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DIETARY DIVERSITY AND ASSOCIATED FACTORS AMONG PRIMARY SCHOOL CHILDREN IN BAHIR DAR CITY, NORTHWEST ETHIOPIA, 2023, COMPARATIVE CROSS-SECTIONAL STUDY

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FACULTY OF CHEMICAL AND FOOD ENGINEERING
DEPARTMENT OF APPLIED HUMAN NUTRITION

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BY
BINIYAM KASSAY [MPH, HO]

February, 2024
BAHIRDAR, ETHIOPIA

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COMPARATIVE CROSS-SECTIONAL STUDY**

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**THESIS SUBMITTED TO THE DEPARTMENT OF APPLIED HUMAN
NUTRITION FACULTY OF CHEMICAL AND FOOD ENIGNNERINGIN IN
PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER'S IN APPLIED HUMAN NUTRITION.**

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Declaration form

This is to certify that the thesis entitled “Dietary diversity and associated factors among primary school children in Bahir Dar city, northwest Ethiopia, 2023, comparative cross-sectional study,” submitted in partial fulfillment of the requirements for the degree of Master of Science in applied human nutrition under the Faculty of Chemical and Food Engineering, Bahir Dar Institute of Technology, is a record of original work carried out by me and has never been submitted to this or any other institution to get any other degree or certificate. The assistance and help I received during the course of this investigation have been duly acknowledged.

Name of the candidate: Biniyam Kassay W/Michal

signature_____

Date_____

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Approval of the thesis for the defense result

I hereby confirm that the changes required by the examiners have been carried out and incorporated into the final thesis.

Name of Student Biniyam Kassay Signature: [Signature] Date 08/08/2016

As members of the board of examiners, we examined this thesis titled "Dietary diversity and associated factors among primary school children in Bahir Dar city, northwest Ethiopia, 2023: a comparative cross-sectional study." by Biniyam Kassay. We hereby certify that the thesis is accepted for fulfilling the requirements for the award of the degree of Masters of Science in applied human nutrition.

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Acronyms and Abbreviations

ASF Animal Source Food

BMI Body Mass Index

CDC Center for Diseases Control and Prevention

CSFII Continuing Survey of Food Intakes by Individuals

DALYs Disability Adjusted Life Years

DHS Demographic Health Survey

DD Dietary Diversity

DDS Dietary Diversity Score

EDHS Ethiopian Demographic Health Surveys

FANTA Food and Nutrition Technical Assistance

IYCF Infant and young child feeding

FFQ Food frequency

FVS Food Variety Score

SAC School Age Children

SRS Simple Random Sampling

SD standard deviation

WHO World Health Organization

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Abstract

Introduction: Schoolchildren are vulnerable to undernutrition due to low social status, poor diet, ill health, and inappropriate care. Children with good dietary diversity were associated with a normal body weight. Dietary diversity reflects the nutrient quality of an individual's diet.

Objectives: To compare the dietary diversity among primary school children in government and private schools and to identify associated factors influencing their dietary diversity in Bahir Dar city, Northwest Ethiopia, in 2023.

Methods: A school-based comparative cross-sectional study was conducted among 421 students (172 students from private schools and 249 students from governmental schools). The study participants were selected using random sampling and multistage sampling techniques. Data were checked for consistency, entered into EPI Info 7.2, and analyzed using SPSS version 25. For descriptive statistics, tables, graphs, frequency, mean, and standard deviation were used. A binary logistic regression model was fitted to determine an independent predictor of dietary diversity. In simple binary logistic regression analysis, independent variables with a P-value < 0.25 entered multivariable logistic regression analysis. An odds ratio with a 95% CI was computed to estimate the level of significance.

Result: A total of 421 students with a response rate of 96.5% participated in the study. Dietary diversity practice was 35.5% in private schools compared to 6.5% in public schools. There is a statistically significant difference between students in private and government schools to achieve the minimum diversity intake ($\chi^2 = 57.1$, p-value = 0.00). Father educational, family monthly income, food taboo, eating between breakfast and lunch, and eating snake (between lunch and dinner) were significant associations with dietary diversity.

Conclusion and Recommendation: Dietary diversity in private schools was high compared to public schools. School feeding programs must be started to meet the dietary diversity of school students by the government and stockholders, and education of fathers plays an important role in children's dietary diversity, so educate fathers' nutritional education at least.

Key words: dietary diversity, student, primary school, food taboo, education.

1. Introduction

1.1 Back Ground

Malnutrition is one of the most challenging and complex global problems affecting development. Schoolchildren are vulnerable to undernutrition due to low social status, poor diet, ill health, and inappropriate care (1). About 200 million school-aged children are undernourished globally, which leads to around 2.2 million deaths annually (2). It improves cognitive function, school attendance, academic performance, school enrollment, and school dropout rates (3, 4). The family and community play an important role in the acquisition of nutrition knowledge and nutrition-related practices. Evidence indicates that dietary habits acquired in childhood persist through adulthood (5). Furthermore, research also indicates a role for childhood nutrition in adult health. The school is one of the main social contexts in which lifestyles are developed. There has been an evolution in food habits with the replacement of healthy, nutritious foods with things that are tasty, convenient, and vogue-junk food. These are foods that are rich in salt, sugar, and fat, or calories, but have low nutrient content. The changing lifestyles and the easy availability of junk food near schools or even within school canteens have led children to prefer and become addicted to junk food (6).

All people need a diversity of foods to meet requirements for important nutrients, and the price of a diverse diet has long been known. Persons consuming more diverse diets are believed to be more likely to meet their nutrient needs. The nutritional status of children is influenced by diet, and both undernutrition and overnutrition could be reduced by increasing the diversity of foods available for intake. (7)

According to the World Health Organization (WHO), dietary recommendations for individuals and populations should provide adequate energy balance for a healthy weight. It should also include increased consumption of fruits and vegetables, legumes, whole grains, and nuts, while limiting the intake of free sugars and salt (sodium) consumption. A poor dietary habit may be described as all dietary behaviors that negate the above-mentioned ideals (8).

Healthy eating patterns in childhood and adolescence promote optimal childhood health, growth, and intellectual development and prevent immediate health problems, such as reduced capacity for learning and work (9). School age is the active growth phase of childhood. Primary school age is a dynamic period of physical growth as well as mental development for the child (10). One of the major global health problems faced by developing countries is malnutrition. In developing countries, it is postulated that poverty and ignorance are the primary casualties of malnutrition (11).

Despite the economic growth observed in developing countries, undernutrition is still highly prevalent, particularly in Ethiopia. Concurrently, a growing prevalence of obesity and its related chronic diseases is being observed in these countries, including Ethiopia (12). Dietary diversity (DD) indicators have been used as proxies of quality food consumption and food security (13) for various reasons. Dietary diversity indicators may capture consumption of both macro and micronutrients, or a more balanced diet in the general sense, without the need to measure the quantity of food consumed, which may prove difficult in certain contexts. Furthermore, there are economic theories of demand as well as psychological ones suggesting that individuals will diversify into higher-value micronutrient-rich foods (such as meats, fish, dairy products, etc.) only when they have satisfied their basic calorie needs (14). Chronic malnutrition and micronutrient deficiencies in school-aged children living in Fogera and Libo Kemkem have been previously associated with a low DD and a lack of ASF consumption, together with other sociodemographic factors (15).

1.2 Statement of the Problem

School-age children constitute a little less than one quarter of the world's population, and around three quarters of these children live in developing countries (16). A child's dietary habits, acquired early in childhood, continue into adulthood. Nutritional deprivation is rampant in children of school age, particularly primary school-age children, ranging in magnitude from 20% to 80%. Since deficient physical growth is naturally reflected in their suboptimal mental development (17).

Adequate and appropriate dietary intake is essential at this age for inculcating healthy eating habits so as to provide nutrients not just for immediate growth, development, and scholastic performance but also for long-term health. The health, physical growth, development, and educational performance of schoolchildren depend largely on good nutrition. Dietary choices made by the children and their families' influence their health and may contribute towards both malnutrition and 'over-nutrition' (18).

Physical and mental development is impaired during childhood as a result of malnutrition at a young age. Undernourishment affects school performance and often leads to poorer earnings as a grown-up (19). The schoolchildren gain education either from private or public schools. However, in both categories of schools, nutrition education seems to be lacking. Although the families have enough funds for balanced and nutritious food, they lack knowledge about nutrition and a balanced diet, causing malnourishment in the kids (20).

Studies in both developed and developing countries have identified some poor dietary habits, namely: skipping breakfast, increased intake of high-calorie snacks, eating outside the home, consumption of soft drinks among adolescents, low consumption of fruits and vegetables, and use of supplements (21, 22).

Other studies indicated that school-going children's are pushed from excessive studying and their uncertain future and do not receive a proper nutritional education, which can lead to dietary problems such as skipping breakfast, an unbalanced diet, irregular eating times, frequent consumption of processed food or fast food, and eating at night without the right knowledge about food and nutrition (23).

The prevalence of undernutrition is a major public health concern in many of the developing countries in Africa. Due to its immense population size, socio-economic disparities, illiteracy, and inadequate access to health facilities, Ethiopia is no exception. Two studies from south-west Nigeria reported that wheat-based fast foods with sweetened beverages such as carbonated and malted drinks, fruit juice, and alcoholic beverages formed snacks eaten among the primary school students (24, 25).

Food consumption patterns across Ethiopia are diverse, and the food basket consists of a wide variety of grains and other staples, which change widely according to differences in agroecology, socioeconomic levels, and livelihood strategies (26). As in many other traditional societies, dietary preferences and consumption patterns are also influenced by cultural values and traditions and may not necessarily reflect the availability or nutritional quality of specific food items (27). Existing studies have focused on meal consumption patterns or consumption of specific food groups and not on an empirical description of patterns in dietary components. Dietary practice in this study refers to combinations of foods and drinks and their consumption frequencies observed in the population. Even though there are government and private health sector development programs, it is recognized that the poor nutritional status of children and women continues to be a serious problem in Ethiopia. Limited studies have explored factors influencing children's dietary practices in different parts of Ethiopia. Meal frequency (28), educational status of the family, occupation of the head of household of the family, and religions of the family were discovered as predictors of children's nutritional status, which in turn influence their dietary practices. Identifying specific factors affecting children's dietary practices is necessary and critical to designing the right intervention. Thus, this study was aimed at assessing and comparing the dietary diversity practices and associated factors of private and government primary school children in Bahir Dar city, Amhara regional state, Ethiopia (29, 30).

1.3 Significance of the Study

While measurement of actual intakes of nutrients and calories is important, the single-nutrient approach to understanding diet-disease relationships is used for the early stages of a child and to increase the knowledge of the student family. Dietary diversity patterns are also easier for the lay public to relate to and modify for better health outcomes compared to using nutrients or individual foods. Therefore, this study will benefit the study population because a better knowledge of the dietary habits of this population and its related factors is needed to guide the design of interventions to improve food consumption and dietary diversity beyond the specific supplementation programs.

This study will provide input for health professionals, especially health nutrition services, who will also benefit from the findings and get additional information to guide gaps in dietary practice.

Provide information so that school institutions may better implement a dietary program since it is better to give special attention to nutritional early assessment. As baseline data for those who are interested in carrying out further research in this regard.

1.4. Literature Review

Dietary practices among school-going children

The USDA conducted a survey called the Continuing Survey of Food Intakes by Individuals (CSFII) that studied the meal and snack patterns of children along with their intake of calories, total fat, saturated fat, cholesterol, fiber, calcium, iron, and sodium (31). In this study, female adolescents (ages 12–17) ate an average of 2.5 meals and 1.0 snack per day. This was the lowest rate of meal and snack consumption among the four age and gender groups specified by the study. The CSFII study also found that children in secondary schools drank less milk than children in elementary schools (28).

A WHO school-based student health survey in Oman described the pattern of dietary behavior among adolescents, showing that about 50% missed breakfast, 33.4% usually drink sugar-sweetened carbonated soft drinks, 10% eat fast food regularly, and 70% eat fruits and vegetables regularly. Of these, 19.5% were overweight, while over 30% were trying to lose weight (29).

The Center for Disease Control (CDC) found that 80% of young Americans do not consume the recommended number of servings of fruits and vegetables daily. The CDC report states that 85% of adolescent females do not consume enough calcium and that over the last 25 years, the consumption of milk (the largest source of calcium) has decreased by 36% among adolescent females (30).

Onyiriuka et al. reported on weight status and eating habits among 2,097 urban adolescent schoolgirls, showing that 1009 (48.1%) admitted to skipping at least one meal a fortnight. Over half of the participants (60.2%) ate fast food at least once a week, and more than three-quarters of them (76.4%) consumed fast food along with soft drinks (32).

Children in private schools who belonged to the high socioeconomic class were better nourished compared to government school students who belonged to the low socioeconomic class. Studies have shown that being financially sound may allow children to indulge in the practice of eating calorie-dense fast foods and a lifestyle involving less physical activity and more indoor activities (33).

People commonly practice monotonous feeding in relation to agricultural patterns and seasons. Dietary diversity is better during the summer season. It is because there are more fruits, vegetables, potatoes, yams, manioc, cassava, or any other foods made from roots or tubers in the summer season, while the winter season is better for other foods (34). Children with good dietary diversity were associated with a normal body weight. According to the FAO, dietary diversity reflects the nutrient quality of an individual's diet. In a study from Iran and India, it was reported that increasing dietary diversity scores (DDS) were associated with a higher BMI in children (35) and the best level of dietary diversity was related to improved intake of micronutrients and a decreased level of stunting (36). In children, low DD is typically expressed as a monotonous diet that is mainly based on low-energy and nutrient-density foods, such as cereals or tubers, and nutrient-rich foods, like animal source foods (ASF) (37). It has long been recognized that a varied diet is important for meeting a person's needs for essential nutrients. People are assumed to be more likely to achieve their nutrient needs when they eat a more diversified diet. Food has a significant impact on children's nutritional status, and by broadening the variety of foods accessible for intake, undernutrition and overnutrition can be lessened(38). Inadequate daily vitamin A intake has been associated with poor health and nutritional status (39). This is so because some nutrients may be lacking in these types of diets. SAC, on the other hand, needs all nutrients in the right amount to promote healthy growth. While assessing the nutritional status of school-age children in Nigeria (40) we detected a linear relationship between the nutrient adequacy of a child's diet and their nutritional status. An important aspect of dietary intake is dietary diversity (41).

Factors that determine the dietary diversity of students

There is no known single causative agent for poor dietary practice. Various factors were reported to be associated with dietary practices among schoolchildren. Behavioral factors were one of the determinants of dietary practice. Dietary habits are shaped at a young age and maintained during later life, with tracking over time (42). Eating behaviors established in childhood persist, with implications such as fussiness, poor dietary variety, high responsiveness to food cues, and increased obesity risk. Although eating behaviors and child weight are difficult to modify directly, parental feeding practices are potentially a

good target for interventions to prevent unhealthy eating patterns and the development of excess weight in children. Studies into the determinants of human eating behaviors have examined separate elements with the risk of not understanding the real contribution factors.(43).

Nutritional knowledge is one of the important factors in the selection of a healthy and nutritious diet(44). Improper nutritional knowledge is one of the main causes of nutritional problems, which adversely affect dietary practices. Also, understanding the nutritional attitude and beliefs of the community are essential factors in improving healthy eating effectively(45).Father's education is important because he plays a more active role in certain health-seeking decisions and household income in our social setup. It is another important determinant and has a positive impact on child health and nutritional status. Usually, the father is the main earner and decision-maker in a family, and so their higher level of education plays an important role in ensuring the nutritional status of children(46).

Private primary school

According to a Gondar study, children whose fathers had no formal education were almost 2.6 times more likely to be overnourished than children whose fathers had greater levels of education. These characteristics are linked to overnutrition among private primary school students (AOR = 2.59, 95% CI: 1.05–6.39) (47). A study in Southwestern Nigeria found that private school students reported a higher consumption of eggs ($p = .003$), vitamin A-rich fruits ($p = .025$), organ meat ($p = .031$), vitamin A-rich vegetables and tubers ($p = .033$), and milk ($p = .040$)(48). Studies have shown that low income is associated with poorer quality dietary intake compared with those with higher incomes. Lower-income individuals eat fewer fruits and vegetables, drink more sugar-sweetened beverages, and have a poorer overall diet quality(49).

1.5. Conceptual Framework

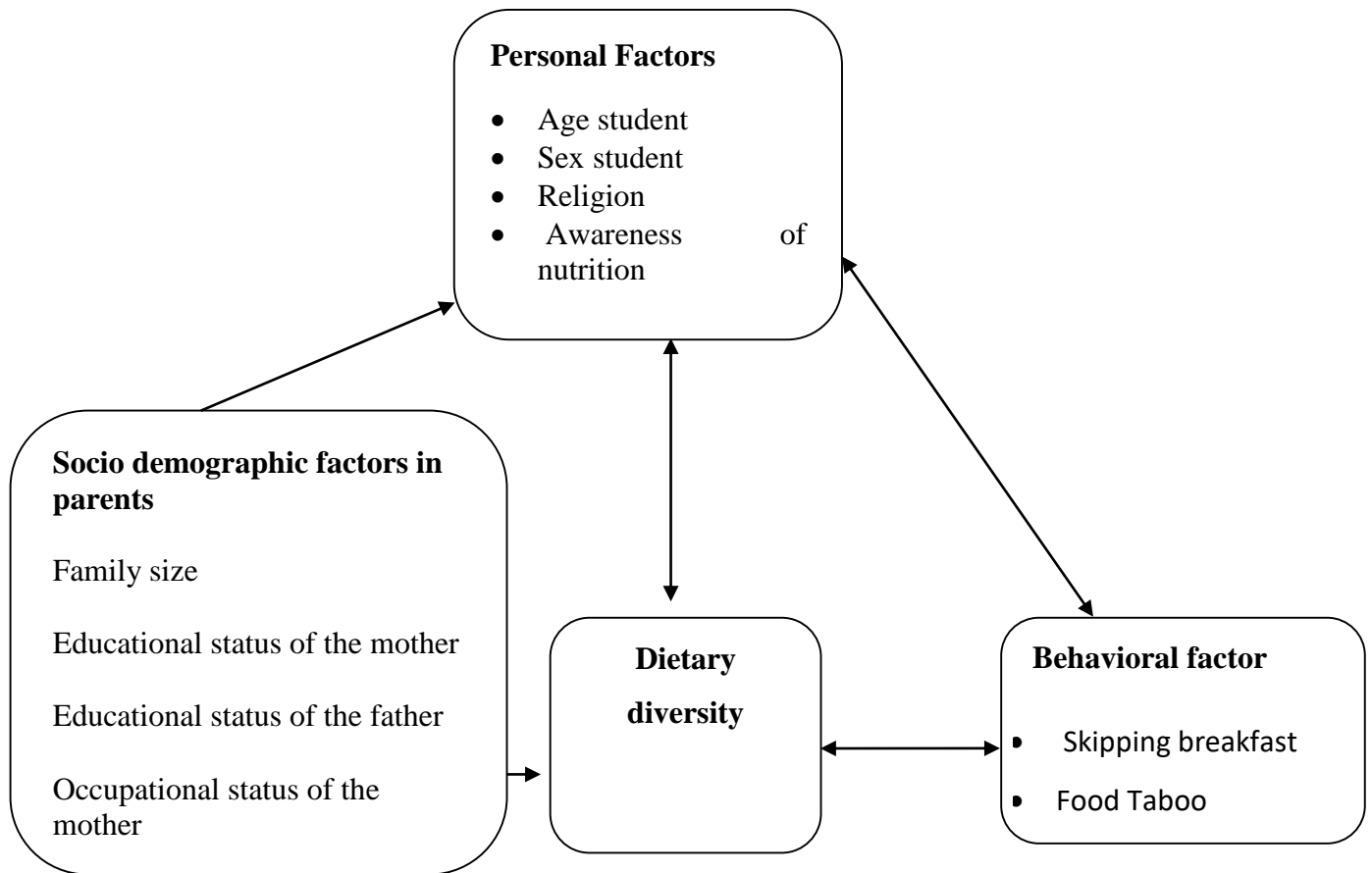


Figure 1: Conceptual framework of dietary diversity and associated factors among primary school children in private and governmental schools in Bahir Dar Town, North West Ethiopia, 2023, adopted from literature (45, 47).

2. Objectives

2.1 General objective

To compare the dietary diversity practices of primary school children in government and private schools and to identify associated factors influencing their dietary diversity practices in Bahir Dar city, North West Ethiopia, 2023.

2.2 Specific objectives

- To compare the dietary diversity practices of primary school children in government and private schools in Bahir Dar city
- To identify factors associated with the dietary diversity of primary school children in government and private schools in Bahir Dar city

3. Methods

3.1 Study design and period

The research was conducted using a comparative cross-sectional study design, with a study period spanning from October 9, 2023, to December 29, 2023.

3.2 Study area

This study was conducted in Bahir Dar city, which is located in the central part of the Amhara regional state in northwest Ethiopia. According to the 2020 report of the Central Statistical Agency (CSA) of Ethiopia, the total population of the city was 221,991, out of which 113,535 were women (51) estimated that in 2023, the total population of the city would be **474,743**. The city has 88 first-cycle elementary schools, of which 43 are public and 45 are private, for a total of 63,900 students. Of the total students, 22,519 were attending private schools, while 41,381 were attending public schools (Amhara Education Bureau, 2023). Furthermore, the Bahir Dar city administration education office has 13 clusters, with 8 clusters found in Bahir Dar town and 5 clusters in rural areas.

3.3 Source and study population for public schools

3.3.1 Source population: All public school students who attended their education at public primary schools in Bahir Dar city were the source population for public schools.

All private school students who attended their education at private primary schools in Bahir Dar city were the source population for private.

3.3.2 Study population: All public school students who attended their education in selected public primary schools in Bahir Dar city were the study population.

All private school students who attended their education in selected private primary schools in Bahir Dar city were the study population.

3.3.3 Eligibility criteria

Inclusion criteria: Students attending the selected primary schools, ages 5–14, and during the study period found in Bahir Dar city were included.

Exclusion criteria: Students in primary school whose mothers or caregivers had hearing abnormalities or impairments were excluded.

3.4 Sample size determination and sampling procedure

3.4.1 Sample size determination

The sample size was determined using the two-population proportion formula by considering the following: 90% power and a 95% confidence level. The study done on Gondar Zuria district among public primary schools was 71.98(52) and 50% for the proportion of good dietary practice among private primary school students. Since there was no specific previous study, it gave the maximum possible sample size. Type I error (level of significance) α =type II error (1- β =power of the study)

$$n = \frac{f(\alpha, \beta)(P_1q_1 + P_2q_2)}{(p_1 - p_2)}$$

$$n = (z_{\beta} + Z_{\alpha/2})^2 (p_1q_1 + p_2q_2) / (p_1 - p_2)$$

Where $z_{\beta} = 1.28$

$$Z_{\alpha/2} = 1.96$$

n_1 = Private school study population

n_2 = Public study population

P_1 = prevalence of dietary practice among private school students = 0.50

P_2 = prevalence of dietary practice among public school students = 0.2802

$$n = \frac{(1.28 + 1.96)^2 ((0.2802)(0.7198) + (0.5)(0.5))}{(0.2802 - 0.5)^2}$$

$$n = 98.1$$

Hence, the total expected sample size for one group was 99, and so the total sample size was 198. Considering a design effect of 2 and a non-response rate of 10%, the final sample size was 436.

3.4.2 Sampling Technique and Procedure

For this study, a multistage sampling technique was used. In the Bahir city administration education office, 13 clusters were identified, out of which 8 clusters were found in Bahir Dar town and 5 clusters were in rural areas. To ensure representativeness, 8 clusters were selected from Bahir Dar, and out of those, 4 clusters (50%) were chosen randomly using the lottery method. The number of students to be interviewed from these four clusters was determined using stratified sampling techniques, with schools being used as strata. In the third stage, the probability proportional technique was used to select a total of 436 students, with 60% from the government and 40% from private schools. Finally, students were chosen using the systematic random sampling method, and the interval was determined by dividing the study population by the total sample size (K). The sample frame used was the respective class rosters for the 2023–24 academic years. Diagram of sampling procedures, illustrated as follows:

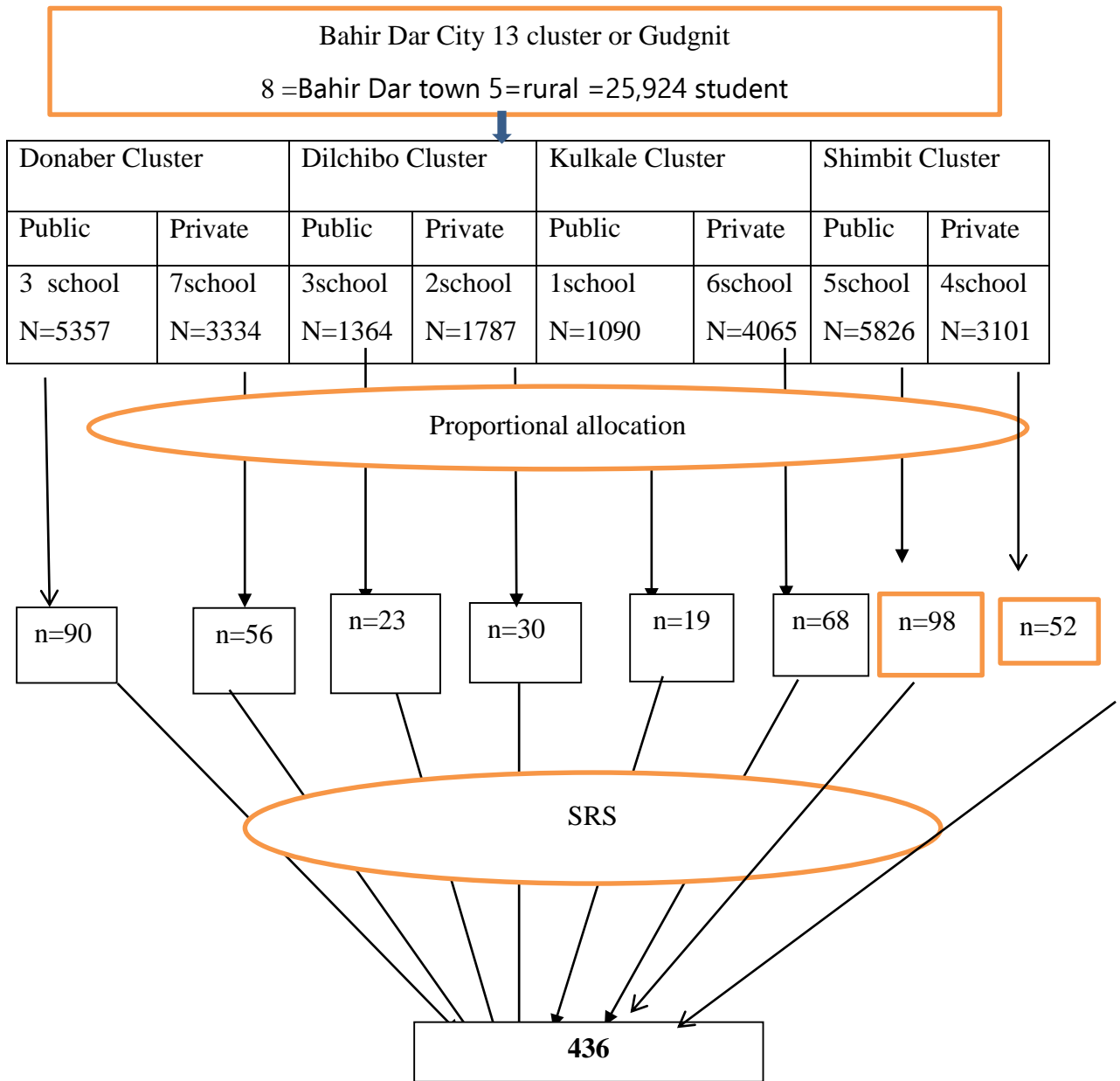


Figure 2: Diagrammatic representation of sampling procedure dietary diversity and associated factors among primary school children, 40% from private and 60% from public schools in Bahir Dar Town, North West Ethiopia, 2023

3.5. Variables of the study

Dependent variable

- Dietary Practice (appropriate or inappropriate)

Independent variables

Socio-demographic characteristics:-Age, sex, residence, ethnicity, religion, educational status of the mother, educational status of the father, occupational status of the mother, occupational status of the father, monthly income of the family, pocket money

Behavioral factors: food taboo, skipping breakfast Availability and accessibility of food and sources of information.

3.6 Operational Definition

Appropriate dietary practice: appropriate minimum dietary diversity is the consumption of five or more food groups from the ten, at least one in a week.

School-age children: refers to a child whose age ranges between 5 and 14 years.

Minimum dietary diversity (MDD): proportion of school-aged children who received five or more food groups of the ten food groups over a week period preceding the survey. The ten food groups used for the tabulation of this indicator were as follows: Grain, pulse, nuts, dairy products, meat, eggs, dark green leafy vegetables, vitamin A-rich vegetables, and other vegetables.

Dietary Diversity Score (DDS): is counting the intake of the food groups (WHO, 2008; FAO, 2011).

3.7 Data collection tools and procedures

An interviewer-administered questionnaire was implemented for data collection through trained data collectors and participating student's families or caregivers. Dietary data was collected using a previously validated Food Frequency Questionnaire (FFQ) adopted from literatures.

One BSc in nutrition supervisor and six nurse's data collectors were employed and trained for two days about the purpose of the study, time of data collection, timely collection of

the collected data, and overall data collection procedure. Data were collected through face-to-face interviews. The Amharic version of the questionnaire was used to collect data. All children who had obtained the consent of their parents on the day of the study were identified as participants.

3.8. Measurements

Food frequency and dietary patterns:

A 7-day Food Frequency Questionnaire (FFQ) (Appendix 1) was used to collect the usual consumption data on a range of foods. This FFQ was designed specifically for this study group and used in an earlier study among a larger population of Ethiopian school-age children. The ten food groups are grains, pulses, nuts, dairy products, meat, eggs, dark green leafy vegetables, vitamin-rich vegetables, and other vegetables. The questioner was answered by a mother or caregiver. Consumption of five or more of these foods at least once a week, which is measured as good dietary diversity (53).

3.9 Data quality control

To assure the quality of the data, the questionnaire was pre-tested by 22 mothers before the actual data collection. Dietary data was collected using a structured questionnaire adapted from different guidelines, EDHS 2016, and similar research that was done previously and modified accordingly. It was developed in English and then translated into the local Amharic version and back to English by one independent translator. The questionnaires contained open-ended and closed-ended questions that covered demographic characteristics, behavioral factors, and food diversity. One BSc in nutrition supervisor and six nurse's data collectors were employed and trained for two days about the purpose of the study, time of data collection, timely collection of the collected data, and overall data collection procedure. The Amharic version of the questionnaire was used to collect data. All children who had obtained the consent of their parents on the day of the study were identified as participants.

The data was collected from mothers or caregivers by using a 7-day dietary recall. The pre-test was done at Yebabe primary school before data collection to identify locally available and unclear food items, and appropriate modifications were made accordingly. At the time of data collection to evaluate how well understood the questioner was by the

interviewer, and lastly after the interview to determine which one was complete or not. A structured interviewer-administered questionnaire was used in a face-to-face interview conducted in Amharic. During the data collection, facilitators were supervised at each site by the principal investigator and feedback was given accordingly. The collected data was reviewed and checked for completeness before data entry, and incomplete data was discarded.

3.10 Data processing and analysis

Data clean-up and cross-checking were done before analysis. The data was checked, coded, and entered into EPI INFO version 7 and then exported to SPSS version 25 for analysis. Descriptive statistics such as frequency distribution, measure of central tendency, and variability (mean and standard deviation) were computed to describe the variables of the study. Figures and tables were used to present the findings. A crude and adjusted odds ratio with a 95% CI was calculated to determine the strength of the association between dependent and independent variables.

A bi-variant logistic regression model was employed to select candidate **variables with a p-value ≤ 0.25** at a significant level to incorporate in a multivariable logistic regression model. A multivariable logistic regression analysis was done to identify the independent factors associated with dietary practice. Finally, a variable with a p-value < 0.05 was considered a significant variable in the final model.

3.11 Ethical considerations

Permission letter was obtained from the Bahir Dar University faculty of Chemical and Food Engineering for to conduct the study. Verbal consent was obtained from respondents after explaining the purpose of the study, and at the same time, agreement was obtained from the study participants. Confidentiality was maintained by omitting their name and other personal identification. To maintain privacy, the data was collected in a private place. It was explained to the participants that they have the right to not participate in the study or discontinue it at any time.

3.12 Dissemination and utilization of result

The results of the study will be presented to the Bahir Dar University faculty of the Chemical and Food Engineering department as part of the Master of Applied Nutrition thesis, and they will also be shared with the Amhara regional educational bureau, the Ministry of Health, and the Ministry of Education. It will be presented at a conference, and publication will be allowed.

4. Results

4.1 Socio-demographic and behavioral characteristics of students

A total of 421 students with a response rate of 96.5% participated in this study; 40% of them were from private and 59.2% were from public schools. The mean age was 8.54 years \pm 1.77 SD. Regarding the sex distribution of students, 57% were females in private schools and 47.8% were females in public schools. The majority of respondents were Orthodox Christians.

The distribution of the student's father on the basis of their education showed that 90.1% in private and 37.3% in public had formal education. When we compare their mothers' education, 80.8% in private and 30.9% in public schools had formal education. The highest portion of private student father occupations has commercial business (38.4%) than public student fathers (24.9%).

Regarding the income distribution of respondents, the majority of 66.3% of the respondents in private schools had an average income greater than 10,000 Ethiopian birr compared to public schools. 78.3% household income less than birr 5000. Some foods are taboo for children. 87.2% of mothers replied that some food had not been given to their children. Almost all of the students have eaten lunch; 93% of private and 61.8% of public students have eaten snacks; and 99.3% of students have eaten their dinner. 26.6% of students in private schools eat food between breakfast and lunch, but not in public. 86.0% of student families or caregivers have information on good nutrition, compared to 60.2% of the public.

Table 1 Distribution of study participants by socio demographic characteristics primary school children in private and public schools in Bahir Dar Town, North West Ethiopia, 2023

| | | Primary school student | | | | chi-square | p-value |
|--------------------------------|----------------------------------|------------------------|------|---------------|-------|------------|---------|
| | | privet | | public | | | |
| | | Freque ncy | % | Frequen cy | % | | |
| Age Category | 5 -9 years | 129 | 75.0 | 166 | 66.7 | 3.4 | 0.06 |
| | 10 -14 | 43 | 25.0 | 83 | 33.3 | | |
| sex of student | Male | 74 | 43.0 | 130 | 52.2 | 3.4 | 0.06 |
| | Female | 98 | 57.0 | 119 | 47.8 | | |
| Religion of student | Orthodox | 109 | 63.4 | 134 | 53.8 | 5.6 | 0.07 |
| | Muslim | 57 | 33.1 | 110 | 44.2 | | |
| | Others | 6 | 3.5 | 5 | 2.0 | | |
| Ethnicity of student | Amhara | 166 | 96.5 | 243 | 97.6 | 0.88 | 0.64 |
| | Tigray | 5 | 2.9 | 4 | 1.6 | | |
| | Oromo | 1 | 0.6 | 2 | 0.8 | | |
| Education of father | Have no formal education | 17 | 9.9 | 156 | 62.7 | 117.1 | 0.00* |
| | Formal Education | 155 | 90.1 | 93 | 37.3 | | |
| Mother formal education or not | Informal Education of Mothers | 33 | 19.2 | 172 | 69.1 | 101.4 | 0.00* |
| | Formal Education of Mother | 139 | 80.8 | 77 | 30.9 | | |
| Father occupation | Non-employee | 106 | 61.6 | 187 | 75.1 | 8.8 | 0.00* |
| | Employed | 66 | 38.4 | 62 | 24.9 | | |
| Mother occupation | Non-employee | 129 | 75.0 | 231 | 92.8 | 25.9 | 0.00* |
| | Employed | 43 | 25.0 | 18 | 7.2 | | |
| Income of family | <5000 | 2 | 1.2 | 192 | 77.1 | 25.9 | 0.00* |
| | 5001-10000 | 56 | 32.6 | 54 | 21.7 | | |
| | >10000 | 114 | 66.2 | 3 | 1.2 | | |
| Food taboo | Yes | 150 | 87.2 | 243 | 97.6 | 4.5 | 0.03* |
| | No | 22 | 12.8 | 6 | 2.4 | | |
| between breakfast and lunch | Yes | 46 | 26.7 | 0 | 0.0 | 74.8 | 0.00* |
| | No | 126 | 73.3 | 249 | 100.0 | | |
| Snack | Yes | 160 | 93.0 | 154 | 61.8 | 52.2 | 0.00* |
| | No | 12 | 7.0 | 95 | 38.2 | | |
| hearing about good nutrition | not hearing about good nutrition | 24 | 14.0 | 99 | 39.8 | 32.7 | 0.00* |
| | Yes hearing | 148 | 86.0 | 150 | 60.2 | | |

4.2 Comparison of Dietary Diversity Practice in Private and public students in Bahir Dar city, Northwest Ethiopia, 2023

There is a statistically significant difference between students in private and government schools to achieve the minimum diversity intake ($\chi^2 = 57.1$, p-value = 0.00). Only 35.5% of students from private schools, compared to 6.1% of students in public schools, achieved the minimum dietary diversity. The average dietary diversity among students was 2.75 with a standard deviation of 1.4, ranging from one to six food groups.

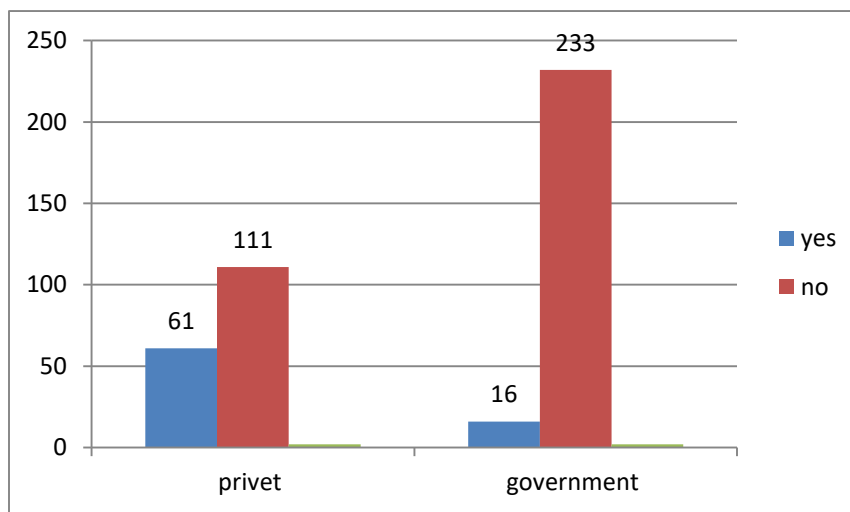


Figure 3: Comparison of Dietary Diversity Practices between Private and Public Primary school in Bahir Dar city, Northwest Ethiopia, 2023

Moreover, the result of this study indicates that the dietary diversity practice of students in the private and public schools consumed starchy staples, including grains (e.g., teff, fern millet/dagusa, maize, and wheat); roots and tubers (e.g., potato) was 100%, followed by nuts and seeds (e.g., beans, peas, chickpeas, and lentils) 29.7% for private and 69.5% for public schools; and vitamin-A-reaching vegetables (e.g., pumpkin, carrots, or sweet potatoes). 26.2% for private and 6.4% for public schools. Dairy products 43.6% for private verse 0.8% public , Meat (fish, chicken, and any beef), 21.5% for private v 5.6% for public , Eggs: 27.9% for private and 3.6 public schools. In general, the result of this study indicates that private school students had better dietary diversity practices than public students.

Table 2 : Comparison between public and privet primary schools in the minimum diversity of food intake school in Bahir Dar city, Northwest Ethiopia, 2023

| | | Primary school student | | | | chi-square | P-value |
|-----------------------------|--------------------|------------------------|--------|-------------|--------|------------|---------|
| | | Privet=172 | | Public =249 | | | |
| | | Frequency | % | Frequency | % | | |
| Grain score | Yes | 172 | 100.0% | 249 | 100.0% | | |
| | No | 0 | 0.0% | 0 | 0.0% | | |
| pulse score | Yes | 51 | 29.7% | 173 | 69.5% | 64.8 | 0.00* |
| | No | 121 | 70.3% | 76 | 30.5% | | |
| Nut score | Yes | 45 | 26.2% | 16 | 6.4% | 31.99 | 0.00* |
| | No | 127 | 73.8% | 233 | 93.6% | | |
| Dairy product | Yes | 37 | 21.5% | 14 | 5.6% | 124.7 | 0.00* |
| | No | 135 | 78.5% | 235 | 94.4% | | |
| meat score | Yes | 48 | 27.9% | 9 | 3.6% | 24.1 | 0.00* |
| | No | 124 | 72.1% | 240 | 96.4% | | |
| Egg | Yes | 26 | 15.1% | 0 | 0.0% | 51.3 | 0.00* |
| | No | 146 | 84.9% | 249 | 100.0% | | |
| Dark green leafy vegetables | Yes | 41 | 23.8% | 16 | 6.4% | 40.1 | 0.00* |
| | No | 131 | 76.2% | 233 | 93.6% | | |
| Vitamin A rich vegetables | Yes | 70 | 40.7% | 41 | 16.5% | 26.3 | 0.00* |
| | No | 102 | 59.3% | 208 | 83.5% | | |
| Other Vegetables | Yes | 50 | 29.1% | 16 | 6.4% | 30.7 | 0.00* |
| | No | 122 | 70.9% | 233 | 93.6% | | |
| food score | One type of food | 14 | 8.1% | 51 | 20.5% | 39.4 | 0.00* |
| | two type of food | 40 | 23.3% | 146 | 58.6% | | |
| | three type of food | 22 | 12.8% | 32 | 12.9% | | |
| | four type of food | 35 | 20.3% | 4 | 1.6% | | |
| | five and above | 61 | 35.5% | 16 | 6.4% | | |
| Minimum Diversity | No | 111 | 64.5% | 233 | 93.6% | 57.4 | 0.00* |
| | Yes | 61 | 35.5% | 16 | 6.4% | | |

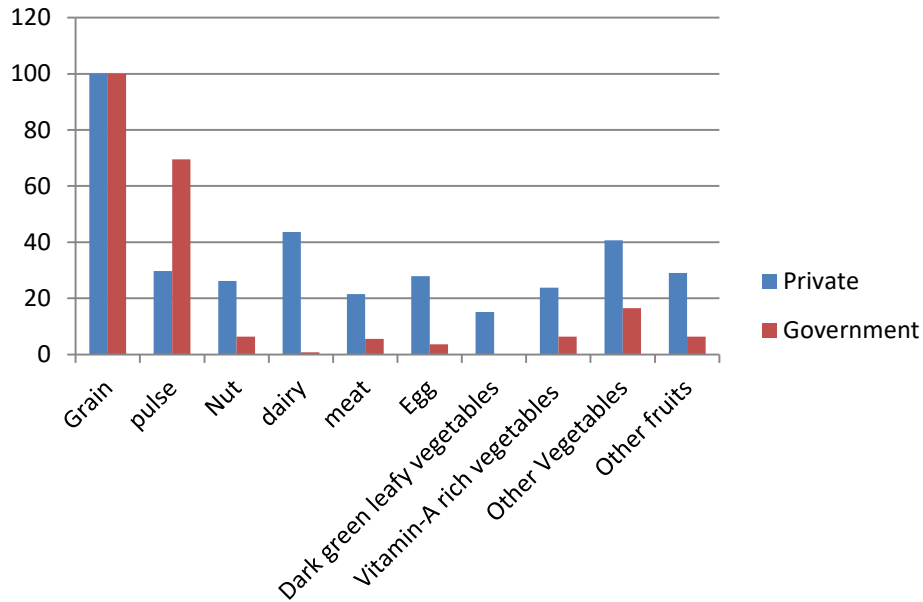


Figure 4: Comparison of Dietary Diversity Practices of public and private schools in the minimum diversity of food intake Bahir Dar city, Northwest Ethiopia, 2023

4.3 Factors with minimum dietary diversity food practice

The association between socio-demographic characteristics and dietary practices was assessed. Table 2 shows the minimum diversity of food intake, taking into account the demographic and behavioral characteristics of the participants, as well as the odds ratio and 95% confidence intervals.

In the bivariate analysis, a significant association was observed between father and mother education, father and mother occupation, family monthly income, breakfast and snack, and minimum diversity in food intake practice. But in other variables, age of students, sex, religion, and food taboos are not significant factors for practices of minimum diversity in food intake.

In the bi-variant logistic regression analysis, those variables with a p-value < 0.25 were entered, adjusting for the effect of confounding variables using multivariate logistic regression. Variables like a father's educational status, breakfast eating habits, and family monthly income have a statistically significant association with practices of minimum diversity in food intake, while the rest are not statistically significant at a p-value < 0.05. That is, those students whose father has a diploma and above were 7.3 times more likely to practice minimum diversity food intake when compared to those whose father can read

and write [(AOR =7.3, 95% CI = 4.8, 28.3)]. Moreover, those students who did eat between breakfast and lunch were 4.41 times more likely to practice minimum diversity food intake when compared to those students who didn't eat [AOR = 4.4, 95% CI: 2.06–9.46].

Table 3 logistic regression of socio-demographic characteristics primary school in Bahir Dar city, Northwest Ethiopia, 2023

| | | school | | COR | AOR |
|--------------------------|--------------------------|--------|--------|---------------------|---------------------|
| | | privet | public | | |
| Father Education | Diploma and Above | 64 | 46 | 13.6(3.20-25.8)* | 7.3(4.8 -28.3)* |
| | secondary education 9-12 | 78 | 60 | 1.1(0.64-1.77) | 1.84(0.67-5.07) |
| | Read, write and primary | 16 | 157 | | 1 1 |
| Mother Education | Diploma and Above | 26 | 10 | 6.19(2.84-3.50)* | 1.22(0.32-4.59) |
| | secondary education 9-12 | 59 | 79 | 3.48(1.55-7.77)* | 0.68(0.19-2.47) |
| | Read, write and primary | 73 | 174 | | 1 1 |
| Father occupation | Employed | 59 | 69 | 1.09(1.67-2.55)* | 0.33(0.12-0.93) |
| | Non-employed | 99 | 194 | | 1 1 |
| Mother occupation | Employed | 37 | 24 | 3.04(1.74-5.32)* | 1.19(0.41-3.40) |
| | Non-employed | 121 | 239 | | 1 1 |
| Taboo | Yes | 141 | 252 | 0.36(0.16-0.79)* | 1.75(0.53-5.82) |
| | No | 17 | 11 | 1 | 1 |
| Between breakfast& lunch | Yes | 58 | 47 | 2.66(1.69-4.18)* | 4.41(2.06-9.46)* |
| | No | 100 | 216 | | 1 1 |
| Snack | Yes | 146 | 168 | 6.87(3.62-.04)* | 2.26(0.89-5.69) |
| | No | 12 | 95 | | 1 1 |
| Age Category | 10-14 | 40 | 86 | 0.69(0.44-1.08) | 1.11(0.54-2.28) |
| | 5 -9 years | 118 | 177 | | 1 1 |
| Income category | Mean | | | 0.996(0.994-0.998)* | 0.995(0.993-0.998)* |

5. Discussion

This study aimed to compare the dietary practices of primary school children in government and private schools and identify associated factors influencing their dietary practices in Bahir Dar city, North West Ethiopia.

Findings of this study showed that a minimal amount of the students (18.3%) did practice the minimum diversity food intake and consumed five or more food groups out of the ten food groups on the previous week from both public and private schools. As compared to private schools, 93.6% of students in public and 64.5% in private schools are less likely to have adequate dietary diversity intakes. Moreover, the result of this study reveals that private schools better achieved the minimum diversity food intake as compared to public schools ($\chi^2 = 57.1$, p -value = 0.00). This result was consistent with the study conducted in Addis Ababa: children in private schools who belonged to the high socioeconomic class were better nourished compared to government school students who belonged to the low socioeconomic class. Studies have shown that being financially sound may allow children to indulge in the practice of eating calorie-dense fast foods and a lifestyle involving less physical activity and more indoor activities (30).

Contrary to this, a study by Panpanich in Malawi failed to find any significant differences in the nutritional status of students, as did a study done in the Dagorti division of Kenya, which showed no significant relationship between government and private school students. The reason for the discrepancy might be due to the cultural differences between the countries (54).

The result of logistic regression found that father educational status, family monthly income status, and taking food between breakfast and lunch have a statistically significant association with the practices of minimum diversity food intake at p -value < 0.05 in both government and private schools. Thus, dietary practices among children were characterized by the socio-demographic characteristics of the students' families. A lower risk of malnutrition was anticipated for children of learned parents. According to Christiaensen and Alderman, women's schooling, in particular, was one of the key elements to improving child nutrition..

Further, the study conducted in Bahir Dar city in 2022 found that education improves the likelihood of individuals accessing and using information to take various types of foods. The children of educated families were four times less likely to be underweight than those of illiterate ones (22). Other investigations also support family education, which improves child nutrition through the management of scarce resources, the follow-up of health services, and a healthy lifestyle (27).

In addition, this finding is in agreement with other studies that found that children from poor families or low-economic status in developing countries are increasingly making unhealthy food choices, especially due to a lack of practices and a negative attitude. Children belonging to the lower-income group were at a higher risk of being underweight than children from higher-income families. Low income levels in households limit the kinds and amounts of food available for consumption (6, 23).

Contrary to what was expected and found in many other studies, family income did not help improve the nutritional status of the study children. As the average annual income was below 2,000 Birr (the entire community is poor), this may also be explained by the fact that all children, despite differences in family income, are equally exposed to the unhygienic village environment that adversely affects nutritional status (25).

The findings also show that those students who had food-taking habits between breakfast and lunch were more likely to have good dietary diversity practice than those who had no food-taking habits ($p < 0.05$), that is, those students who did not eat food between breakfast and lunch were less likely to have poor dietary diversity practice than those who had eaten food between breakfast and lunch ($p\text{-value} < 0.05$). Another study showed that about 60% of 8–12-year-old children had food-taking habits associated with poor dietary practices due to a lack of variety in food intake. Family environment or culture has the potential to influence and enhance good dietary practices, as children are likely to mimic their parents' practices (15). Recent research conducted with Ireland children indicated that parents were major influencers in their children's diets and that the frequency of shared meals has a positive effect on children's food knowledge (44).

6. Strengths and Weaknesses of the Study

6.1 Strength

Use a comparative cross-sectional study. It can compare public and private primary schools.

Calculating the minimum dietary diversity scores can provide a clue as to what types of foods are consumed by students.

6.2 Weakness

The cross-sectional nature of this data did not allow us to examine causality in the relationship between malnutrition and diverse risk factors. In addition to this, seasonality should be given special attention; the season of the year might have a significant effect on nutritional status. There might be a possibility of recall bias as participants were asked about the frequency of dietary habits within 1 week and social desirability bias.

Therefore, consecutive measurements were desirable. In addition to this, certain measurements might not be accurate and precise due to subjective responses and recall biases from answers based on the reminiscence of the mothers. Other factors, like environmental factors, were not assessed.

7. Conclusion and Recommendation

There is a statistically significant difference between private and government schools in achieving minimum diversity in food intake. Private school students better achieved the minimum diversity food intake than government school students. Most of the time, students consumed starchy staples or grains as food types. Father educational status and family monthly income have a statistically significant association with practices of minimum diversity in food intake, while the rest are not statistically significant. More private and fewer public student families or caregivers have information about good nutrition. Further, the findings of this study reveal that children eat between breakfast and lunch, which has a statistically significant association with minimum dietary diversity practice.

Based on this finding, we recommend the following:

- Students in government schools need to consume starchy staples, nuts and seeds, vitamin A-rich vegetables, dairy, meat, eggs, dark green vegetables, and other fruits and vegetables, so the school feeding program must be strengthened to meet the diversity of school students by the government and stakeholders.
- Zero vegetable or fruit consumption must be corrected.
- More dairy products are needed by government students.
- The education of fathers plays an important role in children's dietary diversity, so educate fathers at the top of the list for nutritional education.
- Improving family income is my recommendation.

8. Reference

1. Tebeja GB SAaMY. Prevalence and major contribution of child malnutrition in developing country systematic review and meta-analysis childhood Obesity 2017;16:1-7.
2. Black RE MS, Bryce J. Where and why are 10 million children dying every year? . Lancet 2003;361:2226–34.
3. Bundy DA DL, Burbano C. School food, politics and child health. Public health nutrition. . 2013;;16(6):1012-9. Page 14/15
4. Kolawole EB UD. Correlation analysis between body height and academic performance of Ekiti state primary school pupils in mathematics scholastic aptitude test. Universal Journal of Education and General Studies. . 2012;1(4):84-7.
5. Fazili A MA, Pandit IM, Bhat IA, Rohul J and Shamila H. Nutritional Status of School Age Children (5-14 years) in a Rural Health Block of North India (Kashmir) Using WHO Z-Score System. . 2012; 11:1-3.
6. Ashok NC KH, Kulkarni P. . A comparative study of nutritional status between government and private primary school children of Mysore city. Health Allied 2014;3:164-9.
7. Mohammed H. Assessment of Nutritional status and associated factors in children: a comparative study between school feeding and non-school feeding programme in Amibera district. September 2018
8. Sarkar M MN, Dr. Sinha S, Sarkar S, Pradhan U. Eating habits and nutritional status among adolescent school girls: an experience from rural area of West Bengal. . OSR Journal of Dental and Medical Sciences (IOSR-JDMS) ; . 2015;14: 5460.
9. Beghin I CM, Dujardin B. A guide to nutritional assessment. In: WHO, eds. WHO Guide. Geneva, Switzerland: World Health Organization 1988: 580.
10. United Nations, Department of Economic and Social Affairs, Population Division. (2015). .
11. World Population Prospects: The 2015 Revision, Key Findings and Advance Tables. Working 2016.; Paper No. ESA/P/WP.241. Accessed 30 Oct
12. Youth Risk Behaviour Surveillance System [online] Available from: URL: <http://www.cdc.gov/healthyouth/yrbs/index.htm>. 2013.
13. Headey DD EO. Improving the measurement of food security. International Food Policy Research Institute (IFPRI) Discussion Paper 01225. IFPRI, Washington DC; USA 2012.
14. Herrador Z SL, Gadisa E, Buño A, Gómez-Rioja R, Iturzaeta JM, et al. Micronutrient Deficiencies and Related Factors in School-Aged Children in Ethiopia: A Cross-Sectional Study in Libo Kemkem and Fogera Districts, Amhara Regional State 2014 (PMID: 25546056).
15. Herrador Z, Sordo, L., Gadisa, E., Moreno, J., Nieto, J., Benito,. Cross-sectional study of malnutrition and associated factors among school aged children in rural and urban settings of Fogera and Libo Kemkem districts, Ethiopia. PloS One, 9(9), e105880. <https://doi.org/10.1371/journal.pone.0105880>. 2014.
16. WHO. World Health Organization. Child and adolescent health and development. Adolescent nutrition [online], 2000-2004. URL: <http://www.who.int/child-adolescent-health/nut.htm>. 2012 February.

17. Abdelaziz SB LYM, Sedrak AS, Labib JR. Nutritional Status and Dietary Habits of School children in Beni-Suef Governorate, Egypt. *Food and Nutrition Sciences* . . 2015;54-63.
18. Makurdi N. Goon et al. Anthropometrically determined nutritional status of urban primary schoolchildren in . *BMC Public Health* 2011.
19. WFP. what is malnutrition? World Food Program . Retrieved from <https://www.wfp.org/hunger/malnutrition>. 2017 Accessed 3 February.
20. Koirala S. COMPARATIVE STUDY ON NUTRITIONAL STATUS OF PRIMARY LEVEL SCHOOL CHILDREN STUDYING IN PRIVATE AND PUBLIC SCHOOLS OF BABIYA VDC, SUNSARI. 2018;5-2-0008-0097-2018.
21. Abdelaziz SB LYM, Sedrak AS, Labib JR. Nutritional Status and Dietary Habits of School children in Beni-Suef Governorate, Egypt. *Food and Nutrition Scienc.* 2015.
22. Alemayehu S DP, Asrat S. Crop Production in Ethiopia: Regional Patterns and Trends. *Food Agric Ethiop Prog Policy* 2013.
23. Onyiriuka AN UD, Ibeawuchi AN. Weight status and eating habits of adolescent Nigerian urban secondary school girls. *S Afr J child health* 2013;108 -112.
24. Ashok NC KH, Kulkarni P. A comparative study of nutritional status between government and private primary school children of Mysore city. *Int J Health Allied* 2014;164-9.
25. Joshi SA. Malnutrition in children: a serious public health issue in Nepal. *Health Prospect.* 11 (5), 61-62. 2012.
26. Berhane G PZ, Tafere K, Tamru S;. International Food Policy Research Institute (IFPRI) and Ethiopian Development Research Institute (EDRI). Foodgrain consumption and calorie intake patterns in Ethiopia. *ESSP II Working* . IFPRI, Washington, DC; USA. 2019:Paper No. 23.
27. Srivastava. Nutritional status of school-age children - A scenario of urban slums in India. *Archives of Public Health* 2012;.
28. Olumakaiye MF AT, Olubayo-Fatiregun MA. Food consumption patterns of Nigerian adolescents and effects on body weight. *J Nutr Educ and behaviour* 2010.
29. Oman. Global school-based student health survey [online]. Available from:URL: http://www.who.int/chp/gshs/oman_GSHS_countryreport. 2013.
30. Center for Disease Control and Prevention. Healthy Youth Fact Sheets. Available At: <http://www.cdc.gov/HealthyYouth/nutrition/Making-It-Happen/facts.htm>. . Updated March 23, 2010.
31. Afolabi W, Towobola, SK, Oguntona, CRB and Olayiwola IO. Pattern of fast foods consumption and contribution to nutrient intake of Nigerian university students. . *Int J Educ and Research* 2013.
32. Andrew F, O. Boma, G., Anthony, I. P., George, M. D. and Abaiola, E. Nutritional status of children in rural setting. *IOSR Journal of Dental and Medical Science.* 2014.
33. Steyn N NJ, Nantel G, Kennedy G, Labadarios D. Food variety and dietary diversity scores in children: are they good indicators of dietary adequacy? *Public Health Nutr.* . 2006.
34. Tilahun T * AB, Yihun M, Getnet M. Dietary diversity among school age children in Merawi town, Amhara region, Ethiopia <https://doi.org/10.1186/s13690-019-0384-7>. ;2018
35. Hooshmand S USJND. Dietary diversity and nutritional status of urban primary school children from Iran and India. *12:2161–0509* 2013.

36. GL K. Evaluation of dietary diversity scores for assessment of micronutrient intake and food security in developing countries; . 2009.
37. Aryeetey R LA, Marquis GS, Nti H, Colecraft E, et al. Prevalence and predictors of overweight and obesity among school-aged children in urban Ghana. *BMC Obes.* 2017.
38. Hooshmand SU, S. Dietary Diversity and Nutritional Status of Urban Primary School Children from Iran and India. *Nutritional Disorders Therapy.* 2013;2161- 0509. .
39. Powell CA, et al. A randomized trial of the effects of breakfast in rural primary school children. *Clinical Nutrition.* 1998.
40. Hassan A, Onabanjo, O. O. and Oguntona, C.R. B. Nutritional assessment of school-age children. *Medical Sciences.* 2012; 6 (4): 187-192.
41. Al-Mekhlafi MSS, J., Atiya, A. S., Ariffin, W. A., Mahdy, A. K. M. and Abdullah, C. H. . Current prevalence and predictors of protein-energy malnutrition among school children in rural Peninsular, Malaysia. *Tropical Medicine and Public Health.* 2008.
42. Pandey S BA, Agashe S, Vaidya R. . A cross-sectional study of childhood and adolescent obesity in affluent school children from western suburb of Mumbai 2014;2001-2002 & 2013-2014. *J Obes Metab Res* 2014; 1:7-13.
43. Worsley. A. Nutrition knowledge and food consumption: Can nutrition knowledge change food behaviour? *Asia Pac. J. Clin. Nutr.* . 2002;S579–S585. [CrossRef] [PubMed].
44. Kearney JMG, M.J.; Livingstone, B.E.; Robson, P.J.; Kiely, M.; Harrington, K. Attitudes towards and beliefs about nutrition and health among a random sample of adults in the Republic of Ireland and Northern Ireland. *Public Health Nutr.* . PubMed.2001, 4, 1117–1126.
45. Ghazi HF, Isa, Z. M., Aljunid, S., Tamil, A. M., & Abdalqader, M. A. . Nutritional status, nutritional habit and breakfast intake in relation to IQ among primary school children in Baghdad city, Iraq. *Pakistan Journal of Nutrition*, 11(4), . <https://doi.org/10.3923/pjn.2012.379.382>. 2012;379-382.
46. Babar NF, Muzaffar, R., Khan, M. A., & Imdad, S. Impact of socioeconomic factors on nutritional status in primary school children. *Ayub Medical College.* 2010;22(4).
47. Mohammed Sied Ali CWK, 2 and Chalachew Adugna Wubneh. Overnutrition and Associated Factors: A Comparative Cross-Sectional Study between Government and Private Primary School Students in Gondar Town, Northwest Ethiopia. 2020.
48. Olumakaiye MF. Dietary Diversity as a Correlate of Undernutrition Among SchoolAge Children in Southwestern Nigeria. *school of Nutrition* 2013;37.
49. French SA TC, Crane MM, Wang Y, Appelhans BM. Nutrition quality of food purchases varies by household income: the SHoPPER study *BMC Public Health.* 2019;19:231.
51. Desalegn B GA, Netsanet W , Setognal B. Under-nutrition and its determinants among school-aged children in northwest Ethiopia 2022.
52. Desalegn B GA, Netsanet W , Setognal B. Under-nutrition and its determinants among school-aged children in northwest Ethiopia 2022.
53. Gina Kennedy TBaMD. Guidelines for measuring household and individual dietary diversity. 2013; This publication was produced with support from the European Union, through the EC-FAO “

54. Dorcus Mbithe D. Kigaru^{1*} CL, TM, CWM-MaZWN. Nutrition knowledge, attitude and practices among urban primary school children in Nairobi City, Kenya: a KAP study. 2015.

Annex 1: Participant information sheet

Title of the study: Dietary practice of schoolchildren between private and governmental primary schools in Bahir Dar city, North West Ethiopia: a comparative study.

Objectives of the study: To compare the dietary practices of students from government and private schools and to identify the factors influencing their dietary practices in Northwest Ethiopia.

Principal investigator: Biniyam Kassay (Mph, BSc) **Advisors:** Dr. Yeshalem Mulugeta (PhD, MPH)

Introduction

Dear participants My name is _____, and I am working as a facilitator in this study. The study is proposed to compare the dietary practices of students from government and private schools and identify the factors influencing their dietary practices. The results of this study may help to understand the burden of nutrition problems in students and to guide interventions that decrease risk as well as improve students' wellbeing.

Information about the study

Your part in the study

Your role in this study is as a study participant. The choice is made randomly by computer generated random number. It is entirely your choice whether to participate in this study or not. Therefore, you can decide freely based on the information that we gave you. Moreover, we would like to inform you that involved and uninvolved student will be treated equally. When you agree to participate in this study, you will be asked on some socio-demographic related questions, dietary practice related, and behavioral factors. It will take about 20 minutes to answer the questions.

Possible risks and benefits

There is no direct benefit that you will get from this study right now. Similarly, there is no incentive for those who participated in the study. However, the results of this study will benefit you and other students in the future by identifying factors associated with dietary diversity in students. Moreover, policy makers and other concerned bodies will take the recommendations to develop policy for prevention, early diagnosis and treatment of common nutrition in students. With regard to risks, there is no risk which is attached to this study and only grouped data will be reported.

Confidentiality

We strongly believe that your confidentiality must be protected. Therefore, there is no need of telling your name or ID number on the format. Moreover, we will never tell anyone else any piece of information about your response. Although the facilitator, investigator and supervisor may look at the filled questionnaire, you will be identified only by code number. All study documents will be kept in a locked cabinet by the investigator until the study is being completed and will be completely destroyed at the end of the study.

Voluntariness of the study

The study is in voluntarily basis as described above. As a result, there is no penalty for someone who decided not to be included in the study. Furthermore, it is your right to withdraw from study participation at any time, for any reason.

Right as a participant

It is your full right to ask the principal investigator or any relevant body any question or clarification about the study at any time by any means. Therefore, you will be provided with the contact information of the investigator and relevant others on a separate sheet of paper. Moreover, you have the right to stop filling the questionnaire at any time. Of course, you have also the right to skip any question that you don't like to answer. However, your honest participation will have significant contribution to generate valid information that can be used for intervention designs. If there is anything that requires clarification, please don't hesitate to ask the facilitator for clarification.

Contact address

Principal investigator: Biniyam Kassay

Mobile phone: +251-918 763778 **Email:** bini3778@gmail.com

Do you wish to participate in the study?

1. Yes, I want to participate

2. No, I don't want to participate

Thank you!

Annex 1: Participant information sheet

Title of the study: Dietary practice of school children between private and governmental primary school in Bahir dar city, North West, Ethiopia: a comparative study.

Objectives of the study: To compare the dietary practice of the students from government and private schools and to identify the factors influencing their dietary practice, Northwest Ethiopia.

Principal investigator: Biniyam Kassay (Mph, BSc) **Advisors:** **Yeshalem Mulugeta** [Mph, PHD]

Introduction

Dear participants my name is _____ and I am working as a facilitator in this study. The study is proposed to compare the dietary practice of the students from government and private schools and to identify the factors influencing their dietary practice. The results of this study may help to understand the burden of nutrition problems in students and to guide interventions that decrease risk as well as to improve student's wellbeing.

Information about the study

Your part in the study

Your role in this study is as a study participant. The choice is made randomly by computer generated random number. It is entirely your choice whether to participate in this study or not.

Therefore, you can decide freely based on the information that we gave you. Moreover, we would like to inform you that involved and uninvolved student will be treated equally. When you agree to participate in this study, you will be asked on some socio-demographic related questions, dietary practice related, and behavioral factors. It will take about 30 minutes to answer the questions.

Possible risks and benefits

There is no direct benefit that you will get from this study right now. Similarly, there is no incentive for those who participated in the study. However, the results of this study will benefit you and other students in the future by identifying factors associated with dietary diversity in students. Moreover, policy makers and other concerned bodies will take the recommendations to develop policy for prevention, early diagnosis and treatment of common nutrition in students. With regard to risks, there is no risk which is attached to this study and only grouped data will be reported.

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Contact address

Principal investigator: Biniyam Kassay

Mobile phone: +251-918 763778 **Email:** bini3778@gmail.com

Do you wish to participate in the study?

1. Yes, I want to participate
2. No, I don't want to participate

Thank you!

1 SECTION A: SOCIO – DEMOGRAPHIC CHARACTERISTICS (Circle the appropriate option)

| No | Question | Response | |
|-----|--|---|--|
| 101 | Age of student | ----- | |
| 102 | Sex of student | 1. male 2. female | |
| 103 | Religion | 1 Orthodox 4. Catholic 2. Moslem 5. Other specify 3. protestant | |
| 104 | Ethnicity | 1. Amhara, 2. Oromo 3. Tigray, 4. Other (specify | |
| 105 | What is the highest level of education attained by student father? | 1. Illiterate 2. read and write 3. Primary education 4. secondary 5. vocational/Technical 6. Diploma and above | |
| 106 | What is the highest level of education attained by student Mather? | 1. Illiterate 2. read and write 3. Primary education 4. Secondary 5. vocational/Technical 6. Diploma and above | |
| 107 | Which of the categories below best describe the occupation of your father? N.B more than one answer is possible | 1. Agriculture 5. Daily labourer 2. merchant 6. Student 3. governmental worker 7. Other specify ----- - 4. non-governmental | |
| 108 | Which of the categories below best describe the occupation of your mother? N.B more than one answer is possible | 1. no work 5. Daily labourer 2. merchant 6. Student 3. governmental worker 7. agriculture 4. non-governmental 8. Other specify ----- | |
| 109 | Place of live | 1. Urban 2. Rural | |
| 110 | House hold average monthly income | -----birr | |
| 111 | Do you give pocket money to your child? | 1. Yes 2. No | |

Questionnaire for frequency and amount of food and drink

Remember for a few minutes what food your child ate and drank with past 7 days. You tell me that your child's ate as bread, porridge, hot, or any other form made of from that specify food yesterday till last week

| Cereals If you have been feeding your chilled any of the foods listed in the past one week | Remark | |
|---|--------|--------------------------------|
| 201. Have you eaten teff in the last week? | Yes No | Yes per day _____per week_____ |
| 202. Have you eaten dagusa in the last week? | Yes No | Yes per day _____per week_____ |
| 203. Have you eaten sorghum in the last week? | Yes No | Yes per day _____per week_____ |
| 204. Have you eaten corn in the last week? | Yes No | Yes per day _____per week_____ |
| 205. Have you eaten wheat in the last week? | Yes No | Yes per day _____per week_____ |
| 206. Have you eaten barley in the last week? | Yes No | Yes per day _____per week_____ |
| 207. Have you eaten zengada in the last week? | Yes No | Yes per day _____per week_____ |
| 208. Have you eaten rice in the last week? | Yes No | Yes per day _____per week_____ |
| 209. Have you eaten Kocho in the last week? | Yes No | Yes per day _____per week_____ |
| 210. Have you eaten beans in the last week? | Yes No | Yes per day _____per week_____ |
| 211. Have you eaten peas in the last week? | Yes No | Yes per day _____per week_____ |
| 212. Have you eaten soy in the last week? | Yes No | Yes per day _____per week_____ |
| 213. Have you eaten lentils in the last week? | Yes No | Yes per day _____per week_____ |
| 214. Have you eaten chickpeas in the last week | Yes No | Yes per day _____per week_____ |
| 215. Have you eaten oysters in the last week? | Yes No | Yes per day _____per week_____ |
| 216. Have you eaten Guaya in the last week? | Yes No | Yes per day _____per week_____ |
| 217. Have you eaten nuts in the last week? | Yes No | Yes per day _____per week_____ |
| 218. Have you eaten Gebto in the last week? | Yes No | Yes per day _____per week_____ |
| 219. Have you eaten SUFE in the last week? | Yes No | Yes per day _____per week_____ |

| | | |
|--|--------|----------------------------------|
| 220. Have you eaten linseed, in the last week? | Yes No | Yes per day _____ per week _____ |
| 221. Have you eaten NUGE in the last week? | Yes No | Yes per day _____ per week _____ |
| 222. Have you eaten sesame in the last week? | Yes No | Yes per day _____ per week _____ |
| 223. Have you eaten potatoes in the last week? | Yes No | Yes per day _____ per week _____ |
| 224. Have you eaten sweet potatoes last week | Yes No | Yes per day _____ per week _____ |
| 225. Have you eaten red root in the last week? | Yes No | Yes per day _____ per week _____ |
| 226. Have you eaten carrots in the last week? | Yes No | Yes per day _____ per week _____ |
| 227. Have you eaten Habesh cabbage in the last week? | Yes No | Yes per day _____ per week _____ |
| 228. Have you eaten cabbage roll in the last week | Yes No | Yes per day _____ per week _____ |
| 229. Have you eaten tomatoes in last week? | Yes No | Yes per day _____ per week _____ |
| 230. Have you eaten a salad in the last week? | Yes No | Yes per day _____ per week _____ |
| 231. Have you eaten KOSTA in the last week? | Yes No | Yes per day _____ per week _____ |
| 232. Have you eaten pumpkin in the last week? | Yes No | Yes per day _____ per week _____ |
| 233. Have you eaten Foslia in the last week? | Yes No | Yes per day _____ per week _____ |
| 234. Have you eaten bananas in the last week? | Yes No | Yes per day _____ per week _____ |
| 235. Have you eaten oranges in the last week? | Yes No | Yes per day _____ per week _____ |
| 236. Have you eaten pineapple in last week? | Yes No | Yes per day _____ per week _____ |
| 237. Have you eaten avocados in last week? | Yes No | Yes per day _____ per week _____ |
| 238. Have you eaten papaya in the last week? | Yes No | Yes per day _____ per week _____ |
| 239. Have you eaten Apple in the last week? | Yes No | Yes per day _____ per week _____ |

| | | |
|--|--------|----------------------------------|
| 240. Have you eaten watermelon in last week? | Yes No | Yes per day _____ per week _____ |
| 241. Have you eaten mango in the last week? | Yes No | Yes per day _____ per week _____ |
| 242. Have you eaten wine in the last week? | Yes No | Yes per day _____ per week _____ |
| 243. Have you eaten prunes in the last week? | Yes No | Yes per day _____ per week _____ |
| 244. Have you eaten lemons in the last week? | Yes No | Yes per day _____ per week _____ |
| 245. Have you eaten mandarin in last week? | Yes No | Yes per day _____ per week _____ |
| 246. Have you eaten strawberries in last week? | Yes No | Yes per day _____ per week _____ |
| 247. Have you eaten Guava in the last week? | Yes No | Yes per day _____ per week _____ |
| 248. Have you eaten TRENKO in the last week | Yes No | Yes per day _____ per week _____ |
| 249. Have you eaten a DOKEMA in last week? | Yes No | Yes per day _____ per week _____ |
| 250. Have you eaten ENKOY in the last week? | Yes No | Yes per day _____ per week _____ |
| 251. Have you eaten COKE in the last week? | Yes No | Yes per day _____ per week _____ |
| 252. Have you eaten ESHA in the last week? | Yes No | Yes per day _____ per week _____ |
| 253. Have you eaten milk in the last week? | Yes No | Yes per day _____ per week _____ |
| 254. Have you eaten cheese in the last week? | Yes No | Yes per day _____ per week _____ |
| 255. Have you eaten Yogurt in the last week? | Yes No | Yes per day _____ per week _____ |
| 256. Have you eaten butter in the last week? | Yes No | Yes per day _____ per week _____ |
| 257. Have you eaten fish in the last week? | Yes No | Yes per day _____ per week _____ |
| 258. Have you eaten meat in the last week? | Yes No | Yes per day _____ per week _____ |
| 259. Have you eaten eggs in the last week? | Yes No | Yes per day _____ per week _____ |

| | | |
|--|--------|----------------------------------|
| 260. Have you eaten chicken in the last week? | Yes No | Yes per day _____ per week _____ |
| 261. Have you used oil in the last week preparing food for your child? | Yes No | Yes per day _____ per week _____ |
| 262. On average, how many times a day has your child eaten? | ----- | Yes per day _____ per week _____ |
| | | |
| 301. Honey | Yes No | Yes per day _____ per week _____ |
| 302. Marmarata | Yes No | Yes per day _____ per week _____ |
| 303. Chocolate | Yes No | Yes per day _____ per week _____ |
| 304. Mayonnaise | Yes No | Yes per day _____ per week _____ |
| 305. walnut butter | Yes No | Yes per day _____ per week _____ |
| 306. Candy | Yes No | Yes per day _____ per week _____ |
| 307. Coffee | Yes No | Yes per day _____ per week _____ |
| 308. Tea | Yes No | Yes per day _____ per week _____ |
| 309. Mikiato | Yes No | Yes per day _____ per week _____ |
| <u>Soft drinks Your child used in the last month</u> | | |
| 310. Merinda | Yes No | Yes per day _____ per week _____ |
| 311. Fanta | Yes No | Yes per day _____ per week _____ |
| 312. Pepsi | Yes No | Yes per day _____ per week _____ |
| 313. Coca Cola | Yes No | Yes per day _____ per week _____ |
| 314. Sprite | Yes No | Yes per day _____ per week _____ |

| <u>Fast food that your child used last month</u> | | |
|---|--------|--------------------------------|
| 315. Burger | Yes No | Yes per day _____per week_____ |
| 316. Pizza | Yes No | Yes per day _____per week_____ |
| 317. Sandwiches | Yes No | Yes per day _____per week_____ |
| 318. Cake | Yes No | Yes per day _____per week_____ |
| 319. BONBOLINO | Yes No | Yes per day _____per week_____ |
| 320. Potato Fries (Chips) | Yes No | Yes per day _____per week_____ |

| Diet Behaviour Questions If your answer is yes circle the choice otherwise skip it | | |
|---|--------|--|
| 401. Do you heard about good nutrition | Yes No | If your answer is yes, source of information 1. From a health facility 2. Media 3. School 4. A friend 5. If any other----- |
| 402. it is good for children to eat a variety of foods | Yes No | If your answer is yes, reason 1 for healthy growth 2. To strengthen the body 3. To develop their knowledge. 4. Unspecified ----- |
| 403. Is there any food taboo for children | Yes No | If so, the answer is: 1. It is our culture 2. It is harmful to health 3. Not good 4. Explain if anyone else ----- |
| 404. A mixture of different foods give to children up to how much age? | | Up to ----- Age |
| 405. Did Your child eat his/her | Yes No | If answer is Yes: 1. always |

| | | |
|--|--------|--|
| breakfast ? | | 2. occasionally |
| 406. Between breakfast and lunch | Yes No | If answer is Yes: 1. always 2. occasionally |
| 407. Did Your child eat his/he lunch? | Yes No | If answer is Yes: 1. always 2. occasionally |
| 408. Between lunch and dinner (eats snacks)? | Yes No | If answer is Yes: 1. always 2. occasionally |
| 409. Did Your child eat his/he dinner? | Yes No | If answer is Yes: 1. always 2. occasionally |
| | | |

የአማርኛ መጠየቅ

ባህርዳር ዩኒቨርሲቲ

የጥናቱ ርዕስ: -Dietary pattern of school children between private and governmental primary school in Bahir dar city, North West, Ethiopia: a comparative study.

የጥናቱ ዓላማ: ከመንግስት ትምህርት ቤቶች እና የግል ትምህርት ቤት ተማሪዎችን ምግብ አወሳሰዳቸውን ለማጥናት እና የተለያዩ ምግብ እንዳይወስዱ ተፅዕኖ የሚፈጥሩትን ምክንያቶች ለማወቅ ሲሆን :- ስሜ.....ይባላል።የመጣሁት የባህር ዳር ዩኒቨርሲቲ የስነ ምግብ ትምህርት ክፍል ተመራቂ ተማሪ የሆኑት የአቶ ቢኒያም ካሳይን ጥናት ለመስራት ነው ።

የመንግስት ትምህርት ቤቶች እና የግል ትምህርት ቤት ተማሪዎችን ምግብ አወሳሰዳቸውን ለማጥናት እና የተለያዩ ምግብ እንዳይወስዱ ተፅዕኖ የሚፈጥሩትን ምክንያቶች ለማወቅ ሲሆን ይህ ጥናት ፖሊሲ አውጪዎችና የሚመለከታቸው አካላት ሕፃናት በምግብ እጥረት እንዳይጎዱ የመከላከያና መቆጣጠርያ መንገዶችን እንዲቀርፁና እንዲተገብሩ እንደመነሻ ሀሳብ ይሆናል የሚል ፅኑ እምነት አለኝ።

የእርስዎ ልጅ በዚህ ጥናት ላይ እንዲሳተፉ የተመረጡ/ች በናሙና አወሳሰድ ስልት መሰረት ነው። የእርስዎ ተሳትፎ ሙሉ በሙሉ በእርስዎ ሙሉ ፍቃደኝነት ላይ የተመሰረተ ነው። በጥናቱ ላይ ያለመሳተፍ ሙሉ መብት አለዎት። ለመሳተፍ ፈቃደኛ ከሆኑ በኋላም በፈለጉት ጊዜ ማቆም ወይም ማቋረጥ ይችላሉ።በጥናቱ ለመሳተፍ ከተስማሙ የተወሰኑ ጥያቄዎችን እንጠይቆታለን፡ መጠይቁ 20 ደቂቃ ይህል ይፈጃል።

በመጨረሻም ከእርስዎ የምንሰበስበው መረጃ ከስምዎ ጋር አይያያዝም። ስምዎን እንደማይጠቀስና ጥናቱን ከሚያደርገው በስተቀር ለማንም አካል አሳልፎ እንደማይሰጥ ላረጋግጥለዎት እወዳለሁ ። የዚህ ጥናት ውጤት ግን ተጠርዞ እና ተዘጋጅቶ ለሚመለከታቸው የጤና ድርጅቶች ወይም ለሌሎች አካላት ይሰጣል።

የጥናቱ ተሳታፊ በጥናቱ ለመሳተፍ ፈቃደኛ ነዎት?

- 1 አዎ መሳተፍ እገልጋለሁ
 - 2. መሳተፍ አልፈልግም
- እናመሰግናለን

ቢኒያም ካሳይ አድራሻ ባህርዳር ስልክ 0918763778

አማካሪ ዶ/ር የሻለም ሙሉጌታ አድራሻ ባህርዳር ዩኒቨርሲቲ ህክምና ጤና ሳይንስ ኮሌጅ

የስምምነት መጠየቂያ/ ማረጋገጫ ቅፅ

ከላይ በተሰጡት መረጃ መሰረት በዚህ ጥናት ለመሳተፍ ፈቃደኛ ነዎት?

1. አዎ (ቃለ መጠይቁ ይቀጥል)
2. አይደለሁም (አመስግነህ/ሽ ወደ ሚቀጥለው ተሳታፊ እለፍ/ፊ)

የተሳታፊው ፊርማ ቀን-----

ቃለ መጠይቅ አድራጊ ስም ፊርማ-----

ከድ ቁጥር-----

የቃለ መጠይቅ የተካሄደበት ቀን የተጀመረበት ሰዓት----- ያለቀበት ሰዓት-----

መጠይቁ ታይቷል/ ተፈትሸል?

የቃለ መጠይቁ ውጤት: 1. ሙሉ በሙሉ የተሟላ

2. ያልተገኘ
3. ፍቃደኛ ያልሆኑ
4. በከፊል የተሟላ

በተቆጣጣሪ ተረጋግጧል፤ ስም ፊርማ-----

መመሪያ 1

የመጀመሪያዉ ሰንጠረዥ ስለ ማህበራዊ ፣ ነባራዊና ኢኮኖሚያዊ ሁኔታ የሚጠይቅ ሲሆን ከአንደኛዉ ጥያቄ የእድሜ ጥያቄ (የልጁ እድሜ ይፃፋል) እና የቤተሰብ አማካኝ ወርሀዊ ገቢ (አማካኝ ወርሃዊ ገቢ ይፃፋል) ሌሎች ጥያቄዎች ከተዘረዘሩት ምላሾች መልስ የሚሆነዉን በመክበብ ይመለሣል ። የትምርት ደረጃን በተመለከተ ከተዘረዘሩት የተሻለ የሚመለከተዉ አንዱ ብቻ ይከበባል ። ስራን በተመለከተ ከአንድ በላይ ስራ የሚሰሩ ሁለት እና ከዚያ በላይ መክበብ ይቻላል።

| ክፍል 1 ማህበራዊ ፣ ነባራዊና ኢኮኖሚያዊ ሁኔታ | | | |
|--------------------------------|--|--|--------------|
| ልጅዎችን በተመለከተ መረጃ | | | |
| ተ.ቁ | ጥያቄ | መልስ | ምርመራ |
| 101 | የልጁ እድሜ | = | |
| 102 | የልጅዎች ፆታ | 1. ወንድ 2. ሴት | |
| 103 | ሃይማኖት | 1. ኦርቶዶክስ 4. ካቶሊክ 2. ሙስሊም 5. ሌላ ካለ ይጠቀስ----- 3. ፕሮቴስታንት | |
| 104 | ብሄር | 1. አማራ 2. አሮም 3ትግሬ 4. ሌላ ይገለፅ----- | |
| 105 | የአባት/ያሳዳጊ የትምህርት ደረጃ (አባት ከልጁ ጋር የሚኖር ከሆነ) | 1. ማንበብና መፃፍ የማይችል 4. 2ኛ ደረጃ 2. መጻፍና ማንበብ የሚችል 5. ቴክኒክና ሞያ 3. 1ኛ ደረጃ 6. ዲፕሎማና ከዚያ በላይ | በሂዎትከሌሉ ይዘለል |
| 106 | የእናት የትምህርት ደረጃ (እናት ከልጁ ጋር የምትኖር ከሆነ) | 1. ማንበብና መፃፍ የማይችል 4. 2ኛ ደረጃ 2. መጻፍና ማንበብ የሚችል 5. ቴክኒክና ሞያ 3. 1ኛ ደረጃ 6. ዲፕሎማና ከዚያ በላይ | በሂዎትከሌሉ ይዘለል |
| 107 | የአባት ስራ/አሳዳጊ | 1. ገበሬ 5. ቀን ሠራተኛ 2. ነጋዴ 6. ተማሪ 3. የመንግሥት ስራ 7. ሌላ ይጠቀስ----- 4. መንግስታዊ ያልሆነ ድርጅት | በሂዎትከሌሉ ይዘለል |
| 108 | የእናት ስራ | 1. የቤት እመቤት 5. ቀን ሠራተኛ 2. ነጋዴ 6. ተማሪ 3. የመንግሥት ስራ 7. ገበሬ 4. መንግስታዊ ያልሆነ ድርጅት 8. ሌላ(ይጠቀስ----- | በሂዎትከሌሉ ይዘለል |
| 109 | መኖሪያ | 1 ከተማ 2. ገጠር | |

| | | | |
|-----|----------------------|-------------------|--|
| 110 | የቤተሰብ ወርሀዊ ገቢ | በኢትዮጵያ ብር -----ብር | |
| 111 | ለልጆቻት ለሻይ ገንዘብ ይሰጡታል | 1. አዎ 2. አልሰጥም | |

መመሪያ 2

የምግብ እና መጠጥ ድግግሞሽ እና መጠን መጠይቅ

በሳምንት ውስጥ ልጆቻቸው የጠጣውን/የጠጣችውን እና የተመገበውን/ችውን የምግብ አይነት ለትንሽ ደቂቃ ያስታውሱ። ይህም በየእለቱ የሚመግቡትን/የሚመግቧትን የምግብ አይነት በቤት ውስጥም ይሁን በትምህርት ቤት ሁሉ ያጠቃልላል። እኔ የምግብ አይነቶችን ስጠቅስሎት እርሶ ደግሞ ያን የጠቀስኩትን የምግብ አይነት በቀን; በሳምንት እና በወር ውስጥ በእንጀራ፣ በገንፎ፣ በቁጣ፣ በቆሎ፣ በንፍሮ ወይም በሙቅ መልክ ትላንትና፣ ባለፈው ሳምንት እና ባለፈው ወር ውስጥ መመገቡ/ባትን ይንገሩኛል። ጤፍ እንጀራ በቀን ሁለቱ የሚመገብ/የምትመገብ ከሆነ በቀን 2ቱ ተብሎ ይጻፋል የሳምንቱ ክፍት ይሆናል። በሳምንት አራት ቀናት ውስጥ ሰኞ፣ ማክሰኞ፣ ረቡዕ እና ሐሙስ የሚወስድ ከሆነ በሳምንት 4 ጊዜ ብለው ይገልጻሉ በቀን የሚለው ክፍት ይሆናል።

| የእህል ዘሮች ባለፈው አንድ ወር ውስጥ በማንኛውም መልክ ከተዘረዘሩት የተዘጋጀ ምግብ ልጆቻትን መግባወት/መግባወት ከሆነ | ለተጠየቁት ጥያቄ መልሱ አዎ ከሆነ ምን ይህል ጊዜ በቀን በሳምንት እንደመገቡት ይጥቀሱ ይንገሩኝ | |
|--|--|-----------------------|
| | | ምን ይህል ጊዜ አወ ከሆነ የሚምለ |
| 201. ባለፈው አንድ ሳምንት ውስጥ ጤፍ ተመግበዋል? | አዎ የለም | በቀን _____ በሳምንት _____ |
| 202. ባለፈው አንድ ሳምንት ውስጥ ዳጉሳ ተመግበዋል? | አዎ የለም | በቀን _____ በሳምንት _____ |
| 203. ባለፈው አንድ ሳምንት ውስጥ ማሽላ ተመግበዋል? | አዎ የለም | በቀን _____ በሳምንት _____ |
| 204. ባለፈው አንድ ሳምንት ውስጥ በቆሎ ተመግበዋል? | አዎ የለም | በቀን _____ በሳምንት _____ |
| 205. ባለፈው አንድ ሳምንት ውስጥ ስንዴ ተመግበዋል? | አዎ የለም | በቀን _____ በሳምንት _____ |
| 206. ባለፈው አንድ ሳምንት ውስጥ ገብስ ተመግበዋል? | አዎ የለም | በቀን _____ በሳምንት _____ |

| | | |
|--|--------|-----------------------|
| 207. ባለፈውአንድ ሳምንት ውስጥ ዘንጋዳ ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 208. ባለፈው አንድ ሳምንት ውስጥ ሩዝ ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 209. ባለፈው አንድ ሳምንት ውስጥ ቆጮ ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 210. ባለፈውአንድሳምንትውስጥ ባቄላ ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 211. ባለፈው አንድ ሳምንትውስጥ አተር ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 212. ባለፈው አንድ ሳምንት ውስጥ አኩሪአተር ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 213. ባለፈው አንድ ሳምንት ውስጥ ምስር ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 214. ባለፈው አንድ ሳምንትውስጥ ሽንብራ ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 215. ባለፈው አንድ ሳምንት ውስጥ አደንጓሬ ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 216. ባለፈውአንድ ሳምንት ውስጥ ጓዶ ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 217. ባለፈው አንድ ሳምንት ውስጥ ለውዝ ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 218. ባለፈው አንድ ሳምንት ውስጥ ግብጦ ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 219. ባለፈው አንድ ሳምንት ውስጥ ሱፍ ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 220. ባለፈውአንድ ሳምንት ውስጥ ተልባ ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 221. ባለፈው አንድ ወር ውስጥ ኑግ ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 222. ባለፈው አንድ ሳምንት ውስጥ ሰሊጥ ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 223. ባለፈው አንድ ሳምንት ውስጥ ድንቅ ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 224. ባለፈው አንድ ሳምንት ውስጥ ስኳር ድንቅ ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 225. ባለፈው አንድ ሳምንትውስጥ ቀይ ስር ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 226. ባለፈው አንድ ሳምንት ውስጥ ካሮት ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |

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| 227. ባለፈው ሳምንት ውስጥ ጎመን (የአበሻ) ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 228. ባለፈው ሳምንት ውስጥ ጥቅል ጎመን ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 229. ባለፈው አንድ ሳምንት ውስጥ ቲማቲም ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 230. ባለፈው አንድ ሳምንት ውስጥ ሰላጣ ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 231. ባለፈው አንድ ሳምንት ውስጥ ቆስጣ ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 232. ባለፈው አንድ ሳምንት ውስጥ ዱባ ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 233. ባለፈው አንድ ሳምንት ውስጥ ፎሶፊየ ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 234. ባለፈው አንድ ሳምንት ውስጥ ሙዝ ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 235. ባለፈው አንድ ሳምንት ውስጥ ብርቱካን ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 236. ባለፈው አንድ ሳምንት ውስጥ አናናስ ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 237. ባለፈው አንድ ሳምንት ውስጥ አሸካይ ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 238. ባለፈው አንድ ሳምንት ውስጥ ፓፓያ ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 239. ባለፈው አንድ ሳምንት ውስጥ አፕል ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 240. ባለፈው አንድ ሳምንት ውስጥ ሀብሀብ ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 241. ባለፈው አንድ ሳምንት ውስጥ ማንጎ ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 242. ባለፈው አንድ ሳምንት ውስጥ ወይን ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 243. ባለፈው አንድ ሳምንት ውስጥ ፕሪም ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 244. ባለፈው አንድ ሳምንት ውስጥ ሎሚ ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |
| 245. ባለፈው አንድ ሳምንት ውስጥ መንደሪን ተመግቦታል? | አዎ ይላም | በቀን _____ በሳምንት _____ |

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| 246. ባለፈው አንድ ሳምንት ውስጥ አናናስ ተመግቧል | አዎ ይህም | በቀን _____ በሳምንት _____ |
| 247. ባለፈው አንድ ሳምንት ውስጥ ዘይቱን ተመግቦታል? | አዎ ይህም | በቀን _____ በሳምንት _____ |
| 248. ባለፈው አንድ ሳምንት ውስጥ ትርጉግ ተመግቦታል? | አዎ ይህም | በቀን _____ በሳምንት _____ |
| 249. ባለፈው አንድ ሳምንት ውስጥ ዶቅማ ተመግቦታል? | አዎ ይህም | በቀን _____ በሳምንት _____ |
| 250. ባለፈው አንድ ሳምንት ውስጥ እንኮይ ተመግቦታል? | አዎ ይህም | በቀን _____ በሳምንት _____ |
| 251. ባለፈው አንድ ሳምንት ውስጥ ኮክ ተመግቦታል? | አዎ ይህም | በቀን _____ በሳምንት _____ |
| 252. ባለፈው አንድ ሳምንት ውስጥ እሽ ተመግቦታል? | አዎ ይህም | በቀን _____ በሳምንት _____ |
| 253. ባለፈው አንድ ሳምንት ውስጥ ወተት ተመግቦታል? | አዎ ይህም | በቀን _____ በሳምንት _____ |
| 254. ባለፈው አንድ ሳምንት ውስጥ እይብ ተመግቦታል? | አዎ ይህም | በቀን _____ በሳምንት _____ |
| 255. ባለፈው አንድ ሳምንት ውስጥ አርጎ ተመግቦታል? | አዎ ይህም | በቀን _____ በሳምንት _____ |
| 256. ባለፈው አንድ ሳምንት ውስጥ ቅቤ ተመግቦታል? | አዎ ይህም | በቀን _____ በሳምንት _____ |
| 257. ባለፈው አንድ ሳምንት ውስጥ አሳ ተመግቦታል? | አዎ ይህም | በቀን _____ በሳምንት _____ |
| 258. ባለፈው አንድ ሳምንት ውስጥ ስጋ ተመግቦታል? | አዎ ይህም | በቀን _____ በሳምንት _____ |
| 259. ባለፈው አንድ ሳምንት ውስጥ እንቁላል ተመግቦታል? | አዎ ይህም | በቀን _____ በሳምንት _____ |
| 260. ባለፈው አንድ ሳምንት ውስጥ ዶሮ ተመግቦታል? | አዎ ይህም | በቀን _____ በሳምንት _____ |
| 261. ባለፈው አንድ ሳምንት ውስጥ ዘይት ተጠቅመዋል ለልጅዎ ምግብ ሲያዘጋጁ | አዎ ይህም | በቀን _____ በሳምንት _____ |
| 262. ባለፈው አንድ ሳምንት ውስጥ በአማካኝ በቀን ስንት ጊዜ ልጅዎ ምግብ ተመግቦታል? | ----- | በቀን _____ በሳምንት _____ |
| ጣፋጮች ባለፈው አንድ ሳምንት ልጅዎን የተጠቀሙዉን | | |
| 310. ማር | አዎ ይህም | በቀን _____ በሳምንት _____ |
| 311. ማርማላታ | አዎ ይህም | በቀን _____ በሳምንት _____ |
| 312. ቸኮሌት የዳቦ | አዎ ይህም | በቀን _____ በሳምንት _____ |

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| 313. ማዮኔስ ዩዳቦ | አዎ ያለም | በቀን _____ በሰዎች _____ |
| 314. ለውዝ ቅቤ | አዎ ያለም | በቀን _____ በሰዎች _____ |
| 315. ከረሚላ | አዎ ያለም | በቀን _____ በሰዎች _____ |
| 316. ቡና | አዎ ያለም | በቀን _____ በሰዎች _____ |
| 317. ሻይ | አዎ ያለም | በቀን _____ በሰዎች _____ |
| 318. ቡና በወተት/ መኪያቶ | አዎ ያለም | በቀን _____ በሰዎች _____ |
| ለስላሳ ማጠቃለያ | | |
| ባለፈው አንድ ወር ልጆቻችን የተጠቀሙት | | |
| 319. ሚሪንዳ | አዎ ያለም | በቀን _____ በሰዎች _____ |
| 320. ፋንታ | አዎ ያለም | በቀን _____ በሰዎች _____ |
| 321. ፔፕሲ | አዎ ያለም | በቀን _____ በሰዎች _____ |
| 322. ኮካ ኮላ | አዎ ያለም | በቀን _____ በሰዎች _____ |
| 323. ስፕራይት | አዎ ያለም | በቀን _____ በሰዎች _____ |
| የፍጥነት ምግቦች | | |
| ባለፈው አንድ ወር ልጆቻችን የተጠቀሙት | | |
| 324. በርገር | አዎ ያለም | በቀን _____ በሰዎች _____ |
| 325. ፒዛ | አዎ ያለም | በቀን _____ በሰዎች _____ |
| 326. ሳንዲች | አዎ ያለም | በቀን _____ በሰዎች _____ |
| 327. ኬክ | አዎ ያለም | በቀን _____ በሰዎች _____ |
| 328. ቦንቦሊኖ | አዎ ያለም | በቀን _____ በሰዎች _____ |
| 329. ድንች ጥብስ (ችፕስ) | አዎ ያለም | በቀን _____ በሰዎች _____ |

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| የአመጋገብ ባህሪ ጥያቄዎች የሚከተሉትን መልስዎ አዎ ምርጫውን ይከብብ የለም ከሆነ ይዘለል | | |
| 401. ስለ ተመጣጣኝ ምግብ ሰምተው ያቃሉ | አዎ ያለም | አዎ ከሆነ መልሱን የሰጡበት ምንጭ 1. ከጤና ተቋም 2. ከብዙሀን መገናኛ 3. ከትምህርት ቤት 4. ከጓደኛ 5. ሌላ ከሆነ ይገለጹ----- |
| 402. የተለያዩ ምግቦችን(የእህል ዘሮችን) ልጆችን መመገብ ጥቅም አለው ብለው ያስባ | አዎ ያለም | አዎ ከሆነ መልሱ ምክንያቱ 1 ለጤናማ እድገት 2. ለአካል መጠንከር 3. እዉቀታቸው እንዲዳብር 4. ሌላ ይገለጹ----- |
| 403. በአካባቢው/በቤትዎ ህፃናት እንዲወስዷቸው የማይፈቀዱ ምግቦች አለ | አዎ ያለም | አዎ ከሆነ መልሱ ምክንያቱ 1. ባህላችን ስለሆነ 2. ለጤና ስለሚጎዳ 3. ነውር ስለሆነ 4. ሌላ ካለ ይገለጹ----- |
| 404. ከተለያዩ የምግብ መደቦች ቀለቅለው ለህፃናት የሚሰጥ እስከ ስንት አመታቸው ድረስ ነው | | ----- እድሜ ድረስ |
| 405. ልጆቻችን ቁርስን በተመለከተ ይመገባል/ ትመገባሉ | አዎ ያለም | አዎ ከሆነ ምላሹ 1. ሁልጊዜ ይመገባል/ ትመገባሉ 2. አልፎ አልፎ ይመገባል / ትመገባሉ |

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| 406. በቁርስና ምሳ መካከል ምግብ ይመገባል/ ትመገባለች | አዎ የለም | አዎ ከሆነ ምላሹ 1. ሁልጊዜ ይመገባል/ ትመገባለች 2. አልፎ አልፎ ይመገባል / ትመገባለች |
| 407. ምሳን በተመለከተ ይመገባል | አዎ የለም | አዎ ከሆነ ምላሹ 1. ሁልጊዜ ይመገባል/ ትመገባለች 2 .አልፎ አልፎ ይመገባል/ ትመገባለች |
| 408. በምሳ እና በእራት መሀል (መክሶስ) ይመገባል/ ትመገባለች | አዎ የለም | አዎ ከሆነ ምላሹ 1. ሁልጊዜ ይመገባል/ ትመገባለች 2 አልፎ አልፎ ይመገባል / ትመገባለች |
| 409. እራት በተመለከተ ይመገባል/ ትመገባለች | አዎ የለም | አዎ ከሆነ ምላሹ 1. ሁልጊዜ ይመገባል/ ትመገባለች 2 አልፎ አልፎ ይመገባል/ ትመገባለች |