Neonatal Morbidity and Care-seeking Behaviour in Rural Areas of Bangladesh

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Abstract

In Bangladesh, the neonatal mortality rate is unacceptably high, at 48.4 per 1,000 live-births, and it is higher in rural areas. In the past 15 years, there has been a 34-percent decline in infant mortality in South Asia; however, in Bangladesh, the risk of infant deaths in the first month of life (48 per 1,000 live-births) is greater than that during the next 11 months (34 per 1,000 live-births). The present study assessed the patterns of reported neonatal morbidity and care-seeking behaviour for these in rural Bangladesh.

Data were collected from 1,404 women who had live-births during May 1995 - April 1998 in selected households of four rural subdistricts of Chittagong and Jessore districts of Bangladesh; these subdistricts are the field sites of the Operations Research Project of the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B). Women were identified from the Sample Registration System (SRS), a longitudinal data collection system which operates in the field sites of the Project. A structured questionnaire was used to collect information from the mothers who were interviewed at their homes.

In this study 48 percent of the neonates were reported to have suffered from some kind of morbidity. Fever (20%) was the most commonly reported morbidity in the study population, followed by breathing difficulty (11%). Birth order, mother's education, complications during pregnancy and/or delivery, and death of a sibling were found to be significantly associated with reporting of neonatal morbidity. Eighty-seven percent of the mothers sought care for their newborns. Among those who had problems, 37 percent consulted homeopaths and another 37 percent went to village doctors. Seventeen percent went to the trained providers, and only 5 percent went to health facilities. Seeking care from the trained providers was found to be positively associated with male gender and antenatal care of the mothers from the trained personnel.

The results of the study suggest that efforts should be made to raise awareness regarding neonatal morbidity, its prevention and the importance of seeking care from trained personnel. However, further studies are required to confirm the reported patterns of neonatal morbidity found in this study.

Introduction

Every year about 5 million newborns die before they reach the end of the first month of life. Of these, approximately 1.7 million die in South Asia alone [1]. The neonatal mortality rate in Asia is extremely high at approximately 41 per 1,000 live-births, compared to 7 per 1,000 live-births in the more developed countries [2]. Thus, Asian neonates are at about 6 times greater risk of dying before they reach the first month of life than those in the most developed countries. In the past 15 years, there has been a 34-percent decline in infant mortality in South Asia because of sharp reduction in deaths due to polio, neonatal tetanus, and other infectious diseases [1]. In Bangladesh, the neonatal mortality rate is 48.4 per 1,000 live-births; it is higher in rural areas at 52 per 1,000 live-births [3,4]. The risk of infant deaths during the first month of life (48 per 1,000 live-births) is greater than that during the next 11 months (34 per 1,000 live-births) as reported in the Bangladesh Demographic and Health Survey 1996-1997 [3].

In Bangladesh, data on neonatal morbidity is limited. Morbidity rates have been determined by the Bangladesh Bureau of Statistics for different age groups, the lowest age group being less than one year. Neonatal morbidity varies a great deal between urban and rural areas, hospital and community and the source of information.

Few studies have looked into neonatal morbidity in the community in Bangladesh, and apart from maternal tetanus immunization there are virtually no other programmes directed specifically for the neonates. Respiratory infection and thrush have been reported to cause considerable morbidity and mortality in the newborns in Nasirnagar thana (subdistrict) of Brahmanbaria district [5]. A study conducted in Mirzapur thana of Tangail district by Hasan (1993) reports that 85 percent of neonatal morbidity was due to infections, such as upper respiratory tract infections, acute lower respiratory tract infections, skin infection, cord infection, and conjunctivitis [6]. In a study conducted in 31 thanas of 4 selected districts, 48.5 percent of the neonates were found to have suffered from some kind

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of morbidity [7]. Acute respiratory tract infection was reported to account for 68 percent and diarrhoea for 7 percent of all these morbidities. Eighty-six percent of the neonates received some form of treatment, the majority from homeopaths (31%) and unqualified allopaths (28%). Only 14 percent of the neonates were taken to the health facilities in this study. For very young infants in Bangladesh, particularly neonates with acute respiratory tract infection, the ideal treatment is assumed to be spiritual rather than medical; allopathic medicine is most likely to be considered with rapid worsening of symptoms [8]. A number of external constraints have been reported to deter women from seeking care for their children; the prominent among these are the absence of supportive family members who can take over the household chores and the abandonment of purdah if they seek treatment outside the immediate neighbourhood [8]. The relationship between healthcare seeking behaviour and sociodemographic variables has been documented in several studies. In general, education, occupation, financial status of the family, maternal age and parity are all associated with the use of health services [9,10].

In Bangladesh, the rural healthcare-delivery system consists of a Health and Family Welfare Centre (H&FWC) at the union level where service is provided by a Sub-Assistant Community Medical Officer (SACMO) and a Family Welfare Visitor (FWV). Services are also available from the Satellite Clinics (SC) at the community level. At the thana level, the Thana Health Complex (THC) is the first referral centre where services are provided by medical doctors. Childcare facilities are available at all these levels.

To develop strategies for improving the neonatal health care in rural Bangladesh, it is necessary to have information regarding disease patterns and the care-seeking behaviour for newborns in the community.

Objective

This study was carried out to assess the patterns of reported neonatal morbidity and the care-seeking behaviour for neonates in rural Bangladesh.

Methodology

The study was conducted in four rural subdistricts: Mirsarai and Satkania in Chittagong district, Abhoynagar and Keshobpur in Jessore district. These subdistricts are the field sites of the Operations Research Project (ORP) of the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B). The literacy rate in Chittagong district is 47 percent, whereas it is 37 percent in Jessore [11]. The people of Chittagong rely primarily on farming and small business for their livelihood, and in Jessore most are employed as labourers in mills and factories.

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A cross-sectional survey was conducted to collect data from mothers who had live-births during May 1995 - April 1998. Mothers were identified from the Sample Registration System (SRS), a longitudinal data collection system which operates in the field sites of the Project. The SRS collects data on health and demographic events of the population. Systematic random sampling was done by listing every 4th household at Mirsarai and Satkania and every 6th household at Abhoynagar and Keshobpur. A structured questionnaire was used for collecting information from the mothers who were interviewed at their homes by the trained female interviewers. The interviewers were supervised by the Field Research Officers and Medical Officers of the Project. Information on morbidity, experienced by the newborns within one month of birth and on subsequent use of health services, was sought from the mothers. Information regarding care sought from providers, such as doctor, nurse, paramedic (considered trained provider), or any village practitioner, such as untrained village doctor, homeopath, herbalist, spiritual healer (considered medically unqualified), was also obtained. Mothers were asked if they had visited any health facilities, such as Satellite Clinic (SC), Health and Family Welfare Centre (H&FWC), Thana Health Complex (THC), or private clinic for the treatment of their neonates. The same information was also sought from mothers whose newborns were not alive at the time of the interview. But the questionnaire was not designed to obtain information on the cause of death. A maximum recall period of up to two months was allowed.

The variables considered in this study are:

- Reported neonatal morbidity and care seeking for neonatal morbidity from trained provider (Dependent variables).

- Mother's age and education, father's education, monthly family expenditure, religion, sex of the newborn, birth order, history of death of a sibling, complications during pregnancy and/or delivery, antenatal care (ANC) from trained personnel, types of birth attendants (Independent variables).

Data were analysed using the SPSS software. Descriptive statistics and logistic regression models were used in analysing the data.

Operational definitions

For the purpose of this study, the following operational definitions were used:

Neonatal morbidity: An unprompted reporting by the mother of any of the following was considered to be a morbid event: breathing difficulty, fever, convulsion, diarrhoea, boils, jaundice, redness/discharge from the umbilicus, loss of weight, ulcer in the mouth, cough and cold, rash and others as reported among infants within 0-28 days of age.

Complications during pregnancy and/or delivery: An unprompted reporting of any of the following by the mother during her pregnancy and/or delivery was considered to be a complication: bleeding, pre-eclamptic toxaemia, headache, blurring of vision, convulsions, leaking membrane, premature rupture of the membrane, prolonged labour (lasting more than one day or one night), and malpresentation.

Characteristics of the study population

Nearly half (49%) of the neonates were females and half were males (51%). One-third belonged to the first birth order, 42 percent were between the order of 2 and 3 and a quarter had a birth order of 4 or more. More than three-quarters (76%) belonged to Muslim families. In 50 percent of the families, the monthly family expenditure ranged from Tk.2,000 to 3,999; it was less than Tk.2,000 in 26 percent and Tk.4,000 or more in 24 percent of the families. The mean age of the mothers was 24 years. The mean years of schooling of the mothers and fathers were 3.4 and 3.5 respectively. Forty-three percent of the mothers had no schooling, while about one-third (29%) had 1-5 years of schooling and another 28 percent had more than 5 years of schooling. Twenty-four percent of the neonates had history of death of a sibling, while 45 percent of their mothers reported history of complications during pregnancy and/or delivery.

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Results

Patterns of reported neonatal morbidity

Nearly half (48%) of the neonates in the study were reported to have a morbid condition (Fig.1). Fever (20%) was the most common reported morbidity, followed by breathing difficulty (11%). Seven percent had cough and cold (Fig.2). Further analysis showed that about 6 percent had fever or cough associated with breathing difficulty. About 8 percent had other complications which included constipation, suppression of urine, blue extremities, abdominal distension and discharge from the eye. Morbidity was higher (50%) in the male neonates than in the female neonates (47%). However, no major difference on the patterns of morbidity was observed between the male and female neonates.

Care-seeking behaviour

Eighty-seven percent of the mothers of the neonates, who had problems, sought care for their neonates, but less than a fifth took their newborns to the trained providers (Fig.3).

Fig.1. Percentage distribution of neonates with reported morbidity

Had problems
48%

52%
No problem

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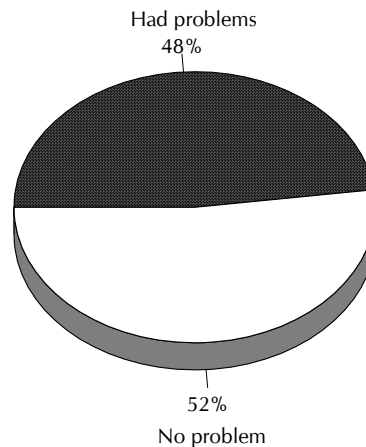
Fig.2. Patterns of reported morbidity in the study population (n=1404)
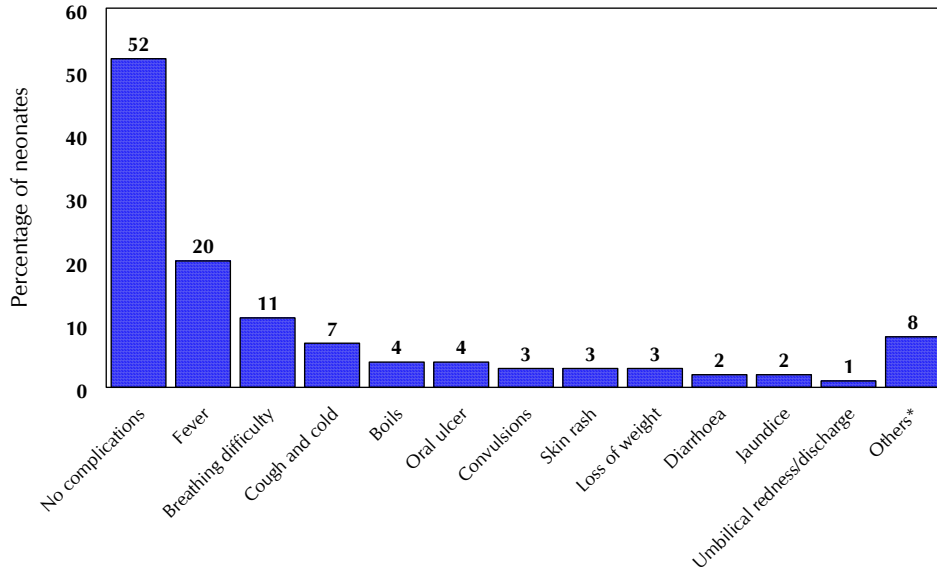
* Others include constipation, suppression of urine, blue extremities, abdominal distension, discharge from eye.
Note: Multiple responses were accepted

Fig.3. Percentage of ill neonates for whom care was sought
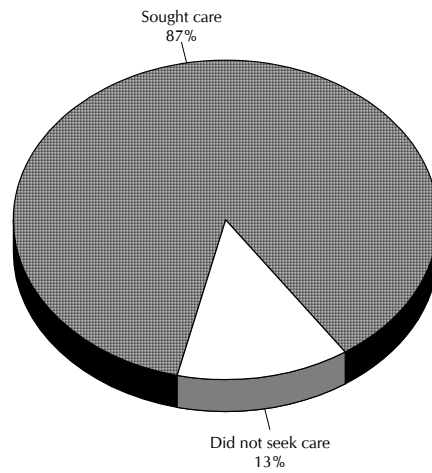
Types of providers/facilities used

Among those who had problems, 37 percent consulted homeopaths and 37 percent went to village doctors. Only 5 percent visited the government health facilities, such as Satellite clinic (SC), Health and Family Welfare Centre (H&FWC), and Thana Health Complex (THC) (Fig.4). About 12 percent went to the private medical practitioners.

Fig.4. Types of providers/facilities used for neonatal problems (n=680)
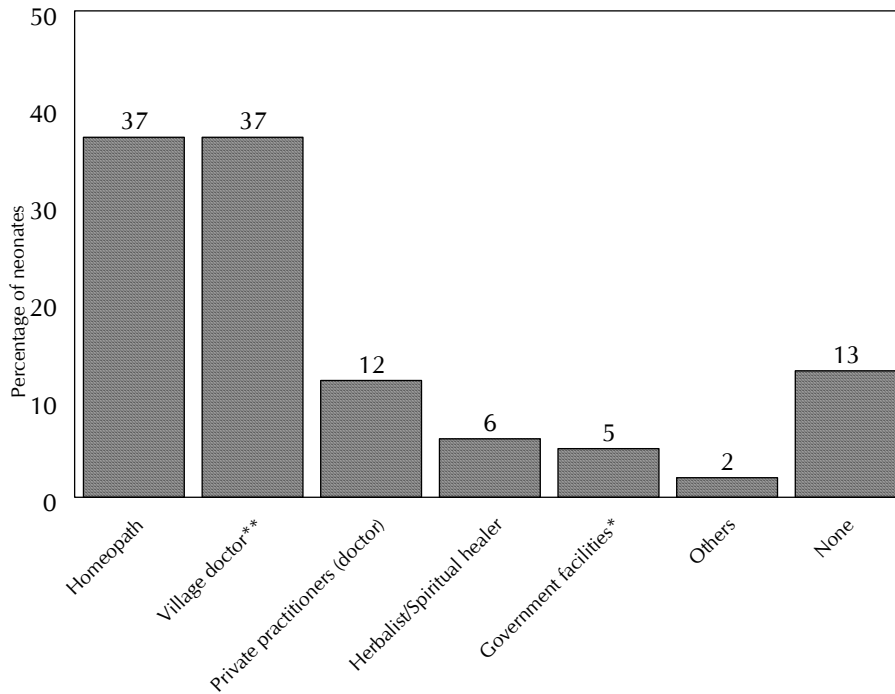
Sixteen percent sought care from multiple providers while 84 percent consulted a single provider; of them, 41 percent again visited homeopaths, 38 percent village practitioners, 10 percent private medical practitioners, and only 3 percent went to government health facilities (Fig. 5).

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Fig.5. Proportion of providers consulted for neonatal morbidity (n=1,404)
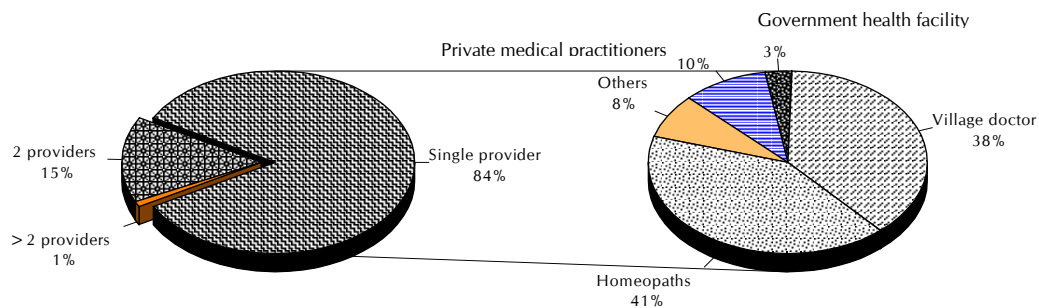
Types of providers/facilities used by sex of neonates

Care sought from the trained providers, particularly doctors, was found to be 7 percent greater for the male neonates than their female counterparts (p<0.01). Also care from any provider was sought for a greater proportion of male neonates. (Fig. 6)

Fig.6. Types of providers/facilities used by sex of neonate
(n=348 male, and n=315 female)
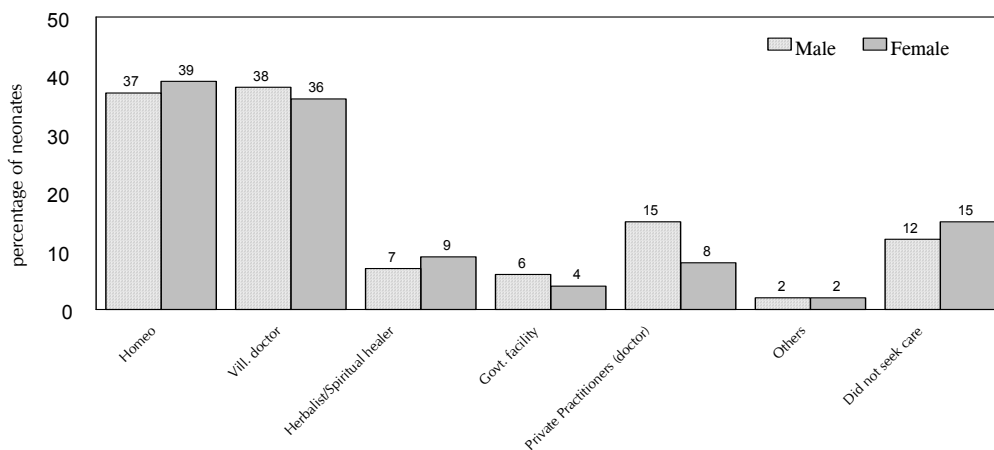
Types of providers by neonatal morbidity

As shown in Table 1, no care was sought for over a third of the neonates (34%) reported to have skin rash. Also, no care was sought for nearly a fifth (18%) of the neonates reported to have convulsions and for over a fifth of those having umbilical redness or discharge. Almost 80 percent sought care from the medically unqualified personnel for most of the morbidities. The services of the trained providers were more used for umbilical redness or discharge, diarrhoea, breathing difficulties, and loss of weight.

Table 1: Percentage distribution of types of providers by neonatal morbidity

Type of morbidity	Did not seek care	Government facility	Private practitioners	Medically unqualified
Breathing difficulty	8	11	15	78
Boils	14	7	9	77
Jaundice	8	-		
Umbilical redness/discharge	22	-	33	78
Convulsion	18	6	12	70
Fever	9	6	12	81
Diarrhoea	3	10	20	87
Loss of weight	9	9	17	74
Oral ulcer	6	6	4	87
Cough and cold	13	6	10	78
Skin rash	34	-	8	63

Note: Multiple responses were accepted

Cost of treatment by sex of neonates

The average cost of treatment was found to be Tk.194 ($1=Taka 46) for each neonate. However, the average amount spent for the treatment of the male neonates was found to be greater (Tk.205) than that spent for the female neonates (Tk.181). The difference was found to be significant ($p < 0.00$).

Cost of treatment by providers

As shown in Table 2, 50 percent of the cases going to the Satellite Clinic and the Health and Family Welfare Centre received free treatment; the rest spent ranging from Tk. 1 to 500. The majority (54%) who visited the THC and private medical practitioners (46%) paid between Tk.101 to 500, while most of the cases seeking care from homeopaths (84%), herbalist (54%) and village practitioners (38%) spent between Tk. 1 and 50.

Table 2: Percentage distribution of cost by places/providers

Cost in Tk.	SC & H&FWC (n=15)	THC/Dist. hosp. (n=24)	Homeo (n=262)	Herbalist/ spiritual healer (n=53)	Village doctor (n=258)	Private practitioner (n=82)
No cost	**50**	-	2	19	3	1
1-50	30	4	**84**	**54**	**38**	14
51-100	13	17	9	15	25	20
101-500	7	**54**	5	12	31	**46**
501-1000	-	21	-	-	2	10
1001-2000	-	4	-	-	1	9

Fifty-four of the 1,404 live-births in this study died during the neonatal period; of them, no care was sought for 48 percent and 15 percent visited the trained providers, while the rest visited the untrained providers.

Factors associated with reported neonatal morbidity

Results of logistic regression (Table 3) showed that mother's education was negatively associated with neonatal morbidity. The probability of morbidity of the newborns was found to be 5 percent less for every year of increase in mother's education ($p < 0.05$), whereas father's education did not have any effect on neonatal morbidity. The likelihood of morbidity was found to be 13 percent more among the male newborns than the female newborns. However, this was not statistically significant. Complications during pregnancy and/or childbirth were found to be significantly associated with increased morbidity ($p<0.001$). History of death of a sibling and the first birth order were also found to be significantly associated with increased morbidity ($p<0.05$). No statistically significant association was found with mother's age, types of birth attendants, or monthly family expenditure.

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Table 3. Odds ratio of factors associated with reported neonatal morbidity
(n=1,271)

Variable	Odds ratio

Mother's education	0.95 *
Father's education	1.02
Mother's age	1.02
Sex of neonates	
Female (RC^)	1.00
Male	1.13
Religion	
Non-Muslim (RC)	1.00
Muslim	1.07
Complications during pregnancy and/or delivery	
No (RC)	1.00
Yes	2.08 **
History of death of a sibling	
No (RC)	1.00
Yes	1.50 *
Birth order	
First (RC)	1.00
2-3	0.70
4 or more	0.53 *
Monthly family expenditure	
<2000 (RC)	1.00
2000-3999	0.83
4000+	1.22
Types of birth attendants	
Untrained (RC)	1.00
Trained	1.26

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^RC=Reference category; *$p<0.05$;   **$p<0.001$

Factors associated with care seeking from trained providers

As shown in Table 4, there was a significantly greater likelihood of seeking care for the male neonates (p< 0.05). Mothers who received antenatal care from the trained personnel were about two times more likely to seek care from

Table 4. Odds ratio of factors associated with care seeking from trained providers for neonatal morbidity (n=427)

Variable	Odds ratio
Mother's education	1.02
Father's education	1.04
Mother's age	0.99
Sex of neonates	
Female (RC)	1.00
Male	2.17 **
Religion	
Non-Muslim (RC)	1.00
Muslim	1.05
ANC from trained personnel	
No (RC)	1.00
Yes	1.93 **
History of death of a sibling	
No (RC)	1.00
Yes	0.78
Birth order	
First (RC)	1.00
2-3	0.76
4 or more	0.86
Monthly family expenditure	
<2000 (RC)	1.00
2000-3999	1.52
4000+	2.29 *
Types of birth attendants	
Untrained (RC)	1.00
Trained	1.50

*p<0.1;   **p<0.05
ANC from trained personnel = antenatal care from doctor, nurse, or paramedic.

the trained providers for the management of their newborns' illnesses than those who did not receive any antenatal care (p<0.05). Also, the families with a monthly expenditure of Taka 4,000 or more were more likely to seek care for their newborns than the families with a monthly expenditure of less than Taka 2000 (p<0.1). There was also greater likelihood of seeking care from the trained personnel for the newborns belonging to the first birth order.

Discussion and Conclusions

This study seeks to assess the patterns and care-seeking behaviour of neonatal morbidity in four rural communities in Bangladesh. The information on disease prevalence is largely subjective being dependent on what symptoms mothers considered serious. Thus, reporting may vary widely within the country [12].

Nearly half (48%) of the neonates in the study population were reported to have suffered from some kind of morbidity, and care from any provider was sought for 87 percent. This is comparable with the findings reported in the survey conducted by BIDS in 1996 [7].

The types of morbidity found in this study showed that 20 percent of the study population had fever and 11 percent had breathing difficulties. About 6 percent had cough or cold associated with breathing difficulty. Although, the prevalence of ARI among the neonates has not been reported, the prevalence of ARI among the infants aged 0-11 months is however, about 18 percent [3].

Morbidity was found to be prevalent more among the male neonates, but this was not found to be significant. It was also observed that history of complications during pregnancy and/or delivery and death of a sibling were significantly associated with increased morbidity of the newborns. This is supported by the findings reported by Alam [13], where the odds of a neonatal death were significantly higher if the elder sibling had died in the neonatal period compared to an elder sibling surviving infancy. The low reporting of morbidity among the mothers with better education may be due to better child rearing practices. The likelihood of morbidity was found to be greater among the neonates who belonged to the first birth order. This has also been reported in other studies [14]. The first birth order has also been found to be associated with increased neonatal mortality [3, 15].

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In this study, the majority of the mothers were found to consult the homeopaths (37%) and the village doctors (37%) for their neonates. Village doctors are untrained practitioners selling allopathic medicine. Of those who went to a single provider, 41 percent again sought care from homeopaths and 38 percent from the village doctors. Homeopathic medicine is believed to be mild, slow in action with no side-effects, and is specially suitable for children because of its sweet taste and ease of administration. Less fees charged by homeopathic practitioners may be another reason for increased consultation [16]. Preference for consulting the village practitioners may be due to charging of low fees, and also because they are easily accessible.

Half of the cases at the Satellite Clinic (SC) and Health and Family Welfare Centre (H&FWC) received free treatment. However, the cost of treatment at the THC and private medical practitioners was more than that required for treatment by homeopaths, village doctors, and other rural practitioners. This is probably because the more complicated cases attend the THC and need to buy medicines not supplied from the facility.

It was further observed that only 5 percent of the cases attended the government health facilities, but women who reported history of receiving antenatal care from the trained personnel (paramedics, nurses, or doctors) significantly sought more care from the trained personnel for their sick newborns than the women who did not have such care. Thus, previous exposure to and/or knowledge of the availability of healthcare facility may be associated with increased care of the newborns from the trained personnel. This is similar to the findings reported by Rahman et al. [17], where previous visit to the SC and H&FWC was associated with seeking antenatal care. Significant sex differential for seeking care was noted in this study; care was sought for a greater proportion of male neonates than female neonates; the likelihood of seeking care from the trained provider was greater for the male neonates, and the average cost spent for treatment of the male neonates was greater than that spent for the female neonates. Such gender bias has also been reported in other studies [18, 19, 20, 21]. The solvent families were found to report more morbidity and to seek more care. The greater reporting of morbidity among the solvent families may be due to differences in perception of morbidity.

Results from this study show that most of the mothers sought care from untrained village practitioners. As such homeopaths and village doctors, may be considered for training on proper referral of neonatal conditions requiring emergency care.

This study was conducted in selected thanas of two districts and, as such, the findings from this study must not be generalised.   It was also not possible to validate the morbidity reported in this study. Further studies are therefore, needed to confirm the patterns of neonatal morbidity found in this study. Studies are also needed to be conducted to investigate the reasons for poor utilisation of the government health facilities for neonatal morbidity. Efforts should be made to raise community awareness regarding neonatal morbidity, its prevention, and the importance of seeking care from trained personnel.

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