

CHILD HEALTH RELATED MILLENNIUM DEVELOPMENT GOALS (MDGs): STATUS OF UNDER FIVE CHILDREN VISITING A WELL BABY CAMP

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DOI: 10.5455/ijmsph.2014.180620141

Received Date: 21.05.2014

Accepted Date: 18.06.2014

ABSTRACT

Background: Under-five population receives high priority due to their high risk status and a number of child health services are formulated in current national health programs to improve child health and achieve the millennium development goals (MDGs).

Aims & Objective: To assess utilization of immunization services, child feeding practices and nutritional status of the under-five children.

Materials and Methods: A descriptive study was undertaken among 106 under-five children attending a Well-baby health camp organized in urban field practice area of KBNIMS, Gulbarga. Tools used were WHO2006 anthropometric standards and revised immunization schedule of 2011. Data was analyzed by Epi Info Version 3.0.1 and SPSS 16.

Results: Primary immunization (>12 months age) was completed in 69 (65.1%). Children above 8 months of age who received Measles vaccine was 67.5%. Exclusive breast feeding (EBF) up to 6 months with timely weaning was done only in 25 (27.8%). Mean months of EBF and initiation of weaning was 5.6 ± 1.2 and 8 ± 4.1 respectively. Underweight, Wasting and Stunting was found in 48.1%, 31.1% and 31.1% respectively whereas 29 (36.7%) of children of 3 years, and below, are underweight. Poor nutritional status was significantly associated with faulty infant feeding ($p < 0.01$). Childhood morbidities were found in 37.7% children. Mothers didn't know the home remedies for common cough and cold or signs of dehydration.

Conclusion: The study revealed unsatisfactory child care practices. To achieve the MDG's urgent awareness needs to be created among mothers regarding child feeding, benefits of immunization and also regarding symptoms of childhood illness that requires medical attention.

Key Words: Nutrition; Immunization; Millennium Development Goals (MDGs); Child Health; Infant Feeding

Introduction

The Millennium Development Goals (MDGs) of September 2000 focuses on bringing down the IMR (Infant Mortality Rate) by half and LBW (Low Birth Weight) to 10% by year 2015.^[1]

There are two indicators to monitor the progress of achieving child health related MDGs. The indicators for monitoring MDG-4 (reduction of childhood mortality by 2/3rd of the existing rates) and MDG-1 (eradication of extreme poverty and hunger with a target to halve the nutritional health problems from the existing rates) are "proportion of one year old children immunized against Measles" and "Prevalence of underweight children in < 3 years of age" respectively.^[1] The child health programs in India are committed to achieving these goals.

Although some gains have been achieved in terms of prevention of severe malnutrition, overall poor health status among under-five children still persists.^[1] As per the NFHS-3 (2005-06) and SRS (2009) data, under-five mortality rate in India is around 74/1000 live births and 64/1000 live births respectively^[2] which is higher

compared to the global estimates of under-five mortality rate of 51/1000 live births.^[2]

The causes of increased childhood morbidity and mortality still continue to be the preventable infectious and communicable diseases like pneumonia, diarrhoea, measles etc.^[3] The situation is worsened by the fact that most of the affected children are born with low birth weight due to poor maternal nutrition, decreased immunization coverage due to many fears and misconceptions, harmful and inadequate infant feeding coupled with poor hygiene practices in a developing country like India.^[4,5]

Particularly infant and young child feeding practices continue to be a serious challenge to reduce malnutrition among children.^[6] An aggressive awareness campaign along with improved health care facilities with special privileges for the weaker sections of the society has been suggested. The success of the child health programs depends on the practice of each component of child care and utilization of child health services by the community. The objectives of the study were to assess the immunization and nutritional status of under-five

children and find out existing problems in child care practices.

Materials and Methods

A cross-sectional study was conducted in the urban field practice area of a teaching tertiary hospital in South India. The collection of data and analysis was carried out from May to August 2011. As a part of a health awareness program on child health care, a Well Baby Camp was planned at the health center and a child specialist was made available for the camp. The study sample consisted of 106 under-five children who attended the camp along with their mothers were included for the study. The health workers of the urban health center and interns were engaged to mobilize the community for the camp.

There were two components in the study: (1) Clinical Examination by Pediatricians and treatment of illnesses and nutritional anthropometry assessment as per WHO 2006 Growth Standards. (2) Providing missed or routine vaccination as per the revised national immunization schedule.^[7,8]

Interview of the accompanying mothers was conducted for data collection. Data was collected in a pre-tested and pre-designed semi-structured form on socio-demographic characteristics, Exclusive Breast Feeding (EBF) and complimentary feeding, immunization history and anthropometric measurements like height and weight.

Statistical Analysis

Anthropometric data was analyzed using Epidata and Epi Info 3.0.1 version software and all other analyses were done using the SPSS 16. Chi-square test was used for assessing the significance of nutritional indices and various independent variables of interest.

The anthropometric data collected was compared with tables of weight-for-age (WFA), height-for-age (HFA) and height-for-weight (HFW) z-scores identifying underweight, stunting and, wasting, respectively and classification was done as per WHO criteria. The WHO-2006 Child Growth Standards was adopted by India in February 2009 which is now used in monitoring the growth and development of the young child under National Rural Health Mission (NRHM) and Integrated Child Development Service (ICDS) program.^[9]

Results

Table 1 shows the socio-demographic characteristics of the 106 under-five children studied. Mean (\pm SD) age of the children was 20.26 (\pm 16.31) month with girls being slightly older (20.8 \pm 17.4 months) than the boys (19.8 \pm 15.5 months). Majority belong to Islam (96.2%). Majority of the mothers of the under-five children had minimum education (83.9%) and belonged to lower socioeconomic group with 42 (39.6%) living below poverty line as per capita per month income at 2005-2006 prices.^[10]

Immunization Status

Nine (8.5%) previously unimmunized children received OPV1 (oral polio vaccine), DPT1 (diphtheria, pertussis, tetanus) and HBV1 (hepatitis B virus). Table 2 shows the immunization status of the under-five children. Out of 79 children above 9 months of age, only 54 (68.4%) were immunized with measles vaccine. As per the revised schedule, children between 9-15 months can get their first dose of measles if previously unimmunized. Remaining unimmunized children were immunized in the camp as per appropriate vaccine for their age. Figure 1 shows the final vaccination coverage with all the vaccines at the end of the camp activity. Mother's literacy status and their children's immunization status was found statistically significant ($p < 0.05$). Also more girls were unimmunized or partially immunized compared to boys, which was found to be statistically significant ($p < 0.05$).

Nutritional Status

There were 10 (9.4%) children with history of low birth weight (LBW). Mean birth weight of the studied children being 2.8 \pm 0.4 kg. Table 3 shows the nutritional status of the under-five children according to their birth weight. It was found in this study that children born with low birth weight continued to suffer for poor nutritional status which was found to be statistically significant as shown in Table 3. Figure 2 shows the mean HFA, WFA and WFH Z-scores of children between 0 to 18 months of age representing stunting, underweight and wasting respectively. Twenty-nine (36.7%) of children \leq 3 years were underweight which shows the status performance of indicator of MDG-1 in the study population. The younger age of child and occurrence of under nutrition was found to be statistically significant ($p < 0.01$). However no statistically significant relation was found between immunization status and mother's literacy status with children's nutritional status.

Table-1: Socio-demographic profile of the under-5 children under study (n=106)

Variables	Number	Percentage	
Age (months)	0-<12	46	43.4
	12-<24	21	19.8
	24-<36	12	11.3
	36-<48	13	12.2
	48-<60	14	13.2
Sex	Male	57	53.8
	Female	49	46.2
Religion	Hindu	04	3.8
	Muslim	102	96.2
Mother's Education	Illiterate	16	15.1
	Primary	47	44.3
	Secondary	26	24.5
	Higher Secondary	10	9.4
Mother's Occupation	Graduate	07	6.7
	Housewife	95	89.6
	Unskilled worker	3	2.8
	Petty Business	5	4.7
	Skilled worker	1	1.0
Father's Education	Teacher	2	1.9
	Illiterate	23	21.7
	Primary	24	22.7
	Secondary	44	41.5
Father's Occupation	Higher Secondary	8	7.5
	Graduate	7	6.6
	Unskilled worker	47	44.3
	Skilled worker	30	28.3
	Business	17	16.1
Family Income (₹)	Service	12	11.3
	< 560	42	39.6
	560-1000	50	47.1
>1000	14	13.2	

Table-2: Immunization status of the 106 under-five children

Immunization Status	Males (n=57)		Females (n=49)		Total (n=106)	
	No	%	No	%	No.	%
Immunized till date	31	54.4	38	77.6	69	65.1
Partially Immunized	18	31.6	10	20.4	28	26.4
Unimmunized	8	14	1	2	9	8.5
Immunized*	6		8		14	66.7

* Completed Primary Immunization (12-23 months age group) (n=21)

Table-3: Anthropometric measures according to birth weight

Nutritional Status	Birth weight				Total (n=106)	P value	
	Normal (n=96)		LBW (n=10)				
	N	%	N	%			
WFA Scores	Normal	55	57.3	-	-	55	51.2
	Mild Underweight	19	19.8	2	20	21	19.8
	Severe Underweight	22	22.9	8	80	30	28.3
HFW Scores	Normal	76	79.2	4	40	80	75.5
	Mild Wasting	6	6.2	3	30	9	8.5
	Severe Wasting	14	14.6	3	30	17	16.0
HFA Scores	Normal	81	84.4	7	70	88	83
	Mid Stunting	2	2.1	-	-	2	1.9
	Severe Stunting	13	13.5	3	30	16	15.1

Table-4: Infant feeding practices followed by the mothers

Feeding Practices	N	%	
	Not done or stopped prematurely (n=106)	15	14.2
Breast Feeding	EBF up to 6 months with timely weaning (n=90)	25	27.8
	Prolonged without weaning beyond 6 months (n=90)	54	60
	Currently EBF going on in less than 6 months infants (n=16)	12	75
Weaning (n=106)	Early weaning with BF	10	9.4
	Early weaning without BF	14	13.2
	Timely weaning with continued BF	21	19.8
	Delayed weaning	61	57.2

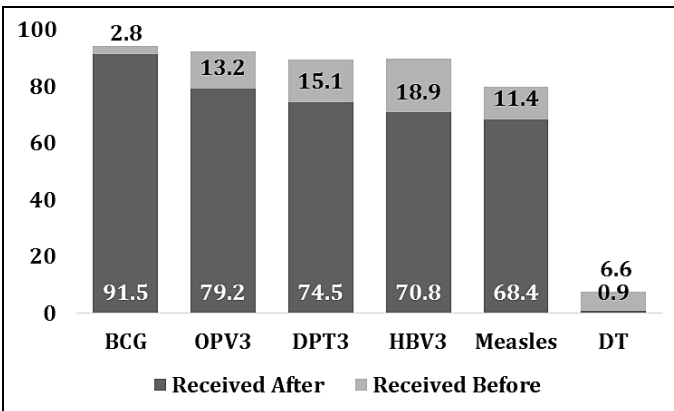


Figure-1: Individual vaccine coverage status of eligible children at the well-baby camp

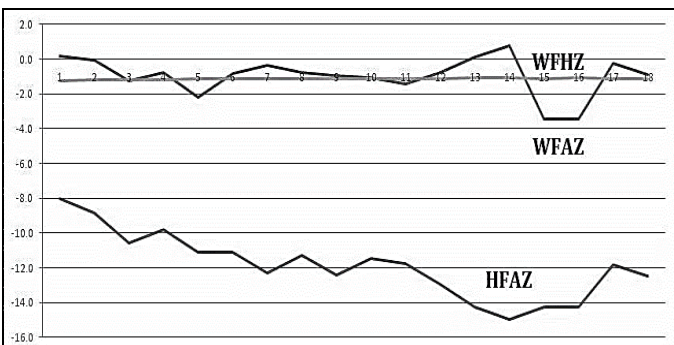


Figure-2: Means Z-Scores for HFA, WFA and WFH of the 0-18 months children (n=64)

Infant Feeding Practices

Table 4 shows the infant feeding practices among the mothers of the under-five children studied. Exclusive breast feeding (EBF) up to 6 months with timely weaning was done only in 25 (27.8%). Mean months of EBF and initiation of weaning was 5.6 ± 1.2 and 8 ± 4.1 respectively.

Discussion

The turnout of number of under-five children to the camp was low. Only 106 (4.5%) out of the total under-five population visited the camp. This may be because of the fact that only mothers having some health problem in their child or had to get routine dose of vaccine preferred to visit the center that day. The population served by the urban health center is mostly of poor socio-economic background and 42 (39.6%) were living below poverty line which is higher than the national level estimates of 22%.

As per Coverage Evaluation Survey (CES, 2009), fully immunized children in the age group of 12-23 months was 61% which is higher in this study group at 66.7%. The survey found 7.6% unimmunized children whereas in this study it is slightly higher at 8.5% who never

received any vaccine.^[11] Significant association was found between mothers education status and immunization of children ($p < 0.05$). It was found in a study that the children of mothers with no education are 2.7 times more likely to die than children of mothers who have more than 12 years of education.^[12]

India is aiming towards elimination of Measles. Karnataka has >80% coverage and new guidelines recommends the implementation of the second dose at 16-24 months of age.^[8] However the children in this study group had low measles vaccine coverage (68.4%). Following camp activity as per revised guidelines for measles vaccine (9-15 months), coverage was increased to 79.8%.

Measles precipitates malnutrition and predisposes child to infections and therefore protecting child against measles has become a cornerstone for preventing nutritional problems and has been included as an indicator to monitor child health status of MDGs. However there was no statistically significant relation found in this study between the immunization status of the child and existing nutritional status. But strong statistical association was found between birth weight of the child, feeding practices and nutritional outcome.

EBF with timely weaning was found only among 27.8% which is lower than the national data of 46.3% of children were exclusively breastfed till 5 months of age.^[1] Prolonged breast feeding without introduction of weaning was seen in majority (57.2%). Significant association was found between duration of breast feeding and presence of under-nutrition ($p < 0.01$).

In Figure 2, stunting is shown to increase with age indicating chronic malnutrition in the study population which can be corroborated by the fact that delay of weaning (57.2%) up to 18 months age was present among them. False idea that breast milk is adequate for child beyond 6 months was a reason for the delay. Early weaning with breastfeeding (9.4%) was started as early as ≤ 2 months aged babies.

LBW prevalence to less than 10% has been achieved in this study population (9.4%). However those who were earlier born with normal birth weight were currently suffering from poor nutritional status. Percentage of children suffering from underweight, wasting and stunting as in Table 3 was found in 48.1%, 31.1% and 31.1% respectively.

Borderline normal WFA scores were found in 18 children who are below 24 months of age. Most of them were at risk of becoming undernourished due to delay in weaning. It was found that provision of appropriate complementary foods with or without nutritional counselling significantly lead to gain in height and weight of children 6-24 months of age.^[13]

To promote healthy feeding practices among mothers, demonstration of nutritious weaning food options was done in the camp and any queries that mothers had, were answered. It has been suggested that in addition to disease prevention strategies, complementary feeding interventions targeting this "critical window" of 6-24 months aged children are most efficient in reducing malnutrition and promoting adequate growth and development.^[14]

Out of the 106 children, 26 children were found to be suffering from one or the other disease. The proportions of morbidities among them are diarrhoea (19.2%), acute upper respiratory tract infection (50%), acute lower respiratory tract infection (11.5%), fever (11.5%), Scabies (11.5%), pulmonary tuberculosis (3.8%) and others (19.2%). Majority of these children had associated PEM (57.7%) among them. Many mothers didn't know how to identify signs of dehydration and also common home remedies of cough and cold. Education on these issues was provided in the camp.

Conclusion

The study results have revealed that mother's poor infant feeding practice still remains a concern. To achieve the child health related MDGs, more thrust has to be given on mother's education on timely introduction of complimentary feeding and care during illness. Measles vaccine coverage is lagging behind the other vaccines. Therefore, catch up immunization camps can help to improve the coverage. The revised immunization schedule too helps to achieve the same. This well baby camp was a good opportunity for providing encouragement to mothers for proper care of their children. With such interventions we can hope to achieve the goal in near future.

ACKNOWLEDGEMENT

I thank Dr. ND Bendigeri, Professor and Head of Department of Community Medicine, KBNIMS, Gulbarga to allow us to undertake this piece of work. Mrs. Rani Channamma, MSW, of Department of Community

Medicine, KBNIMS, Gulbarga and the staff of the Urban Health Center for assisting in conducting this health camp.

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Cite this article as: Phukan P, Jagtap A, Nagaraj SB. Child health related millennium development goals (MDGs): Status of under five children visiting a well baby camp. *Int J Med Sci Public Health* 2014;3:1064-1068.

Source of Support: Nil

Conflict of interest: None declared

IJMSPH