

# **RESEARCH ARTICLE**

#### PREVALENCE OF ACUTE DIARRHEAL DISEASES AND ASSOCIATED RISK FACTORS AMONG UNDER FIVE CHILDREN IN AN URBAN SLUM OF MUMBAI

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# Manuscript Info

#### Abstract

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Key words:-Diarrhoea, Under Five Children, Urban Slum **Introduction:** Diarrhoea is one of the single most common causes of death among children under age five worldwide. Diarrheal disorders in childhood account for a large proportion (18%) of childhood deaths, with an estimated 1.5 million deaths per year globally, making it the second most common cause of child deaths worldwide<sup>1</sup>. So the study was undertaken in order to study the prevalence and associated risk factors causing diarrhoea in urban slum of Metropolitan city.

**Methods-** A cross sectional study was done from January 2012 to December 2012 in Cheetah Camp area. Toal 478 under five children were selected and the parent/guardian of the child was interviewed using pre-designed, semi-structured and pre-tested questionnaires. **Results and Conclusion-**The prevalence of diarrhoea in children under 5 years during past 2 weeks was 17.8%. Diarrheal episodes in the past 2 weeks was significantly associated with education of mother, socioeconomic status of family, type of family, source of water supply, housefly nuisance in home, child hand-washing before meals, mother hand-washing before meals and immunization status.

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### Introduction:-

WHO/UNICEF defines "Acute Diarrhoea" as an attack of sudden onset, which usually lasts 3 to 7 days, but may last up to 10-14 days. <sup>[1]</sup> In many parts of the world, diarrhoea is still a major health problem. Acute diarrhoea is responsible for nearly 1.9 million deaths per year in children under age five. <sup>[2]</sup>

Diarrhoea is one of the single most common causes of death among children under age five worldwide. Diarrheal disorders in childhood account for a large proportion (18%) of childhood deaths, with an estimated 1.5 million deaths per year globally, making it the second most common cause of child deaths worldwide<sup>3</sup>. In India, acute diarrheal disease accounts for about 8 percent of deaths in under-5 year age group. During the year 2011, about 10.6 million cases with 1,293 deaths were reported in India<sup>4</sup>. 88% of diarrheal diseases are attributed to unsafe water supply, inadequate sanitation and hygiene. Rapid industrialization has resulted into phenomenal growth of urban slum settlement in many big cities of India in recent past <sup>5</sup>.So the study was undertaken in order to study the prevalence and associated risk factors causing diarrhoea in urban slum of Metropolitan city.

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# Methodology:-

The present community based descriptive epidemiological study was conducted during the period of January 2012 to December 2012 in Cheetah Camp, field practice area under department of Community Medicine of a Municipal Medical College. The children suffering from diarrhoea within past 2 weeks of survey and which lasted for more than 3 days up to 14 days, were included for the study.

### **Inclusion Criteria**

- 1. Children below 5 years of age.
- 2. Parents who are willing to participate in study.
- 3. Children whose parents are staying for at least 6 months in study area.

## **Exclusion Criteria**

1) Children suffering from persistent and chronic diarrhoea or any other severe illness.

All 11 sectors of the study area have total population of 83,523 which include 9,566 of under five children.5% of total under five population of study area were selected as sample. So, the sample size was 478.The number of children selected in each sector were in proportion to population of preschool children in that sector. In each sector, 5% of under five populations was selected for study by visiting every 20<sup>th</sup> household, till required proportional number of preschool children were obtained. Every child from that house was included for the study.

Sr.	Sector	Total	Under five	5% of under five population	5% of under five population (rounded)
No.		population	population		
1	А	7964	890	44.5	45
2	В	10692	1236	61.8	62
3	С	11271	1266	63.3	63
4	D	13126	1525	76.25	76
5	Е	11688	1360	68	68
6	F	7334	820	41	41
7	G	9664	1126	56.3	56
8	Н	2214	249	12.45	12
9	Ι	1257	150	7.5	8
10	J	5761	682	34.1	34
11	K	2282	262	13.1	13
Total		83253	9566	478.3	478

Institutional Ethics Committee approval was obtained for the study. When the randomly selected household was reached, the parent/guardian of the child was interviewed using pre-designed, semi-structured and pre-tested questionnaires. An eligible child was one under 5 years of age. When no individual belonging to the target population was found then next household was checked and kept going on to neighboring households till an eligible child was found. In one household all children below 5 years of age were included.

# **Results:-**

**Table No. 1:-** Distribution of Diarrheal episodes in Children during past 2 weeks.

Diarrheal episodes	Frequency (N)	Percentage (%)
Yes	85	17.8%
No	393	82.2%
Total	478	100.0%

From the above table, it was observed that out of 478 children, 85(17.8%) children had diarrheal episodes and 393(82.2%) had no such episodes during past 2 weeks. Thus, the prevalence of diarrhea in children under 5 years of age comes out to be 17.8%.

Variables	Dirrhoea		
	Yes(%)	No(%)	
Sex			0.833
Male	55 (17.5)	259 (82.5)	
Female	30 (18.3)	134 (81.7)	
Age(months)			0.109
<12	30 (17.8)	139 (82.2)	
13-24	20 (18)	91 (82)	
25-36	20 (24.4)	62 (75.6)	
37-48	10 (20.4)	39 (79.6)	
49-60	5 (7.5)	62 (92.5)	
Mother's Education			0.000
Illiterate	35 (41.2)	50 (58.8)	
Primary	30 (18.3)	134 (81.7)	
Secondary	15 (8.7)	157 (91.3)	
Higher Secondary and Graduate	5 (8.8)	52 (91.2)	
Socioeconomic status			0.000
Class ll	0	24 (100)	
Class Ill	15 (8.8)	155 (91.2)	
Class IV	60 (23.1)	200 (76.9)	1
Class V	10 (41.7)	14 (58.3)	1
Type of Family			0.000
Nuclear	35 (12.5)	246 (87.5)	1
Joint	50 (25.4)	147 (74.6)	1

Table No. 3:- Risk factors among respondents.

Variables	Dia	P value	
	Yes (%)	No (%)	
Birth Order			0.035
$1^{st}$	40 (24)	127 (76)	
2 <sup>nd</sup>	25 (14.5)	147 (85.5)	
3 <sup>rd</sup> and above	20 (14.4)	119 (85.6)	
Source of tap water			0.035
Common	75 (19.6)	307 (80.4)	
Seperate	10 (10.4)	86 (89.6)	
Houseflies			0.000
Present	50 (25.8)	144 (74.2)	
Absent	35 (12.3)	249 (87.7)	
Child hand washing			0.002
Yes	50 (14.6)	292 (85.4)	
No	35 (27.3)	93 (72.7)	
NA*	0 (0)	8 (100)	
Mother hand washing			0.000
Yes	55 (12.6)	383 (87.4)	
No	30 (75)	10 (25)	
Immunization Status			0.000
Complete	60 (14.9)	343 (85.1)	
Partially	20 (30.8)	45 (69.2)	
Incomplete	5 (50)	5 (50)	

NA = Not applicable includes children who were exclusively breast fed.

# **Discussion:-**

In this study, it was observed that out of 478 children, 85(17.8%) children suffered from diarrhoea during past 2 weeks. Thus, the prevalence of diarrhoea in children under 5 years of age was 17.8%. The prevalence observed in present study (17.8%) was more than the data shown by NFHS-3 (6.8%).<sup>[6]</sup>

The incidence of diarrheal episodes in studies conducted by J.R. Srivastsava et al, Hazra et al, P.C. Khanduja et al, and S.K. Behera et al reported were 24.6%, 18.64%, 5.5% and 11.3% respectively.<sup>[7,8,9,10]</sup>

There was significant association between mothers education, socioeconomic status and type of family, ages of children and diarrheal episodes in past 2 weeks.

In the study performed by Molbak et al who observed highest incidence of 13.0 episodes per child per year at risk, occurred in 6-11 month age group.<sup>[11]</sup>

While Walia BNS et al though observed less incidence of diarrhoea among children below 5 year (0.78 episodes per child per year), still there was significantly high incidence of diarrhoea in age group 0-1. The incidence decline gradually with increase in age.(p < 0.02)<sup>[12]</sup>

Similar finding were observed in studies performed by Mahendraker AG et al which showed that the incidence of diarrhoea was inversely proportional to the literacy status of mothers.<sup>[13]</sup>

Similar finding were observed in studies performed by Saran M. et al and Bern C. et al which showed significant high prevalence of diarrhoea in children belonging to lower socio-economic class.<sup>[14,15]</sup>

Other risk factors like birth order, source of tap water, child and mother hand washing, immunization status found to be significantly associated with diarrheal episodes in last 2 weeks.

This study shows that the 1<sup>st</sup> birth order child suffers more from diarrhoea than 2<sup>nd</sup>, 3<sup>rd</sup> or more birth order children. This may be due to inadequate knowledge of new mothers regarding taking proper postnatal care of their children.

Oni GA in his study in Nigeria observed that children who were of the fifth or higher birth order had significantly higher risk of diarrhoea when compared with those who were of first or second birth order (p < 0.05).<sup>[16]</sup>

Similar finding were observed in Mandal AK et al who observed that the private tap water consumers had the lowest incidence rate and well water consumers had highest incidence rates, the difference was statistically significant.<sup>[17]</sup>

In study performed by Saran M. et al who observed that significantly high diarrheal episodes were seen in those children whose mothers did not wash hands properly before feeding their children.<sup>[14]</sup>

### **Conclusion:-**

On the basis of statistical analysis of data, results, discussions and epidemiological interpretation of results, the following conclusions have been drawn.

The prevalence of diarrhoea in children during past 2 weeks in study area was found to be 17.8%.

Diarrheal episodes in the past 2 weeks was significantly associated with education of mother, socioeconomic status of family, type of family, source of water supply, housefly nuisance in home, child hand-washing before meals, mother hand-washing before meals and immunization status.

There was no significant association between sex of children, different ages of children and diarrheal episodes in the past 2 weeks.

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