



KNOWLEDGE REGARDING PROTEIN ENERGY MALNUTRITION IN SCHOOL CHILDREN AMONG SCHOOL TEACHERSS

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BACKGROUND OF THE STUDY

INTRODUCTION

“The childhood shows the man as morning shows the day”- John Milton

World’s greatest resource for a healthy future lies in the children of today. Today children are tomorrow’s citizen and leaders. The resources spent on the care, upkeep and health of the young ones form investment of for the future.¹

It is often stated that children are the world’s most valuable resources and assets, but their rights throughout the world are largely ignored often resulting into tragic outcomes. This is because of the vulnerability of the children from infancy through childhood, as they are dependent on adult for safety and ongoing nurturing and this puts them at risks in many form.²

Nutrition has been recognized as a basic pillar for social and economic development. Adequate nutrition is essential in early childhood to ensure healthy growth, proper organ formation and function, a strong immune system, and neurological and cognitive development. Economic growth and human development require well-nourished populations who can learn new skills, think critically and contribute to their communities. Child malnutrition impacts cognitive function and contributes to poverty through impeding individual’s ability to lead productive lives.³

The health and nutritional status of children is an index of national investment in the development of its future manpower. Malnutrition affects the child’s physical and cognitive growth and increases the susceptibility to infections while having an adverse impact on economic growth of the country indirectly. With 40% of the world’s malnourished living in India, we face a double jeopardy of malnutrition. The objective of this study is to evaluate this changing trend and to determine the burden of malnutrition.

Protein energy malnutrition (PEM) is a potentially fatal body depletion disorder (Dulger *et al.*,2002). The term protein energy malnutrition applies to a group of related disorders that include marasmus, kwashiorkor and intermediate states of marasmic kwashiorkor. Marasmus involves inadequate intake of protein and calories and is termed “the sickness of the weaning” with no oedema (de Onis *et al.*, 1993). Kwashiorkor including marasmic kwashiorkor is characterized by massive oedema of the hands and feet, profound irritability, anorexia and desquamative rash, hair discolouration and a large fatty liver (Manary and Brewster, 1997). Hypoalbuminaemia and electrolyte imbalances have been put forward as possible causes of the oedema (Ahmed *et al.*,2009).

The most prevalent form of PEM is the mild/moderate PEM. Indicators of this form of malnutrition are underweight (the child weighs significantly less than well-nourished children of same age) and wasting (the child weighs significantly less than well-nourished children of the same height), which indicates recent malnutrition.

Malnutrition is a health problems especially in children. Globally, there are 15% of world’s populations, who are having problem of malnutrition according to FAO reports. It is a problem created by man occurring in human societies. Protein energy malnutrition is a major public health nutritional problem.⁴

Malnutrition in India can be termed as a burning social problem due to the impact of socio-cultural influence on nutrition. As per recent estimates 48% of children are stunted, 20% are wasted and 43% are underweight in India. The school age child mortality in India is as high as 4% of all deaths. Malnutrition was shown to be an underlying cause in 3.4% of all deaths in young children and associated cause in no less than 46%.⁵

The World Bank estimates that India is ranked 2nd in the world of the number of children suffering from malnutrition, after Bangladesh (in 1998), where 47% of the children exhibit a degree of malnutrition.⁶

Protein-energy malnutrition (PEM) is a condition resulting from lack of sufficient energy or protein to meet the body’s metabolic demands, as a result of either an inadequate intake of protein, intake of poor quality dietary protein, increased demands due to disease or increased nutrient losses. School children are most vulnerable to the effect of malnutrition because of rapid growth, and thus their nutritional status is considered to be a sensitive indicator of community health.

The reasons for malnutrition are include poverty, lack of nutritious food, and inadequate intake of food, improper infant and child feeding, among others. Malnutrition is a complex phenomenon, and it is both the cause and effect of poverty and ill-health and follows a cyclical, inter-generational pattern. It is not only an important cause of childhood morbidity and mortality, but also leads to permanent impairment of physical and possibly, of mental growth of those who survive. It is the direct cause of about 3, 00,000 deaths per year and is indirectly responsible for about half of all deaths in young children. The risk of death is directly correlated with the degree of malnutrition.

Adequate food is the most important requisite for growth and development, which is important throughout childhood and later life. In order to bring up a healthy nation, all of us should realize that our children's health is our health and our health is the nation's health, thereby improving the children's quality of life.

Malnutrition needs effective control on a priority basis. For effective control program for any disease, there are three essential components: a well defined goal, enabling policy and effective strategy.

NEED OF THE STUDY

Malnutrition is associated with abnormalities in the specific immune response and with susceptibility to infection. From early childhood it is associated with significant functionally increased impairment in adult life, reduced work capacity and decreasing economic productivity. Children who are malnourished not only tend to have increased morbidity and mortality but are also more prone to suffer from delayed mental development, poor school performance and reduced intellectual achievement.⁸

PEM impairs the linear growth of children, leading to a further reduction in food intake, nutrient absorption, direct or catabolic nutrient losses and increased metabolic requirements. It has been suggested that acute phase response and pre-inflammatory cytokines directly affect bone remodelling required for longitudinal growth. Malnutrition is responsible, directly or indirectly for 54% of the 10.8 million deaths per year in children under five and contributes to every second death (53%) associated with infectious diseases among children in developing countries.⁹

Early diagnosis of protein energy malnutrition will prevent complications from occurring in children who fall victim to the condition. Health Education focused on mothers at appropriate time, much before the children fall prey to many preventable diseases can certainly help in the promotion of child health and prevention of morbidity and mortality among infants and pre-school children. Thus there should be an emphasize to reinforce and make the community an active participant in this endeavour.

Ivanovic D, Castro CG, Ivanovic R, conducted a study to determine the degree of knowledge on food and nutrition of school aged children's mothers from Chile's metropolitan region and to measure the impact of socio economic, socio cultural and demographic variables on knowledge. The researches assess the degree of knowledge on food and nutrition on 1985 mothers. The results revealed that the mothers did not know food and nutrition matters in fundamental aspects related to observance of a healthy life style for both themselves and family. The degree of knowledge of food and nutrition significantly and positively correlate with socio economic status, mothers schooling, occupational level, housing condition and age. The study suggested the need to introduce nutritional education programmes in schools focused on mothers and children to improve the population life quality.

High prevalence of malnutrition among young children is also due to lack of awareness and knowledge regarding their food requirements and absence of a responsible adult care giver. With increasing urban migration in the years ahead the problem of malnutrition in urban slum will also acquire

increasing dimensions unless special efforts are initiated to migrate the health and nutrition problem of the urban poor.

Caroline Priya K, Sep 2014, This cross-sectional study was undertaken to study the nutritional status of children aged 11-14 years and its relation to various factors like gender, area of residence and socioeconomic status. According to our study, nearly 89% of children were undernourished in rural area while half of the children were spared in urban area with no significant gender inequality.

N C Shivaprakash1, Ranjit Baby Joseph, May 2014, Nutritional deficiencies are common in children of developing countries like India although the prevalence is reduced due to various steps taken by the Government and the health care personnel for the prevention and treatment of the same. This study is to understand the common nutritional disorders in rural school going children so that further measures can be taken for the improvement of their health status. A total of 484 children were studied.

S. Chakraborty, S.B. Gupta, B. Chaturvedi, S.K. Chakraborty, 2014 study reveals that, the rural school going children of Mandya district are suffering from different grades of malnutrition. Consumption of foods like cereals, pulses, green leafy vegetables, roots and tubers, sugar and jaggery, fats and oil, milk and milk products, fruits etc., should be promoted. Government should introduce awareness programs through community participation, involvement of NGOs and other sectors regarding affordable but nutritious food.³⁴

Most of the experts feel, that the cases of malnutrition are best treated by providing nutritional education to community people as these home based intervention prevent relapse on the bases of actual assessment of child's living conditions. Based on these recommendations the investigator felt that there is a strong need to empower the school teachers in improving their knowledge and because school is the institute next to family where growth and development of child is affected. The learning is affected by the capability of child which is directly based on their nutritional level.

However, there is very little knowledge on early and precise diagnosis of PEM among school teachers in India, thus the outcome of this study would provide remedy for them in early detection and precise diagnosis and thus will help to improve health condition of children. Hence, based on above findings and strong feelings to assess knowledge level of school teachers, researcher felt the need to conduct this study.

STATEMENT OF PROBLEM

“A comparative study to assess the knowledge regarding protein energy malnutrition in school children among school teachers of selected rural and urban schools of Patiala, Punjab.”

AIM OF THE STUDY

To assess the knowledge regarding protein energy malnutrition in school children among school teachers in selected rural and urban area of Patiala, Punjab

OBJECTIVES OF THE STUDY

- To assess socio demographic variables of school teachers in selected rural and urban area of Patiala, Punjab.
- To assess knowledge regarding protein energy malnutrition in school children among school teachers in selected rural and urban area of Patiala, Punjab.
- To compare the knowledge regarding protein energy malnutrition in school children among school teachers in selected rural and urban area of Patiala, Punjab.
- To find out the association of the knowledge scores regarding protein energy malnutrition in school children among school teachers in selected rural and urban area of Patiala, Punjab with selected socio demographic variables.

OPERATIONAL DEFINITIONS.

- **Assess:** It refers to the statistical estimation of knowledge of school teachers regarding protein energy malnutrition among school children through knowledge questionnaire.
- **Knowledge:** Refers to the awareness of school teachers regarding protein energy malnutrition among school children through knowledge questionnaire.
- **Protein Energy Malnutrition:** It refers to the group of illness arising out of inadequate intake of food and protein calories.
- **School Teachers:** It refers to teaching staffs working in selected rural and urban High schools of Patiala, Punjab.

ASSUMPTIONS

- The study assumes that school teachers of selected rural and urban area will have some knowledge regarding protein energy malnutrition.
- The Knowledge score of school teachers of rural and urban school will be different.
- The socio demographic variables of teachers will have some impact on their knowledge score.

DELIMITATIONS

1. This study is delimited to school teachers.
2. The study is delimited to selected rural and urban schools of Patiala

METHODOLOGY

RESEARCH APPROACH;

Quantitative Research approach was adopted in this study.

RESEARCH DESIGN;

Descriptive comparative research design was used in the present study.

RESEARCH SETTING;

The study was conducted in selected rural and urban schools of Patiala, Punjab.

TARGET POPULATION;

The Population was school teachers of selected rural and urban areas of Patiala.

SAMPLE SIZE

The sample size of the study comprises of 200 school teachers (100 each from rural and urban schools) of selected rural and urban schools of Patiala.

SAMPLING TECHNIQUE

Purposive sampling technique was used in this study.

RESEARCH VARIABLES;

STUDY VARIABLE: Knowledge

EXTRANOUS VARIABLE: Demographic variables

CRITERIA FOR SAMPLE SELECTION

INCLUSION CRITERIA:-

School teachers who are;

- Willing to participate in the study,
- Present during data collection.

EXCLUSION CRITERIA:-

School teachers who have any additional qualification in nutrition or dietetic and who got their study in medical stream.

SELECTION AND DEVELOPMENT OF TOOLS:

The tool was developed on the basis of literature review and personal experience of the investigator in the paediatric, community health and school health programme.

The tool used for collecting the background information including age, sex, experience, type of family, source of education and basic qualification.

The structured knowledge questionnaire was administered as a tool for the present study. Tool was selected after reviewing the related literature and after the consultation with expert.

DESCRIPTION OF TOOLS:

Structured questionnaire which consist of two parts

Part – 1 This section is the first section seeking information in Socio demographic data i.e. age, gender, years of experience, type of family, source of education and basic qualification.

Part –2 structured questionnaires on knowledge regarding protein energy malnutrition, this consist of questions to assess the knowledge regarding protein energy malnutrition in school children.

CONTENT VALIDITY:

The content validity of tool was confirmed by the experts selected from fields of specialization in child health nursing, community health nursing and paediatrician. Item where majority had the consensus were retained.

RELIABILITY OF TOOL:

It was computed by using split half technique employing Spearman Brown Prophecy Formula.

Split-Half (odd-even) Correlation --- **0.801169**

Spearman-Brown Prophecy ---- **0.8896**

SPILOT STUDY:

The pilot study was conducted with 10 percent of total sample population in February. The purpose of pilot study is to find out the feasibility of conducting study design and plan out statistical analysis.

ETHICAL CONSIDERATION:

Prior to the study, ethical clearance was obtained from the concerned authorities (DEO Patiala) to conduct the study in the schools of district Patiala and also from research committee of Adarsh College of nursing, Patiala.

Anonymity and confidentiality of the study participants was maintained.

DATA COLLECTION PROCEDURE:

- Formal permission was obtained from District Education Officer at Patiala.
- The investigator introduced self and purposes of the study.
- The investigator had taken consent from study participants.
- Demographic data has been assessed.
- Knowledge regarding protein energy malnutrition has been assessed by using structured knowledge questionnaire.

PLAN OF DATA ANALYSIS:

Descriptive statistics;

- Frequency, percentage distribution has been used for describing socio demographic variables and level of knowledge and extent of existing practice. (Table 1 and Figure 1 to 6.)
- Mean; mean percentage and standard deviation has been used to describe knowledge and existing practice.(Table 2 -5 and Figure 7-10)
- **‘Z’ test to compare** rural and urban school teacher’s knowledge scores at 0.05 level of significance.

Inferential Statistics

Non- parameter **chi-square test** has been used to find out the association between demographic variables and knowledge of school teachers.

ANALYSIS AND INTERPRETATION OF DATA

This chapter deals with the description of samples, analysis, and interpretation of data collected from rural and urban areas of Patiala. Data analysis enables the researcher to reduce, summarize, organize, interpret, and communicate numerical information. (Polit and Hungler 1995).

Kerlinger 1973, described analysis as the categorizing, ordering, manipulating and summarizing data to reduce it to a tangible and interpretable form so that research problem can be studied and tested including the relationship between the variables.

The data analysis was done accordance with the objectives of the study. The data was analysed by calculating the percentage, mean, median, standard deviation, ‘z’ test and chi-square.

Purpose

The purpose of the study is to assess the knowledge regarding protein energy malnutrition in school children among school teachers in selected rural and urban area of Patiala, Punjab

1.5 OBJECTIVES OF THE STUDY

- To assess socio demographic variables of school teachers in selected rural and urban area of Patiala, Punjab.
- To assess knowledge regarding protein energy malnutrition in school children among school teachers in selected rural and urban area of Patiala, Punjab.
- To compare the knowledge regarding protein energy malnutrition in school children among school teachers in selected rural and urban area of Patiala, Punjab.
- To find out the association of the knowledge scores regarding protein energy malnutrition in school children among school teachers in selected rural and urban area of Patiala, Punjab with selected socio demographic variables.

Objective; 1

To assess socio demographic variables of school teachers in selected rural and urban area of Patiala, Punjab.

SECTION-A**Percentage & Frequency distribution of Rural and Urban school teachers.****Table No: 1****N=200**

SOCIO DEMOGRAPHIC PROFORMA	Variables	RURAL F (%)	URBAN F (%)	RURAL F(f)	URBAN F(f)
Age in Years	Below 25	4	11	4	11
	25- 35	35	36	35	36
	Above35	61	53	61	53
Gender	Male	16	11	16	11
	Female	84	89	84	89
Experience in Years	Below 5	7	30	7	30
	5-10	25	19	25	19
	Above 10	68	51	68	51
Type of Family	Joint	48	57	48	57
	Nuclear	45	42	45	42
	Extended	7	1	7	1
Sources of Knowledge	Mass Media	50	28	50	28
	In service Education	17	35	17	35
	Books	33	37	33	37
Basic .Qualification	Graduation	8	24	8	24
	Post-Graduation	90	72	90	72
	Any Other	2	4	2	4

Table 1 shows the Percentage distribution of Rural and Urban school teachers.

In this study, majority of data represents that 61 % rural and 53% urban school teachers belong to age group of 35 years. Minority of subjects, 4% in rural and 11% in urban area belongs to below 25 years of age and in age group of 25-35 years, 35% and 36% represents rural and urban area respectively.

The study result revealed that 84% of rural school teachers and 89 % urban school teachers were females. on the other hand, 16% of males belongs to rural area and 11% of females were from urban area.

The study findings shows that majority of school teachers had experience above 10 years, 68% and 51% were belongs to rural and urban area respectively. Minority, 7% rural school teachers and 30% urban school teachers had experience below 5 years. The school teachers who had experience 5-10 years, represents 25% of rural population and 19% of urban population.

The study consisted of, 48% of rural subjects and 57% of urban subjects represents joint family. Nuclear family was represented by 45% of rural school teachers and 42% of urban school teachers. Only 7% of rural subjects and 1% of urban subjects belongs to extended family.

We conclude from this table that the school teachers of less than 25 years of age have less knowledge than those who are in the age group of 25-35. Above 35 years of age school teachers have knowledge less than 25-35 years group but have more knowledge than the age group of below 25 years. Finally the age group of 25-35 years have more knowledge than the others.

Maximum number of school teachers those who had got the knowledge from mass media are 50 in rural and 28 in urban area. Knowledge gained with in-service education is 17 in rural and 35 in urban area. Subjects who had got the knowledge from books are 33 in rural and 37 in urban area sample of school teachers.

According to Basic qualification, maximum number of Post-graduate subjects are 90 in rural and 72 in urban area. Minimum number of the subjects in the rural area are 8 and in urban area are 24, who are graduate.

Objective: 2.

- To assess knowledge regarding protein energy malnutrition in school children among school teachers in selected rural and urban area of Patiala, Punjab.

Percentage and frequency distribution of knowledge score of rural school teachers.

Table: 2

N=100

Category Score	Frequency (percentage)
GOOD KNOWLEDGE (21-30)	14(14%)
AVERAGE KNOWLEDGE (11-20)	83(83%)
POOR KNOWLEDGE (0-10)	3(3%)

Table no. 2 shows that majority 83(83%) of rural school teachers had average knowledge, followed by 14 (14%) subjects had good knowledge and 3(3%) respondents had poor knowledge regarding protein energy mal nutrition.

Mean knowledge score of rural school teachers.

Table No: 3

N=100

CRITERIA	Mean	S.D.	Median	Range	Maximum	Minimum	Mean %
KNOWLEDGE SCORE	16.88	2.907	17	13	23	10	56.27

Maximum=30

Minimum=0

Table no. 3, depicts the Mean, Median, Range and SD of the knowledge score of rural school teachers regarding Protein Energy Malnutrition in school children. The Mean knowledge score was 16.88. Standard Deviation was 2.907 with Median 17 and range 13. The maximum obtained score was 23, and minimum obtained was 10 out of the total possible score of 30.

Percentage and frequency distribution of knowledge score of urban school teachers.

Table: 4

N=100

Category Score	Frequency (percentage)
GOOD KNOWLEDGE (21-30)	13(13%)
AVERAGE KNOWLEDGE (11-20)	84(84%)
POOR KNOWLEDGE (0-10)	3(3%)

Table no. 4 shows that majority 84(84%) of urban school teachers had average knowledge, followed by 13(13%) subjects had good knowledge and 3(3%) respondents had poor knowledge regarding protein energy malnutrition.

Mean knowledge score of urban school teachers.

Table No: 5

N=100

CRITERIA	Mean	S.D.	Median	Range	Maximum	Minimum	Mean %
KNOWLEDGE SCORE	16.25	3.252	16	14	24	10	54.17

Maximum=30

Minimum=0

Table no. 5, depicts the Mean, Median, Range and SD of the knowledge score of urban school teachers regarding Protein Energy Malnutrition in school children. The Mean knowledge score was 16.25. Standard Deviation was 3.252 with Median 16 and range 14. The maximum obtained score was 24, and minimum obtained score was 10 out of the total possible score of 30.

Level of Knowledge of rural school teachers & urban school teachers

Table No: 6

CATEGORY	RURAL KNOWLEDGE(f)%	URBAN KNOWLEDGE(f)%
GOOD KNOWLEDGE (21-30)	14(14%)	13(13%)
AVERAGE KNOWLEDGE (11-20)	83(83%)	84(84%)
POOR KNOWLEDGE (0-10)	3(3%)	3(3%)

Maximum = 30

Minimum = 0

Table no. 6, Shows the frequency and percentage of level of knowledge of rural and urban school teachers regarding Protein Energy Malnutrition in school children. Majority 83(83%) of rural & shows that majority 84(84%) of urban school teachers had average knowledge, followed by 14(14%) rural & 13(13%) urban subjects had good knowledge and 3(3%) respondents in both the settings had poor knowledge regarding protein energy malnutrition

Inferential Statistics;

Objective 3

- To compare the knowledge regarding protein energy malnutrition in school children among school teachers in selected rural and urban area of Patiala, Punjab.

Mean Knowledge score of rural school teachers rural & urban school teachers

Table No: 7

N=100

Z Test		Mean Score	S.D.	N	Mean %	Z Test	P value	Table Value at 0.05	Result
KNOWLEDE SCORE	RURAL	16.88	2.907	100	56.27	1.444	0.150	1.972	Non Significant
	URBAN	16.25	3.252	100	54.17				

Maximum=30

Minimum=0

Table 7 shows the Z score value is 1.444, less than Table value that is 1.972 at the 0.05 level of significance with P value 0.150. The Mean of knowledge score of rural area is 16.88 (56.27%) and the Mean of knowledge score of urban area is 16.25 (54.17 %). There is no significant difference in the knowledge regarding protein energy malnutrition in school children among school teachers in selected rural and urban area of Patiala, Punjab.

Objective 4.

- To find out the association of the knowledge scores regarding protein energy malnutrition in school children among school teachers in selected rural and urban area of Patiala, Punjab with selected socio demographic variables

Association of level of knowledge with selected Demographic Variables: Rural School Teachers.**Table No: 9**

Demographic Data		Level of knowledge			Association with RURAL KNOWLEDGE SCORE				
Variables	Criteria	GOOD KNOWLEDGE	AVERAGE KNOWLEDGE	POOR KNOWLEDGE	Chi Square	P Value	df	Table Value	Result
Age in Years	Below 25	0	1	3	77.420	0.000	4	9.488	Significant
	25- 35	8	27	0					
	Above35	6	55	0					
Gender	Male	3	13	0	0.885	0.642	2	5.991	Not Significant
	Female	11	70	3					
Experience in Years	Below 5	2	2	3	44.371	0.000	4	9.488	Significant
	5-10	2	23	0					
	Above 10	10	58	0					
Type of Family	Joint	5	43	0	7.245	0.123	4	9.488	Not Significant
	Nuclear	9	33	3					
	Extended	0	7	0					
Sources of Knowledge	Mass Media	7	40	3	3.394	0.494	4	9.488	Not Significant
	In service Education	3	14	0					
	Books	4	29	0					
Basic Qualification	Graduation	0	5	3	36.553	0.000	4	9.488	Significant
	Post-Graduation	14	76	0					
	Any Other	0	2	0					

Table 9 Shows that the association between the level of score and socio demographic variable in rural school teachers. The Chi-square value is 77.420 that is more than Table value; 9.488 at df 4 at the 0.05 level of significance, shows that there is significance association between the knowledge score and demographic variables, Age in years. The chi square value is 36.553 that is more than table value; 9.488 at df 4 at the 0.05 level of significance shows significance association between the knowledge score and demographic variables of Basic qualification The chi square value is 44.371 that is also more than table value; 9.488 at df 4 at the 0.05 level of significance shows significance association between the knowledge score and demographic variables of experience in years. There is no significance association between the level of knowledge and other demographic variables.

Association of level of knowledge with selected Demographic Variables: Urban School teachers

Table: 10

Demographic Data		Levels of knowledge			Association with Urban KNOWLEDGE SCORE				Result
Variables	options	GOOD KNOWLEDGE	AVERAGE KNOWLEDGE	POOR KNOWLEDGE	Chi Test	P Value	df	Table Value	
Age in Years	Below 25	0	10	1	5.816	0.213	4	9.488	Not Significant
	25- 35	6	28	2					
	Above35	7	46	0					
Gender	Male	1	10	0	0.586	0.746	2	5.991	Not Significant
	Female	12	74	3					
Experience in Years	Below 5	3	25	2	3.632	0.458	4	9.488	Not Significant
	5-10	3	15	1					
	Above 10	7	44	0					
Type of Family	Joint	8	46	3	2.667	0.615	4	9.488	Not Significant
	Nuclear	5	37	0					
	Extended	0	1	0					
Sources of	Mass Media	1	27	0	6.716	0.152	4	9.488	Not Significant

Knowledge	In service Education	4	30	1					ant
	Books	8	27	2					
Basic Qualification	Graduation	1	21	2	5.917	0.205	4	9.488	Not Significant
	Post-Graduation	12	59	1					
	Any Other	0	4	0					

Table 10; shows the association between the level of knowledge and socio demographic variable. The calculated chi-square value is less than the table value at df 4, at the 0.05 level of significance shows that there is no significance association between the level of knowledge and demographic variables.

DISCUSSION

This chapter deals with the findings in accordance with the objectives of the present study, “A comparative study to assess the knowledge regarding protein energy malnutrition in school children among school teachers of selected rural and urban schools of Patiala, Punjab.”

The discussion is done under the following categories:

Demographic profile of subjects:

According to age: In this study, majority of data represents that 61 % rural and 53% urban school teachers belong to age group of 35 years. Minority of subjects, 4% in rural and 11% in urban area belongs to below 25 years of age and in age group of 25-35 years, 35% and 36% represents rural and urban area respectively. The school teachers of less than 25 years of age have less knowledge than those who are in the age group of 25-35. Above 35 years of age school teachers have knowledge less than 25-35 years group but have more knowledge than the age group of below 25 years. Finally the age group of 25-35 years have more knowledge than the others.

The study findings were supported by the cross sectional descriptive study conducted by **Ms. Divya Shettigar (2013)** to assess knowledge of mothers of children residing at rural community area. 27 (54%) had poor knowledge, around 19 (38) had average knowledge, and only 4 (8%) had good Knowledge regarding the common nutritional problems and its Prevention. Mothers had poor knowledge on Nutritional problems and its prevention. None of the mothers had very good knowledge.²³

According to Gender: The study result revealed that 84% of rural school teachers and 89 % urban school teachers were females. On the other hand, 16% of males belongs to rural area and 11% of females were from urban area. The study findings were supported by the comparative study conducted by **Ayodeji M. Adebayo** to assess knowledge of primary school teachers at rural community area. Majority of the respondents were females, 80.8%.³²

According to experience: The study findings shows that majority of school teachers had experience above 10 years, 68% and 51% were belongs to rural and urban area respectively. Minority, 7% rural school teachers and 30% urban school teachers had experience below 5 years. The school teachers who had experience 5-10 years, represents 25% of rural population and 19% of urban population.

According to type of family: The study consisted of, 48% of rural subjects and 57% of urban subjects represents joint family. Nuclear family was represented by 45% of rural school teachers and 42% of urban school teachers. Only 7% of rural subjects and 1% of urban subjects belongs to extended family. **Ayaya, S.O et al (2006):** a comparative study conducted on knowledge about protein energy malnutrition among urban and rural mothers. This study asks whether key socio economic determinants of child nutritional status differ across urban and rural areas to investigate why urban malnutrition rates are lower.

According to source of knowledge: The study results evidenced that the source of education variable of samples those who had got the knowledge from mass media are 50 subjects in rural and 28 subjects in urban area. Knowledge gained with in-service education is 17 in rural and 35 in urban area. Subjects who had got the knowledge from books are 33 in rural and 37 in urban area.

According to basic qualification: According to Basic qualification, the subjects in the rural area are 8 and in urban area are 24, who are graduate. Post-graduate subjects are 90 in rural and 72 in urban area. The Subjects have any other qualification are only 2 in rural and 4 in urban area who have participated in this study. The study findings were supported by the comparative study conducted by **Ayodeji M. Adebayo** to assess knowledge of primary school teachers at rural community area. Occupational characteristics of the respondents showed that respondents' minimal educational attainment was grade 2 (68.1%) while the highest was postgraduate degrees in Education (2.0%). Majority (89.4%) of the respondents had National Certificate in Education³².

The frequency and percentage of level of knowledge of rural and urban school teachers: The frequency and percentage of level of knowledge of rural and urban school teachers regarding Protein Energy Malnutrition in school children. Majority 83(83%) of rural & shows that majority 84(84%) of urban school teachers had average knowledge, followed by 14(14%) rural & 13(13%) urban subjects had good knowledge and 3(3%) respondents in both the settings had poor knowledge regarding protein energy malnutrition. A similar study was conducted by Ms. Herbaksh Kaur. Maximum 28(56%) Primary school teachers were having good knowledge regarding malnutrition while 17(34%) were having average

knowledge malnutrition followed by 6(10%) were in category of very good and no were having below average. Primary school teachers had good knowledge

Mean Knowledge score of rural school teachers rural & urban school teachers: The Z score value is 1.444, less than Table value that is 1.972 at the 0.05 level of significance with P value 0.150. The Mean of knowledge score of rural area is 16.88 (56.27%) and the Mean of knowledge score of urban area is 16.25 (54.17 %). There is no significant difference in the knowledge regarding protein energy malnutrition in school children among school teachers in selected rural and urban area of Patiala, Punjab.

The association between the level of score and socio demographic variable in rural & urban school teachers: The association between the level of score and socio demographic variable in rural school teachers. The calculated Chi-square value is more than Table value at df 4 at the 0.05 level of significance for age and experience in years, shows that there is significance association between the knowledge score and these demographic variables.. There is no significance association between the level of knowledge and other demographic variables. In urban setting, the calculated chi-square value is less than the table value at df 4, at the 0.05 level of significance shows that there is no significance association between the level of knowledge and demographic variables. A similar study was conducted by **Ayodeji M. Adebayo** to assess knowledge of primary school teachers at rural community area. There was no statistically significant difference in the knowledge of both rural and urban primary school teachers regarding the components of SHP.³²**CONCLUSION:** Out of 100 subject, majority 83 (83 %) had average knowledge score, 14 subjects had good knowledge and the remaining 3 (3%) had poor knowledge score of school teachers regarding protein energy malnutrition in rural area. On the other hand school teachers in urban areas, the majority 84 (84%) had average knowledge, following by 13 (13%) good knowledge and the remaining 3 (3%) with poor knowledge score.

IMPLICATIONS

The findings of the study have several implications which are discussed in the three areas;

- Nursing education.
- Nursing service.
- Nursing administration.
- Nursing research.

Implications in nursing education

Child health nursing is developing fast in the Indian Nursing Setting. Gradually the role of child health nurse is expanding by liaison nursing. As the National Health Policy and programmes of MCH, Promotion of child health and reduction of morbidity and mortality rate was the primary goal. Prevention of protein energy malnutrition and health problems related to nutrition can be strengthened by emphasizing health education; awareness about good food habits and regular checkups should be given. School health education regarding protein energy malnutrition to school children with school teachers should be provided. Nurses work as primary health worker under this policy. She serves as giving direct

patient care, community care and education for health promotion and school health nursing. Therefore by understanding the role of child health as a liaison nurse, by assessing and providing knowledge regarding protein energy malnutrition in school children to promote child health, as well as other nutritional problems and their management.

Implications in nursing practice Nurses work as primary health worker, in the community. They can adopt the following measures for primary prevention of the protein energy malnutrition.

1. Implementation of Nutritional Prophylaxis Programme.
2. Intake of well balanced diet in school children.
3. Periodical assessment of nutritional assessment.
4. Regular checkups and recording of growth parameters.
5. Community Health

Nurses can carry out the secondary prevention of protein energy malnutrition as community nursing care and assessing the early diagnosis of nutritional disorders and management of the disorders. The study highlights the need for community health nurses, especially those working in school health nursing. Nurses can utilise time to organise school health programmes, child health clinics, nutritional survey, maintaining road to health card by doing anthropometric measurements. As a public health nurse she can implement nutritional prophylaxis programme by providing high calorie diet, iron vitamin A tablets and iodised salt.

For tertiary prevention the nurse can intervene to;

1. Limit the disability and to prevent morbidity.
2. Evaluation of nutritional status which consists of periodic assessment of nutritional status and correction of imbalance by treatment and nutrition supplements.
3. Helps in the rehabilitation of children.

Implications in nursing administration;

The nursing administration's responsibility is to provide in service education programme to the nursing personnel, so that they can keep abreast with the advancement in the field of child health nursing. This will enhance their knowledge in adequate assessment, planning and intervention with various approaches of health education. Child health nursing workshops can be conducted for nurses to teach them how to maintain good health and nutritional status of children. In service education regarding the national programme, revised strategy, should be administered in education. The administrator should plan to organise and conduct health programme at community level while including parents, teachers, children, volunteer and community workers to reduce the mortality and morbidity of the children.

Implications in nursing Research;

More studies can be done on assessment of knowledge regarding protein energy malnutrition in children among teachers, mothers, caretakers, anganwadi workers and of workers of orphan homes. Studies can also be done to assess the growth and development of children.

Findings of the study will act as a catalyst to carry out more extensive research on large population in different areas of the community. Very few studies have been done in Indian setting regarding knowledge assessment about protein energy malnutrition .Through publication of research finding

Knowledge about protein energy malnutrition, growth and nutritional status of children can be promoted by nurse researcher.

Major findings

Analysis of data was done according to the objectives of the study. Findings related to the knowledge regarding protein energy malnutrition in school children among school teachers, are as following;

Out of 100 subject, majority 83 (83 %) had average knowledge score, 14 subjects had good knowledge and the remaining 3 (3%) had poor knowledge score of school teachers regarding protein energy malnutrition in rural area. On the other hand school teachers in urban areas, the majority 84 (84 %) had average knowledge, following by 13 (13%) good knowledge and the remaining 3 (3%) with poor knowledge score. It reveals that there is no significant difference in level of knowledge score of school teachers regarding protein energy malnutrition in school children.

Findings of the study indicated that the mean knowledge score of school teachers of rural area 16.88 ± 2.907 was not significantly different than the knowledge score of urban school teachers that is 16.25 ± 3.252 , with $Z(1.444)$ at P value $0.150 > 0.05$. hence assumption 2 was not accepted as there is no significant difference found in the knowledge score of school teachers regarding protein energy malnutrition .

The association between the knowledge score of school teachers of rural areas with their selected socio- demographic variables i. e. age, gender, experience in years, type of family, source of education and basic qualification.

The Chi-square value is 77.420 that is more than Table value; 9.488 at df 4 at the 0.05 level of significance, shows that there is significance association between the knowledge score and demographic variables, Age in years. The chi square value is 36.553 that is more than table value; 9.488 at df 4 at the 0.05 level of significance shows significance association between the knowledge score and demographic variables of Basic qualification The chi square value is 44.371 that is also more than table value; 9.488 at df 4 at the 0.05 level of significance shows significance association between the knowledge score and demographic variables of experience in years. There is no significance association between the level of

scores and other demographic variables of Gender, type of family and source of education in the rural area.

The calculated chi-square values is 0.885, less than the table value 5.991 at df 2 at the 0.05 level of significance shows there is no significance association between the knowledge scores and demographic variables of Gender. The calculated chi-square values is, 7.245 less than the table value 9.488 at df 4 at the 0.05 level of significance shows there is no significance association between the knowledge scores and demographic variables of type of family. The calculated chi-square values are, 3.394 less than the table value 9.488 at df. 4 at the 0.05 level of significance shows there is no significance association between the knowledge scores and demographic variables of source of knowledge.

On other hand in urban areas;

The calculated chi-square values 0.586 is less than the table value 9.488 at df 4, at the 0.05 level of significance shows there is no significance association between the level of scores and demographic variables of Age in years The calculated chi-square values is 3.632 is less than the table value 9.488 at df 4, at the 0.05 level of significance shows there is no significance association between the level of scores and demographic variables Experience in years The calculated chi-square values 2.667 is less than the table value 9.488 at df 4, at the 0.05 level of significance shows there is no significance association between the level of scores and demographic variables Type of family. The calculated chi-square values 6.716 is less than the table value 9.488 at df 4, at the 0.05 level of significance shows there is no significance association between the level of scores and demographic variables Source of knowledge. The calculated chi-square values 5.917 is less than the table value 9.488 at df 4, at the 0.05 level of significance shows there is no significance association between the level of scores and demographic variables Basic qualification.

RECOMMENDATIONS.

Based on the study, the following recommendations are put forward for future research

1. A similar study may be conducted on a larger sample for a wider generation.
2. A study can be conducted to assess the effectiveness of an in-service education for school teachers regarding protein energy malnutrition.
3. A descriptive survey study can be conducted to assess the knowledge of school teachers regarding nutritional disorders.
4. A comparative descriptive study can be chosen to assess the prevalence of protein energy malnutrition between school children getting mid day meal and school children not getting the mid day meal.

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