

Newborn care knowledge and practices among mothers attending pediatric outpatient clinic of a hospital in Karachi, Pakistan

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Abstract

Objectives: To assess newborn care knowledge and practices among mothers.

Methodology: A cross-sectional study was conducted at a tertiary care hospital in Karachi, Pakistan. A total of 170 mothers accompanying their infants attending the Paediatric Out Patient Department were interviewed through a structured questionnaire. Areas of inquiry included Antenatal care seeking, delivery care, cord care, eye care, bathing and breastfeeding practices.

Results: Ninety-two percent mothers reported at least one antenatal care visit. Tetanus Toxoid coverage was 88%. Home deliveries were 18%. Seventy-four percent reported applying various substances like coconut oil, mustard oil, purified butter and turmeric to the cord stump. Kohl application to newborn's eyes was 68%, while 86% reported first bath within 24hrs of birth. 48% mothers initiated breastfeeding within 2 hours of delivery. Colostrum was discarded by 43% and prelacteal feeds given by 73%. Exclusive Breast Feeding rate was 26%.

Family income of Rs.10, 000 (USD120) or less / month and maternal education level of primary or less were significantly associated with home delivery, unhygienic cord care and kohl application to the newborn's eyes. Home delivery was a risk factor for poor cord care (OR=4.07) and discarding colostrum (OR= 3.18).

Conclusion: Antenatal care coverage was good, but knowledge regarding newborn care was poor. Harmful practices regarding newborn care were prevalent among mothers. Institutional deliveries did not guarantee optimal practices. Tradition and culture played a significant role. Health education can improve the mothers' knowledge regarding newborn care practices.

Keywords: Newborn, Home Delivery, Cord Care, Exclusive Breastfeeding, Prelacteals.

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Introduction

Globally, four million newborns die before they reach one month of age. The neonatal period is only 28 days yet it accounts for 38% of all deaths under 5 years of age. Three quarters of neonatal deaths happen in the first week after birth. ⁽¹⁾

Infant and under 5 mortality ratio in developing countries have declined significantly in the past couple of decades, yet neonatal mortality rates have remained relatively static. ⁽²⁾ The average neonatal mortality rate in developing countries is over eight times that prevailing in developed countries. ⁽³⁾ Yet most epidemiological and research focuses on the deaths in rich countries.

Pakistan is the world's sixth most populous country with 21% of its population living below the International Poverty line of US\$1.25/day. ⁽⁴⁾

Pakistan accounts for 7% of global neonatal deaths. ⁽⁵⁾ One in every 11 children born in Pakistan dies before reaching their fifth birthday. Over half of these deaths occur during the neonatal period. ⁽⁶⁾ This has important socioeconomic consequences, both for the Health System and the families. Therefore, it is essential to understand the factors responsible for newborn morbidity and mortality to help in planning effective actions to enhance neonatal health.

This study was undertaken to describe selected newborn care practices and to examine the association of selected socio-demographic, antenatal and delivery care factors with these practices.

The study aimed to identify harmful newborn care practices prevailing among mothers and community at large. It also aimed to identify the constraints faced by mothers regarding neonatal care. This information will be useful for policy makers and for designing interventional programs.

Methods

A cross-sectional study was carried out, from 1st May till 31st July 2010, at the Combined Military Hospital, a tertiary care facility, in Malir Cantt. Karachi, Pakistan. The catchment area of the hospital is a densely populated urban region comprising both military personnel and civilians. The population

includes all the ethnic and linguistic groups of Pakistan.

All mothers accompanying their children attending the paediatric outpatient clinic at the hospital comprised the study population. Sample size was calculated on the assumption that the prevalence of poor practices would be 50% amongst the mothers. Therefore, for a confidence level of 99% and an acceptable margin of error at 10%, the sample size was calculated using the following formula.

$$n = \frac{Z^2 p \cdot q}{e^2}$$

$$e^2$$

When n = sample size

z = z value for 99% C.L. = 2.57

p prevalence = 50%

q = (1-p)

e = margin of error

$$\text{Thus, } n = \frac{2.57^2 \times .50 \times .50}{.10 \times .10} = 166$$

This was increased to 170 and convenience sampling was done. Only mothers who had at least one child less than 1 year old were eligible.

A structured questionnaire, developed by the authors, was used to interview the mothers. A pilot study was carried out from April 15 to April 30, 2010, and necessary amendments were made to the questionnaire.

The survey questionnaire consisted of 44 questions and each interview lasted about 40 minutes. The questionnaire was divided into four sections; Section A pertained to socio-demographic information, section B to Antenatal care; Section C to delivery information and care; and Section D to immediate newborn care including cord care, eye care, bathing of newborn and breastfeeding practices. Data analysis was done through SPSS-16. Frequency tables and charts were generated using SPSS-16 and Microsoft Excel 2003.

Verbal informed consent was obtained from each participant. The Institutional Ethics Committee of Baqai Medical University, Karachi, granted ethical approval for the study.

Limitations

The study is not based on actual observations so it may be subject to recall bias.

Only mothers of surviving infants were interviewed, hence, there may be a bias as to what were the practices of mothers whose babies had died. Since all the participants were

using the health care facility so there may be bias as to what are the practices of those mothers who do not use health care facilities.

Results

Age at marriage was reported 15-19 years by half of the women. Education Level of about 78% was Secondary or less. One fourth was illiterate. Only 8% of the participants were working mothers. Monthly family income reported by the majority (77%) of the interviewees ranged between 5,000 and 15000 rupees (USD 60-178) (Table 1).

Table 1: Sociodemographic background of the study participants (n = 170)

VARIABLE	GROUPS	COUNT	PERCENTAGE
Age at Marriage	15-19years	84	49.4
	20-24years	73	42.9
	25-29years	13	7.6
Education Level	Illiterate	43	25.3
	Primary or lower	51	30
	Secondary or higher	76	44.7
Family Income/month*	<Rs. 5000	6	3.5
	Rs5000-10, 000	76	44.7
	Rs10001-15000	55	32.4
	Rs15001-20000	17	10
	>Rs20000	16	9.4
Occupation	Housewife	156	91.8
	Working	14	8.2
Parity	1-3	104	61.2
	4-6	53	31.1
	7-9	13	7.6

* Based on Average Monthly Household income as reported by Household Integrated Economic Survey Pakistan (2008-09) ⁽⁷⁾

Pakistan Rs 14456 (USD 172)

Lower Income group Rs 8861(USD 105)

Middle Income Group Rs 12200 (USD 145)

Higher Income Group Rs 24659 (USD 294)

92% women reported at least one antenatal visit to a health care provider. Tetanus Toxoid coverage was 88%. Eighty-two percent women reported an institutional delivery. A Traditional Birth Attendant (TBA) or a neighbour conducted all home deliveries. In 60% home deliveries, a market bought razor was used to cut the umbilical cord, while 10% recalled using a household knife.

74% had applied some substance to the cord stump. These included coconut oil, mustard oil, ghee (purified butter), olive oil, surma (kohl), turmeric and machine oil. First bath was given to the newborn within 24 hours in 86% cases. While 68% women applied kohl to their baby's eyes within a week of birth.

Although 97% mothers initiated breastfeeding, only 48% did so within 2 hours of delivery. Exclusive breastfeeding (EBF) rate among the mothers was 26%. Colostrum was

discarded by 43%. Prelacteals were given by 73%, these included market bought ghutti (traditional feed given to a newborn as its first feed), honey, ark-e-gulab (rose water), chaar ark (a mixture prepared with four different herbs), green tea, saunf (aniseed) water, sugared water and gripe water. About 11% reported giving formula milk to the newborn as first feed.

A family income of Rs.10, 000 or less / month was significantly associated with having a home delivery (OR=2.51, 95% CI 1.09 – 5.76), unhygienic cord care (OR=2.49, 95% CI 1.29 – 4.81) and application of kohl to the newborn's eyes (OR=2.64, 95% CI 1.33 – 5.23). Maternal education level of primary or less was significantly associated with having a home delivery, discarding colostrum and applying kohl to the newborn's eyes. (Table 2)

Table 2: Newborn care practices: A comparison regarding education and education and income level

	EDUCATION LEVEL			FAMILY INCOME/MONTH		
	≥Secondary (n=76)	≤Primary (n=94)	OR (95% C.I.)	<Rs. 10,000 (n=82)	≥ Rs. 10,000 (n=88)	OR* (95% C.I.)
	n(%)	n(%)		n(%)	n(%)	
Sought Antenatal Care	74(97%)	84(89%)	4.4 (0.93-20.7)	75(91%)	83(94%)	0.64 (0.19-2.12)
Unhygienic Cord Care	20(26%)	37(39%)	0.55 (0.28-1.06)	36(44%)	21(24%)	2.49 (1.29-4.81)
Home Delivery	7(9%)	23(24%)	0.31 (0.12- 0.77)	20(24%)	10(11%)	2.51 (1.09-5.76)
First Bath within 24 hours	63(83%)	83(88%)	0.64 (0.27-1.52)	72(88%)	74(84%)	1.36 (0.56-3.26)
Kohl application	42(55%)	75(80%)	0.31 (0.16-0.61)	65(79%)	52(59%)	2.64 (1.33-5.23)
Discarded Colostrum	25(33%)	49(52%)	0.45 (0.24-0.84)	42(51%)	32(26%)	1.84 (1- 3.40)

Gave prelacteals	54(71%)	71(76%)	0.79 (0.40-8.36)	62(76%)	63(72%)	1.23 (0.62-2.43)
Exclusive Breast Feeding	21(28%)	23(24%)	1.17 (0.59-2.34)	20(24%)	24(27%)	0.86 (0.43-1.71)

*Odds Ratio (95% Confidence Interval)

However, early bathing, low exclusive breastfeeding rate and prelacteal feeding were universal across all income and education levels. Having a delivery at home was a risk factor for poor cord care (OR=4.07, 95% CI 1.78 – 9.40) and discarding colostrum (OR= 3.18, 95% CI 3.81- 7.31). 40% of mothers who

reported a home delivery did not seek antenatal care. Tetanus toxoid coverage among those reporting a home delivery was 57% as compared to 94% in institutional deliveries. Exclusive Breast Feeding was much lower in Home deliveries (Table 3).

Table 3 Comparison of practices: home versus institutional delivery

	Home Delivery (n=30)	Institutional Delivery (n=140)	Odds Ratio (95% C.I.*)
	n (%)	n (%)	
Sought Antenatal Care	18(60%)	140(100%)	–
Poor Cord Care	17(57%)	45(32%)	4.07 (1.78 -9.40)
First Bath within 24 hours	30(100%)	102(73%)	–
Applied Kohl	24(80%)	93(66%)	2.02 (0.77-5.28)
Discarded Colostrum	20(67%)	54(29%)	3.18 (1.38-7.31)

Gave prelacteal	26(87%)	99(71%)	2.69 (0.88-8.19)
Exclusive Breast Feeding	4(13%)	40(29%)	0.38 (0.12-1.17)

* Confidence Interval

Discussion

The study sample predominantly belonged to middle and low-income group with a low level of education. Among the women who reported a marriage age of less than 20 years, 77% were illiterate.

Uptake of antenatal care (ANC) reported in this study was higher than the 61% antenatal care coverage in Pakistan reported by PDHS 2006-7.⁽⁶⁾ While a cross sectional survey in rural Sindh, Pakistan, reported that the women had no concept of antenatal care.⁽⁸⁾ However, Fikree et al⁽⁹⁾ reported that antenatal care coverage was common amongst women in low socio economic settlement of Karachi, Pakistan. These differences are probably due to the fact that ANC uptake varies by region, being higher in urban areas as compared to rural ones.

Reasons for not seeking ANC included distance to the health facility, fear of hospitals, provider behaviour and no real need felt for seeking ANC. Tetanus coverage was very low among those who did not seek ANC. This corroborates with the findings of a study done in Islamabad.⁽¹⁰⁾

It is a tradition among most communities for women to move to their native village or town during pregnancy. This can result in no ANC or incomplete ANC. Agarwal S et al reported similar reasons for not seeking ANC among the study participants.⁽¹¹⁾

The content of prenatal care is important in assessing the quality of prenatal care services. Observational studies are required to assess the ANC quality.

Despite a high proportion of institutional deliveries, 1 in 6 women still delivered their infant at home with no skilled assistance. According to PDHS 2006-7 three out of five

births (65 percent) take place at home.⁽⁶⁾ A similar study done in Uganda reported that 1 in 10 deliveries were conducted at home.⁽¹²⁾

The present study revealed that availability of a health facility might not be a factor in deciding the place of delivery. Lack of utilization may be affected by cultural beliefs.

"We deliver our babies at home. There is no need to go to a hospital."

A 30 years old illiterate mother of three)

There is a family Dai (A Traditional Midwife in the Sub-Continent) who is called upon to conduct the delivery. The respondents did not know whether these TBAs were trained or not, which reflects a lack of awareness about the role of a skilled birth attendant. However, the role of Traditional birth attendants cannot be ignored while designing programmes for Maternal and Neonatal Healthcare.

Similar studies from Uganda,^(12, 13) Nepal,⁽¹⁴⁾ India^(15, 16) and Pakistan^(8, 9, 17) also reported that majority of home deliveries were conducted by TBAs or a relative / neighbour. For unplanned home deliveries the most common reasons reported were lack of transport, distance to the health facility and lack of escort.

Home delivery per se is not a risk factor but the study findings revealed suboptimal intrapartum practices during home deliveries. The instrument used to cut the cord during the home delivery was not sterilised. This indicates that the women lacked awareness regarding the importance of clean delivery practices and therefore did not insist on it. Researchers in

Africa and South Asia have also reported such practices during home deliveries. ^(13, 14, 18)

In this study, poor practices were found regarding cord care. The reason for applying various substances to the cord stump was the belief that they help dry the cord. Similar studies done in Pakistan ^(8, 9, 17) have also reported poor cord care practices.

Moran C et al ⁽¹⁹⁾ from Bangladesh and Agarwal S et al ⁽¹¹⁾ from India reported the application of substances like mustard oil, coconut oil, warm ghee, boric powder and talcum powder to the cord stump till it dries up. Although the specific affects of these substances need to be examined, however, they may lead to infection.

In institutional deliveries, these substances were applied at home after the woman was discharged. Hospital/clinic staff must educate the mothers about safe practices regarding newborn care.

Mothers were not aware of eye care practices in case of institutional deliveries. In home deliveries eyes were simply cleaned with wet cotton swab in most of the cases.

Kohl is applied to the baby's eyes as it is believed to make the eyes beautiful, improve vision and ward off evil. A study from India reported that the prevalence of kohl application to the newborns' eyes was much higher in slums as compared to urban areas. ⁽²⁰⁾ Another study from rural Sindh, Pakistan reported similar findings. ⁽⁸⁾

Regarding the timing of the newborn's first bath, WHO recommends a delay of 4-6 hours after delivery, preferably 24 hours. ⁽³⁾

In this study, the most common reasons given for early bathing included

- Baby is napaak (polluted) therefore Azan (Prayer call) cannot be said in its ear (a tradition among Muslims) unless it is bathed.
- Elders cannot hold the newborn until bathed as they have to say their prayers.
- Vernix is considered dirty.

Studies from Bangladesh and Nepal also report that majority of infants were bathed within 24 hours of birth. ^(14, 18, 19) Similar practices have also been reported in studies from India and Pakistan. ^(8, 9, 16, 17) In home deliveries, it is considered to be the duty of the TBA to bathe the baby before leaving.

Interestingly in those institutional deliveries where the newborn was bathed after 24 hours, it was because there were no arrangements for bathing at the health facility, otherwise the baby would have been bathed earlier. It shows lack of awareness about hypothermia among mothers and families. Hospitals and health care facilities must create awareness among mothers and families about this.

Despite having a positive attitude about breast feeding, only half of the mothers initiated breastfeeding within 2 hours of birth. Both, breastfeeding initiation within 2 hours and prelacteals avoidance, were achieved by only 20%. Breastfeeding was initiated earlier in home deliveries as compared to institutional ones.

Causes for delaying breastfeeding include:

- Mother-in-law's advice
- Perception that there is not enough milk in the first 1-2 days of delivery.
- "First milk is harmful".

Colostrum discarding was more prevalent in home deliveries and advised by the dais. Other studies in Pakistan have reported a higher rate of discarding colostrum among the mothers. ^(8, 9, 17)

WHO recommends that infants should receive nothing but mother's milk for the first six months, with the exception of vitamins, minerals and medicines in form of drops and syrups. ⁽²⁰⁾ Although Parveen N ⁽²¹⁾ from Hyderabad, Pakistan, reported a higher rate of exclusive breast feeding, the rate of exclusive breast feeding in the present study was very low. The main reason for low rate of exclusive breast feeding was the use of prelacteal feeds. Since prelacteals are fed only once or given in very small quantities, the mothers believe they are exclusively breast feeding their baby. The most common prelacteal quoted was Market bought Ghutti (traditional feed given to a newborn as its first feed). The sale and promotion of such products need to be controlled through legislations.

Honey is also a very popular prelacteal generally given to the newborn by putting it on a fingertip. This practice carries a considerable risk of infection. This corroborates with the findings of other studies in Pakistan. ^(9, 22)

Exclusive breastfeeding was lower amongst mothers who reported a caesarean section as compared to a normal delivery. Half of the women who underwent a caesarean section

reported giving formula feed to their newborn as its first feed. According to them, they were advised to do so by the hospital staff. Such endorsing of formula feed by hospitals is against the National Breastfeeding law.

Khadduri et al also reported that delayed initiation of breastfeeding, avoidance of colostrum and prelacteal feeding were almost universal among the mothers in the study area.⁽¹⁷⁾

These findings indicate that most of the mothers were not aware of the importance of exclusive breastfeeding, benefits of feeding colostrum and the hazards of feeding prelacteals. Observational and retrospective studies are required to confirm the association of these practices with various sociodemographic factors to help design appropriate interventional strategies.

Conclusion

Antenatal coverage was good among the mothers but did not translate into optimal intrapartum and postnatal practices. There is a need to promote hygienic delivery practices for home births, delayed bathing and immediate and exclusive breastfeeding. Maternal education and income status play an important role in their knowledge and practices regarding newborn care.

Qualitative studies are required to understand the role of tradition and culture and explore the possibilities of interventional programmes. Health care facilities should emphasise on health education.

Recommendations

- Information and education regarding essential newborn care practices is required.
- Integrating neonatal and maternal health services starting at the policy level and followed through to the service delivery level.
- There is a need to focus on community-based interventions.
- TBAs must be trained and included into the existing local health systems.
- Enhancing female education and empowerment must be addressed as a long term goal to improve maternal and newborn survival.

Conflict of interest: The authors declare that they have no competing interests.

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