Exploration of Newborn Care Practices among Mothers in Tertiary Care Hospitals of Rawalpindi; Insights and Implications

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Abstract

Objective: To evaluate the newborn care practices of mothers who presented to a tertiary care hospital of Rawalpindi district and to ascertain the correlation between newborn care practices and different socio-demographic characteristics

Methods: In this Cross-sectional study, 232 mothers of newborns during the first seven days of live birth who reported In Holy Family Hospital, Rawalpindi were interviewed through a self-structured questionnaire. The questionnaire comprised of 3 sections. The participant's socio-demographic profile was the first, prenatal care was the second, and newborn care practices comprised the final section containing 15 items. Data generated was analyzed using SPSS version 25.

Results: 69.4% of mothers practiced averagely, 19.8% practiced well, and 10.8% practiced poorly. Mothers who reported having at least one prenatal visit were 92.7%. Ill practices regarding cord-care were reported as Eighty-six percent said they used pyodine, oil, or spirit on the cord stump. Providence for appropriate skin and eye care was 93.5% and 71.1%, respectively. Delayed Bathing (after a 24-hour period) following delivery was reported by 88.4% of respondents. The percentage of exclusive breastfeeding was 38.4%. Only 15.9% of mothers started nursing in the first hour after giving birth. Pre-lacteal meals were given by majority of our study participants i.e. 64.2% .65.5% participants reported giving colostrums to the newborn. A strong correlation was established between good practices and urban living (p=0.006). Better hand hygiene before touching a newborn (p=0.048) and bathing the infant after each episode of stool (p=0.026) was significantly associated with higher maternal education level.

Conclusion: The care practices for newborns were mediocre. Health education can help women become more knowledgeable about best practices for caring for their newborns.

Keywords: Newborn care, Cord Care, Pre-lacteal, Exclusive breast-feeding.

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1. Introduction

Globally, approximately four million newborns perish annually before reaching their first month, with nearly 57% of neonatal deaths occurring within the initial three days of life. Developing countries account for about 99% of these fatalities.[1] According to World Health Organization (WHO), some of the major reasons contributing to mortality within the first 28 days of life are a consequence of improper care practices at birth[2]. Consequently, developing countries in Central and South Asia bear the largest figures (27 deaths per 1000 live births) in terms of neonatal mortality.[3] A demographic analysis done by UNICEF found Pakistan to be a significant contributor towards neonatal mortality rate of South Asia, with its current figures being 39 deaths per 1000 live births.[3] The stated numbers have remained near stagnant over the past two decades.[3] Maternal practices of newborn care have been associated to have a significant impact in neonatal mortality as shown by one survey done in Bangladesh that established a relationship between delayed bathing and reduced neonatal mortality rate. The high neonatal mortality rate in Pakistan is significantly influenced by cultural practices surrounding newborn care, including immediate bathing after birth, pre-lacteal feeding, colostrum disposal, herbal bathing, improper cord care, and application of various substances to the umbilical cord.[4] According to Essential Newborn Care Practices (ENC) stated by WHO, a newborn should be provided with clean environment during delivery, proper cord care, skin care and provision of eye hygiene, maintaining optimum body temperature to prevent hypothermia, early breastfeeding initiation and exclusive nursing for the first six months of life, at least, and vaccination.[5]

Numerous studies have been conducted throughout Pakistan to evaluate newborn care practices. A research done in Sindh province of Pakistan found that 68% of newborns initiated breastfeeding early, while 32% of mothers provided pre-lacteal feed (such as animal milk or commercially available formulas, honey, or fresh butter/ desi-ghee).[6] A study in Karachi revealed that 36.8% of newborns received proper cord care, 34.9% received adequate thermal care, and 73.7% were appropriately fed.[7] According to the findings of the study

conducted in Lahore, it was customary to utilize traditional substances on the umbilical cord, discard colostrum, postpone the onset of nursing, and exclusively feed newborns[8]. However, there is little research done on neonatal care practices in the Rawalpindi district.

A recently released UNICEF report states that Pakistan ranks among the worst countries in terms of infant mortality rate, highlighting the urgency to address malpractices contributing to this issue[9]. This study was conducted to identify and understand these malpractices among mothers attending tertiary care hospitals in Rawalpindi, enabling health personnel to provide appropriate guidance. The objective of this study was to evaluate the newborn care practices of mothers who presented to the immunization department of a tertiary care hospital of Rawalpindi district and to ascertain the correlation between newborn care practices and different socio-demographic characteristics.

2. Materials & Methods

Place of Study: Vaccination center, Holy Family Hospital (HFH), Rawalpindi.
Study duration: 6 months after the approval of synopsis, February 2023 to September 2023.
Study Design: A Quantitative Descriptive Cross-sectional Study design was employed.
Study Population: Mothers of the newborns from birth till 7 days of giving birth to the neonate who came to the immunization department of Holy Family Hospital, Rawalpindi.
Sample size: 232, it was calculated by WHO sample size calculator by keeping Confidence Level of 95% and 5% as margin of error.
Sampling technique: Convenience sampling.
Inclusion criteria: Mothers who brought their babies within a week after delivery to the EPI vaccination facility Holy Family Hospital, Rawalpindi for the BCG immunization during the study period and indicated interest in participating in the study.
Exclusion criteria: Mothers who delivered via cesarean section or those newborns who were not accompanied with their mothers or the neonates borne with various co-morbidities were not included. Furthermore, the research did not include caregivers of infants whose mothers died during or after delivery.
Data Collection: To assess the degree of Essential Newborn Care (ENC) practices, a self-structured questionnaire that was in line with World Health Organization (WHO) standards for neonatal care was developed after a thorough literature review of related researches both national and international and it was reviewed by Public Health experts of our institute. As stated in Appendix-I, the questionnaire was divided into three main components, such as socio-demographic profile, prenatal care/Antenatal Care, and Essential Newborn Care practices respectively. There were fifteen questions about ENC practices, each with two possible answers. For every right answer, one point was awarded; for every erroneous answer, zero points were awarded. The overall score might be as low as "0" or as high as "15". Practices were categorized as Poor/Bad (score 0-7), Fair/Average/Moderate (scoring 8-11), or Good (score 12–15) based on the results of the questionnaire. After obtaining informed consent, all eligible mothers were interviewed that was conducted by the researchers themselves, and the data was entered into the printed questionnaires by the researchers.
Statistical Package of Social Sciences (SPSS) version 25 was utilized for the analysis of the data. Descriptive and Inferential statistical tools were used for analyzing the data. For Categorical/ Qualitative variables, frequencies and percentages were calculated, and for Quantitative variables or continuous numeric data, mean and standard deviation was determined. Then the overall Newborn Care practice scoring was calculated for each individual form. The practice scores were cross-tabulated with various socio-demographic factors. Chi-square test was applied to establish relationship between Newborn Care Practices and socio-demographic variables. A cutoff point of $p<0.05$ was set for significance.
Following clearance from the Holy Family Hospital, Pediatric Department Head and the Institutional Research Forum of Rawalpindi Medical University, data collecting got underway. Mothers of babies who qualified for the study were asked if they were willing to participate in the study after explaining all the potential risks and benefits. The participants were assured that the data will be kept confidential.

3. Results

232 mothers took part in the research. The socio-demographic details of the research participants are shown in Table 1. The average age of the participants was 26.8±0.33 years, and the majority (32%) was

between the ages of 20 and 27. Of them, 32.8% or 30.2% had two children. The majority of mothers gave birth at tertiary care facilities (58.6%). Among all the study participants, around 22.8% had no formal education and 22.4% had completed school all the way to matriculation. 93.5 percent were housewives, while the remaining 6.5 percent had jobs. Residents were divided between urban (77.2%) and rural (22.8%) regions, with a sizable percentage (73.3%) coming from lower socioeconomic classes. At least one antenatal care (ANC) appointment was attended by nearly all participants (92.7%), with 87.5% of them receiving treatment from a gynecological expert. Tetanus toxoid coverage was reported at 93.5%.

According to WHO recommendations the Essential Newborn Care Practices were picked and assessed. Participants understanding of several elements of Newborn care varied; 161 (69.4%) showed fair practices, 46 (19.8%) showed good practices, and 25 (10.8%) showed poor practices. About 80.6% said they have applied various substances on the cord stump, such as oil, desi-ghee, alcohol, or iodine. Newborn receiving appropriate skin and eye care was reported by 91.1% and 93.5% of respondents, respectively. 88.4% of mothers said they waited till 24 hours after birth before giving newborns their first bath. Only 15.9% of newborns started nursing within the first hour of life. Mothers gave colostrum in 65.5% of cases, and pre-lacteal feedings in 64.2%. 38.4% of breastfeeding cases were exclusive. Significant associations (p=0.006) were found between urban residency and good practices (Table-2). Higher levels of maternal education were associated with good hand hygiene practices before handling the infant (p=0.048) and washing the baby with every incident of stools (p=0.026). The knowledge of newborn care was correlated with Family monthly income (p=0.03), and participants from upper-middle-class families showed more knowledge than those from lower-middle and lower-class families (p=0.025). However, their methods did not differ substantially (p=0.324).

4. Discussion

Maternal knowledge regarding accurate ENC practices is crucial to decrease the overall burden of neonatal mortality in Pakistan. Our cross-sectional study gives a comprehensive overview of newborn care practices among women presenting at EPI center of Holy Family. Furthermore, it also correlates various socio-demographic factors with understanding of newborn care practices among women. The participants included in our study are primarily from the lower socio-economic strata, many of whom have either no formal education or minimal educational attainment.

The significance of antenatal check-ups during pregnancy cannot be overstated. WHO recommendations are atleast four ANC visits during each pregnancy and ensuring childbirth at a healthcare facility by hands of a skilled healthcare worker[11]. We found an encouraging statistics of 92.7% for utilization of antenatal care by the participants of this study. Our figures align with the research done by Khan et al. in Islamabad, which showed that 95% of women attended a minimum of one antenatal visit with a healthcare professional.[12]. Similarly, a research conducted in Sindh reported 83.5% of participants receiving antenatal care on one or more than one occasions, primarily from qualified doctors (95%) [13].

However, a survey study conducted by the National Institute of Population Studies revealed a lower utilization rate, with only 51% of mothers receiving antenatal care from healthcare providers[14]. Moreover, there may be geographical differences in the use of prenatal care services[15].Our study observed that mothers living in urban areas tended to exhibit better knowledge of ENC practices as compared to the ones in rural setting, a finding consistent with research conducted in Sindh[7] and Ethiopia[16]. This trend may be attributed to the greater accessibility of healthcare services and higher levels of education in urban settings compared to rural areas.

In our study, it was found that the majority (69.4%) of participants exhibited moderate neonatal care practices. This proportion is greater than the findings of a study conducted by Kebede[16], where the rate of newborn care practice was reported to be 60.6%.

WHO recommends implementation of standard ENC practices that include early commencement of breastfeeding, adequate warmth for newborns, early identification of neonatal danger signals and proper care of the umbilical cord, which are essential for newborn survival[17]. However, contrary to WHO guidelines that recommends starting nursing within the first hour of the baby's life, only 15.9% of participants in this study complied with this recommendation. Furthermore, the prevalence of use of pre-lacteal feed was notably high in our study, mirroring similar findings reported by Asim et al.,[18]and Kumar et al[7]. However, this is on contrary to a study conducted in India, where participants exhibited better knowledge regarding breastfeeding[19].

Table-1 Socio-demographic background of the study participants (n = 232)

Variable	Groups	Count	Percentage
Age at Marriage	<20 years	7	3
	21-27 years	125	53.9
	28-35 years	28	37.9
	> 35 years	12	5.2
Parity	1	76	32.8
	2	70	30.2
	3	43	18.5
	4	23	9.9
	5	12	5.2
	6	6	2.6
	7	1	.4
	11	1	.4
Gravidity	1	55	23.7
	2	66	28.4
	3	46	19.8
	4	36	15.5
	5	14	6.0
	6	8	3.4
	7	3	1.3
	8	2	.9
	9	1	.4
	11	1	.4
Place of delivery	Home	16	6.9
	Primary health care	38	16.4
	Secondary health care	42	18.1
	Tertiary health care	136	58.6
Education level	Non formal education	53	22.8
	Primary	19	8.2
	Secondary	25	10.8
	Matriculation	52	22.4
	Intermediate	34	14.7
	Graduation	33	14.2
	Post-graduation	16	6.9
Occupation	House wife	217	93.5
	Working	15	6.5
Place of living	Rural areas	53	22.8
	Urban areas	179	77.2
Monthly income	<20,000 pkr	153	65.9
	21,000-40,000 pkr	50	21.6
	41,000-60,000 pkr	15	6.5
	61,000-80,000 pkr	5	2.2
	81,000-100,000 pkr	8	3.4
	>100,000 pkr	1	.4
Economic Status	Upper class	0	0
	Upper middle class	10	4.3
	Lower middle class	52	22.4
	Lower class	170	73.3
Attended Antenatal care	Yes	215	92.7
	No	17	7.3
Antenatal care given by	Valid	17	7.3
	LHW	4	1.7
	General physician	8	3.4
	Gynae specialist	203	87.5

The difference is attributed to India's robust breastfeeding programs, which are lacking in the setting of the current study. Unhygienic pre-lacteal feeding methods and poor feed quality can increase the risk of infections in newborns. It's crucial to recognize and address these practices within communities to educate mothers and caregivers about proper breastfeeding techniques.

Newborns rely on external help to control body temperature. Factors like protection and bathing greatly impact their ability to regulate heat[20]. In terms of giving first bath to newborn, WHO strongly recommends a delay of 24 hours between birth and provision of first bath or atleast a gap of 6 hours between the two if cultural reasons intervene. This is done to prevent the risk of hypothermia that is strongly associated with an early bath following birth.[17]. According to this study, 88.4% of mothers gave their babies a bath 24 hours after birth. Our study was conducted in a hospital setting, where respondents may have received health education emphasizing proper thermal care practices. India also reported similar findings[21]. Conversely, a research conducted in Uganda found that 86% of respondents agreed to bathe their newborns within 24 hours[22]. These differences may arise from varying cultural beliefs, as some cultures consider newborns unclean at birth, leading to early bathing practices. Ensuring appropriate handling of the umbilical cord during the newborn period is crucial, as inappropriate methods have been linked to infections. [22]. However, this study revealed inadequate cord care practices, such as application of clarified butter (desi-ghee), oil, pyodine, and spirit to the cord stump. Interestingly, Ghana (64.3%)[24] and Ethiopia (66.9%)[25] also reported similar and high statistics of malpractice in terms of cord care. The choice of materials used on the cord stump is influenced by traditional practices and the belief that they promote early separation and prevent bleeding.

Our study established no significant relationship between the mothers' age and number of children, with their knowledge and practices of newborn care. Mothers from upper-middle class backgrounds had a greater comprehension of ENC practices, however, their practices differed slightly. Similarly, higher maternal education was found to be a strong influence on newborn care practices. Past researches have also established that that well-educated mothers adopt better hand hygiene practices and knowledge of newborn care[15, 26].In our study, maternal employment status showed no significant association with newborn care knowledge and practices; although, some studies suggest working mothers may possess better knowledge[7, 27]. The

disparities in these findings may be attributed to variations in study participants, socio-demographic factors, cultural values, time periods or the influence of other family members.

The key feature of this cross-sectional study is that it has explored numerous socio-demographic characteristics linked with ENC practices. However there are some limitations to the study. The data on the ENC practices was gathered from mothers who had given birth one week before their first presentation to EPI center for neonatal vaccination. Therefore, there could be some recall bias impacting the data quality. Moreover, as all participants were utilizing healthcare facilities, there might be bias regarding the practices of mothers who do not utilize such facilities.

Table-2 Comparison of ENC practices: Rural versus Urban areas.

Item	Parameters	Rural Areas	Urban Area	p-value
Initiation of breast Feeding	Not Giving Breast feed After 1 hour Less than or equal to 1 hour	25% 68% 8%	12% 18% 70%	0.022
Breast feeding exclusive or not	Yes	28%	41%	0.049
BCG Vaccination to newborn	Yes	87%	97%	0.007
Number of times cord cleaned per day	None 1-2 times With each diaper changed	17% 45% 38%	9% 27% 64%	0.003
Substance of cord	Yes	66%	85%	0.002
Proper Eye care providence	Yes	87%	96%	0.023
Practices Scoring	Bad Practices Moderate Practices Good Practices	21% 70% 9%	8% 69% 23%	0.006

5. Conclusion

Our study found that majority of the mothers adopted moderate newborn care practices hence highlighting numerous shortcomings in ENC. Newborn care practices were found to be significantly influenced by maternal cultural backgrounds, beliefs and local traditions as well as socio-economic status. A positive trend of acquisition of standard antenatal care and utilization of proper healthcare facilities for childbirth was observed among the participants of our research. This promotes the opportunities for adequate maternal awareness by health care providers, regarding the standard ENC practices to prevent early neonatal deaths and reduce neonatal mortality rate of Pakistan.

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