

Effect of maternal literacy on nutritional status of 24-42 months children in rural area of Pahari block of Mirzapur district

SWATI SINGH AND KALPNA GUPTA

The nutritional status of children influences their health status, which is a key determinant of human development. Worldwide, about a half of mortalities in children are directly or indirectly attributable to malnutrition. One of the major factor which affect malnutrition among children is maternal literacy level. It is well established that mothers' education has a positive effect on child health in developing countries. A mother is a provider of primary care that the child needs during the first 5 years of his/ her life. The type of care she provides depends to a large extent on her knowledge and understanding of some aspects of basic nutrition and health care. A cross sectional descriptive study was conducted among 75 children of age of 24-42 months and their mothers, using a multistage sampling technique. The study involved collecting information on the sociodemographic characteristics of the respondents and the anthropometric measurement (weight and height) of the eligible children. The data was analyzed using statistical software SPSS 16.0. Out of 75 children and their mothers studied 32% mothers were illiterate, 53.3% were literate upto primary and middle, and only 14.7% were literate upto high school and Intermediate. There was a significant association between maternal literacy and malnutrition *i.e.* underweight: $X^2 = 15.33$, $df = 2$ $P < 0.001$, stunted: $X^2 = 6.89$, $df = 2$ $P < 0.05$ and wasted: $X^2 = 17.68$ $P < 0.001$. There is the need to promote and encourage female child education in order to empower them to know the right type of food and the right way to give it in the right quantity. This will help to prevent the occurrence of malnutrition among children especially those under the age of 5 year.

Key Words : Maternal literacy, Malnutrition, Underweight, Stunting, Wasting

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INTRODUCTION

Child malnutrition is a wide spread public health problem having international consequences because good nutrition is an essential determinant for their well-being.

MEMBERS OF RESEARCH FORUM

Author for correspondence :

SWATI SINGH, Department of Home Science, Banaras Hindu University,
VARANASI (U.P.) INDIA
Email : swati.singh310@gmail.com

Associate Authors' :

KALPNA GUPTA, Department of Home Science, Banaras Hindu University,
VARANASI (U.P.) INDIA
Email : kgupta_bhu@yahoo.co.in

The most neglected form of human deprivation is malnutrition, particularly among pre school children. Pre school children constitute the most vulnerable segment of any community. Their nutritional status is a sensitive indicator of community health and nutrition (Dhatrak *et al.*, 2013)

India is one of the few countries in the world where poor nutritional status among pre school children is detrimental to their health outcome (Chandran, 2009). Worldwide, about a half of mortalities in children are directly or indirectly attributable to malnutrition. Therefore,

assessing the factors attributing to malnutrition is central to reducing and preventing high morbidities and mortalities. One of these factors is the maternal literacy level. While a mother is a provider of primary care that the child needs during the first 6 years of its life, the type of care she provides depends to a large extent on her knowledge and understanding of some aspect of basic nutrition and healthcare (Asindi *et al.*, 1990) Furthermore, it has been documented that children born of educated mothers have lower mortality risk because educated mothers tend to delay and have their child at a later age than uneducated women. In addition, they are more likely to be assertive and to play greater role in intra family decision making in favour of their child's need. Educated women have earlier and more effective use of health service, evidence has been documented that maternal education is an important determinant of infant and child mortality (Baraigi, 1980; Caldwell, 1981; Solon *et al.*, 1985 ; Chen, 1986; Reed *et al.*, 1996; Desai and Alva, 1998 and Gwatkin *et al.*, 2000). More still, the National Demographic and Health Survey (NDHS) in 2008 revealed a strong relationship between maternal literacy and nutritional status of the children surveyed.

On the other hand, growth assessment is the single measurement that best describes the health and nutritional status of child; because disturbances in health and nutrition, regardless of their etiology, invariably affect child growth. Consequently, it is based on combination of these body measurements that anthropometric indices are constructed. The three most commonly used internationally recommended anthropometric indicators are underweight (low weight-for-age), stunting (low height-for-age) and wasting (low weight-for-height) (Anwar *et al.*, 2013).

Keeping this view in mind the present study has been conducted to see the effect of maternal literacy on the nutritional status of 24- 42 months children in Pahari Block of Mirzapur district.

METHODOLOGY

A cross sectional descriptive study of 75 children age 24- 42 months and their mothers was carried out in Pahari block of Mirzapur district. Five villages from the block were selected by systematic random sampling for my Ph.D. work. For this paper I have taken the children of two villages whom I have surveyed. Details of the children were taken from ICDS centres and house-

to-house visit. Tools for data collection included a pretested, structured interviewer- administered questionnaire, which was used to seek information on the socio demographic characteristics of respondents and other informations about the child and household (including maternal literacy level). Data collections was done from June 2015- July 2015.

Anthropometric measurement of children (height and weight) was taken to determine their nutritional status. An electronic digital weighting machine was used for measurement of weight and the children were weighted with minimal clothing and without shoes/ slippers. During the measurement of height, each child was made to stand in front of a wall and his/ her height was measured using a fibre glass measuring tape.

Gomez and Waterlow's classification was used for the assessment of malnutrition and the children were classified using three categories: underweight, stunting and wasting.

The data was analysed with SPSS 16.0 version for descriptive as well as inferential statistics particularly significance testing.

OBSERVATIONS AND ASSESSMENT

The total number of children included in the study were 75, among which 49.3% were male 50.7% were female. Frequency distribution of the age of these children shows 48.0% to be in the age group 24-30 months, 28.0% in 31-36 months, while 24.0% were in the age group 37-42 months. The average age of the respondents was (31.87 ± 5.33) . Out of total respondents 50.7% were belonging to OBC, general and schedule caste were 41.3% and 8.0%, respectively (Table 1).

Regarding the educational status of mothers, more than half of them 53.3% were literate upto primary and middle, 14.7% were literate upto high school and above while 32% were illiterate and lacked from any form of formal education.

As per mother's occupation was considered maximum 96% mothers were housewives and only 4.0% were govt. worker.

Out of 75 children 66.7% were belonging to nuclear family and 33.3% were belonging to joint family.

Concerning about family size the average family size was (5.52 ± 1.14) with the range of (3-9) among which 56.0% respondents were belonging to the family size of 1-5 and 44.0% were belonging to family size with 5-10.

Table 1 : Socio demographic characteristics of mother and child

Sr. No.	Variables	Frequency	Percentage (%)
1.	Age (months)		
	Upto 30	36	48.0
	31-36	21	28.0
	37-42	18	24.0
	Average age \pm SD= 31.87 \pm 5.33, range= (24-42 month)		
2.	Sex		
	Male	37	49.3
	Female	38	50.7
3.	Caste		
	Sc/ St	6	8.0
	OBC	38	50.7
	General	31	41.3
4.	Mother's education		
	Illiterate	24	32.0
	Primary and middle	40	53.3
	High school and above	11	14.7
5.	Mother's occupation		
	House wife	72	96.0
	Govt. worker	3	4.0
6.	Type of family		
	Joint	25	33.3
	Nuclear	50	66.7
7.	Family size		
	Upto 5 family members	42	56.0
	5-10family members	33	44.0
	Average family size \pm SD= 5.52 \pm 1.14, range= (3-9)		
8.	Child spacing		
	<3	57	76.0
	\geq 3	18	24.0
	Average birth interval \pm SD= 2.19 \pm 0.59, range= (1-3.50)		

Regarding spacing between two children majority 76% had <3 years of spacing and only 24% mothers were \geq 3 year of spacing between two children. The average birth interval of child spacing was (2.19 \pm 0.59) with the range (1-3.50).

A total of 75 children were surveyed among which 54.1% and 18.9% male; And 52.6% and 21.1% female were mildly and moderately underweight, respectively with no child in severely underweight (Table 2).

54.1%, 16.2% and 5.4% male children were mildly, moderately and severely stunted, respectively. While, 57.9% female were mildly and 10.5% were moderately stunted. No female children were found severely stunted.

Concerning about wasting 43.2% male and 34.2%

female were wasted mildly. Whereas, 8.1% male and 21.1% female were moderately wasted. There was not any significant difference ($P>0.05$) found between sex and different types of malnutrition.

From Table 3, it was observed that in underweight category 26.7% children were normal. 53.3% were mildly and 20.0% were moderately underweight.

Under stunted malnutrition 28.0% were normal. 56%, 13.3% and 2.7% children were mildly, moderately and severely stunted, respectively.

As per wasted category 46.7% were normal with 38.7% mildly and 14.7% moderately wasted. Above table reveals that the difference was not statistically significant in all types of malnutrition. (underweight- $\chi^2 = 3.38$, Df=

4, $P > 0.05$; stunted- $\chi^2 = 8.40$, $Df = 6$, $P > 0.05$ and wasted- $\chi^2 = 0.89$, $Df = 4$, $P > 0.05$)

From Table 4 it was found highly statistical significant

difference ($P < 0.001$) with regards to underweight and wasted between the children whose mothers were literate and illiterate. 41.7% and 45.8% children of illiterate

Table 2 : Sex wise distribution of children according to different types of malnutrition

Under weight (Wt/ Age)	Sex					
	Male		Female		Total	
	No.	Percentage (%)	No.	Percentage (%)	No.	Percentage (%)
Severe	-	-	-	-	-	-
Moderate	7	18.9	8	21.1	15	20.0
Mild	20	54.1	20	52.6	40	53.3
Normal	10	27.0	10	26.3	20	26.7
$\chi^2 = 0.06$, $Df = 2$, $P > 0.05$						
Stunted (Ht/ Age)						
Severe	2	5.4	0	0.0	2	2.7
Moderate	6	16.2	4	10.5	10	13.3
Mild	20	54.1	22	57.9	42	56.0
Normal	9	24.3	12	31.6	21	28.0
$\chi^2 = 2.91$, $Df = 3$, $P > 0.05$						
Wasted (Wt/Ht)						
Severe	-	-	-	-	-	-
Moderate	3	8.1	8	21.1	11	14.7
Mild	16	43.2	13	34.2	29	38.7
Normal	18	48.6	17	44.7	35	46.7
$\chi^2 = 2.60$, $Df = 2$, $P > 0.05$						
Total	37	100.0	38	100.0	75	100.0

Table 3 : Age wise distribution of children according to different types of malnutrition

Underweight (Wt/ Age)	Age (months)						Total	
	24-30		31-36		37-42		No.	Percentage (%)
	No.	Percentage (%)	No.	Percentage (%)	No.	Percentage (%)		
Severe	-	-	-	-	-	-	-	-
Moderate	10	27.8	02	9.5	03	16.7	15	20.0
Mild	17	47.9	12	57.1	11	61.1	40	53.3
Normal	09	25.0	07	33.3	04	22.2	20	26.7
$\chi^2 = 3.38$, $Df = 4$, $P > 0.05$								
Stunted (Ht/ Age)								
Severe	0	0.0	0	0.0	02	11.1	2	2.7
Moderate	05	13.9	03	14.3	02	11.1	10	13.3
Mild	23	63.9	10	47.6	09	50.0	42	56.0
Normal	08	22.2	08	38.1	05	27.8	21	28.0
$\chi^2 = 8.40$, $Df = 6$, $P > 0.05$								
Wasted (Wt/Ht)								
Severe	-	-	-	-	-	-	-	-
Moderate	06	16.7	03	14.3	02	11.1	11	14.7
Mild	14	38.9	09	42.9	06	33.3	29	38.7
Normal	16	44.4	09	42.9	10	55.6	35	46.7
$\chi^2 = 0.89$, $Df = 4$, $P > 0.05$								
Total	36	100.0	21	100.0	18	100.0	75	100.0

mothers; 58.8% and 7.8% children of literate mothers were mildly and moderately underweight, respectively. Mothers of 41.7% mildly wasted and 37.5% moderately wasted children were illiterate whereas, mothers of 37.3% mildly wasted and 3.9% moderately wasted children were literate.

Also significant difference ($P < 0.05$) was found between literacy status of mothers and level of stunting. 58.3%, 25.0% and 4.2% children of illiterate mothers were mildly, moderately and severely stunted, respectively in comparison to 54.9% (mild), 7.8% (moderate) and 2.0% (severe) children of literate mothers.

Literacy is considered as an indicator of development, and maternal literacy is an important factor in overall child health as wisely quoted that “Educated Mothers Lead to Educated Nations”.

No statistically significant difference ($P > 0.05$) was found in the prevalence of malnutrition in relation to the sex of the children as also reported by Chirmulay and Nisal (1993); NFHS III (2005-06) and Singh *et al.* (2012).

In present study association was not found statistically significant between age of the child with malnutrition ($P > 0.05$) On the contrary to present study Rao *et al.* (2005); Senupta *et al.* (2010) and Singh *et al.*

(2013) found association with age and malnutrition.

We have found that educated mothers had a very significant edge over uneducated mothers regarding their nutritional status of their children. Highly significant difference ($P < 0.001$) with regards to underweight and wasting, while significant difference ($P < 0.05$) with regards to stunting was found in the nutritional status of children of literate mothers than those of illiterate mothers. Same findings were also reported by Chen (1986); Bhuiya (1986); Abidoye and Sekabofori (2000) and Ali *et al.* (2011) and Sufiyan. *et al.* (2012). All of them have identified the illiteracy of mothers as a risk factor for malnutrition among their children. The possible reasons that account for the difference in the nutritional status of children of literate mothers and illiterate mothers are as follows: literate mother knows how to prepare the right kind of food and give to her children, she knows the right time to feed the child, and she understand and follow simple instructions on what to do when a child is sick.

Conclusion :

There is strong and consistent correlation between maternal education and child health. We as a developing nation are aware of the fact that improvement in adult

Table 4 : Distribution of children according to mother's education and type of malnutrition

Underweight (Wt/ Age)	Educational Status				Total	
	Illiterate		Literate		No.	Percentage (%)
	No.	Percentage (%)	No.	Percentage (%)	No.	Percentage (%)
Severe	-	-	-	-	-	-
Moderate	11	45.8	04	7.8	15	20.0
Mild	10	41.7	30	58.8	40	53.3
Normal	03	12.5	17	33.3	20	26.7
$\chi^2 = 15.33, Df = 2, P < 0.001$						
Stunted (Ht/ Age)						
Severe	01	4.2	01	2.0	02	2.7
Moderate	06	25.0	04	7.8	10	13.3
Mild	14	58.3	28	54.9	42	56.0
Normal	03	12.5	18	35.3	21	28.0
$* \chi^2 = 6.89, Df = 2, P < 0.05$						
Wasted (Wt/Ht)						
Severe	-	-	-	-	-	-
Moderate	09	37.5	02	3.9	11	14.7
Mild	10	41.7	19	37.3	29	38.7
Normal	05	20.8	30	58.8	35	46.7
$\chi^2 = 17.68, Df = 2, P < 0.001$						
Total	24	100.0	51	100.0	75	100.0

*statistical test χ^2 is calculated to combined severely with moderate due to less frequency in cells.

education can reduce under nutrition in the world. Improved maternal literacy standards can reduce the risks of childhood mortality and morbidity. Intensified effort must be made to improve girl child/ female education. This will not only empower them in preventing the occurrence of malnutrition among children (especially the under fives), but will also enhance the attainment of other development objectives: MDGs 1,2,3,4.

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