

# Relationship between Nutritional Status and Socioeconomic Status among Preschoolers

Saranya M.S<sup>1</sup>, Divya.S<sup>2</sup>

<sup>1</sup>Lecturer, KIMS College of Nursing, Trivandrum, <sup>2</sup>Assistant Professor, Sivagiri Sree Narayana Medical Mission College of Nursing Varkala.

**How to cite this article:** Saranya M.S, Divya.S. Relationship between Nutritional Status and Socioeconomic Status among Preschoolers. International Journal of Nursing Care / Vol. 13 No. 1, January-June 2025.

## Abstract

**Background:** Nutrition is the foundation to ensure good health. Optimum nutrition is an integral component of paediatric health care<sup>1</sup>. Good nutrition is essential to good health throughout life, beginning with parental life and extending through old age<sup>2</sup>. The nutritional status is influenced by a complex interaction between internal or constitutional factors and external environmental factors. Internal or constitutional factors may be age, gender, nutrition, behaviour, physical activity and disease whereas external environmental factors may be food safety, cultural and socioeconomic factors<sup>3</sup>.

**Materials and Methods:** This study was conducted to assess the relationship between nutritional status and socioeconomic status among preschoolers of selected Anganwadis at Varkala Municipality. Quantitative correlational research design was adopted for the study. Two hundred and fifty preschoolers were selected using convenience sampling technique. Data collection tool was structured questionnaire to collect sociodemographic variables, Modified kuppusswamy socioeconomic scale to assess socioeconomic status. Nutritional status was assessed based on weight for age, height for age and mid arm circumference.

**Results:** The relationship between nutritional status and socioeconomic status was computed by using correlation coefficient, there was a significant correlation found between nutritional status based on weight for age with socioeconomic status ( $r = 0.150, p < 0.05$ ), on the basis of height for age there was a negative correlation found with socioeconomic status and based on mid arm circumference there was no correlation found with socioeconomic status. The chi-square value showed that there was significant association found between nutritional status based on weight for age and mother's age, birth weight ( $p < 0.05$ ), history of recurrent infections ( $p < 0.001$ ), on the basis of height for age association was found with child's age, area of residence ( $p < 0.01$ ), and type of family ( $p < 0.05$ ) and with regard to Mid arm circumference association was found with age of child ( $p < 0.001$ ) and religion ( $p < 0.05$ ).

**Conclusion:** There is a relationship between nutritional status and socioeconomic status based on weight for age.

**Key words:** Nutritional status; socioeconomic status; Preschoolers

---

**Corresponding Author:** Saranya M.S, Lecturer, KIMS College of Nursing, Trivandrum.

**E-mail:** sarenjadeepu18@gmail.com

**Submission date:** Aug 22, 2024

**Revision date:** Sep 16, 2024

**Published date:** Feb 3, 2025

---

This is an Open Access journal, and articles are distributed under a Creative Commons license- CC BY-NC 4.0 DEED. This license permits the use, distribution, and reproduction of the work in any medium, provided that proper citation is given to the original work and its source. It allows for attribution, non-commercial use, and the creation of derivative work.

## Introduction

Anthropometry is the single most universally applicable non-invasive and inexpensive technique for nutritional assessment. The aim of the study was to assess the relationship between nutritional status and socioeconomic status among preschoolers. The objectives of the study were to assess the nutritional status of preschoolers, assess the socioeconomic status of preschoolers, find the relationship between nutritional status and socioeconomic status among preschoolers of selected Anganwadis at Varkala Municipality and Find out the association between nutritional status and sociodemographic variables. The World Health Organization (2022) estimates that malnutrition accounts for 54% child mortality worldwide, which is about 1 million children. In 2020, globally, 149.2 million children under the age of 5 years were stunted, 45.4 million wasted and 38.9 million were overweight<sup>4</sup>. As per the GLOBAL HUNGER INDEX and the National Family Health Survey (2019–2021) 7.7% under five children are severely wasted, 35.5% are stunted and 19.3% are wasted in India. Comprehensive National Nutrition Survey (2017-18) among children of under five years of age in Kerala reported that 20.55% are stunted or have low height for age, 12.65% are wasted or have low weight for height and 18.75% are underweight or have low weight for age. About 3.2% of total children in this age group are severely underweight<sup>5</sup>. Socioeconomic status determines nutritional status through four factors namely parenting patterns, availability and accessibility of food, access to health services, and environmental sanitation and hygiene. All of these factors can affect children's health and shape their nutritional status. The fulfilment of socioeconomic status is determined by three main factors, namely the parents' education level, the parents' occupational status, and family expenditure level<sup>6</sup>.

## Material and Methods

Quantitative research approach with correlational research design was adopted for this study. Two hundred and fifty preschoolers were selected by using convenience sampling technique. Data was collected from the mothers of preschoolers attended at selected anganwadis at Varkala Municipality after

obtaining formal permission from District Officer Women and Child Welfare Thiruvananthapuram in 2023. Ethical clearance taken from institutional ethics committee of Sivagiri Sree Narayana Medical Mission College of Nursing Varkala on 28/11/2022 (IEC NO: SCN/158/22-23).

**Study Design:** Correlational research design

**Study Location:** Selected anganwadis at Varkala Municipality

**Study Duration:** 1st April 2023 to 30<sup>th</sup> April 2023.

**Sample Size Calculation:** Sample size was calculated by the following formula.

$$n = \frac{Z_{1-\frac{\alpha}{2}}^2 * p * q}{d^2}$$

Where

d=Absolute precision

p=Expected proportion

α=Level of significance

### Calculation

α=0.05

$$Z_{1-\frac{\alpha}{2}} = 1.96$$

d=5%

p=0.1954

Sample size consists of 242 preschoolers

Anticipating loss to follow up and missing of data, the minimum sample size is rounded to be 250.

**Subject and selection methods:** Data was collected from mothers of preschoolers in selected anganwadis. Sampling technique adopted in the present study was convenience sampling.

### Inclusion Criteria:

1. Preschoolers attending in selected anganwadis at Varkala Municipality

### Exclusion criteria:

1. Children under the age of three and over the age of six

### Procedure Methodology:

Questionnaire was given to obtain information about socio demographic characteristics, Modified kuppuswamy socioeconomic scale was used to identify socioeconomic status. Nutritional status of the preschoolers was assessed by measuring weight, height mid arm circumference of the children. Weight of the children was assessed by using weighing machine, a stadiometer was used to check the height, Shakir tape was used to assess mid upper arm circumference

### Statistical analysis

Relationship between nutritional status and socioeconomic status was assessed by using correlation coefficient. Chi-square was used to assess the association between nutritional status and socio demographic variables.

## Results

### A. Socio demographic Data of the subjects

About 56.4% were within the age group of > 4years, 57.2% of preschoolers were males, 66.0% were Hindus and 63.2% of preschoolers reside in rural areas. Based on type of family 64.8% of preschoolers were from nuclear families, 63.2% of mothers of preschoolers were within the age group of 20-30 years, 67.2% of fathers of preschoolers were within the age group of 31-40 years and with regard to number of siblings of preschoolers, 58% had one sibling.

On the basis of spacing and birth order 38.8% had birth spacing more than 3 years and 56.0% of preschoolers were of second birth respectively, all the preschoolers were immunized up to the age and 97.2% of preschoolers had birth weight above 2.5 kg. With regard to breast feeding after birth all the

preschoolers were breast fed, 94.4% of preschoolers were exclusively breast fed up to the age of 6 months and 94.4% of preschoolers were exclusively breast fed up to the age of 6 months, Based on total duration of breast feeding 76.8% of preschoolers were breast fed more than 2 years, 94.4% of preschoolers weaning started at 6 months and 95.6% of preschoolers had no history of recurrent infections.

### B. Socioeconomic status and Nutritional status of preschoolers

About 64.8% of preschoolers belong to upper lower socioeconomic class, 25.2% belong to lower middle socioeconomic class and 10% belong to upper middle socioeconomic class and nutritional status of preschoolers based on weight for age, 51.6% had normal weight for age, 47.6% had grade I malnutrition, and 0.8% had grade II malnutrition. Nutritional status of preschoolers based on height for age showed that 84% had normal height for age, 13.2% had mild retardation, and 2.8% had moderate retardation. Nutritional status of preschoolers based on mid arm circumference showed that 92.8% had normal mid arm circumference and 7.2% had moderate malnutrition.

Modified kuppuswamy socioeconomic scale was used to assess the socioeconomic status. It include education of the head of the family, occupation of the head of the family, monthly income of family and each parameter has different scores. Based on the total score the socioeconomic class is defined. The scoring is:

SL. NO	SCORE	SOCIOECONOMIC CLASS
1	26-29	Upper(I)
2	16-25	Upper middle(II)
3	11-15	Lower middle(III)
4	5-10	Upper lower(IV)
5	<5	Lower(V)

### C. Relationship between nutritional status and socioeconomic status of preschoolers

Nutritional status	Socioeconomic status			
	upper lower	lower middle	upper middle	r
Weight for age				
Normal	76	34	19	
Grade I malnutrition	85	28	6	0.150*
Grade II malnutrition	1	1	0	

Continue.....

Height for age				
Mild retardation	21	7	1	
Moderate retardation	7	1	0	-0.109
Normal	134	55	24	
Mid arm circumference				
Moderate malnutrition	12	2	0	
Normal	150	61	25	0.112

The parameters are:

1. Weight for age calculated by using Gomez classification

>90% = Normal nutritional status

76-90% = 1<sup>st</sup> degree malnutrition

61-75% = 2<sup>nd</sup> degree malnutrition

≤ 60% = 3<sup>rd</sup> degree malnutrition

2. Height for age calculated by Waterlow's classification

< 85% expected height for age: severe retardation

85-90% expected height for age: Moderate retardation

90-95% expected height for age: Mild retardation

>95% expected height for age: Normal

3. Mid arm circumference classification on the basis of WHO classification

Above 13.5 cm = Normal

12.5-13.5 cm = Moderate malnutrition

Below 12.5 cm = Severe malnutrition

#### D. Association between nutritional status and socio demographic variables

The chi-square value showed that there was significant association found between nutritional status based on weight for age and mother's age, birth weight ( $p < 0.05$ ), history of recurrent infections ( $p < 0.001$ ), on the basis of height for age association was found with child's age, area of residence ( $p < 0.01$ ), and type of family ( $p < 0.05$ ) and with regard to Midarm circumference association was found with age of child ( $p < 0.001$ ) and religion ( $p < 0.05$ ).

#### Discussion

The first objective of the study was to assess the nutritional status of preschoolers. The result showed nutritional status of preschoolers based on weight for age, 51.6% had normal weight for age, 47.6% had grade I malnutrition, and 0.8% had grade II malnutrition. Nutritional status of preschoolers based on height for age showed that 84% had normal height for age, 13.2% had mild retardation, and 2.8% had moderate retardation. Nutritional status of preschoolers based on mid arm circumference showed that 92.8% had normal mid arm circumference and 7.2% had moderate malnutrition.

The above findings are supported by the study conducted by Anis Ahmad and Sazia Muzammil on assessment for nutritional status among preschool children in south Delhi, India. The study was conducted among 100 children of 24-47 months of age. Anthropometric measurements of weight and height were measured. The study results showed that 51%, 36%, 11% and 2% children were found to be in the ranges of normal weight, grade I, grade II, and severely underweight respectively by Indian Academy of pediatric classification respectively. The study concluded that the most extensively used markers of nutritional quality in a population are anthropometric measures<sup>7</sup>.

The second objective of the study was to assess the socioeconomic status of preschoolers. The results showed that 64.8% of preschoolers belong to upper lower socioeconomic class, 25.2% belong to lower middle socioeconomic class and 10% belong to upper middle socioeconomic class.

The above findings were supported by a study on Socioeconomic Status and its Influence on Nutrition and Cognitive Performance in Children between the age group of 5-15 years old in Tamilnadu. The

study was undertaken to assess various nutritional parameters and their influence on cognitive performance. The aim of this study was to correlate the cognitive performance of children with the parental socioeconomic status. Sixty children were selected randomly and classified according to modified kuppusamy's scale for socioeconomic status. Anthropometric assessments such as height, weight and BMI were measured. The study results showed that children of higher socioeconomic status had better cognitive skills when compared to the children of lower socioeconomic status. The study concluded that socioeconomic status of parents which includes education, occupation, and income determines the cognition and intelligence<sup>8</sup>.

The third objective of the study was to find the relationship between nutritional status and socioeconomic status among preschoolers of selected Anganwadis at Varkala Municipality. Spearman rank correlation coefficient was used to find the relationship between nutritional status and socioeconomic status of preschoolers. The results showed that there was a significant correlation was found between nutritional status based on weight for age with socioeconomic status, on the basis of height for age there is a negative correlation found with socioeconomic status and based on mid arm circumference there is no correlation was found with socioeconomic status.

These findings were supported by a descriptive cross sectional study conducted to determine the correlation between nutritional and socioeconomic status of under five children in Africa among 406 children. Quantitative and qualitative approaches were used in collecting and analysing primary data. Quantitative data was collected through a community household survey. Pearson Chi-square was used to prove the relationship between socioeconomic status and child nutritional status. This study revealed that there was a significant relationship between socioeconomic variables with wasting and underweight<sup>9</sup>.

The fourth objective of the study was to find out the association between nutritional status and socio demographic variables. The chi-square test shows that there was statistically significant association between weight for age of preschoolers with mother's

age, birth weight and history of recurrent infections. Based on height for age of preschoolers there was a significant association between age of child, area of residence, and type of family and on the basis of mid arm circumference there was statistically significant association between age of child and religion with sociodemographic variables.

These findings were supported by the study conducted by Prakash Sharma on nutritional status and associated factors among preschool children in Nepal. The study was conducted among 389 children of 3-5 years of age. The findings indicated that more than half of the children had below the normal level of nutrition status and nearly half had a low economic background. Low family income for height for age and weight for age, father's occupation for weight for age and BMI for age classification of nutrition status were found to be the most specific determinants of poor nutrition status in preschool children<sup>10</sup>.

Nutritional status assessment is the best way to identify malnutrition among children. The future recommendation of the study is only anthropometric measurement was used to assess the nutritional status of preschoolers. Other methods such as biochemical, clinical and dietary methods can also use to identify nutritional status.

## Conclusion

Nutritional status assessment is the best way to identify malnutrition among children. The following conclusions were drawn based on the findings of the study. Significant correlation was found between nutritional status based on weight for age with socioeconomic status, on the basis of height for age there is a negative correlation was found with socioeconomic status and based on mid arm circumference there is no correlation was found with socioeconomic status. The findings of this study will help the nurses to plan for assessment of nutritional status to reduce nutritional deficiency disorders among preschool children. The main weakness of this study is only anthropometric measurement was used to assess the nutritional status of preschoolers. Other methods such as biochemical, clinical and dietary methods can also use to identify nutritional status.

**Conflict of Interest:** Nil

**Source of funding:** Self

**Ethical Clearance:** Taken from institutional ethics committee of Sivagiri Sree Narayana Medical Mission College of Nursing Varkala on 28/11/2022 (IEC NO: SCN/158/22-23).

### Reference

1. Haque MM, Islam K. Socio-economic condition, dietary pattern and nutritional status of pre-school ethnic children in Bandarban district of Bangladesh. *J Nutr Health Food Eng.* 2018;8(6):395-402. Williams Rodwell Sue. *Basic nutrition and diet therapy.* 11<sup>th</sup> ed. China: Mosby publications; 2011.
2. Shahjahan M. *Study on Determinants of the Immunization Dropout Status among under five children in Mogadishu, Somalia* (Doctoral dissertation, Daffodil International University). May (2017).
3. UNICEF, WHO, World Bank Group. Levels and trends in child malnutrition.
4. World Health Organization, United Nations Children's Fund. Levels and trends in child malnutrition: key findings of the 2020 edition. UNICEF/WHO/World Bank Group joint child malnutrition estimates. World Health Organization; 2020 Mar 31.
5. Jayanata MG, Irmawati M, Djuari L, Umijati S. The relationship between socio-economic statuses to nutritional status of first grade students in private primary school in north Surabaya. *World Journal of Advanced Research and Reviews.* 2022;13(1):473-80.
6. Ahmad A, Muzammil S, Mohan K, Khayyam KU. Assessment for Nutritional Status among Pre-School Children in South Delhi, India. *Int Arch Bio Med Clin Res.* 2022;(8).
7. Amina Bharvin S, Kumar Sai P, and Devaki P R. Socioeconomic Status and its Influence on Nutrition and Cognitive Performance in Children between the age of 5 Years to 15 Years Old. *Research Journal of Pharmaceutical, Biological and Chemical Sciences.* 2014 ;(5).
8. Daka B, Chibwili E, Mwitiwa DH, Malama S. Determination of the Correlation Between Nutritional and Socio-Economic Status of Under-Five Children in Lusaka District. *Education.* 2018;24:6-7.
9. Sharma P, Budhathoki CB, Maharjan RK, Devkota B, Upreti YR, Bhandari TR. Nutrition status and associated factors among preschool children: a cross-sectional study in Nepal. *Int J Elem Educ.* 2022;11(3):76-83.