

Morbidity Pattern and Its Associated Factors among Preschool Children: A Cross-Sectional Study

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ABSTRACT

Background: Protecting health during childhood is more important than at any other age because poor health during this age is likely to permanently impair them over the course of their life. Preschool children constitute a “vulnerable” or special risk group, deserving special health care as this phase represents a transition from infancy, and it is during this period about 40% of physical growth, and 80% of mental development occurs in children. Several factors are known to be responsible for causing higher rates of morbidity in preschool children.

Purpose: (1) To study the prevalence and pattern of morbidities among preschool children aged 1-3 years in the study setting. (2) To identify various factors associated with morbidity in children.

Materials and Methods: A community-based cross-sectional study was conducted in Bhadravati taluk of Shimoga district, Karnataka, India. Cluster sampling technique was used for subject selection and a total of 210 preschool children of either sex in the age group of 1-3 years (12-36 months) were included in the study. Data were collected using a pretested and semi-structured questionnaire from mothers/guardian after taking an informed consent. Data thus obtained were entered and analyzed using appropriate statistical methods.

Results: The prevalence of current morbidity was found to be 44 (20.9%) in our study. The most common illnesses among children were acute respiratory infections. Morbidity was found 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 immunization status of the child in our study.

Conclusion: Education plays an important role in improving the health status of preschool children.

Key words: Age groups, Data collection, Literacy, Morbidity, Preschool child

INTRODUCTION

Children are the human resources of the future. Their health and development are in the interest of the total national development. Making investments in children's health results in better educated and more productive adults and sets in motion favorable demographic changes. Protecting health during childhood is more important than at any other age because poor health during this age is likely to permanently impair them over the course of their life.¹ Furthermore, the health status of

the children serves as a sensitive indicator of the overall health of any community.²

Children between 1 and 4 years of age are generally called pre-school age children or toddlers. These children constitute about 12% of the general population in India and by virtue of their numbers, they are entitled to a large share of health and social services, of whatever form.³ They not only constitute a large group but also a “vulnerable” or special risk group, deserving special health care as this phase represents

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a transition from infancy and it is during this period about 40% of physical growth, and 80% of mental development occurs in children.⁴ Any adverse influences operating on them during this period may result in severe limitations in their development, some of which are irreversible. Few studies suggest that the foundations of many non-communicable diseases, such as obesity, hypertension, cardiovascular diseases, and certain mental disorders, are also laid in early life.³

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. However, still many countries have very high rates, and there is a huge disparity in child mortality between high-income and low-income countries.⁵ Under-five deaths are increasingly concentrated in sub-Saharan Africa and Southern Asia. India (21%) alone accounted for one-fifth of all under-five deaths worldwide with 48 under-five deaths per 1000 live births in the year 2015.⁶⁻⁹ More than half of these deaths were due to diseases that are preventable and treatable through simple, affordable interventions.⁶

Globally, there is variation in morbidity pattern among under-five children in different countries. Infectious diseases, such as acute respiratory infections (ARI), diarrhea, malaria, and whooping cough, have been found to be the leading cause 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.⁴ In India, common morbidities among children are fever, ARI, diarrhea, and malnutrition.^{8,10} Several factors are known to be responsible for causing higher rates of morbidity in preschool children. While many of the factors are related to health care services and their uptake by the population, several other factors are entwined in the socio-cultural fabric of the society.² With this background, the following community-based study was undertaken with an objective to study the prevalence and pattern of morbidities in preschool children aged 1-3 years and its association with some selected variables.

Objectives of the Study

1. To study the prevalence and pattern of morbidities among preschool children aged 1-3 years in the study setting.
2. To identify various factors associated with morbidity in children.

MATERIALS AND METHODS

A community-based cross-sectional study was conducted for duration of 3 months from August 2013 to October 2013 in Bhadravati taluk of Shimoga district, Karnataka. Cluster sampling technique was used for subject selection. All the villages and wards of Bhadravati taluk were considered as clusters and the same constituted sampling units for our study. 30 clusters were selected by population proportional to size sampling. Minimum sample size calculated was 199 with an absolute precision of 10% and a significance level of 0.05 and design effect of 2, taking 54% prevalence of morbidity from a previous study.⁴ In each of the cluster, house-to-house visit was done, and 7 preschool children of either sex in the age group of 1-3 years (12-36 months) were included, thus making a total of 210 children. Preschool children who were temporary visitors to the house, those who were unavailable

in the house at the time of visit and those residing in the study area for a duration of <6 months were excluded from the study.

Data about the socio-demographic profile, immunization history, past medical history, and the history of current morbidity in the child were collected using a pretested and semi-structured questionnaire from mothers/guardian after taking informed consent. The affected subjects were either given treatment or referred to the nearest health center depending on their morbidity. Data thus obtained were entered and analyzed using appropriate statistical methods.

RESULTS

Figure 1 shows the prevalence of current morbidity among study subjects. The prevalence of current morbidity was found to be 44 (20.9%) in our study. An enquiry was also made regarding any chronic/congenital/past illness in the child, and it was found that out of the 210 children in our study, 1 (0.4%) child had imperforate anus, and 1 (0.4%) child had cerebral palsy from the time of birth.

Figure 2 shows the pattern of morbidity among subjects in our study. It is evident from the Figure 2 that the most common morbidity affecting majority, i.e. 35 (16.6%) of the preschool children in our study was ARI followed by fever and skin infections in only 4 (1.9) and 2 (0.9) of children, respectively.

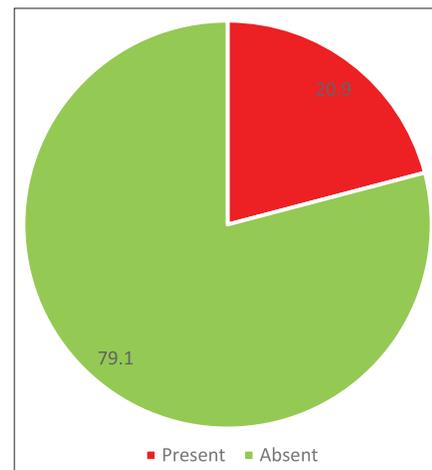


Figure 1: Prevalence of current morbidities among study subjects

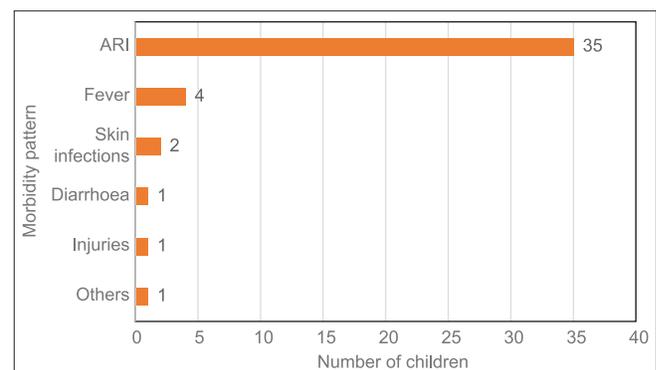


Figure 2: Distribution of affected subjects according to their morbidity

Table 1 shows the association of morbidity among study subjects with certain important socio-demographic variables. The prevalence of morbidity was almost equal in both male and female children in our study, and there was no significant association ($P > 0.05$) between morbidity prevalence and gender of the child. Morbidity was found to be inversely proportional to the age of the children in our study with the highest prevalence, i.e. 21 (32.8%) in the 12-17 month age group and least, i.e. nil prevalence of morbidity in the 30-36 months age group, and it was found to be statistically significant ($P < 0.05$). Morbidity was more in children from the rural locality, was more in children belonging to below poverty line families, and was more in children belonging to joint/three generation families in our study. However, there was no significant association between the prevalence of morbidity and any of these factors

($P > 0.05$). More children with literate mothers were ill in our study compared to children with illiterate mothers. However, it was not statistically significant ($P > 0.05$). On the contrary, the prevalence of morbidity was high in children having illiterate fathers, and there was a significant association between the literacy status of fathers and morbidity among their children.

Table 2 shows the association of morbidity prevalence among study subjects with certain other important variables. Morbidity was found to be inversely proportional to birth order of the child as well as with the number of siblings the child had in our study, but there was no significant association ($P > 0.05$) between the same. Furthermore, our study did not find any significant association ($P > 0.05$) between morbidity and primary immunization status of the child.

Table 1: Prevalence of morbidity among study subjects according to certain socio-demographic variables

Variable	Classification	Children observed (n)	Morbidity status - n (%)		Chi-square (χ^2) value P value
			Present	Absent	
Gender	Male	103	22 (21.4)	81 (78.6)	$\chi^2=0.020$ $P=0.887$
	Female	107	22 (20.6)	85 (79.4)	
Age (months)	12-17	64	21 (32.8)	43 (67.2)	$\chi^2=14.597$ $P=0.002$
	18-23	70	16 (22.9)	54 (77.1)	
	24-29	45	7 (15.6)	38 (84.4)	
	30-36	31	0 (0)	31 (100)	
Residence	Urban	78	13 (16.7)	65 (83.3)	$\chi^2=1.376$ $P=0.241$
	Rural	132	31 (23.5)	101 (76.5)	
Income*	APL	35	7 (20)	28 (80)	$\chi^2=0.023$ $P=0.879$
	BPL	175	37 (21.1)	138 (78.9)	
Family**	Nuclear	76	15 (19.7)	61 (80.3)	$\chi^2=0.106$ $P=0.744$
	Others	134	29 (21.6)	105 (78.4)	
Literacy status of mother	Illiterate	15	2 (13.3)	13 (86.7)	$\chi^2=0.699$ $P=0.705$
	Literate below high school	56	13 (23.2)	43 (76.8)	
	High school and above	139	29 (20.9)	110 (79.1)	
Literacy Status of father	Illiterate	26	8 (30.8)	18 (69.2)	$\chi^2=6.074$ $P=0.048$
	Literate below high school	58	6 (10.3)	52 (89.7)	
	High school and above	126	30 (23.8)	96 (76.2)	

*APL: Above poverty line, BPL: Below poverty line, **Others includes joint and 3 generation families

Table 2: Prevalence of morbidity among study subjects according to certain other variables

Variable	Classification	Children observed (n)	Morbidity status - n (%)		Chi-square (χ^2) value P value
			Present	Absent	
Birth order	First	111	25 (22.5)	86 (77.5)	$\chi^2=1.218$ $P=0.544$
	Second	81	17 (21)	64 (79)	
	Third and above	18	2 (11.1)	16 (88.9)	
No of siblings	None	88	22 (25)	66 (75)	$\chi^2=3.259$ $P=0.196$
	One	105	21 (20)	84 (80)	
	Two and above	17	1 (5.9)	16 (94.1)	
Immunization status	Complete	184	39 (21.2)	145 (78.8)	$\chi^2=0.053$ $P=0.818$
	Partial	26	5 (19.2)	21 (80.8)	

DISCUSSION

The prevalence of morbidity in our study was found in 44 (20.9%) of children. Morbidity prevalence in our study is slightly lower than that found in other studies done in different parts of the country.^{2,10-12} However, many other authors have found the prevalence of morbidity in more than half of the subjects in their studies, contrary to our findings.^{4,13-16} This variation in morbidity prevalence may be due to different study settings, seasonal variation, time of the study, different criteria, mode of data collection, etc. The most common illnesses affecting nearly one-sixth of the children in our study were ARI. Our study findings are comparable to findings by many other authors.^{2,4,10,15-18} On the contrary to our findings, few other studies have found diarrhea to be the most common morbidity among preschool children.^{11,14,19} Few more done in urban slums of Nagpur city^{13,20} found out anemia as the most common morbidity among children aged under-five.

In our study, the prevalence of morbidity was found 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 immunization status of the child. As the child grows, so does its immunity thereby reducing the susceptibility to infections, which could be one of the reasons for reported decline in morbidity with the advancement of age in our study. Few other studies have also found the age of the child to be significantly associated with morbidity similar to the finding of our study.^{16,17} On the contrary, many studies done in different parts of the country, have found a significant association between prevalence of morbidity and some other factors than those found in our study.^{4,10,11,15,19} One of the major limitations of our study is that the data collection has been done exclusively in the winter season, which may give rise to a peculiar pattern of morbidity incidental to that season.

CONCLUSION

One in every five children was suffering from some morbidity in our study. Acute respiratory infections were the most common morbidities affecting the children. Morbidity was found to be significantly associated with age of the child and paternal literacy. So, we conclude that education plays an important role in improving the health status of preschool children.

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