

Research Article

Gender differences in nutritional status among under five children in rural areas of Bijapur district, Karnataka, India

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ABSTRACT

Background: Malnutrition is frequently part of a vicious cycle that includes poverty and disease. Socio-economic and political changes that improve health and nutrition can break the cycle, as can specific nutrition and health interventions. Malnutrition in children is a multifactorial causation. Hence this study was conducted to assess the role of gender in the nutritional status of the under five children. Objective: To assess the nutritional status of under five children and its relationship with the gender of the child.

Methods: A Cross Sectional Study was conducted across the ten Villages (2 Villages per Taluk) of Bijapur District from January 2013 to November 2013. A total of 1046 children (523 Males and 523 Females) were included in the study. WHO growth Charts were used to grade the severity of Malnutrition.

Results: The overall prevalence of underweight among under five children was 43% (49.8 % male and 36.7% female). The association between underweight and gender was statistically significant. The overall prevalence of stunting among under five children was 38 % (40.1 % male and 35.9% female) and significantly associated with gender. The overall prevalence of wasting among children was 28.7 % (36.5 % male and 21.2 % female) and significantly associated with gender.

Conclusions: The median height and weight for the majority of children were within the normal range of WHO 2006 growth charts. Though it is believed that male children are better and well-nourished than females, the finding in our study is contradictory which is a positive sign.

Keywords: Gender, Female, Wasting, Stunting, Growth chart

INTRODUCTION

Nutrition has major effects on health. Nutrition refers to the availability of energy and nutrients to the body's cells in relation to body requirements. Malnutrition refers to any imbalance in satisfying nutrition requirements. Malnutrition among children is often caused by the synergistic effects of inadequate or improper food intake, repeated episodes of parasitic or other childhood diseases such as diarrhoea, and improper care during illness. Malnutrition is often cited as an important factor

contributing to high morbidity and mortality among children in developing countries.¹

Malnutrition is frequently part of a vicious cycle that includes poverty and disease. These factors are interlinked in such a way that each contributes to the presence and permanence of others. Socio-economic and political changes that improve health and nutrition can break the cycle, as can specific nutrition and health interventions. Malnutrition in children is the consequence of a food availability and dietary intake, breastfeeding,

prevalence of infectious and parasitic diseases, access to health care, immunization gains major childhood diseases, vitamin A supplementation, maternal care during pregnancy, water supply and sanitation, socioeconomic status, and health-seeking behavior. Demographic characteristics such as the child's age and sex range of factors like poverty, ignorance, illiteracy.^{1,2}

Gender differentials in nutritional status are reported during infancy, with discriminatory Breastfeeding and supplementation practices. Infant girls are breastfed less frequently, for shorter duration, and over shorter periods than boys. Girls and women face nutritional discrimination within the family, eating last and least resulting in nutritional deprivation, leading to anemia and malnourishment.

Gender inequalities in quantity and quality of food intake may contribute to under-nutrition mainly in settings where the girl child is still considered less important than the boy child.

The World Bank estimates (2009) reported that India is ranked 2nd in the world in the number of children suffering from malnutrition. The most growth retardation occurs by the age of two, and the damage is irreversible. The prevalence of underweight in rural area is 50% versus 38% in urban area and higher among girls (48.9%) than boys (45.5%).³

A major area of concern and focus in India is the remarkable degree of variation in demographic profile, socio- economic factors and cultural practices which play a role in gender bias.

Objective:

To assess the nutritional status of under five children and its relationship with the gender of the child.

METHODS

A Cross sectional study was conducted in the rural areas of Bijapur district from January 2013 to December 2013. Multiphase sampling technique was used as follows. Bijapur district has FIVE taluks. TWO primary health centers were selected from each taluk by using Simple Random Sampling (lottery method). A total of TEN primary health centers were selected. From each of this primary health center using Simple random sampling (lottery method) ONE village was selected for the study. So totally TEN villages across the Bijapur district were selected for the purpose of study.

Considering the prevalence of gender bias as 2.8% 4 at 95% of confidence interval and at + 1 margin of error, the sample size was 1045.

Each village was visited in the first week of every month from January 2013 to November 2013. Data was

collected by interview technique. The mothers were explained the purpose of the study and those consented to be a part of study was included. Information was collected in a pretested predesigned and semi structured questionnaire.

Proportionate sample size for the corresponding village was calculated based on the 0-5 year population of that village. Equal number of boys and girls were selected from every village based on the sample size obtained.

WHO 5 (2006) growth charts was used to classify the children as normal (+ 2 SD to - 2 SD) , mild to moderate (-2 SD to -3 SD) and severe (less than - 3 SD) malnourished. Underweight (weight for age), Stunting (height for age), Wasting (weight for height) was measured. Weight for height was calculated for the children aged above two years.

RESULTS

Among the under five children who participated in our study 197 (18.9%) were less than 1 years of age, 207 (19.8 %) were between the age group of 12-23 months, 262 (25.1%) in the age group of 24-35 months, 232 (22.2 %) were in the age group of 36-47 months, 147 (14%) in the age group of 48-59 months. The mean age of children in our study was 2.87 years (+1.26).

Table 1: Distribution of children based on gender and underweight (weight for age).

Under weight	Gender				Total
	Male	%	Female	%	
Normal	262	50.2	331	63.3	593(56.7%)
Mild to moderate	207	39.7	128	24.5	335(32.1%)
Severe	53	10.2	64	12.2	117(11.2%)
Total	522	100	523	100	1045(100%)

Chi square = 27.69, p= 0.000

Table 2: Distribution of children based on gender and stunting (height for age).

Stunted	Gender				Total
	Male	%	Female	%	
Normal	313	60.0	335	64.1	648(62%)
Mild to moderate	132	25.3	136	26.0	268(25.6%)
Severe	77	14.8	52	9.9	129(12.4%)
Total	522	100	523	100	1045(100%)

Chi square = 5.65, p = 0.059

Out of the 522 males, 313 (60%), 132 (25.3%) and 77(14.8%) were normal, mild to moderately and severely stunted. Among 523 female children 335 (64.1%), 136(26%) and 52 (9.9%) were classified as normal, mild to moderately and severely stunted. The association was found to be statistically significant.

Table 3: Distribution of children based on gender and wasting (weight for height) n = 814.

Wasted	Gender				Total
	Male	%	Female	%	
Normal	256	63.5	324	78.8	580(71.3%)
Mild to moderate	116	28.8	73	17.8	189(23.2%)
Severe	31	7.7	14	3.4	45(5.5%)
Total	403	100	411	100	814(100%)

Chi square = 24.1, p = 0.000

In our study wasting (weight for age) was found to be more common among male children than female children. Out of 403 males and 411 female children, 256 (63.5%) male children and 324 (78.8%) female children were classified as normal. 116 (28.8%), 31 (7.7 %) of male children and 73 (17.8%), 14 (3.4%) of female children were mild to moderately and severely wasted respectively.

On applying chi square trend test it was found that as mothers age increases the association of mother age with underweight was found to be statistically not significant for both males (p = 0.07) and females (p = 0.88).

On applying chi square trend test it was found that as mothers age increases the association of mother age with stunting was found to be statistically not significant for both males (p = 0.19) and females (p = 0.22).

On applying chi square trend test it was found that as mothers age increases the association of mother age with wasting was found to be statistically not significant for males (p = 0.75) and significant for females (p = 0.02).

On applying chi square trend test it was found that as mothers education increases the association of mother education with underweight was found to be statistically not significant for both males (p = 0.50) and females (p = 0.88).

On applying chi square trend test it was found that as mothers education increases the association of mother education with stunting was found to be statistically not significant for both males (p = 0.66) and females (p = 0.08).

On applying chi square trend test it was found that as mothers education increases the association of mother education with wasting was found to be statistically not significant for both males (p = 0.43) and females (p = 0.11).

DISCUSSION

Study was done in the rural areas of Bijou district from January to November 2013. Interview technique was used to collect data for 1045 under five children from the

mothers. Equal number of male (522) and female (523) children were included in the study. Children were almost uniformly distributed in all the age groups.

Table 4: Adjusted Odd's Ratio for weight for age (underweight).

Underweight	Gender*	Among Literate mothers #	Among illiterate mothers #
Adjusted ODD'S Ratio^	1.68	1.90	1.50

^male as reference variable *odds ratio adjusted to mothers age, education and occupation # odds ratio adjusted to mothers age and occupation

Table 5: Adjusted Odd's Ratio for height for age (stunting).

Stunted	Gender *	Among Literate mothers #	Among illiterate mothers #
Adjusted ODD'S Ratio^	1.15	0.87	1.48

^male as reference variable * odds ratio adjusted to mothers age, education and occupation # odds ratio adjusted to mothers age and occupation

Table 6: Adjusted Odd's Ratio for weight for height (wasting).

Wasting	Gender*	Among Literate mothers#	Among illiterate mothers #
Adjusted ODD'S Ratio^	1.54	1.29	2.29

^male as reference variable *odds ratio adjusted to mothers age, education and occupation # odds ratio adjusted to mothers age and occupation

The overall prevalence of underweight among fewer than five children was 43% (49.8 % male and 36.7% female). The association between underweight and gender was statistically significant. Mother age also had significant association with underweight among both the gender. The overall prevalence of stunting among under five children was 38 % (40.1 % male and 35.9% female) and significantly associated with gender. The overall prevalence of wasting among children was 28.7 % (36.5 % male and 21.2 % female) and significantly associated with gender. Mother age had significant association with wasting among female children. The prevalence of Gender Bias among children with Underweight was 13.1%, Stunting was 4.2% and Wasting was 15.3% favoring the female children.

In our study, 49.9% male and 36.7% females were underweight, 40.1% male and 35.9% females were stunted and wasting was seen in 36.5% male and 21.2 %. Overall the prevalence of malnutrition in any form was more seen among the male children when compared to female children. Similar kind of results was also seen in the studies done by Sandi Kumar Ray et al,⁶ Dhananjay Phatak⁷ and Suman Chakrabarty et al.⁸

In the studies done by Banerjee et al,⁹ Harishankar et al,¹⁰ Balani K D et al¹¹ and Ndiklu et al¹² the prevalence of malnutrition was more among female children when compared to male children contrasting to our study findings.

CONCLUSION

The median height and weight for the majority of children were within the normal range of WHO 2006 growth charts. Though it is believed that male children are better and well-nourished than females, the finding in our study is contradictory which a positive sign is. IEC activities should be enhanced so as to change the behaviour of mothers for the Prevention of malnourishment by improving the duration of breastfeeding, initiation of Weaning with protein energy rich diet at proper age, proper hygienic practices and to seek the timely reference from a qualified Doctor for the illness and proper adherence to the treatment . Most importantly all the IEC activities should be focusing on GENDER EQUALITY in all aspects.

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