

ASSESSMENT OF MATERNAL-FETAL AND NEONATAL HEALTHCARE PRACTICES IN AN EASTERN MADHYA PRADESH DISTRICT

Rajesh Gupta¹, Jagdish Mandliya¹, HP Singh²

¹Department of Paediatrics, RD Gardi Medical College, Ujjain, MP, India

²Department of Paediatrics, SS Medical College, Rewa, MP, India

Correspondence to: Rajesh Gupta (drrajesh93@gmail.com)

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ABSTRACT

Background: Adequate knowledge about the maternal and child health care is meager in rural areas of India. Paying less attention to the maternal-neonatal health plays a crucial role in infant mortality.

Aims & Objective: This study was designed to assess the awareness and practices of parents in relation to maternal-fetal and neonatal healthcare.

Material and Methods: A total of 230 parents were included and the study was conducted over a period of one year. A pre-set questionnaire was used to obtain the data.

Results: Diminished antenatal and post natal care caused by poor personal hygiene and lack of environmental sanitation was found among most cases. 71.3% were using hand pumps as water source and 76% were using open field for defecation. 50.7% female did not have antenatal checkups. Almost 90% of mothers received tetanus toxoid vaccine during gestational period. 34.7% deliveries were conducted by untrained dais at home. 98% children vaccinated against polio virus. 48% of the mothers initiated breastfeeding immediately after delivery. Majority of the mothers (42%) started complementary feeds to their children at the age of 6 months. 89.1% of mothers fed their children with additional feeds. Maximum (63%) number of parents did not possess the Below Poverty Line (BPL)/Deendayal Antyodaya Yojna Card.

Conclusion: There is an imperative situation to educate the mothers and dais with respect to the maternal fetal health care. Also, flourishing new interventions are required to bring down the neonatal morbidity and mortality.

KEY-WORDS: Deendayal Antyodaya Yojna Card; Maternal-Fetal; Neonatal; Personal Hygiene; Sanitation

Introduction

Healthcare comprises an array of services provided to individuals or communities by qualified and licensed professionals for the purpose of scrutinizing, maintaining or restoring health in conjunction with promoting features.^[1] Healthcare is largely a governmental function and it is the duty of government to provide affordable and accessible care to all people in an equal measure. This principle has been recognized by nearly all governments of the world and enshrined in their respective constitutions including India. Prenatal care is a medical and nursery care provided to an expectant mother and her developing unborn baby to ensure a healthy pregnancy. It can reduce a baby's risk for health problems including low birth weight, mental retardation and heart problems. Also, mothers should attend antenatal clinic to avoid paediatric

health problems such as malnutrition, communicable/ non-communicable diseases and sanitary hazards.

The guidelines by World Health Organization (WHO) for new born encompasses care for low weight birth neonates, sanitation, early breastfeeding, thermal care, immunization and disease management.^[2] Immunization thwarts the children from preventable diseases particularly in the environment where the children are ill-fed and hence, it is the best parameter to assess the paediatric health. Infants are immunized against for tuberculosis, poliomyelitis, hepatitis-B, measles, diphtheria, pertussis and tetanus under national immunization program. Though, immunization programs being conducted by Health departments of India, United Nations International Children's Emergency Fund (UNICEF) report revealed that, in India fully immunized infants aged between 12-23 months

were only 62%.^[3] In India, few studies were conducted to assess the immunization status of children and its knowledge in rural areas.^[4,5]

Though literacy level is increasing nowadays, educating mother regarding the infant health is obligatory to evade or handle nutritional problems such as, protein energy malnutrition, low birth weight, vitamin deficiency related diseases, etc. Always, there exists a correlation between the environmental sanitation and health problems. The two major issues of environmental sanitation are unhygienic water and open area excreta disposal. Besides these, population hike, urbanization and industrialization also lead to an inevitable risk to human health. Sanitation related diseases such as cholera, typhoid, malaria, etc., are responsible for death among children and infants. So, sanitation must be improved to reduce the risks of diseases. According to District Level Household facility Survey-3 (DLHS-3), improved drinking water facilities are available in 0.9% of rural areas out of 1.8% in Rewa district.^[6] Globally, unhygienic water and inadequate sanitation contributes to 88% of diarrhoea-related deaths.^[7,8] World health organization states that people consuming water which is contaminated with human excreta are at the high risk of diarrhoea. In India, most of populations live in rural areas which lack environmental sanitation. Also, open excreta is common in rural areas and hence contaminate the drinking water culminating in water borne diseases in children.

According to WHO, breast feeding is one of the effective ways to afford healthy growth and development to the infant. Worldwide, less than 40% of infants (<6 months of age) are solely breastfed.^[9] In India, breast feeding and complementary feeding practices differs among communities. Inept feeding practices in some communities are often associated with the malnutrition. Ample studies conducted in India revealed that incidence and duration of breast feeding is declining.^[10,11] However, this modern era which was intruded by western culture plays a significant role in determining the duration of breastfeeding and malnutrition. Some studies established that mother's education and socio-economic status at family level have high significant association with malnutrition.^[10]

Deendayal Antyodaya Upchar Yojana is an innovative scheme launched by Madhya Pradesh Government with the aim to provide qualitative, free of cost health facilities to below-poverty line families. This kind of strategy was developed to emphasize an essential care to the children and thereby reducing the neonatal deaths. In Madhya Pradesh, National Sample Survey Organization (NSSO) released a statistical survey for 2004-05, which revealed that 31% of rural households and 12.7% of urban households held Below Poverty Line (BPL) cards. Antyodaya card holders were reported to be 3.3% of rural households and 1.9% of urban households.^[12] However, District Level Household Survey-3 (DLHS-3) of Rewa district reported an infant mortality rate of 74 out of 1000 live births in 2010-2011. Hence, educating the parents belonging to socially disadvantaged groups is one of the essential objectives in promoting the health status of mother as well as child. In this milieu, the present study was embarked upon in an endeavour to assess the awareness and practices of parents in relation to maternal-fetal and neonatal healthcare.

Materials and Methods

The present study was conducted at Department of Paediatrics, Gandhi Memorial Hospital, S.S. Medical College Rewa, during May 2007 to April 2008. The study includes 230 parents for the assessment of health awareness in relation to child and neonatal healthcare. The study was approved by institutional human ethics committee and study subjects were informed about this study and their consents were obtained. A pre-set questionnaire was used to collect the data viz. socio-demographic details, personal hygiene as well as environmental sanitation, antenatal and postnatal care.

Results

A total of 230 cases were included in the cohort study. Distribution of outcome according to socio-demographic characteristics is shown in table 1. Out of the total, 60% were the nuclear families. Majority of the families were Hindu (94%). Caste-wise distribution reported that 35.2% belonged to SC/ST, 34.8% belonged to OBC and 30% belonged to general caste. According to occupation majority

(62.2%) of the cases were belonging to agriculture/labor class. 23.5% of parents were illiterate, 20.9% were educated up to high school, 19.6% were educated up to middle school and very few (8.7%) have completed their graduation.

Table 2 shows the distribution of study groups according to the personal hygiene and environmental sanitation. In our study, hand pump was used commonly (71.3%) as their major water source. In this study, 76% families were using open fields for defecation. Practice about hand washing before meal and after defecation was enquired among the study subjects, this revealed 60.9% were rarely wash their hands before meal. Majority (68.3%) were using mitti to wash their hands than soap (31.7%) after defecation. 57.8% were using mosquito net.

Table-1: Socio-Demographic Data of Participants

Parameters		Number of Cases	%
Type of Family	Combined	90	40.0
	Nuclear	140	60.0
Religion	Hindu	217	94.0
	Muslim	13	6.0
	Other	Nil	0.0
Caste	SC	56	24.3
	ST	25	10.9
	OBC	80	34.8
	General	69	30.0
Occupation	Business	51	22.2
	Agriculture	69	30.0
	Labor	74	32.2
	Service (Govt/Pvt)	36	15.6
Education Status	Illiterate	54	23.5
	Primary	13	5.6
	Middle	45	19.6
	High School	48	20.9
	Higher Secondary	42	18.3
	Graduate	20	8.7
	Post graduate	8	3.4

Table-2: Distribution of Study Participants according to Environmental Sanitation and Personal Hygiene

Parameters		Number of Cases	%	
Water Source	Government Supply	25	10.9	
	Well	41	17.8	
	Hand Pump	164	71.3	
Mode of Defecation	Sanitary Latrines	55	24.0	
	Open Field	175	76.0	
Hand Washing Practice	Before Meal	Seldom	140	60.9
		Always	90	39.1
	After Defecation	Soap	73	31.7
		Mitti	157	68.3
Use Mosquito Net	Yes	133	57.8	
	No	97	42.2	

Table-3: Distribution of Outcome according to Antenatal and Postnatal Care to Mother and Infant

Parameters		Number of Cases	%
Antenatal Check-up	Nil	117	50.7
	Three	32	14.8
	< 3	47	20.4
	> 3	34	14.1
Antenatal Tetanus Toxoid Inj	Yes	205	89.1
	No	25	10.9
Iron Folic Acid Tablets	Yes	133	57.8
	No	97	42.2
Place of Delivery	Hospital (Private/ Govt.)	124	54.0
	Home	106	46.0
Delivery Conducted	Untrained Dai	80	34.7
	Trained Dai	19	8.2
	Staff Nurse	86	37.3
	Doctor	45	19.5
Availability of Vaccination Cards	Yes	153	66.5
	No	77	33.5
OPV during Pulse Polio Campaign	Yes	226	98.4
	No	2	0.8
	Not applicable	2	0.8

Table-4: Distribution of Outcome based on Breast Feeding and Complementary Feeding Status of Infants

Parameters		Number of Cases	%
Starting Breast Feeding	Immediate	111	48.3
	Within 24 hours	22	9.5
	> 24 hours	97	42.2
Starting Mother's Feeding	Within 24 hours	69	30.0
	>24 hours	161	70.0
Extra Feeds to Baby	Yes	205	89.1
	No	25	10.9
Time of Complementary Feeding	At age of 6 months	97	42.0
	>6 months	90	39.4
	< 6 months	17	7.3
	Not applicable	26	11.3

Table-5: Distribution of Outcome according to BPL / Deendayal Antyodaya Yojna Card Holders

BPL/ Deendayal Antyodaya Yojna Card	Number of Cases	%
Yes	85	37.0
No	145	63.0

Practice about antenatal and post natal care was evaluated and results are shown in table 3. 50.7% family's female members did not have antenatal check-ups. Most of the females received Tetanus Toxoid injection (89.1%) and iron folic acid tablets (57.8%) during their antenatal period. This study finding showed 54% of the delivery was conducted in hospitals (Govt/private) and 46% were home deliveries. The most common persons who conducted the delivery were staff nurses (37.3%) in hospital deliveries and untrained dais (34.7%) in home deliveries. 66.5% of parents possess vaccination cards and almost all the

children (98.2%) vaccinated against polio virus during different pulse polio campaigns.

In this study, all the mothers had breastfed their children (Table 4). Out of 230, 48.3% of the mothers initiated breast feeding immediately after delivery. 9.5% initiated within 24 hours and 42.2% initiated after a day. At the same time, mothers were being fed within first 2 days and in most cases (70%), after 5 - 6 days. Other than breast feeding extra feeds were also provided for about 89.1% of babies. Majority of mothers (42%) started complementary feeds to their children at the age of 6 months, 39.4% of mothers introduced complementary feeds after 6 months and 7.3% did it before 6 months. Study subjects who have BPL/Deendayal Antyodaya Yojna Card were found out to be 37% and maximum number of cases (63%) did not possess these cards.

Discussion

Certain parts of eastern Madhya Pradesh (e.g. Rewa), lack infrastructure and adequate health education among people, thus exposing the people to more vulnerable diseases as well as malnutrition and ultimately elevating the morbidity and mortality. In the present study, an attempt has been made to ascertain the health education of parents of Rewa in providing proper neonatal and child health care.

In our study, 23.5% family heads were illiterate (n=54) and were caring their children in their traditional way. According to census of India 2011, literacy rate in Rewa district was reported as 73.42%.^[13]

Under National Rural Drinking Water Programme, as on April 2012, out of 8516 habitations in Rewa, 60.91% (5187) were covered with safe drinking water facilities.^[14] 71.3% families (n=164) of present study were using hand pumps as drinking water source. Usually surroundings of those hand pumps were not maintained hygienically and collection of dirty water was near hand pumps allowing contamination of underwater. Studies reported that hand-pumped tube wells might contain significant amount of fecal indicator bacteria such as E.coli and other fecal coliforms.^[15] World Health Organization report

says that people who drink water that is contaminated with human faeces are at risk of diarrhoea, which claims the lives of 1.5 million children each year.^[16] Chlorine treatment or boiling the water can inhibit the growth of these contaminating bacteria.

In this study, 76% families were using open fields (n=175) for defecation either due to poverty or traditional way. It was found that 82.2% of rural households in Rewa had no toilet facilities in 2011.^[17] 60.8% (n=140) of parents told that they seldom wash their hands before eating or making food. In our study, majority of the cases (68.2%) wash their hands by mitti after defecation. Indian Public health association states that in India only 53% people wash their hands after defecation and only 38% wash before eating which is even less among those who prepare food (30%).^[18]

Fewtrell et al.^[19], in his study revealed that hand washing with soap especially before eating and after defecation is the most promising intervention to reduce diarrheal morbidity by 44%, while sanitation interventions are estimated to be very effective by 32%. Out of the total, 57.8% families of our study cohort (n=133) were using mosquito nets but still their uses as well as surrounding of environment should be amended.

Antenatal care indicators such as vaccination/iron folic acid tablets, place of delivery and person who assisted the delivery were included for analysis. 50.8% (n = 117) women told that they never had antenatal check-ups. Others who had antenatal check-ups, though visited the antenatal clinics at government health centre/private clinic, their required examinations or investigations were not done. They had just been given injections tetanus toxoid/iron folic acid (IFA) tablets. No satisfactory advice for their minor illnesses had been given, as told by mothers.

Neonatal tetanus is a serious and most common disease in rural areas of developing countries where parturition takes place without sterile procedures. In 2010, World Health organization reported that 58,000 neonates have died from tetanus.^[20] But, as a result of improved immunization coverage globally, nowadays the neonatal deaths occur rarely. Estimates from

Directorate of Health Services of States/UTs-2011, confirms that there were no deaths due to neonatal tetanus in Madhya Pradesh.^[21] Taking multiple doses (2-3) of antitetanus vaccine is 98% capable of preventing neonatal tetanus.^[22] In our study, antenatal tetanus toxoid injection was given in 89% (n = 205) cases for which credit goes mostly to increasing awareness leading to increased demand by community. At the same time, status of tablet IFA availability as well as acceptance was comparatively low (57.8%). Thus, inadequate antenatal care results in risk to both mother and child.

In previous decades, it was rare to have hospital deliveries in rural areas but things have changed nowadays. As a result of good campaigning and government schemes to promote safe deliveries, there is marked increase in numbers of hospital delivery. In our study, it was still only 54% (n=124), most of which held in recent 3-4 years.

In India, two-thirds of delivery takes place outside the hospitals and most of these deliveries are conducted by untrained dais. Dais (traditional birth attendants, TBAs) are the key persons in assisting childbirth and also acts as consultants to manage any condition of the mother, related to childbirth in rural areas. In this study, 34.7% (n=80) deliveries were conducted by untrained dais. Conducting unsafe deliveries by untrained dais is the most important cause of neonatal morbidity and mortality.^[23] To reverse this situation, under Ministry of Health and Family Welfare, training of indigenous dais was inaugurated where the rate of safe deliveries was below 30%.

In present study 66.5% parents told that they possess their children's vaccination cards and their children are immunized according to schedule. Saraf et al.^[24], found that female education and socioeconomic status has direct positive impact over the immunization status of the children. 98.2% (n = 226) of babies in our study were vaccinated against oral polio virus (OPV) during different pulse polio campaigns. A recent study by Masood et al.^[5], established that, due to lack of awareness there was a low coverage of immunization in both rural and urban areas.

According to the National Guidelines on Infant and Young Child Feeding (NGIYCF) breast feeding must be initiated within 1 hour after delivery. In our study, almost half of the babies 48.3% (n=111) were breastfed immediately and more than half, 52% (n = 119) of the parents told that traditionally they have not initiated breast feeding immediately after birth. It was usually started either within a day or after 2-3 days, supplemented with cow's milk. In concordance, Sathish et al.^[25], reported in his study that, 86.4% of mothers started breast feeding on the 3rd day or later. Breastfeeding problems though remain common; this can be easily preventable by providing education and practical help not only to breastfeeding women but also to fathers and others who support breastfeeding mothers.

In our study 89.1% (n=205) mothers admitted tradition of giving extra feeds to babies in the form of Ghooti, Honey, etc. Neonatal feeding practices in different regions were studied by ICMR, Cow's milk, sugar water, ghutti, water, and honey were the common first feeds.^[26] Another study done among illiterate mothers supports this practice by reporting, Janam ghutti (59.45%), honey and ghutti (25.4%), honey alone (11.89%), plain water (3.2%) were the first feed given to the neonates.^[25]

Though in this study 42% (n = 97) of mothers told that complementary feeding of their children was started at the age of 6 months but knowledge about the complementary foods was poor. In 39.4% (n = 90) of cases, introduction of complementary feeds was delayed. UNICEF suggests that the complementary feeding should start when the baby is around 6 months ^[27]. Aggarwal et al.^[28], noted that 16% of their studied children did not start on complementary feeding at all and only 17.5% received complementary feeding from 6 months. Singh et al.^[29], found that after health education to mothers regarding breast feeding, immunization, weaning and causation of diarrhoea, the score of pre and post-test was significant. Less number of parents 37% (n=85) possess the Deendayal Antyodaya Yojna card in our study. Also in a study by Madhya Pradesh state planning commission, it was demonstrated that the lack of awareness was found among the communities regarding this

scheme.^[30] These government schemes like BPL / Deendayal Antyodaya Yojna are very helpful in poor patients' management at hospitals. But regarding paediatric patients, their usefulness is limited because most of the young children don't have their names in these cards. There is an urgent need to modulate the criteria of these schemes in favour of children. In addition, campaign should be organized for developing awareness among the people in rural/remote areas on the intended benefits of the scheme.

Conclusion

Though most of the mothers were literate, inadequate maternal fetal and new born care practices were found in our study. The findings from our study enforce the significance of education and developing awareness to mothers and health care providers with respect to the maternal care. Usually BPL cards are devoid of children's name which let them excluded from beneficiaries. Government health promoting schemes must be planned as 'children oriented'. Hence, promoting maternal health care through existing health services will bring down the neonatal morbidity and mortality.

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