Education

A comparative study to assess the nutritional status among school age children of employed and unemployed mothers (a study in selected schools of Nepalgunj, Banke, Nepal)

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Received 29 Apr 2021; Accepted 4 Jun 2021; Published 18 Jun 2021

Abstract

Nutrition is the science that studies the link between food and health, and is mainly focused on the role of nutrients in human growth, development, and maintenance. Healthy nutrition involves maintaining a nutritional condition that enables individuals to grow and maintain excellent health. The school age, which ranges from 6 to 12 years old, is a crucial period for physical growth and intellectual development in children. The socioeconomic status of families, social well-being, and health care system proficiency of communities, as well as the environmental impact, are important factors that affect child health. Viewing malnutrition as an issue in human ecology provides a range of approaches for prevention. The objective of this study was to evaluate the nutritional status of school-age children whose mothers were employed or unemployed and attending selected schools in Nepalgunj, Banke. A descriptive comparative research design was employed for the study, and stratified random sampling was used to select 120 students from Nepalgunj, Banke. Data were collected using a self-developed structured questionnaire. The study results showed that children with underweight (51.6%) were more prevalent among employed mothers' children than unemployed mothers' children (20%). However, children with normal weight (43.3%) were more prevalent among children of unemployed mothers than employed mothers (25%). An association was found between school type and maternal employment status with children's body mass index (BMI), and the P-values were <0.001 and <0.02, respectively. The nutritional status of children is a crucial factor for their growth and development. This study indicated that underweight was more prevalent among children of employed mothers, and children of unemployed mothers had a normal weight. Maternal employment status and school types, such as public and private schools, were associated with children's BMI. These factors should be considered while designing interventions to enhance children's nutritional status.

Keywords: nutrition, school-age children, employed and unemployed mothers, underweight, bmi, public and private schools

Introduction

Background of the study

Nutrition can be defined as the science of food and its relationship to health. It is concerned primarily with the part played by nutrients in body growth, development and maintenance. Good nutrition means maintaining a nutritional status that enables us to grow well and enjoy good health (Park, 2015) [16].

Nutritional status has been defined as an individual's health condition as it is influenced by the intake and utilization of nutrients (Todhunter, 1970). In theory, optimal nutritional status should be attained by consuming sufficient, but not excessive, sources of energy, essential nutrients, and other food components (such as dietary fiber) not containing toxins or contaminants (Tim *et al*., 1990).

Malnutrition is a man-made disease. It is a disease of human societies. It begins quite commonly in the womb and ends in the grave. The great advantage of looking at malnutrition as a problem in human ecology is that it allows for variety of approaches towards prevention. Malnutrition is a state of retarded physical development or specific clinical disorder caused by consistent lack of one or more nutrients. It is the diminishing health outcome due to deficiency, excess or imbalance of nutrients. Infants, pre-school children, adolescents, pregnant women and elderly people are the persons likely to be malnourished. (Joshi, 2012) [11] Protein energy malnutrition, deficiency of vitamin A, iodine deficiency disorder, and iron deficiency anemia are the common types of malnutrition in Nepal (Joshi, 2012) [11].

The various types of malnutrition are:

a) **Under nutrition:** It results after the insufficiency of food consumed over prolonged time. It is called starvation in extreme cases. (Burgess, 2016) [6].

b) **Over nutrition:** this pathological condition is brought about by the intake of too much amount of food over an extended period of time. Over nutrition attributes to obesity, atheroma and diabetes in people (Burgess, 2016) [6].

Lack of access to education and health facilities, dietary and hygiene practices, susceptibility to natural disasters, distribution and quality of land, level of infrastructure development and employment opportunities are responsible for under nutrition, morbidity, poverty and food insecurity in Nepal (UNICEF and World Bank, 2014) [19].

About half of the 10.7 million child deaths among children less than 5 years occurring each year are related to malnutrition in developing countries as estimated by WHO (Pramod Singh et

al., 2009) [17].

School age (6-12 years) is a vibrant period of bodily growth and intellectual development of the child. (Boma *et al*., 2014) [5] Balanced nutrition is vital for school children. However, the nutritional status of school children is quiet lacking for the reason that the nutritional needs of infants, toddlers and pregnant women are only focused (Shrestha *et al*., 2020).

The nutritional status of children reflects the socioeconomic position of the family, social wellbeing and proficiency of the health care system of the community as well as the effect of the surroundings. (Boma *et al*., 2014) [5] Poverty and ignorance are underlying factors of malnutrition and malnutrition is the most common cause of diseases and mortality among children in developing countries (Boma *et al*., 2014) [5].

Apart from being caused by biomedical reasons, malnourishment is deep-rooted in poverty and disadvantaged public settings. (Pramod Singh *et al*., 2009) [17]. Protein energy malnutrition is responsible for more than half of all child deaths in Nepal as it possess a severe risk to the existence of young children (Asser & Mohammed, 2020) [3].

Malnutrition throughout the school years can obstruct the physical and mental development of a child. Stunting (low height-for-age) can lead to long-term consequences, such as reduced intellectual achievement and school performance. It is also associated with the reduction in adult body size and reduced work capability and obstetric difficulties. Hindered maturation, deficiencies in muscular strength and work capacity, and reduced bone density later in life are the consequences of thinness (low BMI-for-age) in school children (Best *et al*., 2010) [4].

Objective

To assess the nutritional status among school age children studying in selected schools of Nepalgunj, Banke.

- To assess nutritional status among school age children of employed and unemployed mothers by using BMI and Nutritional assessment scale.
- To find the association between nutritional status among school age children of employed and unemployed mothers with their selected socio-demographic variables.

Hypotheses

All hypotheses will be tested at 0.05 level of significance

H_1= There is a difference between nutritional status among school age children of employed and unemployed mothers.

H_2= There is an association between nutritional status among school age children of employed and unemployed mothers with their selected socio-demographic variables.

Assumptions

The nutritional status of school age children of unemployed mothers may be healthy compared to employ.

Study variables

Research variables

Nutritional status among school age children of employed and unemployed mothers.

Demographic variables

Age, sex, family income, school type, education of mother, birth order, maternal employment status.

Delimitations

School age children of employed and unemployed mothers will only be the participant.

School student of age between 6 to 12 years will only be included only those respondents who are willing to participate.

Review of literature

Different related literatures were reviewed thoroughly to gain in-depth knowledge of the problems of the study. A literature review is the systematic search of published work to gain information about the research topics. Literature related to the study has been collected by review of different available scholarly journals, books, thesis reports, articles, etc. either electronic or printed versions. An Internet search for electronic resources has been carried out by using academic research library databases like PubMed, Science Direct, Google Scholar, etc.

Nutrition is the discipline related to food and its interaction with an organism for the maintenance and promotion of health and well-being. The combination of all processes by which all parts of body obtain and utilize the materials or nutrients necessary for their functioning and for the growth and renewal of all components is referred to as nutrition (Joshi, 2012) [11]. Nutrition is vital for preservation of health and prevention of diseases, particularly the food-related deficiency diseases (WHO, 2020) [21].

Malnutrition denotes the consequences resulting from insufficiency, excess or disproportion in the intake of calories and/or nutrients. The term malnutrition refers two major types of disorders. The first one includes under nutrition that comprises stunting (low height-for-age), wasting (low weight-for-height), underweight (low weight-for-age) and micronutrient deficiencies. The other includes overweight and obesity (WHO, 2016) [15]. Inability to eat or absorb sufficient nutrients as per the individual's energy requirements, for growth or to maintain a healthy immune system causes under nutrition. Micronutrient deficiencies result when the body does not obtain one or more essential micronutrients (Burgess, 2016) [6].

A descriptive cross sectional study was done in 2020 among 780 children aged 6 to 12 years to determine the nutritional status of school age children in Abakalika metropolis, Nigeria. Random sampling method was used to select participants. A self-developed structured questionnaire was used for the study. The study found that the prevalence of under nutrition was 15.7% and that of over nutrition was 2.1% (Umeokonkwo *et al*., 2020).

A school based cross sectional survey was done in 2017 to identify malnutrition and associated factors among rural school children in Fayoum Governorate, Egypt with a sample size of 736 school students. Simple random sampling was used to select samples. It is found that 14.9% of students were of over nutrition. Younger age and employment status of the father

were 0.75 and 2.21 times respectively had higher change of malnutrition (Abdel Wahed *et al*., 2017) [2].

A community based comparative study was done to find out the nutritional status of under five children with employment status of mothers in Adama town, center Ethiopia in 2017. Multistage sampling technique was used to draw a sample of 319 non-employed mothers and 319 employed mothers in 2017. The study finding shows that the prevalence of stunting, underweight, and wasting was found to be 33.8%, 12.6% and 8.3% respectively (M *et al*., 2017) [13].

A cross sectional study design was used to identify under nutrition and associated factors among school children in Addis Ababa, Ethiopia in 2015. A total of 459 school age children were included in the study through random sampling. The prevalence of undernourished children were 30.9% and the factors associated were high birth order (>2) had 2.14 times and working mother had 1.89 times higher chance of suffering from malnutrition (Degarege *et al*., 2015) [8].

A cross sectional survey was done among 191 children aged 6-12 years who were selected from private and government school of Nigeria. The studied variables involved; age, gender, religion, dietary pattern of the children as well as socio-economic status and educational background of parents. The percentage of female students (51.7%) who were underweight was more than their male counterparts (48.3%). The percentage of male students (65%) who were overweight was greater than the females (35%). Stunting was more prevalent among males than their female counterparts. In overall students, the prevalence of stunting was 15.7% whereas prevalence of severe stunting was 5.23%. Wasting was more predominant among females 56.3% than males 47.4% (Andrew *et al.*, 2014) [5].

A descriptive cross sectional study was carried out during November 2009 to February 2010 in Dagoretti, Nairobi, Kenya. From four public primary schools, 208 students aged 4–11 years of both gender were randomly selected. Amongst the surveyed children, 24.5% were stunted, 14.9% underweight and 9.7% were wasted. The number of boys who were stunted was more than girls. This study revealed that malnutrition levels were high among school children just as in children below five years of age (Mwaniki and Makokha, 2013).

A study was conducted to determine the nutritional status and dietary habits of school children of 6-12 years attending public and private primary schools in Zagazig city, Egypt. Based on the WHO standard, mean BMI, obesity and overweight was higher among students in the private school than in the public school whereas underweight was high among students in the public school (18.7%) compared to students in private school (7.5%). More than half of the public school students (52.7%) were of short stature compared to 27.4% of the private school students (Ali *et al.*, 2013).

A community based cross-sectional study was carried out to identify the nutritional status of school age children in the northern part of the country in 2021. Multistage stratified proportionate cluster sampling was used to select students. The findings of the study showed that stunting based on the height for age was seen in 10.9% of boys and 11.8% of girls. Wasting based on BMI for age WHO standard (WHO 2007) was seen in 30.6% of boys and 29.1% of the girls. The prevalence of overweight was 11% and obesity was 6.3% of the population (Sathiadas *et al*., 2020) [18].

A school based observational cross sectional study was conducted for the assessment of nutritional status of school children in rural urban areas of Bankura, West Bengal in 2018. A total of 80 school children were included in the study. Included school students were randomly included in the study. The study findings showed that the overall prevalence of underweight was 65% (Karak *et al*., 2018) [12].

A cross sectional study done in Sri-Lanka in 2017 to identify the nutritional status and correlated socio-economic factors among preschool and school children in plantation communities, Sri-Lanka with a sample size of 547 children of age between 1 to 15 years. Systematic random sampling was usedand found that high number of children with underweight (35.6%), stunting (26.9%) and wasting (32.9%). However, small numbers of children showed overweight (2.7%) and obese (3.1%). The factors associated with malnutrition were, an increase in birth order increases malnutrition by 6.39 times, similarly increase in siblings increases malnutrition by 3.16 times and employed mothers children were 2.21 times higher risk of malnutrition (Galgamuwa *et al*., 2017).

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Based on the study objectives, search was done and completed to make all search a relevant one.The finding of the literature review indicates that most of the school children were malnourish and there is gap between public and private school. This may be due to parent's occupation, family size, birth orders, knowledge about malnutrition. These literature provided information which enabled the investigator to extend the study of the selected problem, to develop conceptual framework, data analysis and for interpretation.

Research methodology

Research approach

Descriptive comparative study design was used to compare the nutritional status of employed and unemployed mothers studying in private and government school

Target population

School student of age between 6-12 years of employed and unemployed mothers studying in private and government school were selected for the study. They were measured through their nutritional status.

Study setting

The study was done in selected school of Nepalgunj sub-

metropolitan city. Spring Dell Academy and Lagdahawa Madhyamika Bidhyalaya.

Sample size
The sample size for the study was 120school students.

Sampling technique
Stratified random sampling.

Sample selection criteria
Inclusion criteria
All school children of age between 6-12 years.
School student whose mothers were either employed or unemployed.

Exclusion criteria
Student who was not interested to participate were excluded from the study.
Student who was ill or unable to respondent/speak properly.

Development of the tool
To assess the level of nutritional status of school children, a self-developed structured questionnaire was used. It was prepared in the English language and then was translated into the Nepali language and was show to research guide for further corrections.

Description of tool
Self-developed structure data collection tool was used to identify the nutritional status of school aged children. The question was divided into 3 parts.
Part 1: Distribution of socio-demographic information.
Part 2: Nutritional assessment scale to measure nutritional status of school age children of employed and unemployed mothers.
Part 3: Measurement of nutritional status by using BMI formula.

Validity and reliability
Content validity of the questionnaire was obtained by showing the tool to subject teacher, nutritional expert and pediatrician expert.
Reliability of the instrument was maintained through inter-rater methods.

Data collection technique
Data collection procedure was done after getting approval of the research committee of Bheri Nursing Campus, Nepalgunj, Banke. Then permission was obtained from the founder of the selected school.The objective of the study was briefed to the teachers and students and verbal consent was taken. Data was collected through a self-administered questionnaire which was in the Nepali version. Data collection was done between 11 am to 3 pm, when they were free especially during lunch break or leisure period. Each student was interviewed for about 10 – 15 minutes.

Plan for data analysis
The gathered data will be checked for accuracy and completeness. Data will edited, organized and coded manually and entered into Statistical Package for Social Science (SPSS) version 21. Descriptive statistics will used for calculate mean, median, standard deviations, range, and frequency of subjects. Chi-square test will be done to show the association between research variable and socio-demographic variables. The finding of data will be presented through relevant table, bar graphs and pie chart.

Ethical consideration
The research was conducted after the approval of research committee of Bheri Nursing Campus, Nepalgunj, Banke. Then permission was obtained from the founder of the selected school. Verbal informed consent was taken from each participant. Privacy and confidentiality were maintained.

Data analysis and interpretation
This section is divided into four parts, which include background characteristics of respondents, comparison between nutritional status of school children between employed and unemployed mothers, nutritional assessment scale and association between socio-demographic variables and nutritional status of children. The total sample size for the study was 120. In order to facilitate the interpretation, the data were presented in the tables. The obtained data were analyzed according to the objective of research by using descriptive and inferential statistics and reported in term of frequency and percentage. The association of two variables was tested by chi-square test ($P<0.05$) was considered significant. Data were analyzed by using statistical package for social science. (SPSS, version 21).
All the obtained data were analyzed on the basis of the objective of the study. The data were organized and presented under the following sections:
Section I: Description of socio-demographic characteristics.
Section II: To assess nutritional status among school age children of employed and unemployed mothers by using BMI and Nutritional assessment scale.
Section III: association between nutritional status among school age children of employed and unemployed mothers with their selected social demographic variables.
Section IV: Socio-demographic characteristics of school age children of employed and unemployed mothers.
The section includes information regarding age, sex, school type, educational status of mothers and father, birth order, type of food and monthly family income.

Table 1: Frequency and percentage distribution of nutritional status of school children based to their age group

Variables	Employed mother		Unemployed mother	
	Frequency (n=60)	Percentage	Frequency (n=60)	Percentage
Age category				
6-7 years	13	21.7	28	46.7
8-10 years	17	28.3	29	48.3
11-12 years	30	50	3	5

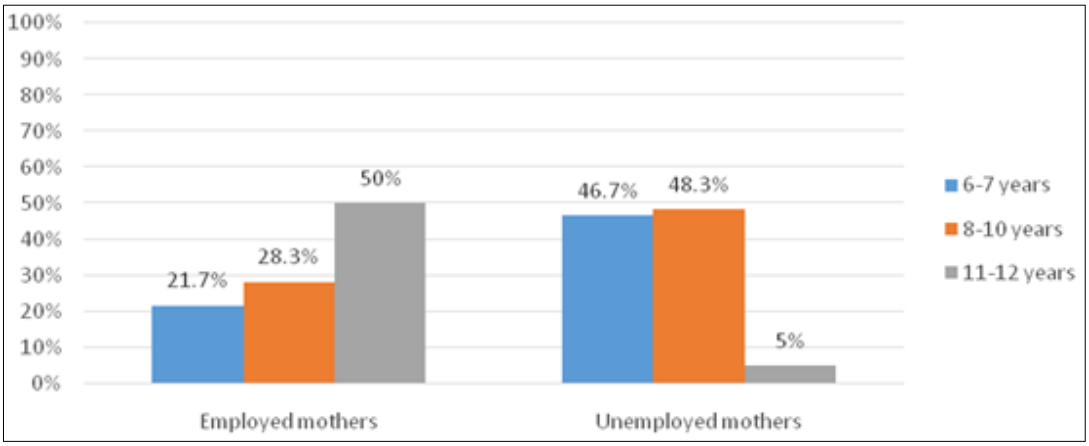

Fig 1: Bar graph showing the distribution of nutritional status of school children of employed and unemployed mothers according to their age groups.

Interpretation

Table and figure 1 showed that, for employed mothers (50%) were from age group between 11 to 12 years and (21.7%) were from 6 to 7 years. For unemployed mothers (48.3%) were from 8 to 10 years age group and (5%) were from 11 to 12 years age group.

Table 2: Frequency and percentage distribution of nutritional status of school children based to their sex

Variables	Employed mother		Unemployed mother	
	Frequency (n=60)	Percentage	Frequency (n=60)	Percentage
Sex				
Male	31	51.7	28	46.7
Female	29	48.3	32	53.3

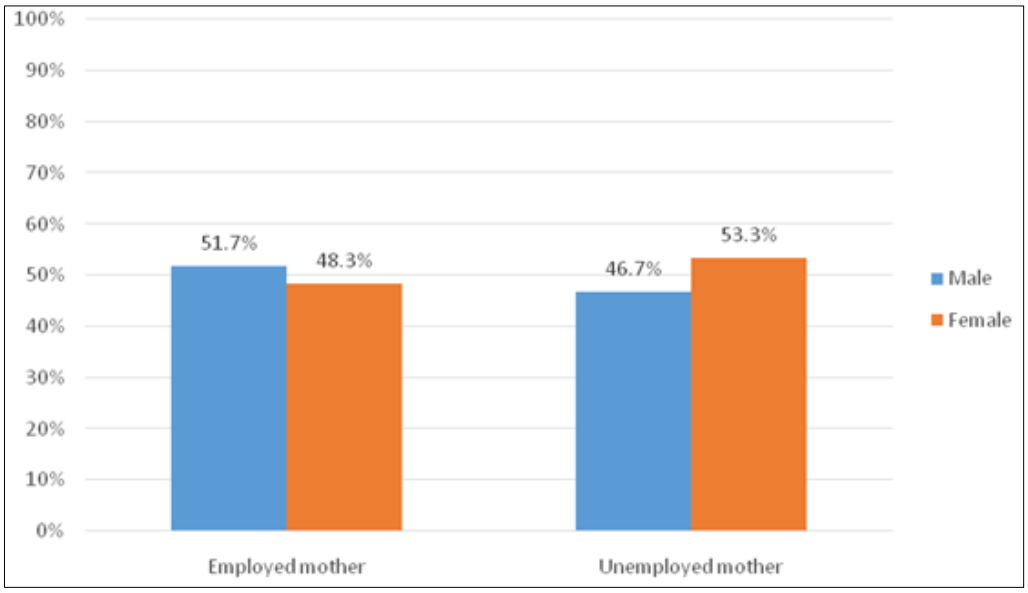

Fig 2: Bar graph showing the distribution of nutritional status of school children according to their sex.

Interpretation

The above table and figure 2 illustrated that male participants were higher in employed mother (51.7%) whereas female participants were higher in unemployed mothers (53.3%).

Table 3: Frequency and percentage distribution of nutritional status of school children based to their school type.

Variables	Employed mother		Unemployed mother	
	Frequency (n=60)	Percentage	Frequency (n=60)	Percentage
School Type				
Government	8	13.3	28	46.7
Private	52	86.7	32	53.3

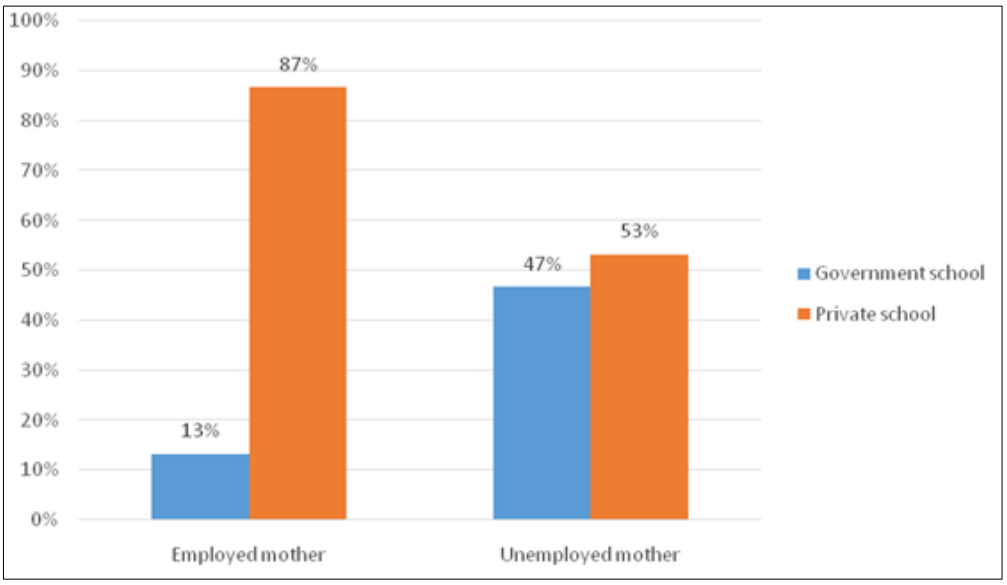

Fig 3: Bar graph showing the distribution of nutritional status of school children according to their school type

Interpretation

The above table and figure 3 showed that (13.3%) of school children of employed mothers were studying in government school and majority of children (86.7%) were studying in private school. Similarly (51.7%) children of unemployed mother were studying in private school and remaining (46.7%) in government school.

Table 4: Frequency and percentage distribution of nutritional status of school children based educational status of mothers

Variables	Employed mother		Unemployed mother	
	Frequency (n=60)	Percentage	Frequency (n=60)	Percentage
Educational Status of Mothers				
No formal education	8	13.3	2	3.3
Primary	0	0	6	10
Secondary level completed	9	15	23	38.3
Higher secondary level completed	21	35	18	30
Bachelor level and above	22	36.7	11	18.3

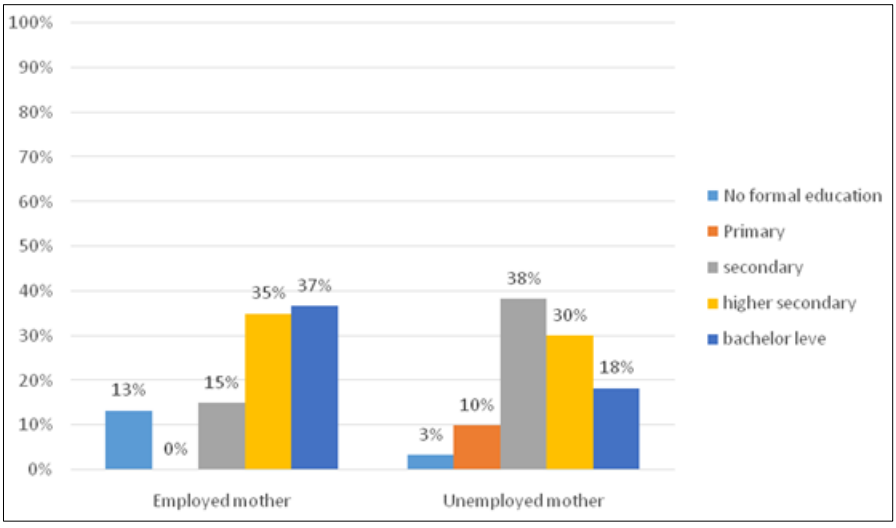

Fig 4: Bar graph showing the distribution of nutritional status of school children according to their educational status of mothers

Interpretation

Table and figure 4 show that, regarding educational status of mothers, (36.7%) of employed mothers had completed bachelor level and above and (35%) had completed higher secondary level of education. Whereas (38.3%) of unemployed mothers had completed secondary level education.

Table 5: Frequency and percentage distribution of nutritional status of school children based educational status of fathers

	Employed mother		Unemployed mother	
Variables	**Frequency (n=60)**	**Percentage**	**Frequency (n=60)**	**Percentage**
Educational Status of Father				
No formal education	0	0	0	0
Primary	6	10	3	5
Secondary level completed	23	38.3	14	23.3
Higher secondary level completed	8	13.3	24	40
Bachelor level and above	23	38.3	19	31.7

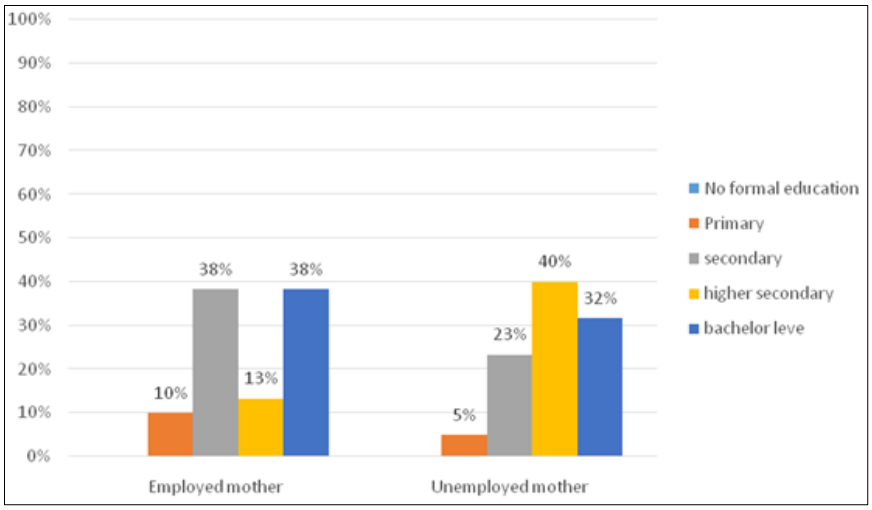

Fig 5: Bar graph showing the distribution of nutritional status of school children according to their educational status of fathers

Interpretation

Table and figure 5 show that educational status of father, (38.3%) of the fathers had completed their bachelor level of education and secondary level in employed mothers. Similarly, (31.7%) of husband of unemployed had completed their bachelor level of education and (23.3%) had completed their secondary level of education.

Table 6: Frequency and percentage distribution of nutritional status of school children based on birth order

Variables	**Employed mother**		**Unemployed mother**	
	Frequency (n=60)	**Percentage**	**Frequency (n=60)**	**Percentage**
Birth Order				
Less than and equal to 2	27	45	49	81.7
More than 2	33	55	11	18.3

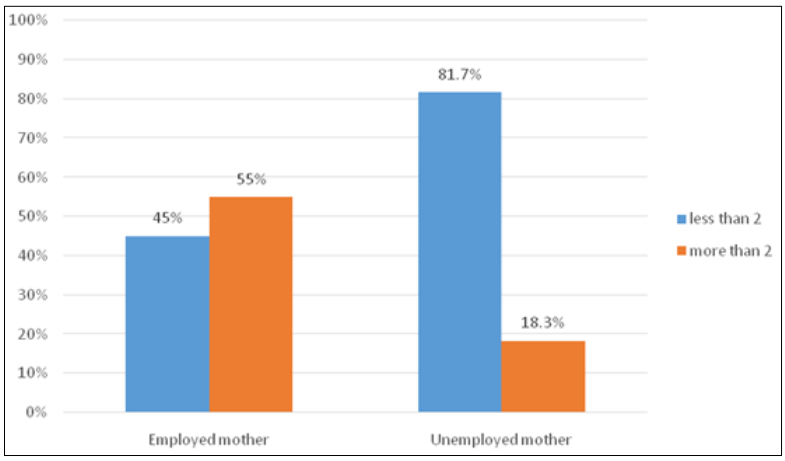

Fig 6: Bar graph showing the distribution of nutritional status of school children according to their birth order

Interpretation

The above chart shows that employed mothers' children birth order was (45%) less than and equal to 2 and more than 2 was 55%. For employed mothers less children birth order was (81.7%) less than and equal to 2 and more than 2 was 18%.

Table 7: Frequency and percentage distribution of BMI classification based on employed and unemployed mother's status

BMI	Employed		Unemployed	
	Frequency	Percentage	Frequency	Percentage
Under weight	31	51.6	12	20
Normal	15	25	26	43.3
Overweight	14	23.3	22	36.7

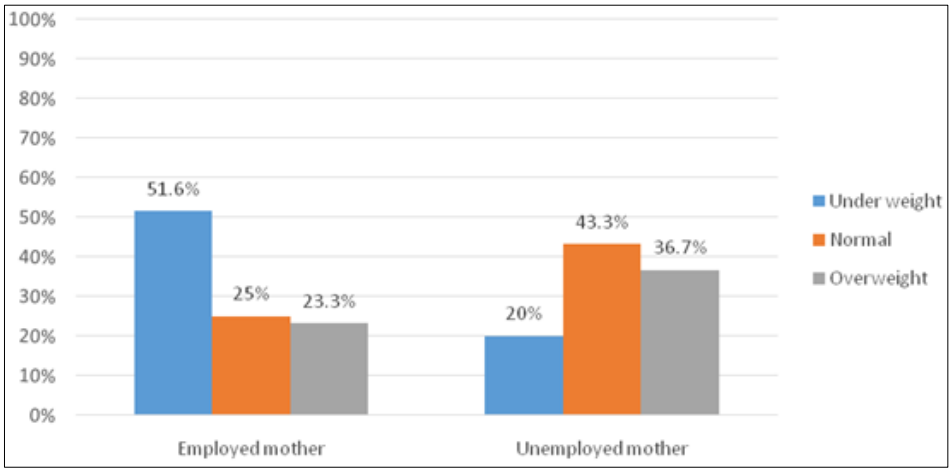

Fig 7: Bar graph showing the distribution of BMI classification according to their employed and unemployed mother's status

Interpretation

The above table 7 shows nutritional status difference between employed and unemployed mothers through Body mass index. It illustrates that underweight (51.6%) was high among children of employed mothers than in unemployed mother. Similarly, normal weight is high among children of unemployed mother than in employed mothers (43.3%) and (25%) respectively.

Section II: To assess nutritional status among school age children of employed and unemployed mothers by using BMI and Nutritional assessment scale.

Table 8: Nutritional assessment scale of children among employed and unemployed mothers

S. No.	Site	Signs	Employed mothers		Unemployed mothers	
			No.	%	No.	%
1.	Face	Moon face	0	0	0	0
		Simian face	0	0	0	0
2	Mouth	Angular stomatitis	10	16.7	8	13.3
		Spongy bleeding	0	0	6	10
		Parotid gland enlargement	0	0	0	0
3.	Teeth	Enamel mottling	36	60	35	58.3
		Delayed eruption			0	0
4.	Hair	Brittle hair	25	41.7	17	28.3
		Hyperpigmentation	0	0	0	0
		Alopecia	0	0	0	0
5.	Skin	Loose wrinkle	17	28.3	3	5
		Shine and edematous	0	0	0	0
		Poor wound healing	1	1.7	0	0
		Dermatitis	4	6.7	8	13.3
6.	Nail	Beau's Lines	0		0	0
		Terry's Nails	0	0	0	0
7.	Skeletal	Muscles wasting	20	33.3	0	0
		Deformities result by deficiency of calcium, Vit-C, D	0	0	0	0
8.	Abdomen	Distended	0	0	0	0
		Hepatomegaly	0	0	0	0
		Ascites	0	0	0	0
9.	Cardiovascular	Bradycardia	0	0	0	0

		Hypertension	0	0	0	0
10.	Neurological	Development delay	0	0	0	0
		Poor Memory	0	0	0	0
		Loss of knee and ankle reflex	0	0	0	0

Interpretation

The nutritional assessment scale shows that 16.7%and 13.3% of children had angular stomatitis of employed and unemployed mothers respectively. It's a sign of vitamin- B complex deficiency. About60% and 58.3% of children had brittle hair of employed and unemployed mothers respectively. Here in the table, 28.3% of children of employed mothers had loose wrinkle in their skin, showing a sign of malnutrition. Similarly, 33.3% of employed mothers children had muscles wasting, which means they are suffering from malnutrition

Section III: Association between nutritional status among school age children of employed and unemployed mothers with their selected socio-demographic variables

Table 9: Association between socio-demographic variables and nutritional status of children

Variables	BMI			Chi square(χ^2)	DF	*P* value
	Over	Normal	under			
Age						
6-7	11	18	12	4.70	4	0.30
8-10	16	15	15			
11-12	9	8	16			
Sex						
Male	18	24	17	3.04	2	0.21
Female	18	17	26			
School Types						
Government school	14	15	31	13.124	2	0.001*
Private school	22	26	12			
Educational Status of Mother						
No formal education	8	9	14	14.56	8	0.06
Primary level completed	6	9	13			
Secondary level completed	7	15	10			
Higher secondary level completed	11	5	2			
Bachelor level and above	4	3	4			
Educational Status of Father						
No formal education	5	4	13	12.39	8	0.13
Primary level completed	4	5	8			
Secondary level completed	9	15	13			
Higher secondary level completed	9	10	5			
Bachelor level and above	9	7	4			

*Statistically significant

Interpretation

The above table shows that school type (government and private school) is associated with body mass index (BMI) of children with P-value <0.001. The other demographic variables are not associated with BMI of children.

Table 10: Association between socio-demographic variables and nutritional status of children

Variables	BMI			Chi-square (χ^2)	DF	*p* value
	Over	Normal	Under			
Maternal Employment Status						
Unemployment mother	14	24	22	2.99	2	0.02*
Employed mother	22	17	21			
Birth Order						
Less than and equal to two	20	25	16	5.20	2	0.07
More than 2	16	16	27			
Types of Food						
Vegetarian	8	4	10	3.07	2	0.21
Non- Vegetarian	28	37	33			
Monthly Family Income						
Less than and equal to 5000	-	-	-	9.16	4	0.05
5001 to 10,000	2	1	0			
10,001 to 20,000	8	7	18			

More than and equal to 20,001	26	33	25			

*Statistical significant

Interpretation

The above variables show that maternal employment status (employed and unemployed) is associated with BMI of children with p-value of less than 0.05.

Discussion, Conclusion, Limitation, Recommendation and Implication

Discussion

The present study was conducted to assess the nutritional status among school age children studying in selected schools of Nepalgunj, Banke.

The age group was from 6 to 12 years. For employed mothers 50% were from age group between 11 to 12 years. For unemployed mothers 48.3% were from 8 to 10 years age group. Male participants were higher in employed mother with 51.7% whereas female participants were higher in unemployed mothers with 53.3%.

Regarding educational status of mothers 36.7% of employed mothers had completed bachelor level and above and 35% had completed higher secondary level of education. The similar result is seen in a study done to identify the nutritional status of school children living in northern part of Sri-Lanka with high number of male51% and education status of mothers was 39% for higher secondary level (Sathiadas *et al*., 2020) [18].

Among employed mothers 51.7% had monthly family income of more than 10,001 to 20,000, whereas about 96.7% of the unemployed mothers had family income more than and equal to 20,001. This result is similar with a study done in west Bengal to identify the nutritional status of school children in West Bengal with monthly family income was more than 20,000 was 51% (Karak *et al*., 2018) [12].

The result of nutritional assessment scale showed that 16.7% and 13.3% of children had angular stomatitis of employed and unemployed mothers respectively. About 60%and 58.3% of children had brittle hair of employed and unemployed mothers respectively.

Further the result showed that28.3% of children of employed mothers had loose wrinkle in their skin, showing a sign of malnutrition. Similarly 33.3% of employed mothers children had muscles wasting, which means they are suffering from malnutrition.

This result is similar with a study done in west Bengal to identify the nutritional status of school children in West Bengal with angular stomatitis 4% and 11% of children had brittle hair (Karak *et al*., 2018) [12].

The result showed that underweight was 51.6% was high among children of employed mothers than in unemployed mother. Similarly normal weight is high among children of unemployed mother than in employed mothers i.e. 43.3% and 25% respectively. The prevalence of overweight was 23.3% and 36.7% in employed and unemployed mothers. This result is similar with a study done in west Bengal to identify the nutritional status of school children in West Bengal with underweight was 50% and normal weight was 40.1%.(Karak *et al*., 2018) [12] The above result is similar with a study done in Pokhara city which showed that overweight was among 20% of children in employed mothers (Maskey *et al*., 2020) [14].

Conclusion

Nutritional status of children is an important factor for children growth and development. This study showed that underweight was high among children of employed mothers and children were of normal weight for unemployed mothers. Children's BMI were associated to maternal work status and school types i.e. public and private schools. These aspects should be considered before devising any intervention to improve children's nutritional status.

Limitation

The study was limited to: -

Nepalgunj-18, Banke

Comparison between employed and unemployed mothers were only done.

120 school students were only involved.So, the study finding could not be generalized.

Recommendation

Based on the research conducted, it is recommended that there is need to create awareness regarding nutritional status of children.

A similar study can be conducted on other community settings as meet.

Such research and studies must aim to assess or evaluate the way of prevention of nutritional problem.

Further studies are needed to have an accurate view of nutritional problem and its different determinants.

Implication

Assessment of nutritional status can be used to identify the percentage of malnourished children in the employed and unemployed mothers and to improve the health status of school-age children.

Nursing practice

Nutritional status helps to screen the malnourished children. We can focus the area in which percentage of malnourished children is more and can provide the nutritional supplement for the malnourished school-age children.

Nursing education

It can be added to the nursing curriculum as a clinical requirement to assess the nutritional status of the limited number of school-age children so that the student nurse will be able to learn nutritional assessment of school-age children.

Nursing administration

The nurse administrator can plan to conduct nutritional assessment and awareness program to assess the nutritional

status of school-age children in the schools.

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