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AN EPIDEMIOLOGICAL STUDY OF DIARRHOEA IN UNDER FIVE CHILDREN (0-59 MONTH) IN RURAL AREA OF MEERUT, U.P.

Community Medicine

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ABSTRACT

Acute diarrheal illness remains one of the major causes of childhood morbidity and mortality especially among children under five years in developing countries. The diarrhoeal disease are more problematic in the rural areas due to poor sanitation and hygiene. So, the study was conducted in under five children in the rural area with objectives of finding out the fortnightly incidence of diarrhea and to study associated sociodemographic factors and the management practices in the community. The present cross-sectional study was conducted among under five children in rural area of Meerut. 423 children were studied selected randomly from 2 randomly selected villages of the block. The fortnightly incidence of diarrhoea was found to be 14.2%. Average duration of diarrhoea was 1-3 days. Higher fortnightly incidence of diarrhoea was found in age group 0-12 month, where sibling order was 5 or more, Muslims, OBC, where mother was illiterate, lower socio-economic class, and where housing and environmental conditions were poor with significant association with sibling order. Among the management practices, maximum number of children were given normal fluid during the diarrhea episode and maximum children took treatment from Local healthcare worker or Health clinic.

KEYWORDS

under 5, diarrhoea, rural area, sociodemographic factors, management

INTRODUCTION

Acute diarrheal illness remains one of the major causes of childhood morbidity and mortality especially among children under five years in developing countries. Definition of Diarrhoea according to WHO is passage of three or more loose or liquid stools per day (or frequency is more than a normal individual). Diarrhoea may be caused by a variety of bacterial, viral and parasitic organisms. The Infection is caused by contaminated food or drinking-water, or from person-to-person in case of poor hygiene. [1,2,3]

As stated by WHO (2017) Diarrhoeal disease is the second leading cause of death in under five children, and kills around 525000 children every year worldwide. In low-income countries, under three years old children experience on an average three episodes of diarrhea every year. [1]

Due to unsafe disposal of faeces, peri-domestic open defecation by children, poor hygiene practice, poor literacy status, lack of clean drinking water and faulty child rearing practices, the diarrhoeal disease are more problematic in the rural areas as these are more prevalent in rural area. [3,4] So, it was decided to conduct an Epidemiological study of Diarrhoea in under five children in the rural area with the following objectives

AIMS & OBJECTIVES

- To find out the fortnightly incidence of diarrhoea.
- To study sociodemographic factors associated with diarrhoea.
- To study management practices of diarrhoea in the community

MATERIAL AND METHODS

The present cross-sectional study was conducted among under five children in rural area of Meerut. Taking prevalence of diarrhoea 22.5% [5] and absolute precision 4% at 95% confidence interval, the sample size for the study was calculated as 419 and children covered in the study were 423. One CHC was selected randomly from 12 CHC in Meerut district which was Machhra having 5 PHCs. From this selected CHC one PHC was chosen randomly. The selected PHC Machhra has 4 villages. From these villages 2 villages were selected randomly which were Machhra and Kasimpur. MCTS list of Machhra and Kasimpur was obtained having 408 and 340 under five children respectively. 212 under five children from Machhra and 211 from Kasimpur were selected randomly.

The families of selected children were visited to collect information from mothers of children regarding occurrence of diarrhoea and types of treatment taken and associated factors of diarrhoea on predesigned and pretested proforma. Any child having acute diarrhea at the time of interview or had an episode of acute diarrhoea in the last 2 weeks was taken as a case of acute diarrhoea. The data thus collected, was prepared, analysed and statistically evaluated by Epi- info software, 3.7.2. Permission was taken from the Ethical Review Committee for conducting the study.

OBSERVATIONS AND RESULT

In the study fortnightly incidence of diarrhoea was found to be 14.2%. Average duration of diarrhoea was 1-3 days. Annual episode /child/year observed was 5 motions. (Table 1)

Table -1: Diarrhoeal morbidity in under five children

MORBIDITY	NUMBER	PERCENTAGE (%)
Fortnightly incidence of diarrhoea	60	14.2
Diarrhoea within 24 hours	18	4.3
Average duration of diarrhoea	1-3 days	
Annual episode /child/year	5 episode/child/year	

Table 2 shows that higher fortnightly incidence of diarrhea was found in age group 0-12 month, where sibling order was 5 or more, Muslims, OBC, where mother was illiterate, Lower socio-economic class and where housing and environmental conditions were poor. Sibling order Housing and environmental conditions were found to be significantly associated with diarrhea. ($p<.05$).

Table 2: Diarrhoea and sociodemographic factors

Variable	Suffered from Diarrhoea n (%)	Not suffered Diarrhoea n (%)	Total N (%)	X^2; p value
Age group in months				
0-12	44 (15.2)	246 (84.8)	290 (68.5)	X^2=1.25, df =4, P>.05
13-24	10 (13.6)	63 (86.4)	73 (18.5)	
25-36	2 (12.5)	14 (87.5)	16 (2.6)	
37-48	1 (7.6)	12 (92.4)	13 (3.1)	
49-59	3 (9.6)	28 (90.4)	31 (7.3)	
Total	60 (14.2)	363 (85.8)	423 (100)	

Gender				
Male	27 (12.3)	191 (87.7)	218 (51.5)	χ^2=0.915,df=1, P>.05
Female	33 (15.9)	172 (84.1)	205 (48.5)	
Total	60 (14.2)	363 (85.8)	423 (100)	
Sibling order				
One	9 (20.0)	36 (80.0)	45 (10.6)	X^2=6.97, df =4 P<.05
Two	14 (7.7)	66 (36.7)	180 (42.5)	
Three	25 (16.7)	124 (83.2)	149 (35.2)	
Four	7 (17.9)	32 (82.1)	39 (9.3)	
Five or more	5 (50.0)	5 (50.0)	10 (2.4)	
Total	60 (14.2)	363 (85.8)	423 (100)	
Religion				
Hindu	38 (13.8)	239 (86.2)	277 (65.8)	X^2=5.48, df =2, p>.05
Muslim	10 (26.3)	28 (73.7)	38 (8.8)	
Sikh	12 (11.1)	96 (88.8)	108 (25.4)	
Total	60 (14.2)	363 (85.8)	423 (100)	
Caste				
General	45 (14.2)	272 (85.8)	317 (74.9)	X^2=0.90, df = 2 , P> 0.05
OBC	11 (16.7)	55 (83.3)	66 (15.6)	
SC	4 (10.0)	36 (10.0)	40 (9.5)	
Total	60 (14.2)	363 (85.8)	423(100)	
Family type				
Nuclear	40 (13.7)	252 (86.3)	292 (69.1)	X^2=0.18,df=1, p>0.05
Joint	20 (15.3)	111 (84.7)	131 (30.9)	
Total	60 (14.2)	363 (85.8)	423 (100)	
Education of mother				
Illiterate	31 (17.5)	148 (83.5)	177 (41.8)	X^2=2.57, df =3, p>.05
Primary	18 (11.8)	137 (87.2)	157 (37.1)	
Middle	8 (12.9)	54 (87.1)	62 (14.6)	
High school and above	3 (11.1)	24 (88.9)	27 (6.5)	
Total	60 (14.2)	363 (85.8)	423 (100)	
Socio-economical status				
Upper	1 (7.7)	12 (92.3)	13 (3.1)	X^2=5.21, df = 4, p>.05
Upper middle	8 (10.4)	69 (89.6)	77 (18.2)	
Middle	14 (12.5)	98 (87.5)	112 (26.5)	
Lower middle	28 (15.2)	157 (84.8)	185 (43.7)	
Lower	9 (25.0)	27 (86.1)	36 (8.5)	
Total	60 (14.2)	363 (85.8)	423 (100)	
Housing and environmental conditions				
Poor	9 (29.1)	31 (93.9)	40 (9.5)	X^2=3.94, df =2, p <.05
Satisfactory	49 (16.3)	302 (83.7)	351 (82.9)	
Good	2 (6.3)	30 (93.7)	32 (7.6)	
Total	60 (14.2)	363 (85.8)	423 (100)	

Table 3 shows that maximum number of children suffering from diarrhea were given normal fluid during diarrhoea. Also, maximum mothers gave shikanji to their children during diarrhoea, Table-4 also shows that 95% children who had diarrhoea have been taken to local health worker / CHW / Health clinic and 54.3% of the children who had diarrhoea took ORS/drugs from Govt. Functionary

Table 3: Diarrhoea and Management practices

Variable	Suffered from Diarrhoea n (%)
Fluid intake during diarrhoea	
Normal	43 (71.6)
Less	7 (11.6)
More	8 (13.4)
Stopped	2 (3.4)
Total	60 (100)
Type of Feed given during diarrhoea	
Sugar salt solution	7 (11.6)
shikanji	21 (35.0)
khichdi	13 (21.6)
Daal	3 (5.1)
Daal ka pani	2 (3.3)
Daal ki khichdi	2 (3.3)
Dahi	9 (15.1)
Dalia	3 (5.0)
Total	60 (100)
Management practice	
Treat it their-self with homemade SSS	3 (5)
Took child to local health worker / CHW / Health clinic	57 (95)
Total	60 (100)
Source of ORS/drugs Procurement	
Govt. Functionary	31 (54.3)
Local P.P.	16 (28.1)
Medical store	4 (7.1)
ASHA/ANM/AWW	6 (10.5)
Total	57 (100)*

*** Only 57 children took treatment from Local health worker / Health Clinic / Community Health Worker (CHW)**

DISCUSSION

The present cross sectional study was conducted in rural areas of Meerut among under five children with the objective to study the diarrhoea, factors associated with it and management practices in the community. Total 423 children were included in the study.

The fortnightly incidence of diarrhea in under 5 children was found to be 14.2% which is less than reported in NFHS-4 data for rural area of Meerut (26.9%) but comparable to U.P. (15.2%) [6]

Present study showed that maximum fortnightly incidence (15.2%) of diarrhea was found in age group 0-12 month similarly observed by Kumar M. et al (35%)[7]; in females (15.9 %) more than in male (12.3%) which is comparable to R. Vishwakarma et al [8] (30.5% in males and 31.4% in females) and Stanly A.M. et al[5] (males 21.4% and females 23.8%) ; where sibling order was 5 or more (50.0%) . The association of diarrhoea with sibling order was found to be statistically significant (p<.05). Rajegowda RM et al[9] observed that children of birth order 3rd were slightly more vulnerable to experience the episode of diarrhoea.

Present study showed that maximum fortnightly incidence of diarrhea (15.9%) was observed where mother was illiterate. Similar observation were reported by M. Samwel et al[10] who states that children of mothers who had no education were about 3 times more likely to have diarrhoea when compared to children of mothers who had higher education. Although Pooran C. et al[11] observed that fortnightly incidence of diarrhoea was significantly higher among children whose mothers were literate (70.7%).

In present study it was observed that during diarrhoea maximum mothers gave shikanji (35%) to their children. Shah et al[12] from Aligarh U.P. stated that the commonest home available fluids used was the sugar salt solution (51.3%).

In present study it was observed that 95% children who had diarrhoea were taken to local health worker / CHW / Health clinic for treatment while only 5% of children took treatment by their-self with homemade sugar salt solution. However Sutariya S. et al[13] reported that higher number of children (90.60%) were treated at home with ORS/home available fluids. According to NFHS-4 only 46.8 % children with diarrhoea received ORS [14].

CONCLUSION

Diarrhoea is common in infants, those having 5 or more sibling order, Muslims, OBC, Lower socio-economic class and poor housing and environmental conditions. Interventions should be made in improving the maternal and child health care to reduce the burden of diarrhoea and diarrhoea-related mortalities in children under five. Targeted approach should be initiated to mitigate the problem of the poor health status of children by providing adequate health care among socio-economically disadvantaged women and children. The policy-makers and stakeholders should address adverse environmental conditions by the provision of latrine and improved housing facilities.

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