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Original Research Article

A Community-Based Assessment of the Feeding Practice during Diarrheal Episodes among Children Aged 6 to 23 Months: an Observational Study

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Abstract

Aim: The purpose of this study was to assess feeding practice during diarrheal episodes among children aged 6 to 23 months in Bihar region.

Methods: A community-based cross-sectional study was conducted in Department of Pediatrics, Jawaharlal Nehru medical College and Hospital, Bhagalpur, Bihar, India. All selected children of age 6 to 23 months included during the study period from january 2022 to December 2022 . 500 children were included in the study.

Results: A total of 500 participants were included in the study. Majority of mothers were house wives in occupation 400 (80%). Almost all the respondent mothers were married 490 (98%) and 430 (86%) had children under 5 years. 31% had education above grade 9. All mothers of the study participants were visiting health facility for antenatal care during pregnancy of the index child and all study participants were started vaccination. Mother of most study participants delivered their children at health facilities 400 (80%), got information about feeding practice during diarrheal episode 340 (68%), sought medical care during the illness 430 (86%), and increased food and fluid during diarrheal episode 350 (70%). Boy children were about 1.6 times more likely to get increased food and fluid than girl children. Mothers who have one under five children were 2 times more likely to have proper feeding practice during diarrheal episode as compared to those who have two and more under-five children. The likelihood of increasing food and fluid during diarrheal episodes was 2 times higher among children from maternal age of 30-39 years than those from 20-29 years. Mothers who got information about feeding practices during diarrheal episodes were 2 times more likely to increase food and fluid to their children compared to their counterparts.

Conclusion: In this study educational status, number of antenatal care visits, sex of child, number of under-5 children, maternal age, and information about feeding practice were independently associated with proper feeding practice during diarrheal episode.

Keywords: feeding practice, diarrheal episode, children

Introduction

Worldwide studies of infant and child nutrition have demonstrated that poor infant feeding and weaning practices along with frequent infections, in particular diarrheal diseases, are important determinants of growth faltering and malnutrition in the developing world. [1,2,3] Globally, diarrhea is the second leading cause of (19%) under-five deaths, nearly one in five child deaths, about 1.5 million each year, 22.5% of hospitalization, and up to 20% of all outpatient visits in children. [4] Diarrhea is a leading cause of child deaths, accounting for 9% of all deaths among children less than five years of age worldwide in 2015. This translates into over 1,400 young children dying each day, or about 530,000 children a year. Most deaths from diarrhea occur among children less than two years of age. [5,6,7] Diarrhea is one of the leading causes of childhood morbidity and mortality in developing countries; about 5 million deaths occur each year, 80% of which occur in children less than 2 years. [4,8]

Prevalence and death due to diarrhea were high in low and middle income countries because of low coverage in curative interventions against diarrhea and lack of safe drinking water, sanitation, and hygiene. [9,10]

In order to minimize mortality and morbidity resulting from diarrheal diseases, the World Health Organization (WHO) and United Nations International Children's Emergency Fund (UNICEF) have recommended continued feeding and fluid replacement as an intervention for management of diarrhea at home by caregivers. [11,12] Fluid replacement and continued feeding have an influential effect on controlling complications and recovery from diarrheal disease. Moreover, there are clues that risky practices like fluid restriction and breastfeeding reduction in treating diarrhea are used by caretakers during diarrheal episodes. [13] Previous studies revealed that 31, 25, and 11% of mothers give nothing, halt breastfeeding and decrease fluid administration during diarrheal episodes, respectively. [14,15] Since mothers play a crucial role in their children's nutritional status and growth, their feeding practices have a direct effect on those children's nutritional outcomes, particularly during diarrheal episodes. Their socioeconomic condition significantly influences the health status of their children and outcome of diarrhea episodes. [16]

The purpose of this study was to assess feeding practice during diarrheal episodes among children aged 6 to 23 months in Bihar region.

Materials and Methods

A community-based cross-sectional study was conducted in Department of Pediatrics, Jawaharlal Nehru medical College and Hospital, Bhagalpur, Bihar, India. All selected children of age 6 to 23 months included during the study period from january 2022 to December 2022. children were included in the study 500.

Data Collection and Analysis: Pretested structured questionnaire developed by reading different literature was used to collect data. The questionnaire was initially prepared in English, translated into local language, and then retranslated by another person to check consistency. The instrument was pretested in 5% of sample size outside the study kebeles.

In this study diarrhea was measured as passing of three or more loose stools over a period of time that the mother/care giver considered as diarrhea, and proper feeding practice during diarrheal episode was increasing food and fluid, which is measured by four comparative questions on feeding practice during diarrheal episode (frequency of breast feeding before and during the illness, frequency of food intake before and during the illness, amount of food intake before and during the illness, and frequency of fluid intake before and during the illness). If a mother's responses include increase during the illness in ≥ 75% of the total questions, the child is considered as having proper feeding during diarrheal episode (i.e., increased food and fluid).

Data were collected using structured questionnaire via face to face interviews with mothers/care givers. Twelve diploma nurse data collectors participated during data collection after two days of training. Filled questionnaires were checked daily for their completeness by three supervisors; then they were edited, coded, entered by Epi data version 3.1, and exported to SPSS 20.0 statistical software for analysis. After cleaning data for inconsistencies and missing values, descriptive statistics were done. Then bivariate analysis was done for all explanatory variables to identify association. Variables with p-value less than 0.25 in the bivariate analysis were included in a stepwise backward multivariable logistic regression procedure. Odds ratios (95% confidence intervals) were calculated to determine the association between increased food and fluid during diarrheal episode and independent variables.

Results

Table 1: Sociodemographic characteristics for the parent of study participant

Variable	Number	Percent
Sex		
Male	220	44
Female	280	56
Age in month		
6 - 12	200	40
12 - 18	230	46
18 - 24	70	14
Number of under 5 year children One	430	86
Two	170	34
Maternal age in year 20 - 29	300	60
30 – 39	00	40

Marital status		
Married	490	98
Single	5	1
Divorced	4	0.8
Widowed	1	0.2
Maternal occupation Government worker	60	12
Student	40	8
House wife	400	80
Maternal educational status		
No formal education	125	25
Grade 1 - 4	100	20
Grade 5 - 8	120	24
Grade 9 an above	155	31

A total of 500 participants were included in the study. Majority of mothers were house wives in occupation 400 (80%). Almost all the respondent mothers were married 490 (98%) and 430 (86%) had children under 5 years. 31% had education above grade 9.

Table 2: Health related condition of study population

Variable	Number	Percent
Place of delivery		
Health institution	400	80
Home	100	20
Have Information about feeding practice during diarrheal episode		
Yes	340	68
No	160	32
Frequency of diarrhea in last one month		
1 time	290	58
2 time	150	30
3 time	60	12
Seek medical care during the illness		
Yes	430	86
No	70	14
Number of ANC follow-ups		
< 4 times	200	40
≥ 4 times	300	60
Immunization status		
Completed	375	75
Up-to-date	125	25
Feeding practice during diarrheal episode		
Increase food & fluid	350	70
Not increase food & fluid	150	30

All mothers of the study participants were visiting health facility for antenatal care during pregnancy of the index child and all study participants were started vaccination. Mother of most study participants delivered their children at health facilities 400 (80%), got information about feeding practice during diarrheal episode 340 (68%), sought medical care during the illness 430 (86%), and increased food and fluid during diarrheal episode 350 (70%).

Table 3: Predictors of feeding practice during diarrheal episode

Variable	Increase food and fluid Yes %	No%	COR (95% CI)	AOR (95% CI)
Sex				
Male	168(48)	45(30)	2.06(1.43,2.91)	1.64(1.04,2.50)
Female	182(52)	105(70)	1	1
Number of under 5 children				
1	245(70)	82(54.6)	2.04(1.43,2.85)	2.15(1.38,3.23)
2	105(30)	68(45.34)	1	1
Maternal age				
20 - 29	195(55.71)	114(76)	1	1
30 – 39	155(44.29)	36(24)	2.12(1.52, 3.18)	2.42(1.55, 3.88)
Get information about feeding practice				
Yes	245(70)	84(56)	1.96(1.40, 2.79)	2.13(1.43, 3.36)
No	105(30)	66(44)	1	1
Number of ANC follow-ups				
Less than four times	105(30)	90(60)	1	1
Four and more times	245(70)	60(40)	3.16(2.45, 4.93)	4.24(2.73, 6.49)
Maternal education				
No formal education	70(20)	56(37.34)	1	1
Grade 1 - 4	70(20)	30(20)	1.88(1.14,2.99)	1.58(0.86, 2.79)
Grade 5 – 8	90(25.72)	36(24)	2.04(1.27, 3.21)	1.84(1.04, 3.11)
Grade 9 an above	120(34.28)	28(18.66)	3.29(2.04, 5.18)	5.06(2.89, 8.94)

The proportion of those who increased food and fluid during diarrheal episode as recommended were 350 (70%). Boy children were about 1.6 times more likely to get increased food and fluid than girl children. Mothers who have one under five children were 2 times more likely to have proper feeding practice during diarrheal episode as compared to those who have two and more under-five children. The likelihood of increasing food and fluid during diarrheal episodes was 2 times higher among children from maternal age of 30-39 years than those from 20-29 years. Mothers who got information about feeding practices during diarrheal episodes were 2 times more likely to increase food and fluid to their children compared to their counterparts.

Discussion

To decrease mortality and morbidity due to diarrheal diseases WHO and UNICEF had laid out a seven-point action plan for comprehensive diarrhea control by the year 2009. Among these points, fluid replacement, continued feeding, and increase appropriate fluids in the home during the diarrhea episode constitute the cornerstone for treatment package. [12] Major portion of death due to diarrheal disease can be prevented by fluid replacement during diarrheal episodes, but only a small proportion of children with life-threatening episodes of diarrhea receive the treatment. [17-20] Fluid replacement with frequent and small feeding including breast feeding during diarrhea episodes has a powerful effect on controlling complication and recovery from diarrhea. Studies showed that 25%, 11%, and 31% of mothers stop breast feeding, decrease fluid administration, and do not give anything during diarrheal episode, respectively. [21-23] Knowledge about factors associated with feeding practice during diarrheal episode is an important precondition for development of diarrheal disease intervention strategies.

A total of 500 participants were included in the study. Majority of mothers were house wives in occupation 400 (80%). Almost all the respondent mothers were married 490 (98%) and 430 (86%) had children under 5 years. 31% had education above grade 9. All mothers of the study participants were visiting health facility for antenatal care during pregnancy of the index child and all study participants were started vaccination. Mother of most study participants delivered their children at health facilities 400 (80%), got information about feeding practice during diarrheal episode 340 (68%), sought medical care during the illness 430 (86%), and increased food and fluid during diarrheal episode 350 (70%). Boy children were about 1.6 times more likely to get increased food and fluid than girl children. Mothers who have one under five children were 2 times more likely to have proper feeding practice during diarrheal episode as compared to those who have two and more under-five children. The likelihood of increasing food and fluid during diarrheal episodes was 2 times higher among children from maternal age of 30-39 years than those from 20-29 years. Mothers who got information about feeding practices during diarrheal episodes were 2 times more likely to increase food and fluid to their children compared to their counterparts. Our study was comparable with

studies conducted in Eastern Ethiopia[8] and Iran. [24] This could be due to the fact that as the number of under-five children increases in the household, the care given to the children decreases, causing strain on family resources, which leads to delay in treatment. As maternal age increases, exposure to health information and child care practice become better through experience. This was inconsistent with a study in Iran. [24]

In this study, it was found that diarrheal disease was associated with age of the children. The odds of having diarrheal disease were higher among children aged 6–11 and 12–24 months compared to children aged less than six months. This may be due to the fact that children aged more than six months start crawling or walking which increases their exposure to infectious agents. Furthermore, when children aged less than six months start complementary feeding this may increase their exposure to different types of infections through contaminated food and water. [25,26] Increased exposure to health facility increases information related to health promotion and prevention. Those mothers who have four and above ANC follow-ups were 4.21 times more likely to increase food and fluid compared to those who follow ANC less than four times. Also maternal education level affects feeding practice during diarrheal episode.

Conclusion

In this study educational status, number of antenatal care visits, sex of child, number of under-5 children, maternal age, and information about feeding practice were independently associated with proper feeding practice during diarrheal episode. Thus, intensifying intervention programmers and stakeholders working on child health should focus on these determinants to reduce child mortality and morbidity and realize sustainable development goals.

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