

Original Article

Morbidity pattern of the children of under five years of age in a selected urban slum of Dhaka city

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Abstract :

Diseases among young children are the major causes of morbidity and mortality particularly in the developing countries of the world. Children under five years of age are the most vulnerable section of the society and suffer from highest morbidity. The present study makes an attempt to assess the morbidity pattern among the children of under five years in an urban slum and find out its association with various factors. This descriptive cross-sectional study was conducted for a period of 6 months from September 2013 to February 2014 in an urban slum area of moghbazar in Dhaka city. A house to house survey was conducted and a total of 439 children of under five years were enrolled for the study. Out of total 439 children, 244 (55.6%) were females and 95 (44.4%) were males. Among the children 56.5% were suffered from one or more sickness. Overall health morbidities were more in females 59%. Acute respiratory infection (ARI) 215 (49%) was the commonest morbidity found during study period followed by fever 199 (45.3%), diarrhoeal diseases 160 (36.4%), malnutrition 79 (18%) and helminthiasis 75 (17%). Most of the children of under five years suffered from ARI, fever, diarrhoeal diseases and malnutrition were in the age group of 25-36 months. Helminthiasis was more in the age group of 37-48 months and skin problem was more in the age group of 25-36 months. ARI, diarrhoeal diseases, skin problem and infectious diseases were more in male under five years children while, fever, malnutrition and helminthiasis were more in female under five years children. Accident was more in male under five children and the relation was statistically significant. ($p=0.03$). A statistically significant association was found in diarrhoeal diseases with monthly family income ($p=0.03$) and mother's occupation ($p=0.001$) and also between skin problem and mother's education ($p=0.022$) and occupation ($p=0.000$). A statistically significant association was found in morbidity pattern of diarrhoeal diseases, fever and helminthiasis with type of house ($p=0.017$, $p=0.009$, $p=0.000$). No association of morbidity was observed with type of latrine and water source.

Key Words: Morbidity pattern, Under five children, Slum, Acute respiratory tract infections

Introduction :

Diseases among young children are the major causes of morbidity and mortality particularly in the developing countries of the world.¹ Children under five years of age constitute approximately 15% of the country's total population and are the most vulnerable section of the society and suffer from highest morbidity.² Infant and child morbidity and

mortality has for a long time been regarded as a true reflection of a country's socio-economic and health conditions.³ UNICEF considers under-five child mortality rate as the single best indicator of social development and well being reflecting income, nutrition, health care, basic education and living environment etc.⁴ Globally, 7.6 million children died in 2010 before reaching their fifth birthday. The burden of mortality in

children younger than 5 years varied widely across WHO regions in 2010, with the largest number of deaths seen in Africa (3.6 million) and southeast Asia (2.1 million).⁵ Poor countries bear a disproportionate burden of child mortality. Children in developing countries are more than 10 times more likely to die before reaching the age of 5 than children in developed countries.⁶ Data from the BDHS 2011 showed that under 5 mortality is 53 per 1000 live births. There are three illnesses that are major contributors to childhood morbidity and mortality in Bangladesh. These are: diarrhea, acute respiratory infection (ARI) and fever.⁷ Infectious diseases such as diarrhea (20%), pneumonia (18%) and measles (2%) account for 40 % of the 271000 under-5 deaths that occurred in Bangladesh in 2005.⁸ Diarrhoea is one of the most common childhood illness in Bangladesh and contributes to malnutrition and death especially for children under 5 years of age. The prevalence of diarrhea is highest at age 6-23 months, a period during which solid foods are first introduced into child's diet. Acute respiratory infection is another leading cause of childhood morbidity and mortality world wide.⁹ The prevalence of fever varies by age, with children age 6-23 months being more likely to have a fever than either younger or older children.⁷ In older children pneumonia, diarrhea and malaria were the most common causes of death.⁵

In Bangladesh, with urban population growth, the number of slums and the people who dwell in them are really increasing. More than half the slum inhabitants are children.¹⁰

The population characteristics in urban slum area like socio-cultural variation, low socio economic status, poor health care utilization and overall compromised living condition make the slum children susceptible for various diseases.¹¹ Thus, the varied morbidities in the under five children in slum areas intensifies the great need to study the morbidity pattern of under-five years children and find out its association with various factors and provide suggestive measures if required.

Methodology :

This descriptive cross-sectional study was conducted for a period of 6 months from September 2013 to February 2014 in an urban slum area of moghbar in Dhaka city to assess morbidity pattern among the under five years children and find out its association with various factors. The target population consisted of children under five years of age residing in an urban slum. A house to house survey was conducted and a total of 439 children of under five years of age were enrolled for the study. Sample size was detected by using formula $n = Z^2 pq/d^2$. Purposive sampling technique was used in the study. Children above 5 years and borne after enrolment were excluded from the study. Mothers of enrolled children were interviewed and information regarding the mother's education, occupation, monthly family income, type of house, type of latrine, source of drinking water etc. was

collected and the information regarding age of the child, sex and occurrences of illness in the child in the preceding 3 weeks was collected from the mother. The age was recorded as told by mother, corrected to the nearest month. Informed consent of mothers was taken by explaining the purpose of the study. Assurance had been given that the confidentiality concerning their information would be maintained strictly. A semi structured pre-tested questionnaire was developed to collect data from face-to-face interview. The history of preceding 3 weeks were kept as minimum so as to reduce recall bias. The data were checked, verified and then entered into the computer. The analysis was carried out with the help of SPSS. All analyzed data were presented in the form of percentages. Chi-square test was applied wherever applicable.

Results :

In the study 439 under five children were studied. Out of 439 under five children 195 (44.4%) were males and 244(55.6%) were females. Among the under five children, 248 (56.5%) were suffered from one or more than one morbidities. Overall health morbidities were more in female as compared to male under fives, that is 144 (59%) and 104 (53.33%) respectively. (Table :1) The commonest morbidity in the present study was Acute respiratory infection (ARI) observed in 215 (49%) under five children followed by fever in 199 (45.3%), diarrhoeal diseases in 160 (36.4%), malnutrition in 79 (18%) and helminthiasis in 75 (17%) under fives. Among the rest, skin problem was observed in 28 (6.4%), ear problem in 20 (4.6%), childhood asthma and eye infection in 13(3%) and 13(3%) under five children respectively. Accident/injuries were observed in 6 (1.4%) under five children. (Table: 2) Most of the under five children suffered from ARI, fever, diarrhoeal diseases and malnutrition were in the age group of 25-36 months. Helminthiasis was more in the age group of 37-48 months and skin problem was more in the age group of 25-36 months. (Table: 3) ARI, diarrhoeal diseases, skin problem and infectious diseases are more in male under five children and the relation was not statistically significant. Accident was more in male under fives and the relation was statistically significant. ($p=0.03$). Fever, Malnutrition, Helminthiasis is more in female under five children (Table: 4). A statistically significant association was found in diarrhoeal diseases with monthly family income ($p=0.000$) and mother's occupation ($p=0.001$) and also between skin problem and mother's education ($p=0.022$) and occupation ($p=0.000$). (Table: 5). A statistically significant association was found in morbidity pattern (diarrhoeal diseases, fever, helminthiasis) with type of house ($p=0.017$, $p=0.009$, $p=0.000$). No association of morbidity was observed with type of latrine and water source. (Table: 6)

Table – 01. Health morbidity status in study population (n=439)

Morbidity status	Male		Female		Total (%)
	No.	%	No.	%	
Health morbidity present	104	53.33	144	59.0	248 (56.5%)
No health morbidity	91	46.7	100	41.0	191 (43.5%)
Total	195	100.0	244	100.0	439 (100.0)

Table - 02. Distribution of health morbidities among children of under five years (n = 439)

Health morbidities among under 5 children	Frequency *	Percent
ARI (Cough/cold/pneumonia)	215	49.0
Diarrheal diseases	160	36.4
Fever	199	45.3
Malnutrition	79	18.0
Anemia	8	1.8
Helminthiasis	75	17.1
Childhood asthma	13	3.0
Skin problem	28	6.4
Infectious diseases (Measles, mumps, chickenpox, scabies)	19	4.3
Infection in eyes	13	3.0
Ear problem	20	4.6
Accident/Injuries	6	1.4
Others	7	1.6

* Multiple responses

Table -03. Age Distribution of Health morbidities among study population

Health morbidities	Age of the children (in months)					Total No (%)
	0-12	13-24	25-36	37-48	49-60	
	No (%)	No (%)	No (%)	No (%)	No (%)	
ARI (Cough/cold/pneumonia)	55 (25.6)	39 (18.1)	65 (32.2)	39 (18.1)	17 (7.1)	215 (100.0)
Diarrheal diseases	31 (19.4)	38 (23.8)	52 (32.5)	30 (18.8)	9 (5.6)	160 (100.0)
Fever	43 (21.6)	39 (19.6)	51 (25.6)	41 (20.6)	25 (12.6)	199 (100.0)
Malnutrition	14 (17.7)	15 (19.0)	22 (27.8)	18 (22.8)	10 (12.7)	79 (100.0)
Anemia	0 (0%)	1 (12.5)	1 (12.5)	4 (25.0)	2 (25.0)	8 (100.0)
Helminthiasis	4 (5.3)	19 (25.3)	19 (25.3)	20 (26.7)	13 (17.3)	75 (100.0)
Childhood asthma	2 (15.4)	4 (30.8)	3 (23.1)	4 (30.8)	-	13 (100.0)
Skin problem	6 (21.4)	6 (21.4)	7 (25.0)	6 (21.4)	3 (10.7)	28 (100.0)
Infectious diseases (Measles, mumps, chickenpox, scabies)	2 (10.5)	4 (21.1)	8 (42.1)	2 (10.5)	3 (15.8)	19 (100.0)
Infection in eyes	4 (30.8)	1 (7.7)	5 (38.5)	1 (7.7)	2 (15.4)	13 (100.0)
Ear problem	3 (15.0)	3 (15.0)	6 (30.0)	5 (25.0)	3 (15.0)	20 (100.0)
Accident/Injuries	3 (50.0)	1 (16.7)	1 (16.7)	-	1 (16.7)	6 (100.0)
Others	2 (28.6)	2 (28.6)	-	2 (28.6)	1 (14.3)	7 (100.0)

Table -04. Gender wise Distribution of Health morbidities among study population

Health morbidities under 5 children	Sex of the children				Total	χ ² -value	P-value	
	Male (195)		Female (244)					
	No	%	No	%	No	%		
ARI (Cough/cold/pneumonia)	98	50.3	117	48.0	215	49.0	.231	NS
Diarrheal diseases	73	37.4	87	35.7	160	36.4	.148	NS
Fever	83	42.6	116	47.5	199	45.3	1.083	NS
Malnutrition	32	16.4	47	19.3	79	18.0	.597	NS
Anemia	2	1.0	6	2.5	8	1.8	1.245	NS
Helminthiasis	30	15.4	45	18.4	75	17.1	.715	NS
Childhood asthma	5	2.6	8	3.3	13	3.0	0.193	NS
Skin problem	14	7.2	14	5.7	28	6.4	.377	NS
Infectious diseases (Measles, mumps, chickenpox, scabies)	11	5.6	8	3.3	19	4.3	1.461	NS
Infection in eyes	3	1.5	10	4.1	13	3.0	2.472	NS
Ear problem	6	3.1	14	5.7	20	4.6	1.765	NS
Accident/Injuries	5	2.6	1	0.4	6	1.4	3.730	0.03
Others	5	2.6	4	1.6	9	2.1	0.462	NS

Table :05 Statistical significance of diseases by selected variables (n=439)

Disease	Frequency of disease	Education (df=6)	Occupatio (df=9)	Monthly family income (df=4)
ARI (Cough/cold/pneumonia)	215	P=0.15,χ ² =15.844	P=0.12,χ ² =21.118	P=0.100,χ ² =7.789
Diarrheal diseases	160	P=0.746,χ ² =3.482	P=0.001,χ²=27.809	P=0.000,χ²=20.110
Fever	199	P=0.642,χ ² =4.254	P=0.089,χ ² =15.076	P=0.059,χ ² =9.076
Malnutrition	79	P=0.094,χ ² =10.824	P=0.208,χ ² =12.088	P=0.260,χ ² =5.274
Helminthiasis	75	P=0.233,χ ² =8.070	P=0.794,χ ² =5.449	P=0.112,χ ² =7.482
Skin problem	28	P=0.022,χ ² =14.819	P=0.000,χ ² =44.128	P=0.440,χ ² =3.754

Table-06: Statistical significance of diseases by selected variables (n=439)

Disease	Frequency of disease	Type of house (df=3)	Type of Latrine (df=2)	Water source (df=3)
ARI (Cough/cold/pneumonia)	215	P=0.241χ ² = 4.197	P=0.600,χ ² =1.022	P=0.499χ ² =2.372
Diarrheal diseases	160	P=0.017,χ ² =10.247	P=0.064,χ ² =5.497	P=0.125,χ ² =5.758
Fever	199	P=0.009,χ ² =11.664	P=0.361,χ ² =2.036	P=0.196,χ ² =4.692
Malnutrition	79	P=0.227,χ ² =4.337	P=0.660,χ ² =0.831	P=0.572,χ ² =2.003
Helminthiasis	75	P=0.000,χ ² =29.771	P=0.742,χ ² =0.597	P=0.980,χ ² =0.187
Skin problem	28	P=0.587,χ ² =1.930	P=0.827,χ ² =0.380	P=0.725,χ ² =1.318

Discussion :

In the present study quite large proportions (56.5%) of children of under five years were suffering from some form of morbidities. This finding was similar to the study done in urban slum area of odisha¹¹, East Delhi¹² India where under five morbidity were 47.6% and 53.7% respectively. Another study done in urban slum areas of Maharashtra, India showed that 84.76% children were suffered from one or more than one morbidities.¹³ In the present study, more than half of children (56.5%) of under five years were ill during data collection period. The higher morbidity in the slum children may be attributed to the poor health care facilities accessible to the slum dwellers. It intensifies great need to formulate policies to tackle the issue. In the present study, health morbidities were more in female children as compared to male children (59% vs 53%). Similar finding was noted in the study done in Maharashtra¹³ and Jammu², India. However, opposite findings were found as compared to present study in East Delhi, India where health morbidities were significantly higher in boys as compared to girls (63.4% vs 26.4%).¹²

The commonest morbidity in this study was acute respiratory infection (ARI, 49%). Similar finding was noted in the studies done in Uttar Pradesh (63.59%),⁴ Jammu (47.26%)² and Surat city(50%)¹⁴ of India. The highest percentage of ARI in the study may be due to the time of survey, the winter season. The study done in odisha noted that malnutrition (28.2%) was the most common morbidity followed by ARI (8.87%), worm infestation (8.06%), anaemia (8.06%) and diarrhoea (5.64%) among the slum children.¹¹ Fever (45.3%) was the second important morbidity found in the present study which was similar with the study findings observed in Surat city (23.4%)¹⁴ but the study done in Western Kenya showed that fever (48%) was the most commonly reported illness.¹ In this study, diarrhoeal diseases (36,4%) were the third important illness which contributes to malnutrition and death especially for the children under five years of age. Most of the diarrhoea related deaths in under five children occur due to dehydration. In Uttar Pradesh, diarrhoea (20.58%) was the second important morbidity among the under fives.⁴ The study done in East Delhi, India found that diarrhoea was the chronic and most important morbidity followed by malnutrition including PEM, anaemia and Vitamin A deficiency.¹² The present study showed 18% children of under five years were malnourished. This finding was similar to the study done in Ludhiana slum (19%)¹⁵ and Calcutta city (16%).¹⁶ The high percentage of malnutrition (67.62%) among under five years children were observed in the study done in Maharashtra, India.¹³ Skin

infections were found in 6.4% of under five years children in the present study but several studies showed that skin problems and infections of subcutaneous tissue were observed in 9.2%,¹² 6.19%,¹³ 12.5%,¹⁷ and 2.7%¹⁸ children respectively. The present study showed that most of children of the under five years were suffered from ARI, fever, diarrhoeal diseases and malnutrition were in the age group of 25-36 months. But the study done in Maharashtra noted that ARI and diarrhoea was more common below 24 months of age.¹³ Skin problem was more in the age group of 25-36 months in our study and this finding was correlate with the finding of the study done in Maharashtra, India.¹³

In the present study a statistically significant association was found in diarrhoeal diseases with monthly family income and mother's occupation and also between skin problem and mother's education and occupation. A study done in Uttar Pradesh noted that statistically significant association was found in morbidity pattern of ARI, diarrhoea, malaria, malnutrition and anaemia with various factors like education, socio-economic status and occupation.⁴ Another study done in Bangladesh showed that decrease in morbidity with increase in educational level of mothers.¹⁹ No significant association of morbidity with literacy of parents was observed in the study done in Jammu, India.² A statistically significant association was found in morbidity pattern of diarrhoeal diseases, fever and helminthiasis with type of house in this study but no association of morbidity was observed with type of latrine and water source. The study done in Surat city noted that there was an influence of environmental factors over health of under five children in urban slum area of Surat city, India¹⁴

Due to existing socioeconomic situation in Bangladesh, the urban slum children are more vulnerable to deaths than the urban non-slum children. Since the urban population has been increasing rapidly and 40% of its population is poor and live in slums, the findings of this study have important implications in the achievement of MDG 4.

Conclusion :

In the present study about half of children of under five years age were suffered from some form of morbidities which are preventable. Policies which aim to improve access to public and private health services may help improve children's health status and wellbeing. It will be difficult to achieve millennium development goals if the government ignored the health care need of children in urban slum. Health education and behavior change communication activities can be undertaken also for the mothers of children in the slum for early recognition of morbidities.

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