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Original Research Article

A Study to Assess the Nutritional Status of Children Up To Five Years Age Group and Demonstrate Its Relation with Different Socio-Demographic Variables

Kapil J. Govani[1], Mitali G. Patel[1], Darshan K. Mahyavanshi[1], Jayna D. Devalia[2], Bansi K. Davda[3], Anand G. Shah[4]

[1]Assistant Professor, Dept. of Community Medicine, GMERS Medical College, Valsad, Gujarat, India.
[2]Resident, Dept. of Physiology, Government Medical College, Surat, Gujarat.
[3]Tutor, [4]Third Year Resident,
Dept. of Community Medicine, Smt. NHL Municipal Medical College, Ahmedabad, Gujarat.

Corresponding Author: Kapil J. Govani

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ABSTRACT

Introduction: Malnutrition is a major public health problem in India.
Aims & objectives: (1) To assess the nutritional status of children upto five years age group. (2) To assess the different socio-demographic variables of study group. (3) To demonstrate the relation between nutritional status and socio-demographic variables.
Methodology: A cross sectional study was conducted at slum areas of Junavadaj ward of west zone, AMC. Study group was children upto 5 years age group. Study period was December 2013 to June 2014. Data was collected for 300 selected children. Structured proforma was used for data collection purpose.
Results & discussion: Out of 300 children 157 (52.3%) were male and 143 (47.7%) were females. Majority of parents were educated upto primary level. Majority (76.7%) of children were found in normal nutritional stage. Among 23.3% of children who were noted malnourished, majority (17%) of them were found in grade-1 stage. Significant difference was found in third birth order and gender distribution of children (P value: 0.001). Majority (41.3%) of children were found having birth weight between 2.5 kg to 3 kg. Average results were noted for colostrum feeding (37.7%) and exclusive breast feeding (36.3%).
Conclusion & Recommendation: Significant difference was demonstrated between nutritional status of children and their birth weight & birth order. Average IYCF practices were observed. So it is emphasized to improve such IYCF practices in community.

Key words: Children, Malnutrition, Socio-demographic variables, IYCF

INTRODUCTION

According to World Health Organization, protein energy malnutrition (PEM) refers to "an imbalance between the supply of protein and energy and the body's demand for them to ensure optimal growth and function". It is a major public health problem in India. It affects particularly the preschool children (<5 years) with its dire consequences ranging from physical to cognitive growth and susceptibility to infection. [1,2] This affects the child at the most crucial period of time of development which can lead to permanent impairment in

later life. [2,3] PEM is measured in terms of underweight (low weight for age), stunting (low height for age) and wasting (low weight for height). The prevalence of stunting among under five is 48% and wasting is 19.8% and with an underweight prevalence of 42.5%, it is the highest in the world. [4] Under nutrition predisposes the child to infection and complements its effect in contributing to child mortality. [1,5] Lalonde model (1974) is used to look into the various determinants of PEM in under five children and its interrelation in causation of PEM. The determinants of PEM are broadly classified under four distinct categories: Environmental factors including the physical and social environment, behavioral factors, healthcare service related and biological factors. [6] The socio-cultural factors play an important role wherein, it affects the attitude of the care giver in feeding and care practices. [6,7] Faulty feeding practice in addition to poor nutritional status of the mother further worsens the situation. As feeding practice changes with age, a fourfold increase in the prevalence of under nutrition is seen from 15.4% (06 months) to 52.6% (12-23months). [5] A delay in the initiation of breast feeding, lack of colostrum and inappropriate complementary feeding were significantly associated with underweight and stunting. Inappropriate infant and child feeding (IYCF) practices are closely related to cultures and beliefs. [3] PEM (Protein Energy Malnutrition) is a critical problem with many determinants playing a role in causing this vicious cycle of under nutrition. With almost half of under five children undernourished in India, the Millennium Development Goal (MDG) of halving the prevalence of underweight by 2015 seems a distant dream. So, the current study was conducted with following objectives.

Aims & objectives:

1. To assess the nutritional status of children upto five years age group.
2. To assess the different socio-demographic variables of study group.
3. To demonstrate the relation between nutritional status and socio-demographic variables.

MATERIALS AND METHODS

Ahmedabad Municipal Corporation is divided in 6 zones and has total 57 wards with a city population of 5,570,585. [8] Six zones are West Zone (WZ), New west Zone (Nwz), East Zone (Ez) and North Zone (Nz), Central Zone (Cz) and South Zone (Sz). The present cross sectional study was conducted at slum areas of Junavadaj ward of West zone, Ahmedabad Municipal Corporation (AMC) area. The ward was randomly selected. Study group was children upto five years age group and data was collected for 300 selected children of slum areas of Junavadaj ward. Informed consent of all parents/caretakers of children was taken for data collection purpose after giving brief orientation about study. Those who denied were excluded. Study period was December 2013 to June 2014. Fully structured proforma, which was specially designed and pre-tested, was used for data collection purpose. The proforma contains details of nutritional status of children upto five years age group, nutritional related practices by mothers/Caregivers and different socio-demographic variables of study group e.g. Age, gender, birth order, birth weight, educational status of parents etc. After the data collection, small awareness sessions on nutrition, factors affecting nutritional status and nutritional disorders were arranged in community with the help of different IEC materials (e.g. posters, charts, photos etc) for improving the awareness regarding malnutrition and it's preventive measures in community. Data entry was carried out and

data analysis was done by using appropriate statistical software and applying suitable statistical tests.

RESULTS

In the study children up to five years of age were taken. The age distribution among study group was mentioned in table-1. Out of 300 children 157 (52.3%) were male and 143 (47.7%) were females. Majority of children (39.7%) were found of 2 to 3 years of age. Education status of parents or care givers was noted in table-2. Majority of them were educated upto primary level (mothers-85.6% and fathers-50.8%). Very few parents were found illiterate (mothers-6.4% and fathers- 1.7%). Study reveals, majority (76.7%) of children were found in normal nutritional stage. Gomez' classification (weight for age criteria) of PEM (Protein Energy Malnutrition) was used for grading of malnutrition. Around 9.3% of male and 7.7% of female child was noted in grade-1 category of malnutrition (Table-3). There was no any significant difference noted between gender of child and malnutrition status. Regarding the birth order of children, majority of them were noted in first (51.7%) and second birth order (38.7%). Only 2 (0.7%) male children were found in forth birth order (Table-4). Significant difference was found in third birth order and gender distribution of children (P value: 0.001). Study reveals, majority (41.3%) of children were found having birth weight between 2.5 kg to 3.0 kg followed by 2.1 to <2.5 kg (25%). Total 54 (34.4%) male children and 54 (37.8%) female children were found low birth weight (LBW) (Table-5). No significant difference was observed between birth weight and gender of child. Relation between different socio-demographic variables and nutritional status of children were noted in table-6. As per the results, significant difference was demonstrated between nutritional status of children and their birth weight & birth order. Infant and young child feeding practices (IYCF) were noted in table-7. Average results were noted for colostrum feeding (37.7%) and exclusive breast feeding (36.3%). Majority of mothers (41%) were giving water along with breast feeding (predominant BF). Around 51% of mothers/caregivers were correctly doing complimentary feeding practices (Table-7).

Table-1: Age distribution of children. (N=300)

Age group	Male	(%)	Female	(%)	Total	(%)
0 to 1	3	1.0	4	1.3	7	2.3
1 to 2	29	9.7	41	13.7	70	23.3
2 to 3	68	22.7	51	17.0	119	39.7
3 to 4	41	13.7	33	11.0	74	24.7
4 to 5	16	5.3	14	4.7	30	10.0

Table-2: Educational status of parents of study group.

Education	Mother (N=299)	(%)	Father (N=297)	(%)
Illiterate	19	6.4	5	1.7
Primary	256	85.6	151	50.8
Secondary	21	7.0	123	41.4
Higher secondary	3	1.0	11	3.7
Graduate	0	0.0	7	2.4

Table-3: Status of malnutrition among children. (N=300)

Malnutrition status*	Male	(%)	Female	(%)	Total	(%)	Chi-square	P Value
Normal	123	41.0	107	35.7	230	76.7	0.52	0.47
Grade-1	28	9.3	23	7.7	51	17.0	0.16	0.69
Grade-2	6	2.0	12	4.0	18	6.0	2.02	0.15
Grade-3	0	0.0	1	0.3	1	0.3	0.002	0.96

Symbol (*) shows grading of malnutrition was done by using Gomez' classification.

Table-4: Gender wise distribution of birth order of children. (N=300)

Birth Order	Male	(%)	Female	(%)	Total	(%)	Chi-square	P Value
First	77	25.7	78	26.0	155	51.7	0.91	0.34
Second	57	19.0	59	19.7	116	38.7	0.77	0.38
Third	21	7.0	6	2.0	27	9.0	6.62	0.01
Forth	2	0.7	0	0.0	2	0.7	0.41	0.52

Table-5: Gender wise distribution of birth weight of children. (N=300)

Birth Weight (In Kg)	Male	(%)	Female	(%)	Total	(%)	Chi-square	P Value
1 to 1.5	1	0.3	0	0.0	1	0.3	0.91	0.34
1.6 to 2	19	6.3	13	4.3	32	10.7	0.71	0.4
2.1 to < 2.5	34	11.3	41	13.7	75	25.0	1.96	0.16
2.5 to 3	67	22.3	57	19.0	124	41.3	0.24	0.62
3.1 to 3.5	31	10.3	28	9.3	59	19.7	0.001	0.97
3.6 to 4	5	1.7	4	1.3	9	3.0	0.039	0.84

Table-6: Relation between socio-demographic variables and nutritional status. (N=300)

socio-demographic variables	Nutrition status		Chi-square	P Value
	Normal	PEM		
Birth weight				
<2.5 kg	69	39	15.4	<0.0001
>2.5 kg	161	31		
Age group				
<02 year	56	21	0.9	0.34
02 to 05 year	174	49		
Birth order				
1st & 2nd	219	52	26.9	<0.0001
3rd & 4th	11	18		

Table-7: Nutritional practices by mothers / Caregivers. (N=300)

Different IYCF practices	No.	(%)
Pre lacteal feeding done	57	19
Colostrum given	113	37.7
Exclusive BF (Breast Feeding) practices	109	36.3
Predominant BF practices	123	41
Partial BF practices	68	22.7
CF (Complimentary Feeding) starts on right age	174	58
Proper CF practices	153	51

DISCUSSION

Age distribution of children shows majority of children (39.7%) was observed in 2 to 3 years of age. Among them male children were 22.7% and female children were 17% (Table-1). A decreasing trend in all forms of under nutrition is observed where the literacy status of mother increased. Children of illiterate women were twice as likely to show signs of underweight and stunting as those who had at least completed high school. [2] Increasing literacy status of a mother has a positive effect in reducing under nutrition since she is the first contact of care for the child. Current study shows majority of mothers (85.6%) were studied up to primary level (Table-2). Very few mothers (6.4%) and fathers (1.7%) were illiterate. PEM is measured in terms of underweight, stunting and wasting. [1,3] Under nutrition predisposes the child to infection and complements its effect in contributing to child mortality. In the current study, majority of the children (76.7%) were found normal weight for age (as per Gomez' classification). Among 23.3% of children who were noted malnourished, majority (17%) of them were found in grade-1 stage (Table-3). Gender discrimination is one of the important issues in some communities. [4] In such communities male child preference is higher. So they don't accept any family planning methods until the birth of male child. Significant difference was found in third birth order and gender distribution of children (P value: 0.001) (Table-4). Which may indicates the preference of male child after initial two female child births. When the birth weight of baby is <2.5 kg it is called Low Birth Weight (LBW) baby. The vicious cycle of poor nutritional status of the mother leading to low birth weight child further exposes the child to susceptibility to infections which aggravates malnutrition. As from the results in current study majority (41.3%) of children were found having birth weight between 2.5 kg to 3.0 kg (Table-5). Out of 300 children, 118 (39.3%) children were noted LBW. Statistically no gender wise significant difference for birth weight was noted. The socio-cultural factors play an important role in child rearing practices. It also reflects attitude of the care giver. [5] Birth weight & birth order of children were significantly associated with nutritional status of children (Table-6). Appropriate infant and young child (IYCF) feeding behavior goes a long way in preventing and overcoming malnutrition and determining child's growth. As feeding practice changes

with age, a fourfold increase in the prevalence of under nutrition is seen from 15.4% (06 months) to 52.6% (12-23months). [1,6] Due to some socio-cultural myths in feeding practices, average results were noted for breast feeding as well as complimentary feeding practices (Table-7).

CONCLUSION AND RECOMMENDATIONS

Out of 300 children 157 (52.3%) were male and 143 (47.7%) were females. Majority of children (39.7%) were found of 2 to 3 years of age. Majority of parents were educated upto primary level (mothers-85.6% and fathers- 50.8%). out of 300 children majority (76.7%) of children were found in normal nutritional stage. Among the malnourished children, majority (17%) were of grade-1 stage. (Gomez classification of PEM). Majority of children were noted in first (51.7%) and second (38.7%) birth order. Significant difference was found in third birth order and gender distribution of children (P value: 0.001). Majority (41.3%) of children were found having birth weight between 2.5 kg to 3.0 kg followed by 2.1 to < 2.5 kg (25%). No significant difference was observed between birth weight and gender of child. Significant difference was demonstrated between nutritional status of children and their birth weight & birth order. Average results were noted for colostrum feeding (37.7%) and exclusive breast feeding (36.3%). Around 51% of mothers/ caregivers were correctly doing complimentary feeding practices. Socio-demographic factors play an important role in child rearing practices and nutritional status of children. So it is emphasized to increase awareness in community for improving IYCF practices.

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