Original Research Article

Prevalence of acute morbidities and their health seeking behaviour among under-five children of urban slums in a city in Karnataka

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ABSTRACT

Background: Morbidity and lack of health facility especially in the first five years of life would cause irreparable damage. Therefore it is important to assess the magnitude of morbidities, and their health seeking behaviour. The objectives of the study were to assess the prevalence of acute morbidities and their associated factors among Under-five (U5) children residing in slums of Davangere city, Karnataka, and to assess the health-seeking behaviour of their mothers/caregivers

Methods: It was a cross sectional study done in the slums of Davangere city during August-September 2016. Using 30 cluster sampling technique, the estimated sample size was 656. A total of 22 children were included in each cluster. Questionnaire consisting of demographic details, history of acute morbidities in the past two weeks and their treatment details was administered to the mother/caregiver. Data was entered in Microsoft Excel sheet and analyzed using SPSS Version 20.

Results: Totally 656 mothers/caregivers of U5 children were contacted, majority of the children were in the age group of 13 to 60 months. Total of 348 (53%) children suffered from some acute morbidity in the past 2 weeks, of whom 282 (81%) children were taken to some health care facility, and majority preferred private practitioner (73.4%). Most common reason for poor health seeking behaviour was “following the medicines which were prescribed for previous illness”.

Conclusions: More than half of the children suffered from some acute morbidity in the past 2 weeks and 81% of them were taken to health care facility.

Keywords: Under-five children, Acute morbidities, Health-seeking behaviour, Urban slums

INTRODUCTION

Under-five age is a crucial and transitional period when the child is struggling to come into equilibrium with its ecology. A child deprived of health care during these most impressionable years, is deprived of the opportunity of growing into a normal human being, and the damage done in the first few years could be irreversible. The major diseases affecting this age group are acute diarrheal diseases, acute respiratory infections, anemia, skin

disease, ear discharge etc.¹ The attributes that can be associated with these diseases are mostly overcrowding, poor sanitation, lack of basic amenities, lack of awareness about proper child care among these children.²

Integrated Management of Neonatal and Childhood Illnesses (IMNCI) also envisions that family and community health practices, especially health seeking behaviours, are to be improved to reduce child morbidity and mortality.³ Effective early management at the home

level and health seeking behaviour in case of appearance of danger signs are key strategies to prevent occurrence of severe and life-threatening childhood illnesses.⁴

According to National Family Health Survey-IV (NFHS-IV) in Karnataka, 1.2% and 4.5% of mothers of children under the age of 5 years reported that their children suffered from acute respiratory infection (ARI) and diarrhoea, respectively. And only 76.9% of ARI children and 69.7% of Diarrhoea children were taken to a health facility or provider.⁵

Urban slums known for overcrowding, poor sanitation, lack of basic amenities and lack of awareness which are highly associated with acute morbidities among under-five (U5) children.⁶ Rapidly expanding and under privileged urban poor lack an organized health care delivery system. An understanding of the prevalence of acute morbidities, information on health seeking behaviour is essential for the rational planning of health care services. Thus, the present study was conducted with objectives;

1. To assess the prevalence of acute morbidities and their associated factors among Under-five children residing in slums of Davanagere city, Karnataka.
2. To assess the health-seeking behavior of the mothers/caregivers of these children.

METHODS

The present study was a descriptive cross sectional study conducted during August to September 2016 among U5 children residing in the slums of Davanagere city, Karnataka, India. Ethical clearance was obtained from the Institutional Ethical Review Board. There were 41 slums in Davanagere city and a total of 6,169 U5 children residing in these slums. Based on the review of literature the prevalence of acute morbidities among under-five children in urban slums was found to be 54% in Delhi.⁷ Sample size was calculated using formula, $n = Z^2 p (1-p) / d^2$ [$Z = 1.96$ (for the level of confidence of 95%), $P = 54\%$ (0.54), $d =$ relative precision= 10% of 54% (0.054)]. Considering the design effect as 2, our sample size was $328 \times 2 = 656$. According to 30 cluster sampling technique, 22 U5 children [656/30] were included in each cluster as explained in the Figure 1. U5 children whose families were residing for a period of at-least 6 months in slums of Davanagere and those who were willing to participate in the study were included and those who were not able to contact even after three consecutive home visits were excluded from the study. Only one child was selected randomly from one house. After obtaining informed consent, a pre-tested semi-structured questionnaire was administered to the mother/caregiver of the selected U5 child. The questionnaire consisted of basic demographic details of the family, symptom based on reporting or prior diagnosed acute morbidities in the child in the preceding two weeks, and their health care-seeking behaviour for the same.

Figure 1: Flow chart showing selection of study participants.

Operational definitions

The morbidity experiences of each child, as reported by mother/caregiver is classified into five broad categories – Acute Diarrhoeal Diseases (ADD), Acute Respiratory Infections (ARI), unspecified fever, skin and other infections.

- ADD is defined as diarrhea (3 or more loose watery stools over a period of 24 hrs) or vomiting lasting for more than 24 h.⁸
- ARI is defined as child that had cough, cold, running nose, with or without difficult or noisy breathing as reported by mother/caregiver within two weeks preceding the survey.⁹
- Unspecified fever is defined as increased body temperature or being hot on touch as perceived and reported by mothers/caregivers not associated with signs of any known infection in the body.⁹
- Skin lesions consist mostly of rashes, but also include a wide variety of other conditions such as vesicles, pustules, cysts, ulcerations and excoriations.⁸
- Other infections included infections of the eyes, ears or any other localized infection with or without fever. This may have reddening or discharge or bleeding or localized vesicle or pustule development.⁸
- Any injury which caused breach in the continuity of covering epithelium or fracture which resulted in loss of continuity of a bone.¹⁰
- Any other illnesses which are not described here but explained by the mother/caregiver will be included in 'Others' category in morbidity list.
- Health seeking was defined as any attempt made for the sick child to obtain an expert opinion from a biomedical health care provider outside the home during the child's illness.⁸

Statistical analysis

Data was entered in Microsoft Excel sheet and analyzed using SPSS version 20 software. Continuous variables are

presented as mean and standard deviation of the mean (SD), while categorical variables are presented as numbers and percentages. Multinomial logistic regression was done to determine the factors associated with acute morbidities.

RESULTS

In the present study, majority (62.3%) of under-five children were above the age of one year and 51.2% were males. About 36.6% of the mothers had completed secondary school, and only 6.2% of the mothers were gainfully employed. Other demographic details of the families are explained in the Table 1.

The prevalence of acute morbidity was assessed using number of children who had at least one of the above mentioned illnesses in the past two weeks, which was found to be 53%, of which 40.4% suffered ARI, 6.7% had unspecified fever, 5.3% had ADD followed by Chickenpox and injury as explained in table 2. Looking at table 3, ARI was found to be common among older children than young infants, diarrhoea was more common among infants than older children and diseases like chicken pox and injuries were less common among young infants. Therefore children in 3-12 months age group are at more risk compared to others for more common and severe infections like ARI and ADD.

Table 1: Socio-demographic characteristics of study participants.

Socio- demographic variables		Number (n =656)	Percentage (%)
Age (in months)	0-2	32	4.9
	3-12	212	32.3
	13-60	412	62.3
Gender	Male	336	51.2
	Female	320	48.8
Religion	Hindu	527	80.3
	Muslim	123	18.8
	Others	6	0.9
Mother's age (in years)	18-24	287	43.7
	25-34	353	53.9
	>35	16	2.4
Mother's education	Illiterate	133	20.3
	Primary School	208	31.7
	Secondary School	240	36.6
	PUC	62	9.4
	Graduate	13	2
Mother's occupation	Not gainfully employed	615	93.8
	Gainfully employed	41	6.2
Type of family	Joint	328	50
	Nuclear	154	23.5
	3 generation	174	26.5

Table 2: Prevalence of acute morbidities in under-five children.

Prevalence of acute morbidity		Number (n=656)	Percentage (%)
Normal		308	47.0
Children with acute morbidity		348	53.0
Acute morbidity	ARI	265	40.4
	Unspecified fever	44	6.7
	ADD	35	5.3
	Chickenpox	6	0.9
	Injury	4	0.6
	More than one morbidity	8	1.2

The prevalence of acute morbidities were relatively high among 3–12 months old children, females, children whose mothers/caregivers were in age group of 25 – 34 years, children who were not exclusively breast fed and not fully immunized. The prevalence was low in children

whose mothers were graduates, not gainfully employed and children with birth order more than 2. However none of these associations were statistically significant, except the association with exclusive breast feeding practices as shown in the Table 4.

Table 3: Age wise distribution of acute morbidities among under-five children.

Age group	ARI	ADD	Unspecified fever	Chicken pox	Injury	Total Episodes
0 – 2 months (n=32)	8 (25%)	2 (6.2%)	3 (9.4%)	0	0	13
3 – 12 months (n=211)	89 (42.2%)	13 (6.2%)	12 (5.7%)	3 (1.4%)	0	117
13 – 60 months (n=413)	168 (40.7%)	20 (4.8%)	29 (7%)	3 (0.7%)	4 (0.9%)	224
Total	265	35	44	6	4	354

Table 4: Factors associated with acute morbidities among under-five children.

SL NO.	Variables	P value	Odds Ratio	95% CI
1	Age (In months)	0-2	0.132	0.559
		3-12	0.432	1.151
		13-60	1	0.262-1.191
2	Gender	Male	0.564	0.911
		Female	1	0.663-1.251
3	Mother's age (Years)	18-24	0.506	0.693
		25-34	0.861	1.100
		>35	1	0.236-2.040
4	Mother's education	Illiterate	0.653	1.314
		Primary School	0.273	1.925
		Secondary School	0.262	1.952
		PUC	0.413	1.682
		Graduate	1	0.400-4.310
5	Mother's occupation	Not gainfully employed	0.103	0.565
		Gainfully employed	1	0.285-1.121
6	Type of family	Nuclear	0.152	1.745
		3 generation	0.448	0.839
		Joint	1	0.498-1.114
8	Birth order	≤ 2	0.320	1.237
		>2	1	0.813-1.881
9	Birth weight(kg)	<2.5	0.08	1.450
		2.5-4	1	0.956-2.199
10	Exclusive Breast feeding practices	Not followed	0.014*	0.658
		Followed	1	0.472-0.919
11	Immunisation	Partially immunised	0.224	0.748
		Fully immunised	1	0.468-1.195

*p<0.05 is statistically significant.

Table 5: Treatment seeking behaviour of mothers/caregivers.

Health seeking behaviour	No. of children	Percentage
Child taken to health care facility (n=348)	Yes	282
	No	66
Place of treatment seeking (n=282)	Private practitioner	207
	Government hospital	70
	Other health care facility	5
Time since onset (n = 282)	First day	177
	2 – 3 days	86
	After 3 days	19
Decision maker (n=348)	Mother	250
	Father	84
	Others	14

Table 6: Reasons for delay and not seeking health care among sick children.

Health seeking behaviour		No. of children	Percent (%)
Reason for delay (n = 19) (Sought health care after 3 days)	Followed medicines prescribed for previous similar episodes	15	79.0
	Illness considered not serious	2	10.5
	Financial constrains	2	10.5
Reason for not seeking treatment (n = 66)	Illness considered not serious	23	34.9
	Followed medicines prescribed for previous episodes	21	31.8
	Financial constrains	6	9.1
	Health facility far away	2	3.0
	Others	14	12.2

Table 5 shows that out of 348 under-five children who were suffering from one or the other acute morbidity, majority (81.0%) were taken to health care facility, and preferred private practitioners mostly. Two third of them were taken to hospital on the first day itself. Children who were not taken to health care facility were either using medicines prescribed for similar past episodes and/or used some home remedies like vicks/balm application on chest and forehead, turmeric mixed in milk, tulsi/ginger juice, ginger and honey mixture, making child eat tulsi leaves etc. Some of these home remedies were used along with the allopathic medicines by mothers/caregivers who took children to health facility also. Five children were taken to other health care facilities like unqualified practitioners (Quacks). In majority of the houses, mothers were the decision makers regarding health care seeking. There was no difference in pattern of decision maker among those who sought health care and those who did not. Following medicines which were prescribed for previous similar episodes was the most reason for delay and illness not considered serious was the most common reason for not seeking health care as explained in Table 6.

DISCUSSION

In the present study the prevalence of acute morbidity among under-five children in urban slums of Davangere was found to be 53% which is similar to the study done by Grover et al⁷ in the urban slums of East Delhi. ARI accounts maximally, followed by unspecified fever and acute diarrhoeal diseases, which was again similar to the findings in Grover et al (16%, 10.2%, 7.3% respectively) and Venkatesh et al (3.95 episodes/ child/ year for URTI and 3.49 episodes/ child/ year for diarrhoea) studies.^{7,11} Khalid et al showed in Lucknow study that ARI (22.7%) constituted the maximum morbidity among 1–4 years age group followed by acute diarrhoea (21.3%) and unspecified fever (10.2%), whereas study at urban slums of Etawah, Uttar Pradesh, most common morbidities among under-fives were acute diarrhoea followed by ARI.^{2,12} Higher prevalence of acute morbidity, especially ARI may be attributed to the factors like overcrowding, poor ventilation, poor sanitation and lack of awareness among the mothers of U5 children which are more prevalent in urban slums. Surprisingly the magnitude of

diarrhoeal diseases was found to be low compared to all the above mentioned studies. Lang et al observed that the prevalence of diarrhoea would be highest in rainy season and ARI in dry season in Burkino-Faso, while study at slums of Kolkata, India by Sucharita et al showed ARI being more prevalent in winter and pre winter and diarrhoea being more prevalent in summer.^{13,14} Similarly the present study also showed more number of ARI cases during the study period which was rainy season and pre winter. Chavan et al observed during the surveillance of ARI in Mumbai that influenza positivity peaked during the monsoon seasons.¹⁵ The bacterial infections were predominant during winter season. The co-infection between the bacterial and viral pathogens was observed during the monsoons. Seasonal peaks of influenza in rainy season in India are consistent with other surrounding countries.^{16,17} In some tropical regions; there is high background influenza activity throughout the year with distinct peaks appearing during monsoon or cooler months.¹⁸ While the exact mechanisms leading to variation in influenza seasonality are not clear, attempts to correlate fluctuation in meteorological variables have shown relationship with influenza positivity during the rainy season in the tropics.¹⁹ Therefore the clear surge in the prevalence of ARI in the present study could also be attributed to the seasonality. The prevalence of acute morbidities were relatively high among 3-12 months age group (54.20%) in the present study and more common among girls as it is observed in studies done at Ahmadabad, Kolkata and Delhi slums and Maharashtra.^{6,14,20,21} This could be probably due to more indoor nature of girls than boys, which may make them more exposed to indoor air pollution due to poor environmental hygiene, improper cooking practices and increased usage of firewood in slums and also higher prevalence of malnutrition among girls compared to boys which again may make them more vulnerable to infections.^{2,14} Srivastava et al also mentions that the immunization coverage for girls was observed to be much lower compared to boys, which could be one more reason for increased morbidity among girls, however the immunization coverage was almost equal in the present study.² However study done by Vyas et al in Dehradun contrasts our finding.²² Study by Sarkar et al reported that respiratory infections were highest during infancy and decreasing as the child grows, which is similar to the

present study except in young infants.⁸ The age group of 3–12 months also coincides with the period of weaning breast milk and starting complementary feeding, which makes the child more vulnerable for infections, especially ADD and ARI. Occurrence of acute morbidities had no significant association with socioeconomic status since majority of them belonged to class 4 and 5 it and none were in the upper socioeconomic class. The prevalence was low among children with graduate mothers/caregivers compared to lower education which is self-explanatory since these people would have more awareness about diseases and their prevention. Study done by Deshmukh et al in rural Wardha showed that mothers with less than 10 years of education had higher prevalence of acute morbidities among under 3 children compared to mothers with more than 10 years of education.²³ The prevalence was relatively high among children whose mothers/caregivers were gainfully employed. This again could be attributed to the problems of working mothers, since they get very little time to take care of their children. As the birth order of the child increases, the prevalence of acute morbidities was found to decrease, probably with more children at home, mother/caregiver would be more experienced to take care of children, however it was not statistically significant. Few studies have shown positive association between morbidities and birth order, while some show no association.^{14,24,25} Children who had history of low birth weight were found to have higher prevalence of acute morbidities as observed in Ukey U et al in slums of Visakhapatnam in Andhrapradesh.²⁵ Under five children who were not exclusively breast fed and those who were not fully immunized lack the defence against infections and thus, are more prone to acute morbidities. Study by Vyas et al also showed that unimmunized children had higher morbidity compared to fully immunized children, especially a significant association was found between ARI and immunization.^{21,22,26,27}

Majority (81%) of the children suffering from acute morbidity were taken to health care facility and most preferred private practitioners (59.5% of 348 children). This is similar to the study done by Dhongre et al where in majority sought health care from private practitioners (60.3%).²⁸ Majority preferred private practitioners over government doctors because of easy accessibility, availability, local popularity of private practitioners and advice by family and friends. Hence, their contributory role in providing health care has to be acknowledged under Public Private Partnership (PPP). This could also be due to more availability of private practitioners in urban areas than rural areas. However study done in rural Dehradun showed maximum preference to the government hospitals followed by local indigenous practitioners.²² Decision makers regarding health care seeking were mothers in majority of cases (71.9%), since they are with the children most of the times, similar to the finding by Awoke W in Ethiopia study.⁹

A total of 66 (19%) children who were suffering from acute morbidity were not taken to any health care facility

for treatment, of which 34.9% considered the illness was not serious and 31.8% followed the medicines prescribed for the previous similar episodes. Only 9.1% complained of financial constraints and 6% complained that the health centre was far from their house. A study conducted in Ethiopia also showed 27.3% of sick under-fives not taken to health care facility and illness not considered serious enough was the most common reason (53.3%), followed by lack of money (26.7%) and no belief in the health care setting (13.3%).⁹ Another study conducted at urban and rural areas of Lucknow also showed 12.4% of children not seeking health care facility and health facility distance or transport problem was the most cited reason (57.1%), followed by lack of time (17.9%), illness not considered serious (14.3%) and lastly financial constraints (10.7%).¹² The same study quotes that the illness not being considered as serious enough (50%) delayed seeking health care mostly, whereas the most common reason for delay in the present study was following previously prescribed medicines for similar episodes (79%) followed by illness not considering serious enough by the caregivers (10.5%).¹²

CONCLUSION

More than half of the under five children at slums of Davangere city, Karnataka experienced some acute morbidity in the past two weeks and majority suffered from ARI, followed by unspecified fever and diarrhoea. More than 80% of the sick children sought some form of health care, of whom about two third preferred private practitioners. The underutilization of the Government Health facility was quite evident. Thus there is a need to strengthen urban primary health care services including the vital MCH services for better child health and survival. National Urban Health Mission (currently under NHM) aims to revitalize urban primary health care delivery system and strengthen reproductive and child health services in urban areas so that quality health care services will be provided and ensure maximum utilization of Government services by the public. Education of the mother/caregiver regarding the harmful effects of self-medication was done. Reducing the low birth weights and improving maternal education are going to have a definite positive impact on health status of under five children. Self-medication using the drugs prescribed for the similar episodes in the past was a major concern in the present study. Reinforcement of importance of preventive measures like immunization, proper housing, ventilation, sanitation and early identification of the danger signs in children to the mothers/caregivers by repeated health education in the study area will help reducing the morbidity and improving health status among the under-fives.

Limitations

As the study is cross-sectional in design, it does not represent seasonal variation of morbidity, and morbidities may be underreported due to recall bias or mother/caregiver may not consider the episode as

significant enough to be reported. Some measurements may not be accurate due to subjective responses or different level of probing by different interviewers. Due to time and financial constraints, no physical examination and blood investigations were done. This might miss undiagnosed malnutrition or micronutrient deficiencies in the child.

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