

A Cross Sectional Study on the Health Status of Infants under the Field Practice Area of KBNIMS, Gulbarga

Mohin M Sakre¹, I A Swati², Sana Nizami³, Syed Mustafa Al Hussaini¹

ABSTRACT

Introduction: A Nations health can be measured using important indicators such as infant morbidity and mortality. As the determinants of Infant morbidity and mortality are decreasing in developed countries, it still remains a problem in developing countries. Study was done to determine the morbidity pattern among the infants and to explore the causes and risk factors affecting infant morbidity and mortality.

Material and methods: A community based cross sectional study was conducted amongst 100 infants residing in the field practice area of UHTC, KBNIMS, Kalaburgi, Karnataka.

Results: 48% of the infants were found to be suffering from acute respiratory tract infections followed by fever (26%) and diarrhoea (19%). Majority of the unhealthy Infants (95.23%) belonged to overcrowded households. This study illustrates that Joint families had more un healthy Infants (69.04%) that nuclear families (30.95%). It was found that a majority (95%) of mothers had taken antenatal visits to the hospital. Education amongst mothers was seen lacking with only 1% of postgraduate degrees and majority with secondary education. A majority of 96.42% who had normal deliveries were healthy Infants. Among the 42 unhealthy Infants, 21.42% were from pre term deliveries, 9.52% were from post term deliveries and 16.66% of the unhealthy Infants Were Low Birth Weight babies.

Conclusion: There is a need to educate the community about the effects of overcrowding. Mothers should be encouraged to take up timely vaccinations.

Keywords: Infant health, Overcrowding, LBW Babies.

INTRODUCTION

A Nations health can be measured using important indicators such as infant morbidity and mortality as there is an unparalleled consortium with several factors such as quality of maternal care, socio economic conditions, maternal health, and public health practices.¹ Infant mortality rate in developed countries showed a rapid decline during the last 50 years, while it is still a problem in developing countries.²

The different determinants of infant mortality and morbidity include age, sex, birth weight, plurality, mode of delivery, gestational age, parity of mother, vaccination, maternal education, birth spacing and socio economic conditions.³ Breast feeding is an important determinant which lowers the rate of infection related to morbidities. Worldwide sub optimal breast feeding still accounts for deaths of 1.4 million children.⁴ Sub-standard and poor complementary feeding practices show that many children remain susceptible to outcomes such as increased risk of infections such as diarrhoea and respiratory infections, improper and weak cognitive development and stunting which are more often than not irreversible.⁵

WHO expanded programme on immunisation has reduced infant mortality rate by controlling vaccine preventable dis-

eases.⁶ India is a developing country with limited resources, and the expenditure on health is 4.2% of the total budget. The distribution of health care is complex with a major burden on tertiary care centres.⁷ The demographic variation of diseases among infants has never been taken into consideration when national health policies are made therefore tertiary care centres receive greater proportion of health budget.⁸

Less than one sixth of patients utilise the government health facilities, leaving the burden on private clinics and hospitals.⁸ Among the various morbidity patterns; acute diarrhoeal diseases is one of the major causes of mortality and morbidity in the developing countries among infants and children less than 5 years of age.⁹

It may be conspicuous that nutritional adequacy may be partly determined by feeding method employed, but it also interacts symbiotically with diarrhoeal episodes.¹⁰ So this collegial relation between nutrition and diarrhoeal infection may have protracted effects on the path of normal infant growth and development.

About 90% of the global births with less than 2500 grams' birth weight occur in developing countries.¹¹ This article will therefore focus on the impact of low birth weight on morbidity. Low birth weight runs a high risk of mortality and morbidity. Not only are mortality and morbidity rates seen to decrease with optimal nutrition but there is also satisfactory weight gain that is noticed. Optimal nutritional management of these infants aims at a rate of growth equal to the intrauterine rates.¹²

The aim of this study was to study the causes and risk factors associated with Infant morbidity that eventually lead to Infant mortality.

MATERIAL AND METHODS

A community based cross sectional study was undertaken on the health status of the infants under the Urban Health training Centre of Khaja Bandanawaz Institute of Medical Sciences, Gulbarga, Karnataka from the 26th August 2014

¹PG Student cum Tutor, Department of Community Medicine, ³PG Student cum Tutor, Department of Ophthalmology, Khaja Bandanawaz Institute of Medical Sciences, ²Associate Professor, Department of Community Medicine, Gulbarga Institute of Medical Sciences, Kalaburgi, Karnataka. India

Corresponding author: Dr Mohin M Sakre, (MD) Community Medicine, PG student cum Tutor, Department of Community Medicine, Khaja Bandanawaz Institute of Medical Sciences, Kalaburgi, Karnataka. India.

How to cite this article: Mohin M Sakre, I A Swati, Sana Nizami, Syed Mustafa Al Hussaini. A cross sectional study on the health status of infants under the field practice area of KBNIMS, Gulbarga. International Journal of Contemporary Medical Research 2016;3(5):1310-1313.

to 22nd November 2014. No records or registers were found showing the prevalence of infants in the community. Therefore, all Infants in the age group of 0 to 12 months during the study period in the study area were included in the study. At the end of the study 100 Infants were enumerated by census enumeration method. The data was collected via a pre tested, pre designed interview schedule and it was followed by clinical examination of the children. A house to house visit of the area was done beginning from the randomly selected household and moving along the right hand side till all the infants were covered. Whenever houses with no infants were detected; that house was skipped and we went to the next house. In the absence of respondents during the first visit, 2 subsequent visits were made to contact them. Not willing to participate (3 families) in spite of 2-3 persuasion were dropped. Thus a total of 100 infants belonging to different house-holds were included in the study.

The data was collected on age, sex, morbidities present, socio demographic parameters such as Overcrowding where the criteria was more than 2 people residing in 11 square metre or more and 1 person in 5 to 7 square metre, Kuppuswamy's Socio economic scale which was calculated using the per capita income (modified for 2015), education and occupation of the head of the family, type of family, antenatal history of the mother, educational status of the mother, type of delivery and birth weight of the infant as remembered by the mother.

STATISTICAL ANALYSIS

Microsoft Excel 2016 was used for generating tables and graphs. Descriptive statistics were used to infer results.

RESULTS

According to the study majority of the study infants were in the age group of 7-12 months i.e., 74 and 26 were in the age group of 0-6 months. 48% of the infants in the study were males and 52% were females [Table - 1]. The study indicates that 42% of the total 100 infants included in the study had one or the other morbidity. 48% of the 42 that displayed morbidity suffered from Acute Respiratory Tract Infections, followed by Fever (26%) and Diarrhoea (19%) [Figure -1]. According to the study it was found that overcrowding has a statistically significant (P<0.10; Chi Square: 43.1987) impact on the health status of infants as majority of unhealthy infants i.e., 95.23% belong to houses where overcrowding is present where as a minimum 4.76% of unhealthy kids belong to the houses where overcrowding is absent. Indicating that infants were healthier where overcrowding was absent. This study illustrates that Joint families had more un healthy Infants (69.04%) that nuclear families (30.95%). This finding was statistically significant at P<0.01 (Chi Square: 10.509). Out of the total 42 Unhealthy Infants, 24 were in the lower class and 18 in the upper lower class according to Kuppuswamy's Socio-economic scale and none from the lower middle class and above. However, out of the 58 healthy families, only 19 were from Lower Class, 24 from Upper Lower and 15 from Lower Middle class, thereby suggesting that Socioeconomic status was a key factor in Infant Health. This finding was statistically significant at P<0.01 (Chi Square: 14.2432). Among the 100 study subjects, 48 were male and

52 were female. Out of the 48 male Infants, 25 were un-healthy and 23 were healthy. Out of the 52 female Infants, 17 were unhealthy and 35 were healthy. This finding was not statistically significant at P<0.01 (Chi Square: 3.8527) [Table - 2]. According to the study it was found that majority of mothers i.e., 95% took antenatal care. Among the 5% who had not taken antenatal care, a majority of 2% had only secondary level of education. It was also seen that education among the mothers was lacking with only 1% of postgraduates and a majority with secondary education (33%) [Table-3]. According to the study, a majority of 96.42% who had normal deliveries were healthy Infants. However, among the 42 unhealthy Infants, 21.42% were from pre term deliveries, 9.52% were from post term deliveries and 16.66% of the unhealthy Infants Were Low Birth Weight babies. This comparison between the health of the infants and Preterm, Post term and Low Birth Weight at birth was found to be significant statistically at P<0.01 (Chi-Square: 22.2375) [Table -4].

DISCUSSION

In this study, 48% of the study subjects were males and 52% were females. This finding was not in accordance to the Male: Female sex ratio of Karnataka i.e., 973 females to 1000 males.¹³ A study conducted in Goa, India on postnatal depression and infant growth and development in Low income countries found the male infant ratio to be 51% and female ratio to be 49%.¹⁴ This finding was also not in sync to the finding in our study. In our study, out of the 100 study infants a staggering 42 had one or the other morbidity, out of which 42% had Acute respiratory tract infections. According to a study by John S. On Respiratory Viral Infections in Infants, Respiratory infections account not only for increased

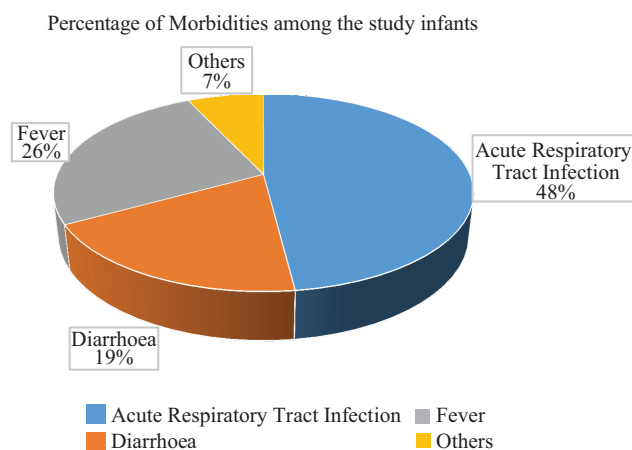


Figure-1: Showing distribution of Infants according to the morbidity pattern.

Age	Number	Percentage
0-6 Months	26	26
7-12 Months	74	74
Total	100	100
Sex of the infant	Number	Percentage
Male	48	48
Female	52	52
Total	100	100

Table-1: Showing the age and sex wise distribution of the infants.

Socio-demographic parameters	Health status			Chi-square
	Unhealthy (n=42)	Healthy (n=58)	Total	
Overcrowding				
Overcrowding present	40 (95.23%)	17 (29.31%)	57	43.1987 (P<0.01)
Overcrowding absent	2 (4.76%)	41 (70.68%)	43	
Type of family				
Joint family	29 (69.04%)	21 (36.20%)	50	10.509 (P<0.01)
Nuclear family	13 (30.95)	37 (63.79%)	50	
Kuppuswamy's socio-economic status				
Lower class according to kuppuswamy's sec	24 (57.14%)	19 (32.75%)	43	14.2432 (P<0.01)
Upper lower class according to kuppuswamy's sec	18 (42.85)	24 (41.37%)	42	
Lower middle class according to kuppuswamy's sec	0 (0%)	15 (25.86%)	15	
Gender				
Male	25 (59.52%)	23 (39.65%)	48	3.8527 (Not significant at P<0.01)
Female	17 (40.47%)	35 (60.34%)	52	

Table-2: Showing distribution according to the health of the infants and the socio-demographic parameters.

Antenatal visits	Taken		Not taken		Total	
	No.	%	No.	%	No.	%
Illiterate	16	94.1	1	5.9	17	100
Primary	24	96	1	4	25	100
Secondary	31	93.9	2	6.06	33	100
Higher	17	100	0	0	17	100
Graduation	6	85.7	1	14.3	7	100
Post-Graduation	1	100	0	0	1	100
Total	95	100	5	100	100	100

Table-3: Showing the relation between the antenatal visits taken by the mothers and their educational status

Type of delivery	Healthy		Unhealthy		Total	
	No.	%	No.	%	No.	%
Pre term	2	3.57	9	21.42	11	11
Post term	1	1.78	4	9.52	5	5
Low birth weight	1	1.78	7	16.66	8	8
Normal	54	96.42	22	52.38	76	76
Total	58	100	42	100	100	100

Table-4: Showing relation between Health of the Infants and Low Birth Weight, pre term and post term deliveries among the study group.

mortality but also for increased morbidity: between 22% (United Kingdom) and 26.7% (Belgium) of all hospitalizations and between 33.5% (Italy) and 59% (United Kingdom) of general practitioner consultations are due to respiratory viral infection.¹⁵ These findings are rather similar and along the lines of the findings of our study. In our study 19% of the infants who had morbidities were suffering from diarrhoea. The incidence of persistent diarrhoea was 6.3 per 100 child-years among those aged 0-71 months, and was highest (31 per 100 child-years) among those aged 0-11 months according to a study in rural North India on the descriptive epidemiology of persistent diarrhoea.¹⁶ This finding was more than that of our study. According to our study, Overcrowding played a major role in Infant health. 40 out of the 42 Infants who displayed morbidities were living in Overcrowded setups. A study conducted in Glasgow and Edinburg, England opined with evidence that overcrowding is a significant cause of Infant mortality.¹⁷ This finding was similar to the finding of our study. In a study conducted by Tiffany field on Teenage parenting in different cultures, family constella-

tions, and caregiving environments: Effects on infant development; it was found that Infant performance decreased with time irrespective of family type or constellation.²¹ However in our study, we found a statistical significance on comparison of the type of family and Infant Health thus suggesting that our finding was not in agreement with the finding of the study conducted by Tiffany Field. In our study we found a statistical significance of socioeconomic status and Infant Health. This finding of ours was at par with the finding of the study on Socioeconomic disadvantage and child development conducted by McLoyd and Vonnie C that opined that socioeconomic status does indeed play a role in child health and development.²² According to this study it was found that majority of mothers i.e., 95% took antenatal care. Among the 5% who had not taken antenatal care, a majority of 2% had only secondary level of education. It was also seen that education among the mothers was lacking with only 1% of postgraduates and a majority with secondary education (33%). Multivariate analysis on Maternal Education and the Utilization of Maternal and Child Health Services in India by

Pavalavalli Govindasamy and B. M. Ramesh confirmed the positive and significant influence of mother's schooling on maternal-care utilization. This study by Mr Ramesh was of the opinion that education emerges as the single most important indicator of maternal health care utilisation when the effect of all the other interceding factors are restrained.¹⁸ This finding is concordant to the finding of our study. A study in china on an overview of morbidity, mortality and long-term outcome of late preterm birth revealed that on comparison with term infants the preterm infants had considerably greater chances of increased morbidity, mortality and also long lasting side effects that extended even beyond their infancy into adult life.¹⁹ This was similar to the finding of our study where among the 42 unhealthy Infants, 21.42% were from preterm deliveries. Our study also reveals that 16.66% of the unhealthy Infants Were Low Birth Weight babies. A study on postnatal depression conducted in Goa, India revealed that 18% were underweight at birth.¹⁴ This finding was similar to the finding of our study. Another study on the Burden of Morbidities and the Unmet Need for Health Care in Rural Neonates conducted in Gadchiroli, India concluded that 42% of the study infants were underweight at birth.²⁰ This finding was however much higher than the finding of our study.

CONCLUSION

In our study the prevalence of Infant morbidities was alarmingly high, Overcrowding was extensively present and education among mothers was widely ignored. There is a need to educate the community about the effects of overcrowding. Mothers should be encouraged to take up timely vaccinations.

REFERENCES

- Marian F. MacDorman et al. The challenge of Infant Mortality: Have we reached a Plateau. *Public Health Rep.* 2009;124:670-681.
- Norton M. New evidence on birth spacing: promising findings for new born, infant, child and maternal health. *International Journal of Gynaecology and Obstetrics.* 2004. 89 Supplement 1. S1-S6.
- Hafsa Habib et al. Infant Morbidity leading to Infant Mortality. *Gomal Journal of Medical Sciences.* 2009;7:121-123.
- Nomita Chandio et al. Does breastfeeding have an impact on Infant mortality in India? An analysis of National family health survey data. *Open Journal of Preventive Medicine.* 2015;5:359-369.
- Apurba Sinhababu et al. Infant- and Young Child-feeding Practices in Bankura District, West Bengal, India. *Journal of health, population and nutrition.* 28: 294-299.
- F E Andre et al. Vaccination greatly reduces disease, disability, death and inequity worldwide. *Bulletin of the World Health organization.* 2008;86:81-160.
- Adhil Shetty. Budget 2015 disappointed Healthcare sector. *The Economic Times.* 2015 March 04.
- Qudsia Anjum et al. Morbidity pattern and utilisation of a Primary Health care centre in a low socio-economic area of Karachi, Pakistan. *Journal of Pakistan Medical Association.* 2006;56:13-16.
- Cynthia Boschi-Pinto. Estimating Child Mortality due to Diarrhoea in developing countries. *Bulletin of the World Health Organization.* 2008;86:657-736.
- C Fertleman et al. Factors Predisposing Infants to Gastroenteritis Among Poor, Urban, Filipino Families. *The Internet Journal of Paediatrics and Neonatology.* 3(1).
- Yi Chen et al. An epidemiological survey on low birth weight infants in China and analysis of outcomes of full-term low birth weight infants. *BMC Pregnancy and Child Birth.* 2013;13:242.
- Praveen Kumar et al. Growth and Morbidity patterns of Exclusively Breast fed Pre Term Babies. *Indian Paediatrics.* 1999;36:296-300.
- Karnataka Population Sex Ratio. *Karnataka Population Census Data 2011, Government of India.* Accessed on 11th March 2016. Available at: <http://www.census2011.co.in/census/state/karnataka.html>
- V Patel et al. Post Natal depression and Infant growth and development in Low Income Countries: a cohort study from Goa, India. *Arch Dis Child.* 2003;88:34-37.
- John S. Tregoning et al. Respiratory Viral Infections in Infants: Causes, Clinical Symptoms, Virology and Immunology. *Clinical Microbiology Reviews.* 2010;23:74-98.
- Bhan MK et al. Descriptive epidemiology of persistent diarrhoea among young children in rural northern India. *Bulletin of World Health Organization.* 1989;67:281-288.
- R A Cage et al. Overcrowding and Infant mortality: A tale of two cities. *Scottish Journal of Political Economy.* 2002;49:129-149.
- Pavalavalli Govindaswamy et al. Maternal education and the utilization of maternal and child health services in India. *National Family Health Survey Subject Reports.* 1997 December. No. 05.
- Ying Dong et al. An overview of morbidity, mortality and long term outcome of late pre term birth. *World Journal of Paediatrics.* 2011;7:199-204.
- Abhay T. Bang et al. Burden of Morbidities and the unmet need for health care in rural neonates – A Prospective observational study in Gadchiroli, India. *Indian paediatrics.* 2001;38:952-965.
- Tiffany Field et al. Teenage parenting in different cultures, family constellations, and caregiving environments: Effects on infant development. *Infant Mental Health Journal.* 2006;11:158-174.
- McLoyd et al. Socioeconomic disadvantage and child development. *American Psychologist.* 1998;53:185-204.

Source of Support: Nil; **Conflict of Interest:** None

Submitted: 17-03-2016; **Published online:** 16-04-2016