umbilical infection [7]. Practice was based on six items referring to mothers' acting on newborn handling on cord care; eye drops instillation, breastfeeding practice, and initiation of the first bath, child immunization and fight against malaria by the use of insecticide treated bednet. Good practice for umbilical cord care was defined as no bandage and no substance on cord except antiseptics. Good practice for breastfeeding was initiation within one hour and exclusive breastfeeding. Good practice for eye care was instillation of eye drops once only at birth unless there is any eye disease. Good practice for vaccine was administration of BCG and oral Polio vaccines to the newborn within one week after delivery. Good practice for fight against malaria was the use of impregnated bed net for mother and child. The prevalence in Cameroon of exclusive breastfeeding of 22% [3] was used to calculate the sample size. With an error of 5% and assuming that 7% of mothers will refuse to participate to the study, we got a sample

size of 341. Data were analyzed using Epi Info software version 3.5.1. The total population was divided in two groups for comparison in relation with the quality of skilled personnel. Good practice for any essential newborn care by the mother was given a score of 1 and 0 for none good practice. A total score of 4 to 6 was considered as good performance for mothers. A total score less than 3 and 3 to 4 were considered respectively as poor and moderate performance. Chi square test was performed to compare proportions. The significant statistical difference was set at a p value < 0.05.

RESULTS

Study setting and general characteristics of the mothers

During the study period, 347 mothers were recruited in four health facilities at the periphery of Garoua town.

Table 1 showed that Souari health center had more women 152 (43.8%) recruited. The group II health facilty comprising Souari and Kollere health center had 212 (61.1%) of the total of women. The mean age of the mothers was 25.14 ± 5.70 years and the age range of 20-29 years represented 223 (64.3%) of the study population as displayed in table 2. Analphabetism 152 (43.8%) was mostly found and most of the women were housewives 276 (79.5%). Looking at their antenatal history, 239 (68.9%) were multiparus and 211 (60.8%) had at least four ANC. All the mothers had a lived newborn. The mean age of their newborns at time of interview was 14.71 ± 6.40 days.

Table IIa. Sociodemographic characteristics of mothers.

Parameter	Frequency n=347	Percentage %
Socio demographic characteristics		
Age (in years)		
< 19	51	14.7
20-35	223	64.3
>35	73	21
Married marital status	314	90.5
Level of education		
Analphabet	152	43.8
Primary	70	20.2
College	103	29.7
Higher education	22	6.3
Mothers' activity		
Housewife	276	79.5
Student	26	7.5
Working outside	45	13

Table IIb. Mothers' obstetrical history.

Obstetrical history		
Parity		
Primiparous	108	31.1
Multiparus	239	68.9
Antenatal consultations		
< 4	136	39.2
≥4	211	60.8
Negative HIV serology	309	89
Place of delivery		
Home	59	17
Health facility	288	83
Route of delivery		
Vagina	344	99.1
Caesarean section	3	0.9

Knowledge of the mothers about newborn care

As far as knowledge was concerned, the use of sterile material for cutting newborn umbilical cord was reported by 307 (88.5%) mothers while instillation of eye drops was for 227 (65.4%). Forty four (12.7%) mothers talked about vitamin K injection and 5 (1.4%) reported receiving information on newborn's danger signs during ANC.

Table III. Mothers' knowledge towards care of newborn.

Parameter	Frequency n=347	Percentage %
Recognition of use of sterile material for umbilical cord cutting	307	88.5
Recognition of Vitamin K administration for bleeding prevention	44	12.7
Recognition of eye drops instillation for prevention of conjunctivitis	227	65,4
Recognition of having information on newborn danger signs during ANC	5	1.4

Practice of the mothers on newborn care

Mothers' practice illustrated in table 3 showed the selected care carried out in the two groups of health facilities.

Cord Care: Cord bandage was practiced by 295 (85%) mothers, 116 (86.6%) mothers in group I and 179 (84.4%) in group II (p=0.29). The application of traditional substances on the umbilical cord was for 188 (54.2) mothers, 69 (51.1) in the group I and 119 (56.1) in the group II (p=0.18).

Thermal care: The first bath was given at least 6 hours after birth by 244/347 (70.3%) mothers, 90 (66.7%) in group I and 154 (72.6) in group II (p=0.11).

Eye care: Instillation of eye drops was carried up for 227 (65.4%) newborns. This care continued without

any eye disease for 2 to 7 days by 194 (85.4%) of mothers. Twenty four (10.5%) mothers applied drops for 15 days.

Breastfeeding within one hour was carried out by 154 (44.3%) mothers. The group I and the group II counted respectively 70 (51.9%) and 84 (39.8%) mothers (p=0.01). Exclusive breastfeeding was practiced by 58 /347 (16.7%) mothers.

As far as vaccination was concerned, BCG and oral Polio vaccine was respectively conducted for 315 (90.8%) and 316 (91%) newborns respectively. The group I and the group II had respectively for BCG antigen 109 (82%) and 206 (97.2%) newborns (p<0.001), for oral Polio vaccine 110 (82.7) newborns in the group I and 206 (97.2) in the group II (p<0.001.

The use of insecticide-treated bednet for malaria prophylaxis was reported by 226 (65.1%) mothers, 98 (72.6) in group I and 128 (60.4) in group II (p<0.001). The performance of mothers was displayed in table 4. By scoring all the good practices for a total of 6, 5 and 4 items, the values were respectively 3 (0.9%), 2 (0.6%) and 20 (5.8%).

Good performance counted for 5 (1.5%), moderate performance for 90 (26%) and poor performance for 252 (72.5%) mothers.

Table IV. Mothers' practice on essential newborn care at the two groups of health facilities.

Type of care	Group I HF n (%):135 (38.9)	Group II HF n (%):212 (61.1)	P
Cord Care			
Cord bandage (n=295)	116 (86.6)	179 (84.4)	0.29
Application of antiseptics (n=122)	51 (37.8)	71 (33.5)	0.20
Application of traditional substance (n=188)	69 (51.1)	119 (56.1)	0.18
No substance application (n=37)	15 (11.1)	22 (10.4)	0.41
Fight against hypothermia			
First bath ≥ 6 hours after birth (n=244)	90 (66.7)	154 (72.6)	0.11
Eye care			
Eye drops instillation (n= 227)	97 (42.7)	130 (57.3)	
Only once at birth (n=8)	5 (5.2)	3 (2.3)	0.14
Breastfeeding			
Mother-baby in same bed (n=336)	130 (96.3)	206 (97.2)	0.32
Breastfeeding within one hour (n=154)	70 (51.9)	84 (39.8)	0.01
Exclusive breastfeeding (n=58)	21 (15.6)	37 (17.5)	0.32
Immunization			
BCG vaccine (n=315)	109 (82)	206 (97.2)	< 0.001
Oral Polio vaccine (n=316)	110 (82.7)	206 (97.2)	< 0.001
Fight against malaria			
Use of mosquito bed net (n=226)	98 (72.6)	128 (60.4)	< 0.001

HF: Health Facilities.

DISCUSSION

The findings derived from the study in the peripheral health care facilities in Garoua town show that mothers' practice on essential newborn care was poor and the qualification of the health care providers on reproductive health did not make much difference in the two groups of health facilities.

Knowledge of the mothers on ENC

The use of sterile material for umbilical cord cutting was reported by 88.5% of mothers but we cannot assure that these mothers had the true knowledge of the use of sterile material for cord cutting because the question asked introduced a suggestion to the right reporting. There was not much difference from the rate of 86.6% found in Bangladesh on 6150 respondents [8]. Mothers also reported the application of drops for eye care what was done for cleaning of the eye was asked for As in India, where 32.6% of newborns did not have at all their eyes cleaned. [9]. Mothers poorly reported vitamin K administration. They would have been more likely to report on this as it was given by injection and it was painful for newborn. Vitamin K deficiency bleeding is a rare phenomenon with an incidence as low as 0.25% [10] so, complications as eye or umbilical cord redness or discharge are more common as such, mothers that were multiparus in majority could have experienced and memorized these. Their awareness to fight against such complications should have been enhanced so as to explain why without any newborn's eye disease, they administered eye drops for more than a week. Only 1.4% mothers reported having information on neonatal danger signs during antenatal consultations. This might be due to lack of recall. We did not look at neonatal morbidity and mortality as in Malagasy where authors showed that lack of knowledge on eventual complications and danger signs were linked to neonates' perinatal mortality [11].

Practices of mothers on ENC

Cord Care*:* Malpractice that consisted in application of traditional substances on cord could be explained not only because delivery was conducted by traditional birth attendants that were not trained in WHO ENC but also because of cultural beliefs as reported by 77% of mothers in India [12]. A variety of substances were applied on the cord such as oil, salt, tooth paste, baby powder, breast milk as reported in others setting where in addition ashes, lamp soot [13], herbs, salty or soapy water [14] and hot fermentation [15]were used. All these substances could be contaminated with bacteria and spores enhancing the onset of omphalitis and neonatal tetanus [15].

Thermal care*:* Fight against hypothermia was preserved in most neonates as 70.3% had at least 6 hours delayed first bath and 96.8% of them were sleeping on the same-bed with their mothers. Therefore, energy and oxygen consumption because of cold stress would have been reduced so as to build up reserves [16,17]. Also, bonding would have been lifted; initiation and successful breastfeeding would have been favored [18]. One third of mothers gave the first bath immediately after birth as in Bangladesh (33.9%) compared to 82.6% found by Rahi et al [9]. Two reasons could explain this finding, the first being related to home delivery as traditional birth attends and families are more likely to bathe newborns with warm water immediately after birth [9,14] and the second being newborns' exposition to Human Immunodeficiency Virus (HIV). For the later, health care providers had to fulfill national guidelines for preventing Mother-To-Child Transmission of HIV [6] even though stigmatization could be of concern.

Table V: Display of mothers total scores of performance on essential newborn care.

Score (any good task of ENC)	Group I HF n = 135 (38.9)	Group II HF n = 212 (61.1)	Total n = 347 (100)
0	9 (6.3)	23 (10.8)	32 (9.2)
1	39 (28.9)	77 (36.3	116 (33.4)
2	51 (37.8)	53 (25)	104 (30)
3	29 (21.5)	41 (19.3)	70 (20.2)
4	5 (3.7)	15 (7.1)	20 (5.8)
5	1 (0.7)	1 (0.5)	2 (0.6)
6	1 (0.7)	2 (0.9)	3 (0.9)

HF: HealthFacilities.

Breastfeeding*:* breastfeeding practice in the study (44.3%) was higher than that found nationwide 22%for breastfeeding within one hourand 20% for exclusive breastfeeding [3]. The difference found between the two groups of health facilities could be that group I had more qualified health care providers in reproductive health as such they were more aware of the benefits of breast milk for the mother and child couple. The rate was higher than that of an urban slum in India and Malagasy where respectively 36.6% and 37% of mothers initiated breastfeeding within one hour [19, 20]. Pre-lacteal feeds were practiced by 82.3% of mothers in our study compared to 79.5% in Pakistan where late initiation of breastfeeding reached 80.3% [21]. Colostrums might be discarded because of the belief of spoiled milk due to the color looking like pus [13] or like in Ethiopia where 79% of women thought that colostrums were a cause of abdominal problem [22]. As such mothers were more likely to supplement with cow milk because of its availability in this high capacity cattle rearing region (personnal communication).

Vaccination: More than 90% of newborns had BCG and oral Polio vaccines administered. This was the fulfillment of the application of the national guidelines on reproductive health [6] that stipulates making these antigens available in the delivery room so as to reduce the missed opportunity of newborn's immunization that reached a rate 17% in Nigeria due to lack of vaccines accounting for 44.2%.[23].

Fight against malaria: Insecticide-treated bednets were reported to be used by 65.1% mothers. This figure is high compared to the national rate of 47% [3] implying enhanced sensitization of women during ANC by health care providers in our study. The higher rates found in breastfeeding practice, vaccination and insecticide-treated bednet use could just be explained by the fact that most women in this study 83% delivered in health facilities where they are more likely to be closely followed up for these fulfillment compared to the national rate of 61% [3]. Three quarters of mothers in this study had poor performance on ENC. We did not observe the practice of mothers as compared to the study of Waiswa et al in Uganda that judged 38% of mothers to having good cord care, 42% optimal thermal care and 57% adequate neonatal feeding [24], We looked at global performance and not separately for each

type of care. All the rates found in this study were from reporting of mothers as such the results might not reflect the reality. Even though all of the mothers had a lived newborn and were interviewed in a mean time of two weeks after delivery, recall bias could be of concern in this study. These results could not be generalized to other regions of the country because of several disparities in terms of cultural beliefs, urban versus rural setting, just to list those.

CONCLUSION

This cross sectional study revealed that mothers were knowledgeable on eye care and adequate cord cutting. They hardly reported newborn's danger signs. They prolonged the duration of eye care without any eye disease. Traditional substances were used for cord care and exclusive breastfeeding was poorly performed as prelacteal feeds were given by the vast majority of mothers. Health care providers should enhance the knowledge of pregnant women by putting an emphasis on the quality of ANC. Also, tutoring of mothers on the practice of essential newborn care at immediate postpartum and postnatal period should be an issue of proud.

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