

Study of Morbidity Pattern of Under-Fives in Paediatrics OPD of a tertiary care Hospital in a Rural Area of Uttar Pradesh

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Abstracts: Background: Children under-five are most vulnerable for malnutrition and infection. Morbidity pattern of this age group has several determinants like socio-economic status, basic education, occupation, socio-cultural practices, living environment etc. Objectives: To study the morbidity pattern in under-five children and to find out it's association with various factors. Methods: This was a cross-sectional study conducted in paediatrics OPD of a tertiary care level hospital in rural area of Etawah District of Uttar Pradesh for three months. We included 379 children by random sampling design. Mothers of children were interviewed using a predesigned schedule. Chi-square test was used for statistical analysis. Results: Commonest morbidity was malnutrition (70.71%), followed by ARI (63.59%), anaemia (47.76%), diarrhea (20.58%), malaria (13.33%) and worm infestation (10.03%) while around 25 percent suffered from other illnesses. Most common symptom was fever (70.71%) and cough (62.8%). A statistically significant association was found in morbidity pattern of ARI, diarrhea, malaria, malnutrition and anaemia with various factors like education, socio-economic status, and occupation. Congenital anomalies were found in around 3 percent children. 3.69 percent children were admitted in wards from OPD. Conclusion: Common childhood illnesses were prevalent though children suffered from serious illnesses on very few occasions. [Massod A NJIRM 2012; 3(3) : 101-106]

Key Words: Morbidity pattern, Under-fives, Paediatrics.

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Introduction: India the home to the highest number children in the world, ranks fifty-four in under-five child mortality¹. 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 etc².

Most deaths among under-fives are still attributable to just a hand full of conditions, that are avoidable through existing interventions. These conditions are; acute respiratory infections mostly pneumonia (19%), diarrhoea(17%), malaria(8%), Measles(4%), HIV/AIDS(3%) and neonatal infections-mainly preterm births, birth asphyxia and infection(37%)³. About fifty percent of childhood deaths in India are attributable to malnutrition.⁴

India is a country of contrasts and great complexity. There exists a wide variation among different geographical regions, between social groups, among different incomes. The situation of health in rural India where our seventy-two percent population¹ lives is worse with only

rudimentary health care services being available to the masses. This tertiary care level hospital in rural area of Etawah District of Uttar Pradesh is established with a vision to bridge this yawning gap in health indicators. It is situated in rural areas of Uttar Pradesh. This study was carried out in paediatrics OPD of a tertiary care level hospital in rural area of Etawah District of Uttar Pradesh with the aims and objectives to study the morbidity pattern in under-five children, find out it's association with various factors and to provide suggestive measures if required.

Material and Methods: This was a cross-sectional study conducted for three months, from July 07 to September 07 in paediatrics OPD of a tertiary care level hospital in rural area of Etawah District of Uttar Pradesh. Simple random sampling technique was used in the study. First five new under-five cases per day were taken into study. The sample size was decided on the basis of data obtained from Medical Record Department of Institute. On the basis of 10 percent of new under-five cases

during previous three months in OPD, minimum sample size was decided to be 310 and mothers of 379 children were interviewed accordingly for background information and prevailing symptoms. On the basis of prevailing symptoms provisional diagnosis was made in consultation with consultant in OPD.

Nutritional assessment was done using anthropometry and clinical examination. The age was recorded as told by the mother, corrected to the nearest month. Children were weighed and measured as per WHO guidelines on anthropometry.⁵ For children less than 18 months, recumbent length was measured with children lying down. Malnutrition was assessed by using growth chart recommended by Indian Academy of Paediatrics. Anaemia was assessed by pallor on palpebral conjunctiva and palm. The desired information was collected on a predesigned, pretested and precoded schedule, which was tested for its validity on the basis of a pilot survey. Modified B G Prasad's social classification was used to assess socio-economic status. It was updated to August 2007. Statistical Analysis was done by using Percentage & Chi-Square Test (X^2).

Result: Most common morbidity was malnutrition (70.71%) followed by ARI (63.59%), anaemia (47.76%), diarrhoea (20.58%), skin disease (13.78%) and malaria (13.48%) while around 25% suffered from other diseases. [Table1]

Table 1: Morbidity Pattern among under fives

S. No.	Provisional Diagnosis (N=379)	No	%
1	Acute Respiratory Infection (ARI)	241	63.59
2	Diarrhoea	78	20.58
3	Skin disease	52	13.72
4	Ear disease	10	2.64
5	Malaria	51	13.46
6	Anaemia	10	47.76
7	Abdominal Disease	29	7.65
8	Eye disease	181	3.96
9	H/o worm infestation	38	10.03
10	Malnutrition	268	70.71
11	Others*	45	11.87

*Others include feeding problems, septicemia, TB, nephrotic syndrome, epilepsy, hepatitis, UTI etc.

Most common prevailing symptom was fever (70.71%) and cough (62.8%) followed by loose motion (21.37%), skin infection (15.04%) and fever with chills (16.36%) etc. [Table2]

Table 2: Prevailing Symptoms among under fives

S. No.	Prevailing Symptoms (N=379)	No	%
1	Fever	268	70.71
2	Cough	238	62.8
3	Loose motion	81	21.37
4	Skin infection	57	15.04
5	Fever with chills	62	16.36
6	Vomiting	17	4.49
7	Pain in abdomen	26	6.86
8	Eye problems	15	3.95
9	Others*	71	18.73

* Others include anorexia, jaundice, weakness, head, ache, constipation, pain in ears etc.

Congenital anomalies were found in around 3 percent children. 3.69 percent children were admitted from OPD in wards. [Table3]

Table 3: Congenital Anomaly & Ward Admissions

S No.	N=379	No.	%
1	Congenital Anomaly	11	2.9
2	Patient admitted in ward from OPD	14	3.69

Statistically significant relationships between Morbidity pattern & education of mother, education of father, occupation of father and social class of family were shown. [Table 4]

Discussion: Acute respiratory infections (ARI) are one of the commonest causes of childhood mortality, responsible for 19 percent of all under-five deaths⁴. As mortality follows morbidity, highest number of cases seen in OPD was of ARI (63.59%). NFHS III found that 2 weeks before survey 6 percent of children had symptoms of ARI. Since our study is hospital based and we cannot calculate prevalence because denominator is not known, we can not compare it with NHFS III

findings. But the disease load in OPD reflects the trend in community.

Table 4: Statistical Significance of Diseases by Select Variables

Provisional diagnosis	No.	Education of Mother	Education of Father	Occupation	Social Class
		x ² , p value, df=5	x ² , p value, df=5	x ² , p value, df=4	x ² , p value, df=4
ARI	241	185.74, P<0.000	54.6, P<0.000	143.29, P<0.000	149.66, P<0.000
Diarrhoea	78	91.01, P<0.000	27.74, P<0.000	26.38, P<0.000	56.23, P<0.000
Skin Disease	52	41.18, P<0.000	12.63, P<0.05	*	*
Malaria	51	86.77, P<0.000	29.82, P<0.000	47.07, P<0.000	*
Anaemia	181	203.21, P<0.000	53.85, P<0.000	88.79, P<0.000	150.91, P<0.000
Malnutrition	268	129.48, P<0.000	76.04, P<0.000	76.07, P<0.000	177.32, P<0.000

*Chi-square test could not be applied as in some cells (Higher group) the number of patients were 0 or <2, this again points towards strong relationship. Note: The results of Statistical Significance of Diseases by Select Variables in Table 4 were derived from Table 5,6,7,8

Diarrhoea is the second most important killer of under-fives worldwide following ARI. NHFS III revealed that 26 percent children under three suffered from diarrhoea in last two weeks before survey, which is, although in agreement with our study (21.58%), yet not comparable. A 35 percent diarrhoeal Diseases in a Tibetan settlements⁷ is understandable because on average the settlements were able to get only 64 percent of their drinking and washing water requirements.

There is paucity of data on the prevalence of skin disorders among children in northern India. Low socio-economic status, malnutrition, overcrowding and poor standard of hygiene are important factors accounting for distribution of skin diseases in developing countries such as India. Some studies^{8,9} reported a point prevalence of 38.8 percent⁸ and 54 percent⁹ of skin conditions in school children aged. The above findings are in high congruity of our findings (13%). The difference

may be due to the reason that we considered only those cases, which were symptomatic, and sought treatment for their problems like skin lesions, itching and pain. We did not include pediculosis capitis and asymptomatic cases not seeking treatment like pityriasis alba, etc. Second reason may be that our study was limited to under-fives and pattern of skin conditions may be different in this age group e.g. acne vulgaris is uncommon in this age group.

Malaria is ranked as 8th highest contributor to the Global burden of disease on the basis of DALYs.¹⁰ Malaria kills about 2 million people every year, most of them are children under five¹¹. Thirteen percent cases were suspected of having malaria on the basis of fever with chills. This may not be the actual figure but high number of confirmed cases in wards, many of them with splenomegaly and one P.falciparum case in neonate points towards high endemicity of malaria in that area.

About 47.76 percent children were found to be anaemic on assessing pallor clinically in our study. NFHS III found that 79 percent (81% in rural % 72% percent in urban areas) children (6-35 months) anaemic. The difference may be due to the fact that we detected anaemia by positive pallor sign. Positive pallor sign may be less sensitive to detect anaemia as the clinical methods like palmer pallor and pallor in lower palpebral conjunctiva are not standardized and are subject to observer variation. A study¹² reported a prevalence of around 94 percent of anaemia in under-five children in tribal areas of Mohana block in Orissa. This may be due to poverty, ignorance and high proportion (28.7%) of irregular fever and splenomegaly (26.9%), suggestive of malaria in these children contributing towards anaemia.

In our study 70.71 percent of children were found to be malnourished. NHFS III revealed that 43 percent of under three children were under weight. Under nutrition was substantially higher in rural areas than in urban areas. It was more in Muslims, SC/STs, OBCs and children whose mothers were illiterate and educated below high school which corroborates with the findings of our study and some other studies¹⁴. Some studies^{13, 14}

Table 5: Distribution of Disease by Education of Mother

S.No	Provisional Diagnosis	Total No.	N=379						X ² , Pvalue
			Illiterate	Just Literate & Primary	Middle School	High School	Intermedi	> Intermediate	
			N=181 (47.76%) No.(%)	N=28 (7.39%) No.(%)	N=86 (22.69%) No.(%)	N=37 (9.76%) No.(%)	N=21 (9.76%) No.(%)	N=25 (6.6%) No.(%)	
1	ARI	241	112(61.91)	21(75.0)	58(67.44)	22(59.46)	15(71.43)	13(52.0)	185.74 P<0.000
2	Diarrhoea	78	43(23.76)	6(21.43)	16(18.61)	6(16.22)	5(23.81)	2(8.0)	91.01 P<0.000
3	Skin Disease	52	24(13.26)	3(10.71)	12(13.95)	7(18.92)	1(4.76)	5(20.0)	41.18 P<0.000
4	Ear Disease	10	7(3.87)	1(3.57)	0(0.0)	0(0.0)	1(4.76)	1(4.0)	
5	Malaria	51	33(18.23)	5(17.86)	6(6.98)	4(10.81)	1(4.76)	2(8.0)	86.77 P<0.000
6	Anaemia	181	98(54.14)	13(46.43)	40(46.51)	15((40.54)	7(33.33)	8(32.0)	203.21 P<0.000
7	Abdominal Ds	29	9(4.97)	3(10.71)	9(10.47)	4(10.81)	1(4.76)	3(12.0)	
8	Eye Disease	15	8(4.42)	0(0.0)	3(3.47)	0(0.0)	3(14.29)	1(4.0)	
9	H/o worm infestation	38	27(14.92)	4(14.29)	5(5.81)	2(5.41)	0(0.0)	0(0.0)	
10	Malnutrition	268	133(73.48)	15(53.57)	71(82.58)	21(56.76)	14(66.67)	14(56.0)	129.48 P<0.000
11	Others	45	20(11.05)	3(10.71)	12(13.95)	2(5.41)	3(14.29)	5(20.0)	

Table 6: Distribution of Diseases by Education of Father

S.No.	Provisional Diagnosis	Total (379)	N=379						X ² P value
			Illiterate	Just Literate & Primary	Middle School	High School	Inter mediate	>Inter mediate	
			N=94 (24.82%) No.(%)	N=28 (7.39%) No.(%)	N=76 (20.05%) No.(%)	N=96 (25.33%) No.(%)	N=34 (8.97%) No.(%)	N=51 (13.46%) No.(%)	
1	ARI	242	55 (58.51)	17(60.71)	45(59.21)	72(75.0)	21(61.76)	31(60.78)	54.6,P<0.000
2	Diarrhoea	78	26(27.66)	4(14.29)	13(17.11)	20(20.83)	7(20.59)	8(15.69)	27.74,P<0.000
3	Skin Disease	52	8(8.51)	5(17.86)	14(18.42)	15(15.63)	4(11.76)	6(11.76)	12.63,P<0.05
4	Ear Disease	10	3(3.19)	0(0.0)	4(5.26)	2(2.08%)	0(0.0)	1(1.96)	
5	Malaria	51	21(22.34)	4(14.2)	8(10.5)	11(11.46)	4(11.77)	3(5.9)	29.82,P<0.000
6	Anaemia	181	57(60.64)	20(71.43)	38(50.0)	41(42.70)	10(29.41)	15(29.41)	53.85,P<0.000
7	Abdominal Disease	29	8(8.57)	5(17.86)	5(6.58)	5(5.21)	2(5.88)	4(7.84)	
8	Eye Disease	15	5(5.32)	2(7.14)	2(2.63)	3(3.13)	1(2.94)	2(3.92)	
9	H/o Worm infestation	38	12(12.77)	4(14.28)	8(10.53)	8(8.83)	3(8.82)	3(5.88)	
10	Malnutrition	268	85(90.42)	22(78.57)	53(69.74)	61(63.51)	20(58.82)	27(52.94)	76.04,P<0.000
11	Others	45	14(14.89)	4(14.29)	10(13.16)	8(8.33)	2(5.88)	7(13.73)	

Table 7: Distribution of Diseases by Occupation

S.No.	Provisional Diagnosis	Total (379)	Agriculture	Labourer	Skilled worker	Business	Service	X2, P value
			N=172 (45.38%)	N=84 (22.16%)	N=32 (8.44%)	N=47 (12.40%)	N=44 (11.61%)	Df=4
			No.(%)	No.(%)	No.(%)	No.(%)	No.(%)	
1	ARI	241	119(69.19)	53(63.10)	19(59.38)	25(53.19)	25(56.82)	143.29,P<0.000
2	Diarrhoea	78	30(17.44)	20(23.80)	5(15.63)	7(14.89)	16(36.36)	26.38,P<0.000
3	Skin Disease	52	25(14.53)	11(13.10)	5(15.63)	4(8.51)	7(15.91)	
4	Ear Disease	10	3(1.74)	4(4.76)	1(3.13)	1(2.13)	7(15.91)	
5	Malaria	51	32(18.6)	9(10.70)	3(9.38)	4(8.551)	4(9.09)	41.07,P<0.000
6	Anaemia	181	78(45.35)	53(63.10)	17(53.13)	21(44.68)	12(27.27)	88.79,P<0.000
7	Abdominal Disease	29	10(5.8)	7(8.33)	3(9.38)	2(4.26)	7(15.91)	
8	Eye Disease	15	5(2.9)	2(2.38)	4(12.5)	1(2.13)	3(6.82)	
9	H/o Worm infestation	38	22(12.79)	8(9.52)	3(9.38)	3(6.38)	2(4.55)	
10	Malnutrition	268	106(61.63)	61(72.62)	27(84.38)	34(72.34)	40(90.91)	76.07, P<0.000
11	Others	45	20(11.63)	6(7.14)	6(18.75)	6(12.77)	7(27.27)	

Table 8: Distribution of Diseases Class of officer

S.No.	Provisional Diagnosis	Total (379)	Class I	Class II	Class III	Class IV	Class V	X2,P value
			N= 13 (3,43%)	N=32 (8.44%)	N=47 (12.40%)	N=144 (38.0%)	N=143 (37.73%)	Df=4
			No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	
1	ARI	241	7(53.85)	21(65.63)	26(55.32)	84(58.33)	103(72.03)	149.66,P<0.000
2	Diarrhoea	78	1(7.69)	3(9.38)	12(25.53)	28(19.44)	34(23.78)	56.23,P<0.000
3	Skin Disease	52	2(15.38)	4(12.5)	5(10.64)	26(18.08)	15(10.49)	
4	Ear Disease	10	0(0.0)	1(3.13)	1(2.13)	1(0.69)	7(4.89)	
5	Malaria	51	0(0.0)	2(6.26)	5(10.64)	16(11.11)	28(19.58)	
6	Anaemia	181	3(23.08)	8(25.0)	19(44.43)	66(45.83)	85(59.44)	150.91,P<0.000
7	Abdominal Ds	29	2(15.38)	4(12.5)	3(6.38)	13(9.02)	7(4.89)	
8	Eye Disease	15	1(7.69)	1(3.13)	2(4.26)	6(4.17)	5(3.49)	
9	H/o Worm infestation	38	0(0.0)	2(6.26)	4(8.51)	14(9.72)	18(12.59)	
10	Malnutrition	268	5(38.46)	22(68.75)	31(65.96)	84(58.33)	126(88.11)	177.32,P<0.000
11	Others	45	1(7.69)	4(12.5)	5(10.64)	18(12.5)	17(11.88)	

percentage of malnutrition in our study may be because of the fact that majority (75.73%) of thereported 43.65 percent¹³ and 49.6 percent¹⁴ under- fives were underweight. A higher children were from lower social class (IV & V) and from rural areas. A study¹⁵ in rural Wardha found that most common symptom was cough (33.7%) and Fever (31.1%) among under-three. This was in consonance with our finding. Around 3% cases of congenital anomalies and 4% admission to wards

from OPD points that majority of the cases do not need specialist and emergency care and can be dealt with integrated primary health care approach.

Conclusion: It was seen that OPD was flooded with children with common ailments reflecting the traditional problems of poverty and ignorance such as under nutrition and infectious diseases. Seeing the trend of morbidity and mortality among under-

fives worldwide, the need for a new holistic and systematic strategy was felt to combat the problem and Integrated Management of Childhood Illnesses (IMCI) with Indian version as Integrated Management of Neonatal and Childhood Illnesses (IMNCI) was introduced. Our study too emphasizes that IMNCI is the need of hour.

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