Original Research Paper

Nursing

Prevalence of malnutrition among underfive children and factors contributing to malnutrition

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ABSTRACT A nation's most important and precious resource is its children who constitute its hope for continuous achievement and productivity. Malnutrition remains one of the most common causes of morbidity and mortality among children throughout the world. About fifty percent of childhood deaths are attributed to malnutrition. The research study was aimed to assess the prevalence of malnutrition among underfive children and to determine the factors contributing to malnutrition. The design used was descriptive cross sectional survey. The study was conducted in two selected wards of Nellanadu Panchayath in Thiruvananthapuram district with a sample size of 111. Data collection was done by measuring the weight of the children with calibrated weighing machine and mid upper arm circumference with an inch tape. Malnutrition was assessed based on IAP classification. Sociodemographic profile was used to record the socio personal variables. Data collection was done by house to house visit. According to the results of the study 14.4 % of underfive children had grade I malnutrition and only 2.7% had grade II malnutrition. There was a strong association between malnutrition and selected variables such as gender of the child, family income, low birth weight and lack of exclusive breast feeding (p<0.05)). The study findings can be used for planning targeted nursing interventions for the prevention of malnutrion among underfive children.

Introduction

India has the largest child development programme in the world (ICDS) , yet progress in malnutrition is limited . Malnutrition is common in India than Sub Saharan Africa. One in every three malnourished children in the world live in India. About 6600 underfive children die every day due to malnutrition in India. [1]

In India almost half of children under five years of age (48 percent) are stunted and 43 percent are underweight. The proportion of children who are severely undernourished is also notable, 24% according to height-for-age and 16 percent according to weight-for-age as per NFHS-3. Even though severe under nutrition is more pronounced in states like Bihar, Madhya pradesh, Orissa, Uttar Pradesh and Rajasthan, even in well endowed states like Kerala, Goa and Sikkim the levels of mild under nutrition is unacceptably high. [2] In Kerala 23% of children are under weight, 27% stunted and 16 % wasted. [3]

The group most vulnerable to malnutrition and its adverse effects is children below five years, who constitute a special risk group in any population. Even mild malnutrition in children can affect their long term intellectual ability, brain development and can predispose them to infections push them further into severe malnutrition. [4]

Need and Significance

Undernutrition among children remains a challenge till date, despite identification of the problem for more than a century. Efforts to prevent or control undernutrition have not been very successful. Not much technical expertise is required to prevent most of the cases of under nutrition as they are due to lack of hygiene or lack of sufficient and appropriate food. Proper nutrition is essential for the physical and mental growth of the child. Healthy children of today will become health citizens of tomorrow.

Malnutrition and growth retardation are probably the most wide spread health and nutritional problems of developing countries including India. PEM is the most deadly form of malnutrition. It occurs particularly in children in the first five years of life. It is not only an important cause of childhood morbidity and mortality, but leads also to permanent impairment of physical and possibly, of mental growth of those who survive. [5]

A study conducted by the post graduate nursing students of Govt. Nursing College Alappuzha in some of the selected coastal villages showed that 20 % of children had grade I PEM, 5 % had grade II PEM, 2% had grade III PEM, 46.3 % children had stunting , 23.3 % of children had wasting. There was a significant association between

nutritional problems and age, sex, birth weight of child, educational status of mother feeding practices, deworming and income.(p less than 0.05).

According to a study conducted on factors affecting the prevalence of malnutrition among children under three years of age in Botswana the higher the level of the mother's education, the lower the level of child underweight observed. Breastfeeding was found to reduce the occurrence of underweight among children [6].

A matched case-control study conducted to assess the risk factors of Malnutrition in pre-school children aged 0-3 years in four regions of Oman showed that Low birth weight children were at higher risk of developing malnutrition (O.R=5.8, p-value <0.0001). The results of the multivariate analysis revealed that birth-weight (O.R. 8.4, p=0.001),), diarrhea in the last 15 days (O.R. 3.9, p=0.0029) and formula feeding (O.R. 2.2, p=0.014) were significantly associated with underweight.

Objectives of the study

1. To estimate the prevalence of malnutrition among uderfive children.
2. To determine the association between the degree of malnutrion and selected factors influencing malnutrition.

Research methodology

Research approach : Quantitative
Design : Descriptive –Cross Sectional Survey
Setting : two selected wards of Nellanadu Panchayath in Thiruvananthapuram District

Population : All the children in the age group of 1-5 years residing in Nellanadu Panchayath
Sample : children in the age group of 1 to <5 years residing two selected wards of Nellanadu Panchayath in Thiruvananthapuram District. Sample size was 111.
Sampling technique : Purposive sampling technique

Inclusion criteria:

Underfive children in the age group 1 to <5years.
Underfive children available during the time of data collection.

Exclusion criteria:

Seriously ill children
Children with endocrine abnormalities
Mentally retarded children
Children with congenital abnormalities.

Tools and techniques
Technique : Structured interview schedule: with pretested structured questionnaire

Tool 1: Structured questionnaire
- Part A. Socio demographic profile
- Part B: Birth factors, nutritional factors

Tool II Anthropometric data sheet
Weight is taken by a calibrated weighing machine. Degree of malnutrition was classified according to IAP classification. Mid upper arm circumference (MUAC) was taken by an inch tape and severity of malnutrition was analyzed by Arnold's classification

Data collection procedure
The study was conducted in two selected wards of   Nellanadu Panchayath in Trivandrum district with a sample size of 111. Data collection was done by measuring the weight of the children with calibrated weighing machine and mid upper arm circumference with an inch tape. Malnutrition was assessed based on IAP classification. Sociodemographic profile was used to record the socio personal variables. Interview schedule was designed for the mothers. Data collection was done by house to house visit.

Results
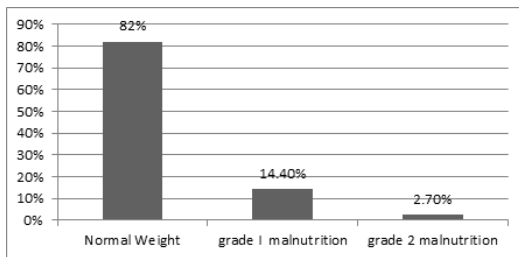**Figure 1: Prevalence of underweight among children 1- 5 years (n=111).**

Figure1 shows that 14.4% of underfive children had grade I malnutrition and 2.7% children had grade II malnutrition. .

Figure 2: Distribution of malnutrition among underfive children according to mid upper arm circumference (n=115).
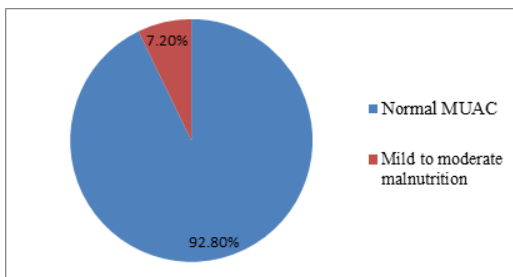

Figure 2 shows that only 7.2 % children had mild to moderate malnutrition according to Arnold's classification   (mid upper arm circumference < 13.5 cm).

Table 1: Association between degree of malnutrition and selected socio personal variables (n=111).

Socio Personal variables	chisquare	df	p value
gender	4.28	1	0.05*
Family income	5.45	1	0.025*

According to table 1, there was significant association between degree of malnutrition and selected socio personal variables like gender of the children (p <0.05) and low family income. (p <0.025). Underweight was significantly higher among girls compared to boys.

Table 2: Association between degree of malnutrition and selected birth and nutritional factors (n=111)

SocioPersonal variables	chisquare	df	p value
birth weight	14.80	1	0.001***
Exclusive breast feeding	7.31	1	0.01**

Table 2 shows that there was significant association between degree of malnutrition and selected birth and nutritional factors like low birth weight (0.001***) and lack of exclusive breast feeding (0.01**).

Discussion
According to the findings of the study 14.4% of underfive children had grade I malnutrition and 2.7% children had grade II malnutrition. Which is much less than the data obtained from NHS III . In India almost half of children under five years of age (48 percent) are stunted ,43 percent are underweight and in Kerala 23% of children are under weight, 27% stunted and 16 % wasted as per NFHS-3.

The present study reveals that there was significant association between degree of malnutrition and selected socio personal variables like gender of the children   (p <0.05*) and low family income (p <0.025). Underweight   was significantly higher among girls compared to boys. According to the study findings there was significant association between degree of malnutrition and selected birth and nutritional factors like low birth weight (0.001***) and lack of exclusive breast feeding (0.01**). The findings were supported by the findings of the study conducted by the post graduate nursing students of Govt. Nursing College Alappuzha in a selected coastal village which showed significant association between nutritional problems and age, sex, birth weight of child, educational status of mother , feeding practices and income (p < 0.05*).

The findings were supported by a case-control study conducted to assess the risk factors of Malnutrition (underweight) in pre-school children aged 0-3 years in four regions of Oman. [7] Low birth weight children were at higher risk of developing malnutrition (O.R=5.8, p-value <0.0001). The results of the multivariate analysis revealed that birth-weight (O.R. 8.4, p=0.001),) diarrhea in the last 15 days (O.R. 3.9, p=0.0029) and   formula feeding (O.R. 2.2, p=0.014) were significantly associated with underweight.

Nursing Implication
1. Study results emphasize the role of nurse in organizing health awareness campaigns for mothers regarding the prevention and management of malnutrition among children.
2. Community health nursing department should take initiative in promoting exclusive breast feeding practice in the community.

Limitations
1. The study was limited to a single setting.
2. Sample size was restricted to 111.
3. Awareness and Practice of mothers were not assessed

Recommendations for future research
1. Large scale sample studies can be done in the area by including more settings.
2. Experimental study can be done by assessing the effectiveness of educational intervention on knowledge and practice of mothers and nutritional status of children
3. Case control study can be done to identify the risk factors

Conclusion
The study reveals that 14.4% of underfive children had grade I malnutrition and 2.7% children had grade II malnutrition. According to the results   there was significant association between degree of malnutrition and variables like gender of the children (p <0.05) , low family income (p <0.025), low birth weight (0.001***) , lack of exclusive breast feeding (0.01**). Many studies revealed that there is strong association between the nutritional status of children and

factors like low family income, low birth weight and lack of breast feeding. Study results emphasize the role of nurse in organizing health awareness campaigns for mothers regarding the importance of exclusive breast feeding and care of low birth weight babies.

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