MORBIDITY PROFILE OF UNDER-FIVE CHILDREN IN A PERI-URBAN AREA OF TRIPURA- A COMMUNITY-BASED STUDY

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ABSTRACT

BACKGROUND

Children are the future human resources but represent a vulnerable group. Poor health during this age is likely to permanently impair them over the course of their lives and various factors are responsible for causing high morbidity in under-five children. Objectives- To study morbidity profile of under-five children and to find out association between childhood morbidity and sociodemographic factors, if any.

MATERIALS AND METHODS

A community-based cross-sectional study was done among 250 under-five children from July 2015 to June 2016 in the peri-urban areas of Dukli, West Tripura. Study participants were selected by simple random sampling and data was collected by interviewing mothers with pretested questionnaire and examining under-five children. Data was analysed using SPSS v19.0 and a p value less than 0.05 was considered as statistically significant.

RESULTS

Some form of morbidity was found in 196 children giving a prevalence rate of 78.4%. The most common illness was acute respiratory infection (85.7%) followed by anaemia (43.9%). Morbidity was found to be significantly associated with occupation of mother and immunisation status of child (p< 0.05).

CONCLUSION

The study revealed a high childhood morbidity, which was more in communicable disease burden compared to non-communicable diseases morbidity among under-five children in peri-urban area. As mothers are the first care-givers, they should be made aware of the preventive measures and the need for seeking timely treatment.

KEYWORDS

Caregivers, Child, Cross-sectional Studies, Morbidity, Mothers.

BACKGROUND

Children are the future human resources but represent a vulnerable group who need special care and protection.[1]

Protecting health during childhood is of utmost importance than at any other age because poor health at this age may permanently impair them in future life.[2] Furthermore, the health status of the children serves as a sensitive indicator of the overall health of any community.[3,4]

Globally, there is a wide variation in the morbidity pattern among under-five children in different countries. Infectious diseases, such as acute respiratory infections (ARI), diarrhoea, malaria and whooping cough have been found to be the leading causes of morbidity and premature death, especially in developing countries. Three in four episodes of childhood illness are caused by one of these conditions or a combination of these conditions. In India, diarrhoea, ARI

(pneumonia) and malnutrition are the three major morbidities during infancy and childhood leaving a lasting effect on health and well beings of children.[4-6]

Globally, the under-five mortality rate has decreased in the last few decades from 91 in 1990 to 43 deaths per 1000 live births in 2015; for India it was from 126 in 1990 to 48 per 1000 live births in 2015.[7,8] Several sociocultural factors and improper utilisation of health care services by the population are known to be responsible for causing higher rates of morbidity and mortality in children.[3]

Study of the morbidity pattern among children in community as well as in institutional set-up gives comprehensive information of the various illnesses and this knowledge facilitates in forming a strategic plan of action to deal with the pattern of prevalent diseases and the appropriate strategies in management and prevention of issues.[5,9,10] There is a need to understand and assess if there is a changing trend in the pattern of morbidity among children. With this background, the following community-based study was undertaken to study the prevalence and pattern of morbidities in under-five children; its association with sociodemographic and behavioural characteristics, if any and also to assess health seeking behaviour regarding childhood illness.

MATERIALS AND METHODS
This study was conducted during the period of August 2015 to May 2016 among under-five children residing at Dukli which was the urban field practice area of Urban Health Training Centre (UHTC), Dukli under the Department of Community Medicine, Tripura Medical College and Dr. BRAM Teaching Hospital, Hapania, Agartala.

All the under-five children (along with their mothers/care-givers as the chief informants) residing for at least one year were the study subjects. Those who were not willing to participate in the study or whose houses were found to be locked even on three visits were excluded from the study. A sample size of 250 was calculated considering a common under-five morbidity prevalence of 63.87%,[11] a relative allowable error of 10% and a probable non-response rate of 10%. They were selected by using simple random sampling technique from all the under-five children line-listed in the study area.

After obtaining informed consent, data was collected by using a pre-designed and pre-tested semi-structured interview schedule which had sections on socioeconomic backgrounds of the household and details on childhood morbidity. Morbidity was defined as any departure, subjective or objective, from a state of physiological well-being (World Health Organization). Also, the previous records like prescription or OPD Review of current and past treatment records like OPD tickets, doctor's prescription, etc. were verified to assess health seeking behaviour. Further, each and every child was given a thorough clinical examination in daylight to detect any disease or morbid condition present at the time of the survey. Sick children were either referred to UHTC, Dukli or Tripura Medical College, Hapania depending on severity of their morbidity.

The collected data were entered in Microsoft excel worksheet (Microsoft, Redwoods, WA, USA) and were checked for accuracy. Age, sex, literacy status, monthly income, socioeconomic status, etc. were proportionally represented in diagrams and tables. Statistical association was checked by using chi-square test. A p value of less than 0.05 was taken as statistical significance. All the statistical analyses were done in SPSS software, version 19.0 (Statistical Package for the Social Sciences Inc, Chicago, IL, USA).

RESULTS
Out of all the 250 under-five children studied, 219 (87.6%) children were from the age-group of 1-5 years while the remaining 31 (12.4%) were infants. Altogether, there were 143 (57.2%) males and 107 (42.8%) females. Majority of them (92.4%) were Hindus. Majority of the mothers who were also the study respondents (92.4%) were literate and 74.4% of them were home-makers by occupation. Two-fifths of them (41.6%) lived in semi-pakka house, 34.8% in pakka and 23.6% in kaccha houses. Most of them (94%) were using sanitary latrines. Among all the under-five children, 74.4% were well-nourished and 83.6% had immunisation appropriate to their ages. Again, 65.6% of all the children were found to be exclusively breast-fed for the first six months of life. Majority of the study participants (60.4%) were from nuclear families. By socioeconomic status (BG Prasad, May 2016),[12] 43.2% belonged to Class IV (Rs. 942-1882) followed by 31.6% in Class V (Rs. < 942), 16% in Class II (Rs. 3139-6276) and 9.2% in Class III (Rs. 1883-3138).
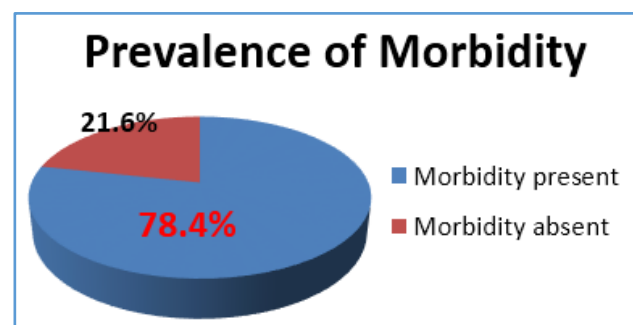
Figure 1. Distribution of Study Population According to Prevalence of Morbidity

A total of 196 (78.4%) under-five children had some form of morbidity (Fig. 1). Communicable diseases were the main morbidities while non-communicable diseases like anaemia, malnutrition were noted in a few cases. ARI with fever was the most common morbidity (85.7%) followed by anaemia (43.9%). Among gastrointestinal morbidities, worm infestation was the commonest (33.2%) followed by diarrhoea (12.8%). Interestingly, one (0.5%) case of cerebral palsy was seen, 3.1% had congenital malformation. 12.8% had scabies and 4.1% had suffered from injuries (Table 1).

System Involved	Morbidity Conditions	Frequency n (%)
Respiratory System	ARI with Fever	168 (85.7)
	ARI without fever	10 (5.1)
	Measles	5 (2.6)
GIT	Worm Infestation	65 (33.2)
	Diarrhoea	25 (12.8)
	Stomatitis	3 (1.5)
	Vomiting	2 (1.0)
Dental Problems	Toothache	24 (12.2)
	Dental Carries	16 (8.2)
Eye	Impaired Vision	18 (9.2)
	Stye	12 (6.1)
	Watering From Eyes	3 (1.5)
ENT	Earache	74 (37.8)
	Impaired Hearing	56 (28.6)
	Ear infection	45 (22.9)
Skin Problems	Scabies	25 (12.8)
	Impetigo	16 (8.2)
Central Nervous System	Febrile Seizure	2 (1.0)
	Cerebral Palsy	1 (0.5)
Congenital malformation	Congenital malformation	6 (3.1)
Injuries	Injuries	8 (4.1)
Anaemia	Anaemia	86 (43.9)
Under-nutrition	Under-nutrition	64 (32.7)

Table 1. Distribution of Study Participants According to Morbidity pattern (n= 196)*

* Multiple responses taken.

Morbidity was more commonly observed in age-group of 1-5 years (78.5%), males (81.8%) and Muslim religion (84.2%). However, the differences in the distribution of morbidity according to age, gender and religion were not found to be statistically significant (p>0.05). Children of working mothers had more morbidity (89.1%) compared to children of other mothers. This difference was found to be statistically significant (p<0.05). Children belonging to Social class II had more morbidities (87.5%) compared to social class III (69.6%), while social class V and class IV had almost equal morbidity profile (77.2% & 77.8%). This difference in morbidity pattern by social class was not significant statistically (p >0.05). Maximum morbidity was seen in partially immunised children (90.2%) compared to children immunised fully for their age. This association was found to be statistically significant (p <0.05). Similar morbidity profile (78.5% & 78.1%) was seen among well-nourished and under-nourished children. (Table 2).

Sociodemography and behavioural factors		Morbidity (+) n (%)	Morbidity (-) n (%)	Chi-square value, p value
Age group (years)	0 -1	24 (77.4)	7 (22.6)	0.020, 0.887
	1 - 5	172 (78.5)	47 (21.5)	
Gender	Male	117 (81.8)	26 (18.2)	2.305, 0.162
	Female	79 (73.8)	28 (26.2)	
Religion	Hindu	180 (77.9)	51 (22.1)	0.410*, 0.584
	Muslim	16 (84.2)	3 (15.8)	
Education of mother	Illiterate	14 (70.0)	6 (30.0)	0.906, 0.394
	Literate	182 (79.1)	48 (20.9)	
Occupation of mother	Housewife	139 (74.7)	47 (25.3)	5.775, 0.016
	Working	57 (89.1)	7 (10.9)	
Type of family	Nuclear	122 (80.8)	29 (19.2)	1.291, 0.256
	Joint	74 (74.7)	25 (25.3)	
Socioeconomic class	Class V	61 (77.2)	18 (22.8)	3.106, 0.376
	Class IV	84 (77.8)	24 (22.2)	
	Class III	16 (69.6)	7 (30.4)	
	Class II	35 (87.5)	5 (12.5)	
Type of House	Kaccha	43 (72.9)	16 (27.1)	1.401, 0.496
	Semi-pakka	83 (79.8)	21 (20.2)	
	Pakka	70 (80.5)	17 (19.5)	
Type of Latrine	Sanitary	186 (79.1)	49 (20.9)	1.297, 0.255
	Insanitary	10 (66.7)	5 (33.3)	
Immunisation status	Complete	159 (76.1)	50 (23.9)	4.063*, 0.044
	Partial	37 (90.2)	4 (9.8)	
Exclusive Breast Feeding	≥ 6 months	128 (78.0)	36 (22.0)	0.122, 0.727
	< 6 months	64 (80.0)	16 (20.0)	
Nutritional status	Well- nourished	146 (78.5)	40 (21.5)	0.004, 0.951
	Under- nourished	50 (78.1)	14 (21.9)	
Total		**196 (78.4)**	**54 (21.6)**	

Table 2. Morbidity Prevalence by Sociodemographic and Behavioural Characteristics (n=250)

*Fisher's exact test

Health seeking behaviour of respondents	Frequency (%)
Government Hospital	236 (94.4)
Private Practitioner	210 (84.0)
Local Medicine Shop	144 (57.6)
Home Remedy	68 (27.2)
AYUSH	55 (22.0)
Private Hospital	52 (20.8)
Total	250 (100.0)
Table 3. Health Seeking Behaviour of Respondents of under Five Children* (n=250)	

* Multiple responses taken

Majority of the families (94.4%) preferred Government Hospital which was followed by visit to a private practitioner (84%). Home remedy was practised for 27.2% cases, 57.6% took medicine from local shop and only 22% sought AYUSH treatment. (Table 3).

DISCUSSION
The current study showed that most of the participants (87.6%) were from 1-5 years age group which was slightly less than what was found in the study by Srivastava DK (91.98%) in Etawah.[11] Majority of the study-subjects (32.1%) were found by Narkhede V;[13] whereas only 12.4% infants were there in present study. Similarly, Wadgave HV in their study in urban slum of Solapur found that 16.9% of the subjects to be within 0-12 months age group.[14] Mondal K in Kolkata found half (51.60%) of the participants from 13-36 months age group.[15]

In our study, male predominance (57.2% male vs. 42.8% female) was found which is similar to what was found in Kolkata (54.1% male),[15] but unlike findings made from Nagpur where almost equal representation (51% male vs. 49% female).[13] Srivastava DK found both parents were literate in 68.6% cases,[11] while in the current study 92.4% mothers were literate.

In the present study, 74.4% children were well-nourished. This is similar to the observation (28.2% & 23.8% under-nutrition respectively) made by Patnaik L et al in Odisha,[16] and Kolkata.[15] A higher prevalence of under-nutrition (52.23%) was seen among under-five children in Nagpur.[13]

In our study, majority of children (83.6%) had complete immunisation, consistent with findings in Kolkata where 84.4% children were completely immunised.[15] Another study found that half of the children (50.09%) were partially immunised, 33.94% were completely immunised and 14.96% were not immunised at all.[11] Children in the aforementioned two studies were mostly (59% vs. 48.17% respectively) from lower socioeconomic class (class V) followed by class IV (37.7% vs. 32.84%).[11,15] In the present study, majority were from Class IV (43.2%) followed by Class V (31.6%), Class II (16%) and Class III (9.2%).

This study showed a lower prevalence of morbidity (78.4%) compared to the study findings made in an urban slum (84.76%)[14] but higher than as found by Ukey UU (41.4%).[5] Much lower (20.9%) morbidity was seen in Karnataka,[17] nearly half (48.57%) morbid in Odisha,[16] 53.7% in urban resettlement colonies in Delhi[18] and 52.45% in Rajabazar slum in Kolkata.[15] This wide variation in morbidity prevalence may be due to different study settings, different criteria used, different timings of the studies, mode of data collection, seasonal variation, etc. Similar study findings were made by other authors.[18,19]

Most common morbidity in the present study was ARI with fever (85.7%) followed by anaemia (43.9%) which is consistent with other study findings[15,16,18,20] Mane V in their study in Karnataka[17] found that 16.6% of the preschool children had ARI followed by fever and skin infections in only 1.9% and 0.9% respectively. Ukey UU in urban slum of Visakhapatnam showed that communicable diseases were responsible for morbidity in 81.5% children while non-communicable diseases like anaemia, malnutrition were seen in 18.5% children.[5] Diarrhoea was the commonest (63.9%) morbidity followed by URTI (54.7%), LRTI (42%) and abdominal pain (18.9%).[11] The highest prevalence was nutritional anaemia (78.71%) followed by protein-energy malnutrition (52.23%), vitamin B deficiency (46.53%) and disease of respiratory system (32.19%).[13] Only one (0.4%) child had imperforate anus and another child (0.4%) had cerebral palsy.[17] Similarly, in the present study, one case (0.5%) of cerebral palsy and 3.1% congenital malformation was found.

Present study observed almost equal prevalence (77.4% & 78.5%) of morbidity among infants and 1-5 years old children respectively (0.020, p > 0.05) but in a previous study, age was significantly associated with morbidity.[18] Present study found more morbidity among male children (81.8%) than female (73.8%) which was consistent with findings made by Ukey UU.[5]

A previous study found that children who belonged to social class V were significantly more associated (p<0.01) as compared to class III and IV with morbidity[5] while in the present study there was no significant association with the different social classes.

Present study did not find any statistically significant association between nutrition status and morbidity. But, a previous study showed that there is significant association between under-nutrition and high mortality among under-five children due to infectious diseases (p < 0.05).[13] Another study revealed that morbidity or disease was more (72.41%) among under-nourished and severely underweight (p<0.05).[15]

An earlier study found morbidity to be significantly associated with age and paternal literacy but not with gender, locality, income, family type, maternal literacy, birth order, the number of siblings and immunisation status of the child.[17] The present study found almost consistent findings except that there was significant association of morbidity with occupation of the mother and immunisation status of child (p < 0.05).

Present study found that majority of the families (94.4%) preferred Government Hospital followed by visit to a private practitioner (84%). Home remedy was done in 27.2% cases,

57.6% took medicine from local shop, and only 22% sought AYUSH treatment. Of the children who had morbidity, 46% and 41% approached a government and private provider respectively and only 3% used home remedy.[20] All mothers were aware about the presence of Capital (Govt.) Hospital followed by private health facilities in the area; 90.43% mothers preferred allopathic system of medicines.[16] In Delhi, there was 100% awareness regarding private facilities and only 37.79% sought Government Hospital care.[18]

Limitations

In the present study, no laboratory investigation was done due to operational infeasibility. We found that, maximum cases were of infectious disease; but specific causative agent could not be identified due to lack of diagnostic facilities.

CONCLUSION

The study revealed a high morbidity consisting mainly of communicable disease burden among the under-five children in the peri-urban area Dukli. This high morbidity problem among under-five children needs to be tackled through a comprehensive package consisting of preventive, promotive and curative care. As mothers are the first care-givers, they should be made aware of the preventive measures and the need for timely seeking treatment.

Acknowledgement

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