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BAHIR DAR UNIVERSITY

COLLEGE OF MEDICINE AND HEALTH SCIENCES

SCHOOL OF PUBLIC HEALTH

DEPARTMENT OF NUTRITION AND DIETETICS

UNDERNUTRITION AND ASSOCIATED FACTORS AMONG CHILDREN AGED 6-59 MONTHS IN DAY CARE CENTERS IN BAHIR DAR CITY, NORTH WEST ETHIOPIA, 2025

BY

YOHANNES DEREJE (BSc IN HEALTH INFORMATICS)

A THESIS SUBMITTED TO DEPARTMENT OF NUTRITION AND DIETETICS, SCHOOL OF PUBLIC HEALTH, COLLEGE OF MEDICINE AND HEALTH SCIENCES, BAHIR DAR UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR MASTERS OF DEGREE IN PUBLIC HEALTH NUTRITION

FEBRUARY, 2026

BAHIR DAR, ETHIOPIA

BAHIR DAR UNIVERSITY COLLEGE OF MEDICINE AND HEALTH SCIENCES SCHOOL OF PUBLIC HEALTH
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DECLARTION

This is to certify that the thesis entitled under nutrition and associated factors among children aged 6- 59 month in the day care center in Bahir Dar city, North West, Ethiopia, 2025, submitted in partial fulfillment of the requirements for masters of degree in public health nutrition, Bahir Dar university, is a record of original work carried out by me and has never been submitted to this or any other institution to obtain any other degree or certificates. The assistance and help i received during the course of this investigation have been duly acknowledged.

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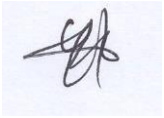
Signature: 

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APPROVAL SHEET

I hereby certify that I have supervised, read and evaluated this thesis titled under nutrition and associated factors among children aged 6 up to 59 month in the daycare center in Bahir Dar city, North West, Ethiopia, 2025 by Yohannes Dereje in partial fulfillment of the requirements for the degree of Master of Science in Public Health Nutrition at the Department of Nutrition and Dietetics, Bahir Dar University, has been reviewed and approved for oral defense.

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LIST OF ABBREVIATIONS

AOR	Adjusted Odd Ratio
BCG	Bacillus Calmette Guérin
BDU	Bahir Dar University
BMI	Body Mass Index
CI	Confidence Interval
COR	Crude Odd Ratio
CSA	Central Statistical Agency
EBF	Exclusive Breast Feeding
HAZ	Height for Age Z score
IPV	Inactivated Polio Vaccine
IYCF	Infant and Young Child Feeding
KAP	knowledge, Attitude and Practice
MAD	Minimum Acceptable Diet
MCV	Measles-Containing Vaccine
MDD	Minimum Dietary Diversity
MMF	Minimum Meal Frequency
OPV	Oral Polio Vaccine
PCV	Pneumococcal Conjugate Vaccine
PENTA	Pentavalent Vaccine
SD	Standard Deviation
SNNP	South nation, nationality and peoples
SPSS	Statistical Package for the Social Sciences
SSA	Sub Saharan Africa
UPF	Ultra Processed Food
WAZ	Weight for Age Z score
WHO	World Health Organization
WHZ	Weight for Height Z score

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ABSTRACT

Background: A child's nutritional status is an indicator of general well-being and health. Urbanization and increased female workforce participation have led to rising demand for daycare services in Ethiopia. In Bahir Dar City, despite the expansion of daycare services, limited data exist regarding the nutritional status of children in daycare settings.
Objective: To assess the prevalence of under nutrition, and identify associated factors among children aged 6-59 months in day care center in Bahir Dar City, Ethiopia 2025.
Methods: Facility based cross-sectional study was carried out using simple random sampling at Bahir Dar city, Ethiopia, from August 21 2025 to October 19, 2025. Cleaned data was entered into Statistical Package for the Social Sciences (SPSS) version 26.0 for analyses and anthropometric measurements were converted into Z- score values using WHO Anthro version 3.2.2 software. Variable with P-Value < 0.05 in Multi-variable analysis were significant factors.
Result: The prevalence of wasting, stunting, and underweight in daycare center of Bahir Dar city during the study period was 10.4% (95% CI: 7.6%–13.2%), 42.0% (95% CI: 37.4%–46.6%), and 22.1% (95% CI: 18.2%–25.9%), respectively. Children aged 24–59 months (AOR = 1.70; 95% CI: 1.06–2.72), Children who had coughed in the last two weeks (AOR = 1.94; 95% CI: 1.09–3.44) and Children of mothers with a mental distress (AOR = 2.06; 95% CI: 1.33–3.19) were significant factors for stunting. Maternal poor nutritional knowledge (AOR = 2.42; 95% C I: 1.22–4.80) and children who experienced diarrhoea in the last two weeks (AOR = 2.55; 95% CI: 1.21–5.36) were significant factors for wasting. Children who did not achieve the minimum dietary diversity (AOR = 4.06; 95% CI: 2.25–7.33), Children of mothers with poor nutrition knowledge (AOR = 4.3; 95% CI: 2.13–8.71) and Children who experienced diarrhoea in the past two weeks (AOR = 2.89; 95% CI: 1.44–5.79) were significant factors for underweight.
Conclusion and Recommendations: According to WHO cut off value stunting was very high public health burden, underweight was high public health burden and wasting was serious public health burden in day care center of Bahir Dar city. Bahir Dar city administration child, youth and maternal affairs office should Link licensing and license renewal of daycare center to fulfillment of nutrition, sanitation, and safety requirements.
Key words: Stunting, Wasting, Underweight, Daycare children

1. INTRODUCTION

1.1. BACKGROUND

A child's nutritional status is an indicator of general well-being and health. Malnutrition remains one of the most common causes of morbidity and mortality among children world widely specially under nutrition is the most common nutritional disorder in developing countries (1). Under nutrition is defined as a person's inability to consume enough energy and nutrients to meet their demands for maintaining good health and it is a group of disorders that includes stunting, wasting and underweight (2). Stunting is an indicator of past growth failure, which is a sign of poor nutritional history. Underweight means weight-for-age is below −2 standard deviations from the WHO Child Growth Standards median. Wasting indicates current or acute malnutrition resulting from failure to gain weight or actual weight loss (3). There is a strong evidence that under nutrition is associated with faltered growth, delayed mental development, and reduced intellectual capacity (4, 5) . They can also no longer sustain natural bodily capacities, such as resisting infections and improving from disease (6).

Early childhood is a very critical phase where physical and mental growth and development occur intensively. Early childhood feeding practices are fundamental for a child's healthy growth, development and potential. Consuming an adequate and balanced diet in terms of energy and nutrients is very crucial to ensure optimal development and growth can be achieved (7, 8). Poor food choices in this age consisting of imbalanced nutrient intake during this phase can lead to malnutrition such as underweight, stunting and predispose children to the risk of non-communicable diseases in the future (9, 10).

Urbanization and increases in female labor market participation have increased the demand for non-parental childcare in many low-income and middle-income countries (11). Especially in formal sector jobs, work and caring for one's child cannot be combined. Government daycare programs currently underway in several developing countries seek to promote labor force

participation through relieving one of the most pressing constraints faced by working parents, especially mothers, which is access to reliable and affordable childcare (12).

A daycare center is an establishment that offers a safe and nurturing environment for children, typically ranging from infants to preschool-age, during the daytime. These centers are designed to provide care, supervision, and age-appropriate activities for children while their parents or guardians are at work or unable to provide full-time care. Continued women empowerment sets mothers to the employment opportunity, constantly exposing them to significant challenges in ensuring their children are well cared for while they are away for work (13). The primary motivation for establishing the private daycare centers is financial gain rather than child welfare. As a result, extreme overcrowding is common and providing minimal opportunities for children's stimulation and development (14) .

Due to economic hardships, mothers in their prime working and reproductive years, especially those from low-income households are resuming work soon after childbirth. Limited wages and the inability to hire in-house caregivers compel them to place their children in daycare centers managed by untrained personnel. Even if their parent are known Early childhood is a critical period when adequate nutrition is essential to support rapid growth and immune system development (15). However, many daycare children experience inadequate or imbalanced diets due to factors such as poor meal planning, lack of dietary diversity, limited access to nutritious foods, and caregivers' insufficient knowledge of appropriate feeding practices (16). These dietary inadequacies result in malnutrition, in the form of under nutrition , which can have long-term consequences on a child's health and development (13).

Ethiopia has demonstrated promising progress in reducing levels of under nutrition over the past decade. The government of Ethiopia developed Food and Nutrition Policy of Ethiopia, 2018, National Food and Nutrition Strategy, Food and Nutrition Council and Agency establishment Proclamation, Seqota declaration , Adolescent, Maternal, Infant and Young Child Nutrition Guideline, 2016, Guidelines for The Prevention and Control of Micro nutrient Deficiencies in Ethiopia, 2016, National Guideline for the Management of Acute Malnutrition in Ethiopia, 2019 and food-based dietary guidelines to promote healthy eating practices and lifestyles, providing general guidance on foods, food groups, and dietary patterns (17, 18). However, the baseline

levels of under nutrition remain so high that the country still needs to continue substantial investment in nutrition (19).

1.2. PROBLEM STATEMENT

Globally in 2022, 149 million children under 5 were estimated to be stunted (too short for age), 45 million were estimated to be wasted (too thin for height).Nearly half of deaths among children under 5 years of age are linked to under-nutrition. These mostly occur in low- and middle-income countries (20). Asia and Africa contributed 56 and 38 % of stunting and 69 and 27 % of wasting, respectively, of the global under nutrition burden (21). In Sub Saharan Africa, most children under five years are stunted (39%), followed by underweight (25%), and wasting (10%) (22). These prevalence are suggestive for daycare center because of additional factors like they stop breast feeding earlier, reduced emotional bonding and daycare center related factor (23).

Under-nutrition accounts for 45 percent of child mortality under the age of five, and stunting still affects more than 5.4 million of Ethiopian children under the age of five (39%) and one in ten children under the age of five (about two million) (24). The prevalence of wasting (weight-for-height below -2 SD) and underweight (weight-for- age below -2SD) in children under 5 years in Ethiopia is 11% and 22% respectively (25).

Urban poverty in sub-Saharan African countries including Ethiopia has contributed to a high proportion of women participating in the labor force. In order to meet the financial needs of family, mothers spend long hours daily working outside the home and send their children into day cares to spend the days (26, 27). As a result, mothers have little or no time to prepare quality lunches for their children. Also, the present economic crises in Ethiopia had contributed adversely to the cost of living. With too little income that most families depend on, they tend to prepare food of low nutritional value for their children regardless of what they might know as essential food for good health and growth. As a result of the changing dynamics between women and the labour market, women in recent times are compelled to seek assistance and support for childcare. Study on the role of fathers and care giving arrangements in the informal settlements in Kenya and Ethiopia reported that because of the lack of childcare services in the previous century, home-based childcare services were the most feasible option. Besides the child's

mother, many other people are involved in childcare services. These include unpaid neighbour, siblings, members of the community and workers within the households (28).

But nowadays in Bahir Dar City, the increasing use of daycare centers reflects changing family structures, urbanization, and the growing participation of women in the workforce. While these centers play a crucial role in child care and development, they may also expose children to increased nutritional risk due to various environmental, behavioral, and institutional factors. Limited attention has been given to the specific nutritional status of children enrolled in daycare facilities, even though these children may spend a significant portion of their day away from direct parental supervision.

The consequences of child under nutrition in Ethiopia are significant and multifaceted, affecting individuals, families, communities, and the national economy. Many studies reported the health and physical consequences of child under nutrition include delaying their physical growth and motor development, lower intellectual quotient (IQ), greater behavioral problems, deficient social skills, and susceptibility to contracting diseases. Child under nutrition may also lead to higher levels of chronic illnesses in adult life which may have inter generational effects, as malnourished females are more likely to give birth to low-weight babies (29, 30). Child mortality associated with under nutrition has reduced Ethiopia's workforce by 8% , stunted children achieve 1.1 years less in school education and the annual costs associated with child under nutrition are estimated at Ethiopian birr (ETB) 55.5 billion, which is equivalent to 16.5% of GDP (31). even though the Ethiopian government has undertaken several nutritional interventions, such as IYCF, Seqota Declaration ,disseminating information through various media about nutrition, preparing training manuals, implementing the health extension program, and encouraging health professionals to promote dietary practice and, to end child under nutrition in Ethiopia by 2030 but the prevalence of under-nutrition remains high (32, 33). Despite the implementation of nutritional guideline in many children continue to experience dietary inadequacies and under nutrition in the daycare centers due to Socio-economic factors,health related factors, dietary practice, daycare center related factors, maternal psychological and behavioral factors and gaps in policy implementation (34-36).

With the increasing trend of children spending their days in daycare centers, it is essential to know their nutritional status to ensure their proper growth and well-being. But there is a dearth of research on under nutrition of children in daycare settings. Existing studies in Ethiopia primarily focused on community or household-level assessments of child under nutrition, with limited data available on institutional settings such as daycare centers. In Ethiopia day care facility only underweight are studied and are restricted to children aged 6 months to 48 month in the day care area. However, my research aims to bridge this gap by studying all three forms of under nutrition (stunting, wasting and underweight) and extending the age range to include children from 6 months to 59 month who spend their days in daycare. This study provides a more comprehensive understanding of the nutritional status and influencing factors within this critical developmental period of day care setting.

1.3. SIGNIFICANCE OF STUDY

This study provides localized evidence in daycare center on the prevalence and determinants of under nutrition among children in Bahir Dar City. The findings are useful to daycare center leaders, enabling them to identify gaps in feeding practices, hygiene, and care giving, and to implement corrective measures to improve the nutritional well being of children under their care.The study is important for the early detection of undernourished children and for promoting prompt linkage to health facilities for intervention. NGOs working in child health and nutrition use the study's findings to design targeted interventions and allocate resources more effectively. It also provides evidence to advocate for funding focused on improving nutrition in daycare settings. The study highlights areas requiring resource allocation, and targeted interventions, such as nutrition education for caregivers, infection prevention, and monitoring of dietary diversity. By providing context-specific evidence, the study supports evidence-based planning, supervision contributing to healthier growth and development outcomes for children in daycare settings. The study provides baseline data for further research, enabling comparisons across different regions, age groups, and dietary interventions.

2. LITERATURE REVIEW

2.1. MAGNITUDE OF UNDER NUTRITION IN DAY CARE CHILDREN

Studies were done on some daycare attendees linked daycare attendance with poor nutritional status such as being underweight, malnutrition (37). A study done in the Port Harcourt metropolis in 200 daycare centers showed that 3% of children were underweight, 5.5% were stunted, 7.1% were wasted (38). Another study conducted among 270 preschool children attending eight daycare centers in São Paulo, Brazil, revealed significant nutritional concerns like risk of Stunting 22.6% prevalence (39). Other study in Mwea, Kirinyaga also investigated the nutritional status among young children in daycare settings. Nutritional assessments indicated that 9.7% of children were wasted, 24.2% were stunted, 6.1% were underweight (40).

A cross-sectional study conducted in North West Province, South Africa, says 29% of the children were stunted, 13% underweight, and 6% thin (41). In Naivasha, Kenya a study found that 8% of children in day care center were reported to have acute malnutrition (wasting), while 13.8% experienced stunting and 12.5% had underweight(42). A baseline study conducted at the Busia Childcare Centre, Kenya found the prevalence of stunting (low height-for-age) to be 12.2 %**,** wasting (low weight-for-height) at 4.2 %**,** and underweight (low weight-for-age) at 15.1 % among children aged two to four years enrolled in the centre (43).

A study conduct in Addis Ababa, Ethiopia with in the age of 6 up to 48 month day care children indicated that prevalence of underweight among the day care children was 11.7% (44) . According to the 2016 Ethiopia Demographic and Health Survey (EDHS) report, approximately 9.7% of children were wasted, 28.7% of children were underweight and 44.4% of children were stunted with large regional differences (45, 46) . From (March 2023 baseline survey and 2024/2025 reports), the national prevalence of under nutrition in Ethiopian children under five years of age is 39% Stunting (chronic under nutrition),11% Wasting (acute under nutrition), 22% Underweight and in the Amhara region 40 % stunting and 15 % underweight (47). In the Amhara National Regional State of Ethiopia, stunting, wasting and underweight is 40%, 10%, and 33% respectively (48). A study conducted in Bahir Dar to assess the nutritional status of 615

preschool children aged 6-59 months. The findings revealed that 30.9% were stunted (chronic malnutrition), 18.7% were underweight, and 7% were wasted (acute malnutrition) (49).

2.2. FACTOR ASSOCIATED UNDER NUTRITION OF DAYCARE CHILDREN

The causes of malnutrition are numerous and multifaceted. These causes are intertwining with each other and are hierarchically related. The most immediate determinants are poor diet and disease which are themselves caused by a set of underlying factors; household food security, maternal/ child caring practices and access to health services and healthy environment. These underlying factors themselves are influenced by the basic Socio-economic and political conditions (50).

Socio demographic and economic related factors:

A study in Brazil say that the child's age, birth weight, family income, mother's education level are factor of under nutrition in children in daycare center (51). study in Mwea, Kirinyaga County also investigated Factors significantly associated with nutritional status included the child's age, mother's age, education level and household size among young children in daycare settings (40). Studies in Bangladesh have found that there is a significant association between maternal Body-Mass-Index (BMI) and child nutritional status. Children of malnourished mothers had a higher risk of being underweight compared with children of well-nourished mothers. Maternal malnutrition could be a hindrance for her child's growth and development (52). A population-based analysis using Demographic and Health Survey data (Ethiopia) found that overweight/obese mothers can have children who are wasted. A cross-sectional survey conducted on a children between the ages of 12–60 months in Tshwane district in South Africa child birth weight, age, gender, and spending the day in day care center increased the risk of under nutrition (53). A cross-sectional study on children between 6 month and 59 old month in Bule Hora District noted that child sex, fathers' educational status, number children ever born to a mother, age were significantly associated with under nutrition (54). In a comparative analysis in Dera

district, children of employed and unemployed mothers showed differences in wasting prevalence, indicating maternal employment status can influence wasting outcomes(55). A detailed study in Bale Robe town reported that children of employed mothers had a higher prevalence of wasting compared with children of unemployed mothers, suggesting employment may reduce time for childcare and influence nutrition(56).

Psychological and Behavioral Factors

A multi-country analysis across sub-Saharan Africa found that higher maternal knowledge about nutrition and child health was significantly associated with lower risk of child wasting in adjusted models (57). Several studies conducted here in Ghana have shown positive link between caregiver nutritional knowledge and child nutrition outcomes. A significant association between maternal knowledge of childcare and height-for-age z-score was established among children between 6-36 months in the Northern region where mothers with low nutritional knowledge had difficulty practicing appropriate complementary feeding leading to low height-for-age z-scores (58) **.** The study conducts in Nairobi prove that maternal knowledge on complementary feeding was significantly associated with the nutritional status of their children. Specifically, inadequate knowledge on feeding sick and recovering children was linked to underweight status, and lack of knowledge on meal diversification was associated with under nutrition (59, 60). A multivariate study of wasting and stunting found that insufficient maternal knowledge on child feeding practices and related factors were significantly associated with wasting in under-five children. Children whose caregivers had poor knowledge or practices showed higher odds of wasting after controlling for other variables (61). Across sectional study conduct in Rwanda says where mother who have mental disorder get 1.67 more times to have stunted children compared from mother who have not mental disorder(62)

Dietary practice associated with under nutrition

A comprehensive study conducted across 32 sub-Saharan African countries using data from Demographic and Health Surveys between 2010 and 2020 investigated the effect of dietary diversity on under nutrition in children aged 6–23 months and says Children who had adequate dietary diversity were 12% less likely to be stunted**,** 17% less likely to be underweight, 13%

reduced odds of wasting (63). A study conducted in children between 6month and 23 month using data from the 2019 Ethiopian Mini Demographic and Health Survey (EMDHS), says Children with adequate MDD had 32% lower odds of being stunted, 60% lower odds of being wasted, 49% lower odds of being underweight (64).

Day care related factor

Very high caregiver-to-child ratios are considered indicative of poor childcare quality and are associated with reduced individualized care, poorer hygiene practices, and lower quality interactions (65).

Immunization and health related factor

Community study in South Ari District (Ethiopia) found that children with a history of diarrhoea in the past two weeks were nearly two times more likely to be wasted than those without diarrhea, due to loss of appetite, poor digestion, and mal absorption of nutrients (66).A study based on Ethiopian Demographic and Health Survey data found cough in the past 2 weeks was a statistically significant predictor of stunting among children under five. Research identified high prevalence of cough episodes alongside stunting, indicating respiratory morbidity commonly co-occurs with chronic under nutrition and stunting in children(67). A recent study reported a significant relationship between recurrent upper respiratory tract infections (URTI, which include cough) and stunting means children with frequent respiratory infections were more likely to be stunted(68). Across section study among children 6–59 months of age in Sodo Zuria District, South Ethiopia reported presence of diarrhoea morbidity 2 weeks prior to data collection was an independent predictor for both wasting and underweight(69). A cross sectional study in southern Ethiopia with 6- 59 month aged children says incomplete vaccination was strongly associated with underweight and wasting (70).

2.3. CONCEPTUAL FRAMEWORK

Under nutrition among children in daycare centers is influenced by multiple factors. The framework were adapted from different literature (40, 50, 58, 71-74) .

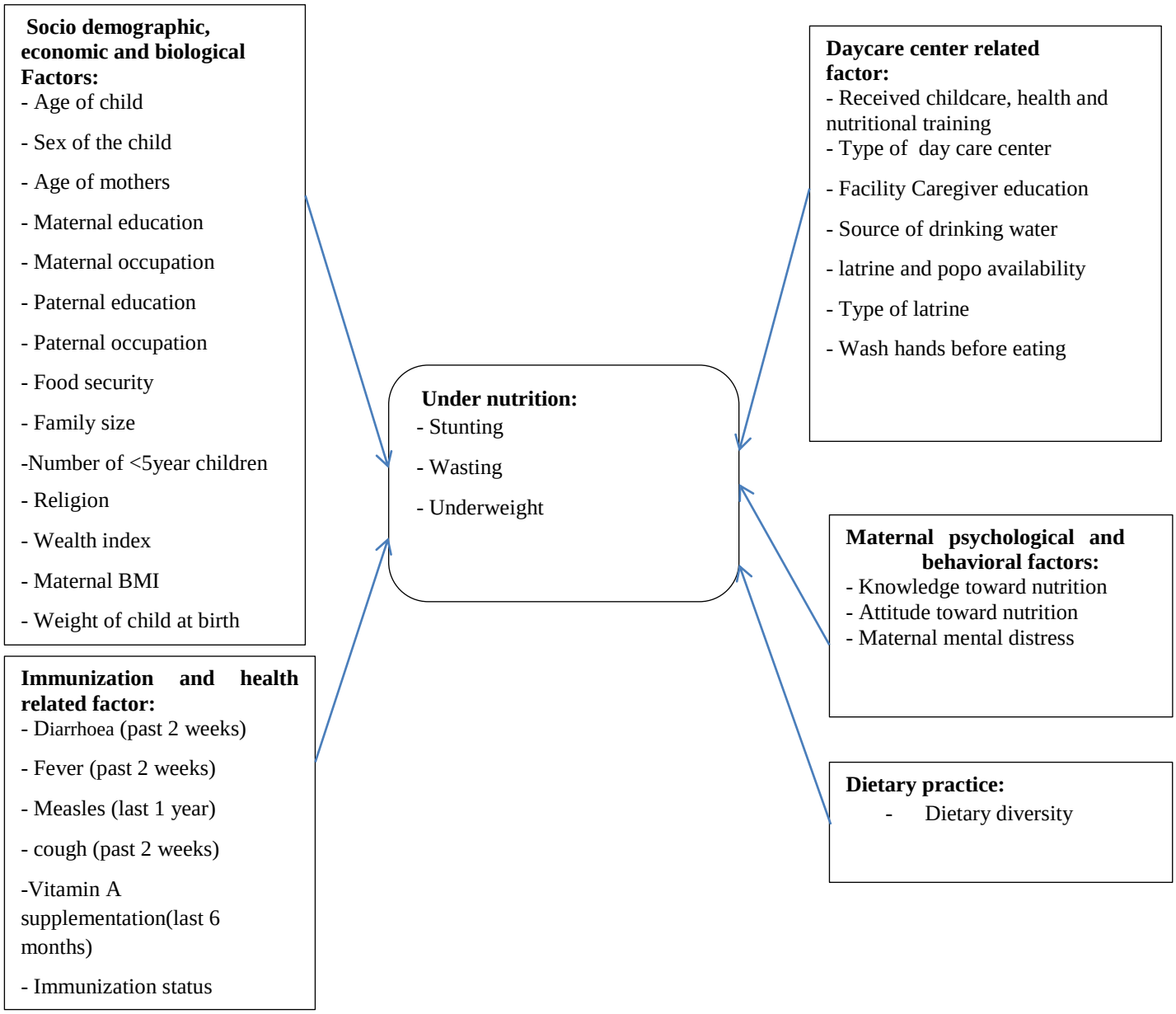

Figure 1: conceptual framework of under nutrition in day care children

3. OBJECTIVE

3.1. GENERAL OBJECTIVE:

- To assess the prevalence of under nutrition and associated factors among children aged 6–59 months attending daycare centers in Bahir Dar City, Ethiopia, 2025

3.2. SPECIFIC OBJECTIVES:

- To determine the prevalence of stunting among children aged 6–59 months attending daycare centers in Bahir Dar City.
- To determine the prevalence of wasting among children aged 6–59 months attending daycare centers in Bahir Dar City.
- To determine the prevalence of underweight among children aged 6–59 months attending daycare centers in Bahir Dar City.
- To identify factors associated with stunting among these children aged 6–59 months attending daycare centers in Bahir Dar City.
- To identify factors associated with wasting among these children aged 6–59 months attending daycare centers in Bahir Dar City.
- To identify factors associated with underweight among these children aged 6–59 months attending daycare centers in Bahir Dar City.

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4. METHODS AND MATERIALS

4.1. STUDY SETTING

The study was conducted in Bahir Dar city, which is the capital city of the Amhara regional state in northwest Ethiopia. The city is 567 and 465 km northwest away from Addis Ababa through Debre Markos–Bure and Dejen–Motta roads, respectively. Geographically; it is located where the Blue Nile starts, at 11°29′N latitude and 37°29′E longitude, and situated at 1,799 m above sea level. The region has an average annual rainfall of 850 to 1,250 mm, with daily minimum and maximum temperatures of 10 and 32°C, respectively. According to the Bahir Dar city administration's Bureau of Labor and Social Affairs statistics, the total population of the city is estimated to be 390,429, from this 198,459.87 are females and 91,758.5 are women under the reproductive age group. The number of under-five children was estimated to be 52,689.14 and of these 50,120.8 were 6–59months old (75). The city has six sub-cities administration and a total of 26 kebeles (i.e., the local administration level next to woredas/sub-cities). The city has 25 daycare center, of which 19 are public and 6 are private day cares (76).

4.2. STUDY DESIGN AND PERIOD

A facility-based cross-sectional study design was conducted from August 21 2025, to October 19, 2025.

4.3. POPULATION

4.3.1 Source Population

All children aged 6–59 months who are enrolled in and attend daycare centers along their primary caregiver in Bahir Dar City.

4.3.2 Study Population

Children aged 6–59 months enrolled in the selected daycare centers in Bahir Dar City during the study period.

4.4. ELIGIBILITY CRITERIA

4.4.1. Inclusion criteria:

- Children aged 6-59 months that are enrolled in the selected daycare centers and present during the study period and permanent resident of Bahir Dar city.

4.4.2. Exclusion criteria:

- Children whose mothers are unable to communicate.

- Children with obvious physical deformity.

4.5. SAMPLE SIZE DETERMINATION

The sample size was determined using a single proportion formula. prevalence of under nutrition(stunting) is 24.2% in Kenya (40) among children attending daycare with 95% confidence interval (CI), 5% marginal of error. A Z-value of 1.96 used at 95% CI and d of 5%. (*Z* is the z score, n= sample size, p=prevalence, q= 1-p, d=margin of error)

$$n = \frac{Z^2 p(1-p)}{d^2}$$

Table 1: Sample size estimation for different forms of under nutrition

	Prevalence	Calculated Sample Size	Design effect(1.5)	Non response rate (10%)	Reference
Stunting	24.2	282	423	466	(40)
Wasting	9.7	134	201	223	(40)
Underweight	11.7	159	239	263	(44)

Sample size for the second objective was determined by using two population proportion formulas by considering the following assumptions: 95% CI, 80% power, and 1:1 ratio. The possible sample size was shown in **Table2**.

Table 2: Sample size for the second objective by using two population proportion formulas

	Factors	Proportion1	Properti on2	AOR	sample size(design effect+ non response rate)	Referenc e
Underweight	Child Age	0.176	0.022	9.4	185	(44)
Stunting	Diarrhoea (last2 weeks	0.43	0.60	3.9	436	(54)
Wasting	Diarrhoea (last2 weeks	0.236	0.067	4.3	222	(69)

So the final sample size was 466 children.

4.6. SAMPLING TECHNIQUE

A multistage sampling technique was employed to select the study participants. From 25 day cares found in Bahir Dar city, 10 day cares were selected by simple random sampling method (lottery method). Study participants was allocated to each day care by proportionate allocation that is based on the load of the children they caring for. After allocated the selected daycare centers, children were chosen from each center using simple random sampling (computer generated). The formula used to calculate proportional allocation of sample size to each selected daycare **Figure 2**:

ndc= (n*Ndc)/N

where;

ndc=sample size of each selected daycare:

n=total sample size

Ndc=total number of children in each selected daycare:

N=total number of children in all selected daycare

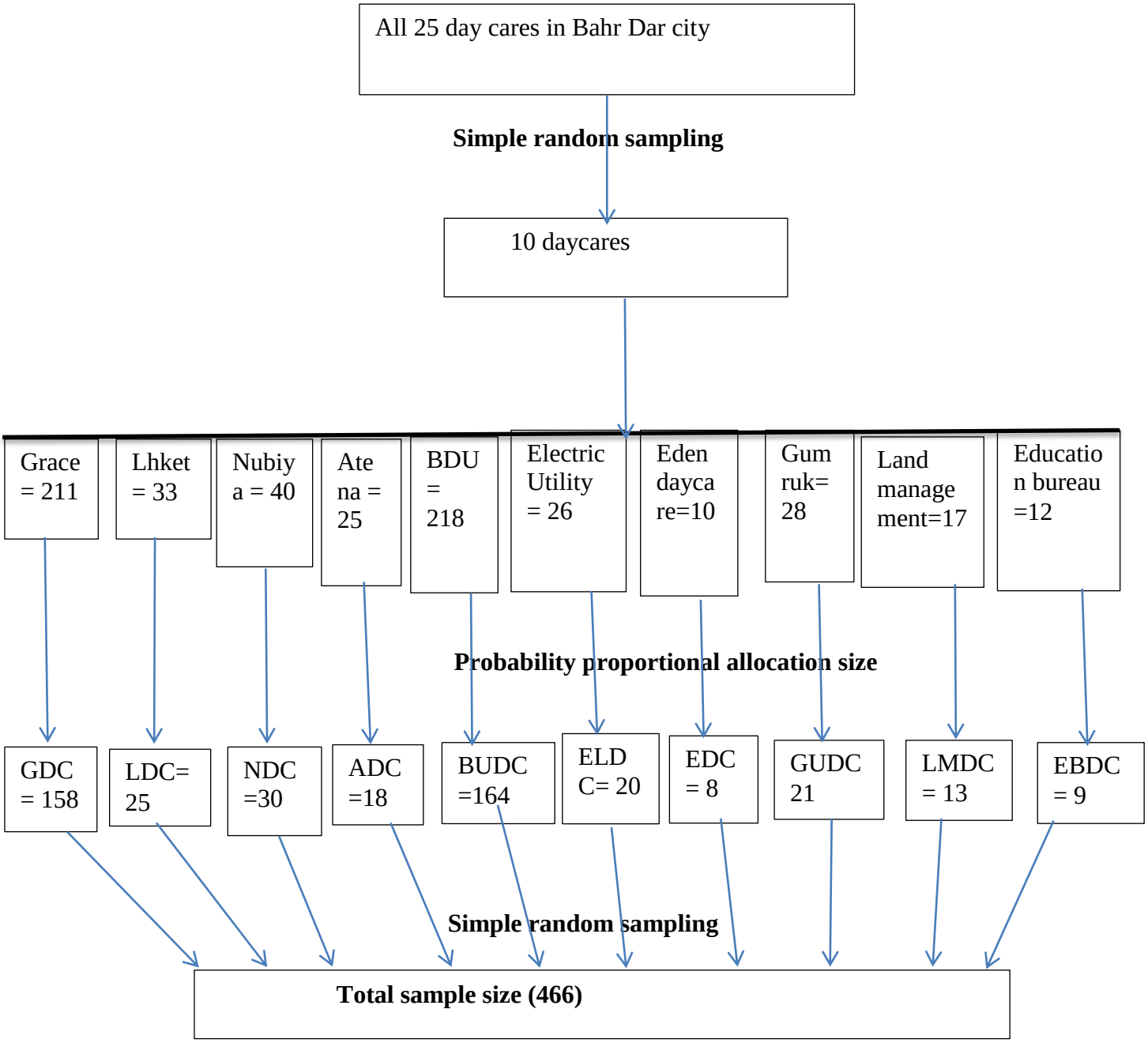

FIGURE 2: SAMPLING PROCEDURE OF THE STUDY

4.7. STUDY VARIABLES

4.7.1. Dependent Variable**:**

Under nutrition (stunting, wasting and underweight)

4.7.2. Independent Variables**:**

Socio demographic and economic and biological factors includes: relationship of respondent to the child, age and sex of the child, maternal and parental education, maternal and parental occupation, household food security, wealth index, family size , religion of mother, maternal BMI and birth weight of child.

Daycare center related factors include: type of day care, facility caregiver education status, received child care, nutritional and health training, Source of drinking water, latrine availability, latrine type and wash hands before eating.

Maternal psychological and behavioral factors includes: maternal knowledge toward nutrition, maternal attitude toward nutrition and maternal mental distress.

Dietary practice: dietary diversity

Immunization and health related factors: diarrhoea (past two weeks), fever (past two weeks), measles (last one year), cough (past two weeks), vitamin A supplementation (last six months), and immunization status of child.

4.8. OPERATIONAL DEFINITION

Non biological mother: a primary caregiver who is not the child's biological mother but permanently cares for the child as their own, providing day-to-day support and supervision(77).

Wasting: the weight-for-height z score <−2 SD in relation to the reference population (78).

Stunting: the height-for-age-z-score<−2 SD in relation to the reference population (78).

Underweight: the weight-for-age-z-score<−2 SD relative to the reference population (78).

Meet MDD: children aged 6–23 months who consumed at least five food groups out of the eight referenced food groups within 24 hour and children aged 24-59 months who consumed at list 4 food groups out of 7 referenced food group within 24 hour. (79, 80).

Maternal knowledge: knowledge of mothers in child nutrition was classified using the Bloom‟s cut-offs for KAP studies, namely,>80% as good; 60%-79% as moderate; and (<60%) as poor (81).

Maternal attitude: attitude of mothers in child nutrition was classified using the Bloom‟s cut-offs for KAP studies, namely,>80% as positive; 60%-79% as neutral or fair; and (<60%) as negative(81)

HFIS: Households were classified as food secure if no food insecurity conditions were experienced or if worry about food occurred rarely. Mild food insecurity was defined as worrying about inadequate food sometimes or often and/or rarely compromising dietary quality. Moderate food insecurity was defined as frequent compromise in food quality and/or occasional reduction in meal size or number. Severe food insecurity was defined as frequent reduction in meal size or number and/or experiencing severe conditions such as running out of food, going to bed hungry, or not eating for a whole day and night, even if these occurred rarely (82).

Maternal body mass index: (BMI) will calculated as weight (kg) divided by the individual's height (in meters) squared. A BMI ≤ 18.5 was categorized as underweight or chronically energy deficient, BMI between 18.5 and 24.9 was classified as normal, BMI between 25 and 30 was classified as adequately nourished but overweight and BMI > 30 was classified as obese (83).

Wealth index: is a composite measure of household economic status, calculated using 20 standard indicators adapted from the Ethiopia DHS 2016 Equity Tool. Each item is coded as Yes = 1 and No = 0 for binary questions, while categorical items are assigned fixed scores. Households are ranked by Nat Score and classified into five national wealth quintile: Quintile 1 (Poorest): 0–20%, Quintile 2 (Poorer): 20–40%, Quintile 3 (Middle): 40–60%, Quintile 4 (Richer): 60–80%, Quintile 5 (Richest): 80–100% (84).

Mental distress: Mental distress was assessed using the 20-item Self-Reporting Questionnaire (SRQ). The scores of all items were summed, with a possible range of 0 to 20. A score greater than 7 was considered indicative of mental distress (85).

Birth weight: birth weight greater than equal to 2500-4000 gram as normal birth weight and a birth weight of less than 2,500 grams as low birth weight (LBW) (86).

Immunization status: A child was considered unimmunized if they had not received any routine vaccines; partially immunized if they had received at least one but not all age-appropriate

vaccines; and fully immunized if they had received all vaccines recommended for their age by the routine immunization schedule (87).

Diarrhoea: A child with three or more loose or watery stools per day (88).

4.9. DATA COLLECTION TOOLS AND PROCEDURE

The questions were adapted from different literature (42, 89). Structured questionnaire aided in obtaining information on Socio economic factors, maternal psychological and behavioral factors, dietary practice, immunization and health related factors. Data was collect by using 5 data collectors and 2 supervisors who have BSc degree in the health profession and interviewer-administered questionnaires method was used.

Household food insecurity was measured using household food insecurity access scale (HFIAS) developed mainly by Food and Nutrition Technical Assistance (FANTA). The tool consisted of nine questions that represent generally increasing level of severity of food insecurity and four frequency of occurrence. The nine generic occurrence questions relate to three domains of food insecurity. The first generic question relates to anxiety and uncertainty about the household food supply; the next three generic questions relate to insufficient diet quality; and the rest five generic questions relate to insufficient food intake and its physical consequences. Household food security was classified based on responses to the nine severity items in the HFIAS. The procedure for scoring was used as follows: “0” was given if the event described by the question never occurred, “1” if it occurred during the previous 30 days. With regard to the occurrence, “1” was allotted if the events rarely occur, “2” sometimes and “3” often(82).

Maternal knowledge and attitudes toward nutrition were assessed using structured questionnaires consisting of 21 knowledge items and 23 attitude items adapted from FAO nutrition knowledge, attitude, and practice (KAP) guidelines. The questionnaire covered key areas including appropriate young child feeding, under nutrition, iron deficiency anemia, vitamin A deficiency, personal hygiene, and general issues related to water and sanitation. A score of one was given for each correct response and zero for wrong response for knowledge. For attitude using three point scale (1-3) because it was easier to measure attitudes with a three-point scale than with a five-point scale. Knowledge was calculated for each question by dividing the total number of individual correct responses by the maximum score of each individual question that

was twenty one and attitude was calculated for each question by dividing the sum of each individual question by maximum score of each individual question that was sixty nine. finally multiply the result of knowledge and attitude by 100% (89).

For children 6— 24 month to achieve the MDD requirement they were to consumed at least five food groups out of the eight referenced food groups and for child 24 month to 59 month they consumed at least four food group from the 7 food groups within 24 hour by asking both mother and daycare center caregiver using 24 hour recall method.These food groups are (1) breast milk(only for 6-23 month) ; (2) grains, roots, and tubers; (3) legumes and nuts; (4) dairy products; (5) flesh foods (meats/fish/poultry); (6) eggs; (7) vitamin A-rich fruits and vegetables; and (8) other fruits and vegetables (90). The total dietary diversity score ranges from 0 to 8, for 6-23 month and 0-7(for 24-59 month) child with 1 point given for each of food groups consumed. Children with dietary diversity scores ≥5 for 6-23 month and ≥4 for 24-59 month child will classified as they attained the minimum dietary diversity, whereas those with scores <5 and <4 respectively was classified as unmet MDD. The outcome variable was coded as 1 for adequate dietary diversity and 0 for inadequate dietary diversity

Anthropometric measurements

According to the WHO guidelines, anthropometric data take twice, so weight and height was measured twice and the weight and height of children was measured using the standard anthropometric measurement protocol designed by the Food and Nutrition Technical Assistance project (91) . Weight was measured using a weighing scale without coats, shoes, and any additional clothing and recorded to the nearest 0.1 kg. For children less than 24 months and who do not stand, they were weighed with their mother or care giver then the mother or the care giver was weighted alone and the difference was used to obtain the net weight of a children. Height was taken by using A wall-mounted stadio meter without shoes and with the head positioned in the Frankfort plane; for 6–23 months of age length was measured and recorded to the nearest 0.1centimeters (cm) and for more than 24 months of age height to the nearest 0.1 cm was recorded. The weight, height, and age of child (months) were change to height-for-age, weight-for-age, and weight-for-height by using WHO Anthro 3.2.1 software(19). Children with HAZ, WAZ, and WHZ below −2 SD of the median of reference population were considered as stunted, under-weight, and wasted, respectively (92).

Wealth index of the households: The latrine, water supply and household assets were calculated using the Principal Component Analysis method, which is adapted from the EDHS 2016 data. All of the variables' responses were divided into two categories. The highest score was received 1 while the lowest was received 0. The wealth index score was calculated using PCA assumptions. In order to assess the wealth status variables coded into binary and Each household asset for which information was assign a weight or factor score generated through principal components analysis. Finally, the wealth score were calculated using each household's score on the first major component. The wealth score was developed to divide households into poor, poorest, medium, wealthy, wealthiest categories.

Maternal mental disorders were assessed by using the Self-Reporting Questionnaire of 20-Item (SRQ-20) developed by the World Health Organization. It has 20 questions that are answered by YES or NO with codes "1" which represent the presence of a symptom, and "0" if the symptom is absent.

For daycare center source of drinking water, latrine availability, latrine type and wash hands before eating; observation was undertaken together with the structured interview. Observation was undertaken in 10 day cares and observation checklist was used during the observation. At the end of each observation memo was produced/written about the observation.

Mothers were asked whether their child had experienced diarrhoea, fever, or cough in the past two weeks (14 days) and responses were recorded as yes/no. The immunization status was recoded as "2" if the child had received all vaccine in their age, "1" if the child had missed one or more vaccine and "0" if child had not received any vaccine. The immunization schedule based on Ethiopia country profile 2023 are at birth (BCG, OPV0), 6 Weeks (Penta1, OPV1, PCV1, Rota1), 10 Weeks (Penta2, OPV2, PCV2, Rota2), 14 Weeks (Penta 3, OPV3, PCV3, IPV), 9Months (MCV1), 15 Months (MCV2) and the immunization status was confirmed through immunization cards wherever available. In the absence of a card, maternal recall was used.

4.10. DATA QUALITY MANAGEMENT

The data collection instrument (questionnaire) was developed in English and translated to Amharic and later back translated to English to ensure accuracy and desired results. The questionnaire was pre-tested on 5% (24 children) of sample size in non-selected day-cares (zgba

and health bureau), in order to check its accuracy and consistency. 2 days of training was given for data collectors and supervisors on the overall procedure of the study. The questionnaire was modified as necessary for clarity, sensitivity and completeness prior to actual data collection. Following analysis of the pretest study data, ambiguous or unclear questions was rephrasing to make it more understandable. Furthermore, the investigators were given continuous feedback and corrections on daily basis to the data collectors. Completion, accuracy, and clarity of the collected data was checked carefully on a regularly basis. Calibration was done before measuring by setting it to zero.

4.11. DATA PROCESSING AND ANALYSIS

Data were entered from kobo collect, cleaned, coded and made analysis in Statistical Package for Social Sciences (SPSS) version 27. Anthropometric measurements was converted into Z- score values using WHO Anthro version 3.2.2 software for the indices; Height for- Age (HAZ), Weight-for-Height (WHZ) and Weight-for- Age (WAZ) taking sex into consideration using WHO 2006 standards. Binary logistic regression model was used to identify factors associated with stunting, wasting, underweight. The multi collinearity effect was assessed using the VIF (maximum VIF = 3.1).Variables which have a p-value of < 0.25 in the bi-variable analysis were taken in to the multi-variable analysis to control the possible effects of co-founders. Adjusted odds ratio (AOR) with a 95% confidence interval (CI) was compute to assess the strength of the association. A p-value of < 0.05 was used to determine statistical significance in the multi-variable analysis. The Hosmer and lemeshows goodness of fit-test was run and had p-value Stunting (P = 0.96), Wasting (P=0.82) and underweight (P= 0.204) indicated that the logistic regression model adequately fitted the data.

4.12. ETHICAL CONSIDERATIONS

This research was conducted based on the ethical principles as outlined in the Declaration of Helsinki, ensuring that all aspects of the study meet standards for medical research involving human participants. Ethical approval and clearance was obtained from Ethical Review Board of Bahir Dar University, College of Medicine and Health Sciences. A formal letter of permission to conduct the study was obtained from Bahir Dar city administration. Support letter to the selected

day cares was obtained from the city administration. Prior to data collection, the objective, benefit and risks of the study was explained to get written informed consent from primary care giver of the children. Child assent was taken for measurements. Confidentiality of information collected from each study participant was maintained by substituting codes for participant names.

4.13. DISSEMINATION OF RESULTS

The final research report was submitted to the College of Health Sciences, Bahir Dar University and presented in a research defense seminar to academic staff, advisors, and fellow students. Copies of the summary report were shared with selected daycare centers that participated in the study. Findings were also shared with NGOs working in child nutrition and health in the region (Save the Children, UNICEF, and others) to inform their ongoing and future programs.

5. RESULTS

5.1 SOCIO-DEMOGRAPHIC AND ECONOMIC CHARACTERISTICS OF DAYCARE CHILDREN PARENTS

A total of 443 participants took part in the study, resulting in a response rate of 95.1%.
Most being biological mothers (98.4%). The majority of mothers (57.8%) were 30 years of age or older, were married (95.9%), and had a diploma or above as their highest level of education (50.1%). The majority of mothers (38.6%) were employed by the government and the majority of fathers (30.2%) were employed in the private sector. Three-quarters of households contained one child under the age of five years (77.4%). The assessment of food security revealed that 45.1% of households were moderately food insecure and 17.2% were severely food insecure, respectively **(Table 3)**.

Table 3: Socio demographic and economic characteristics of the day care children parents in Bahir Dar city, 2025 (n=443)

Variable	Category	Frequency	Percent
Relationship of the respondent to the child	Biological mother	436	98.4
	Non-biological mother	7	1.6
Mother's age (in years)	<23.9	16	3.6
	24-29	171	38.6
	>30	256	57.8
Religion	Orthodox	353	79.7
	Protestant	56	12.6
	Catholic	10	2.3
	Muslim	24	5.4
Marital status of the mother	Married	425	95.9
	Single	6	1.4
	Divorced	9	2
	Widowed	3	0.7
Maternal education status	Unable to read and write	4	0.9
	Primary education	113	23.3
	Secondary	114	25.7

	Diploma and above	222	50.1
Paternal education status (n=425)	Unable to read and write	1	0.2
	Primary education	39	9.2
	Secondary	98	23.1
	Diploma and above	287	67.5
Maternal occupation	Government employee	171	38.6
	NGO employee	23	5.2
	Private sector employee	96	21.7
	Merchant/trader	71	16.0
	Housewife	16	3.6
	Daily laborer	66	14.9
Paternal occupation (n=425)	Government employee	103	24.2
	NGO employee	59	13.9
	Private sector employee	137	32.3
	Merchant/trader	89	20.9
	Daily laborer	37	8.7
Family size	≤4	298	67.3
	>4	145	32.7
Number of under 5 children	1	343	77.4
	2	91	20.5
	3 and above	9	2
Household wealth index	Poorest	75	16.9
	Poorer	99	22.3
	Middle class	89	20.1
	Richer	89	20.1
	Richest	91	20.5
Household Food insecurity status	Severely food insecure	76	17.2
	Moderately food insecure	200	45.1
	Mildly food insecure	120	27.1
	Food secure	47	10.6

5.2. SOCIO-DEMOGRAPHIC CHARACTERISTICS OF DAYCARE CHILDREN

Approximately three-quarters of the children (73.1%) were between the ages of 24-59 months and approximately half of the children (56.0%) were male and the majority of newborns (422 or 95.3%) were born with a normal birth weight **(Table 4)**.

Table 4: Socio demographic characteristics of the day care children in Bahir Dar city, 2025(n= 443)

Variable	Category	Frequency	Percent
Child age	6-23 months	119	26.9
	24-59 months	324	73.1
Child sex	Male	248	56
	Female	195	44
Child Birth weight	low birth weight	21	4.7
	Normal birth weight	422	95.3

5.3. ILLNESS AND IMMUNIZATION STATUS OF DAYCARE CHILDREN

From 443 children, most (94.8%, n = 420) had received vitamin A supplementation. In terms of common childhood illnesses, 13.5 (n = 60) had diarrhoea, 21.4% (n = 95) had fever, and 14.0% (n = 62) had cough during the study period. Measles was reported in 4.1% (n = 18) of children. Regarding immunization status, most children were fully immunized (92.1%, n = 408), while 7.9% (n = 35) were partially immunized **(Table 5)**.

Table 5: Illness and Immunization Status for Day Care Children Aged 6–59 Months in Bahir Dar City, 2025(n=443)

Variable	Category	Frequency	Percent
Vitamin A supplementation (last 6 months)	No	23	5.2
	Yes	420	94.8
Diarrhoea (past 2 weeks)	No	383	86.5
	Yes	60	13.5
Fever in (past 2 weeks)	No	348	78.6

	Yes	95	21.4
Cough (past 2 weeks)	No	381	86
	Yes	62	14
Measles history (past 1 year)	No	425	95.9
	Yes	18	4.1
Child immunization status	Partially immunized	35	7.9
	Fully immunized	408	92.1

5.4. MATERNAL KNOWLEDGE, ATTITUDE TOWARD NUTRITION AND MATERNAL MENTAL DISTRESS

With regard to nutritional knowledge, 163 mothers (36.8%) had low levels of nutritional knowledge. In terms of attitudes toward nutrition a very small percentage (5 or 1.1%) had a negative attitude towards practicing good nutrition. The majority of participants (305 or 68.8%) did not identify as having evidence of mental distress, while 138 (31.2%) identified themselves as having mental distress **(Table 6)**.

Table 6: Maternal knowledge and attitude toward nutrition and maternal mental status of children in daycare center of Bahir Dar city, 2025(n=443)

Variable	**Category**	**Frequency**	**Percent**
Knowledge	Poor knowledge	163	36.8
	Moderate knowledge	128	28.9
	Good knowledge	152	34.3
Attitude	Negative	5	1.1
	Neutral	285	64.3
	Positive	153	34.5
Mental statues	No mental distress	305	68.8
	Mental distress	138	31.2

Maternal nutritional status of daycare children

The majority of individuals (74%) had normal weight, while under- and over-nutrition were present in smaller proportions (Figure 3).

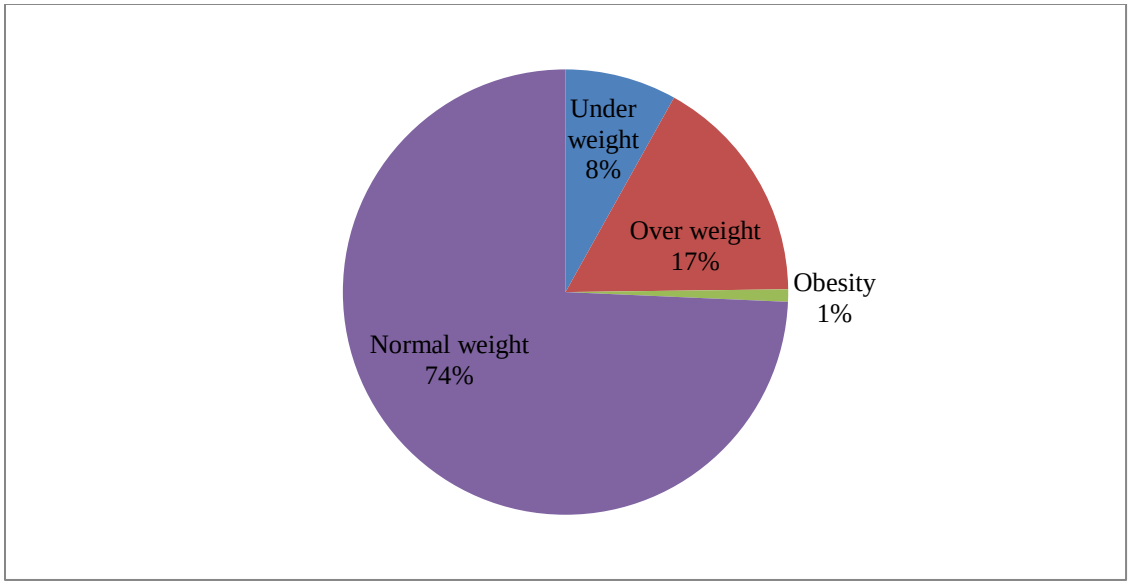

Figure 3: BMI status of mothers of daycare children in Bahir Dar city, 2025

5.5. DIETARY PRACTICE OF DAYCARE CHILDREN

Most daycare center children consume Cereals, roots, and tubers food group in both age groups of 6-23 months (93.3%) and 24-59 months (93.8%). More than half of daycare children with 6-59 month age **(**51.2%**)** met the minimum dietary diversity **(Table 7&8)**.

Table 7 : Food group consumption and minimum dietary diversity among children aged 6–23 months in daycare centers in Bahir Dar City, 2025(n=119)

Food groups	Category	Frequency	Percent
Breast feeding	Yes	64	53.8
	No	55	46.2
Cereals, roots, and tubers	Yes	111	93.3
	No	8	6.7
Legumes and nuts	Yes	76	63.9
	No	43	36.1

Dairy products	Yes	86	72.3
	No	33	27.7
Flesh foods	Yes	24	20.2
	No	95	79.8
Eggs	Yes	66	55.5
	No	53	45.5
Vitamin A-rich fruits and vegetables	Yes	35	29.4
	No	84	70.6
Other fruits and vegetables	Yes	40	33.6
	No	79	66.4
MDD	<5	49	41.2
	≥5	70	58.8

Table 8: Food group consumption and minimum dietary diversity among children aged 24–59 months in daycare centers in Bahir Dar City, 2025(n=324)

Food groups	Category	Frequency	Percent
Cereals, roots, and tubers	Yes	304	93.8
	No	20	6.2
Legumes and nuts	Yes	203	62.7
	No	121	37.3
Dairy products	Yes	165	50.9
	No	159	49.1
Flesh foods	Yes	96	29.6
	No	228	70.4
Eggs	Yes	142	43.8
	No	182	56.2
Vitamin A-rich fruits and vegetables	Yes	120	37.0
	No	204	63.0
Other fruits and vegetables	Yes	103	31.8
	No	221	68.2
MDD	<4	167	51.5
	≥4	157	48.5

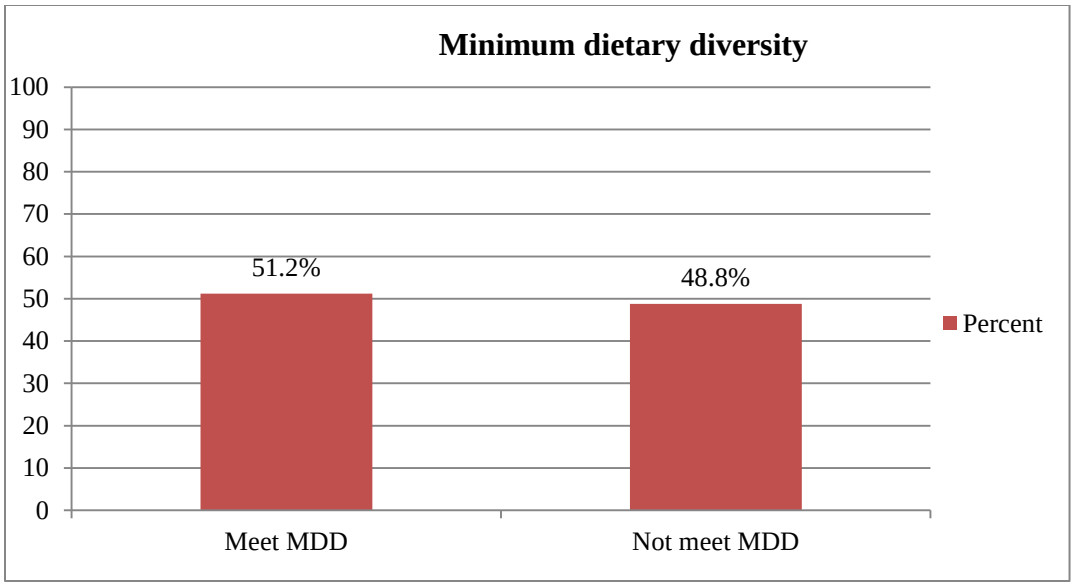

Figure 4: Minimum dietary diversity (MDD) status among daycare children aged 6–59 months in Bahir Dar City, 2025

5.6. DAY CARE CENTER RELATED INFORMATION

Most caregivers had diplomas/degrees (90.0%) and were trained in child nutrition and health (80.0%). The majority of centers (80.0%) had improved ventilation in latrines. Child-appropriate potty facilities were available in all daycare centers. All centers had piped water access and none reported using public taps, tube wells, tanker trucks and spring water. 8 day care had separated room for children less than one year of age and the remaining kept all walking and non- walking children together and 5 day care center have 4 separated rooms by classifying children in to 4 age group. The number of children per class in the daycare centers ranges from 10 to 40. Proper hand washing before feeding was practiced by caregivers and children at all day care centers. In one of the day cares, 2 care givers were assigned for 13 children, in the other center 23 care giver for 218 children and 30 caregiver for 211children **(Table 9)**.

Table 9: Characteristics of daycare center in Bahir Dar city, 2025(n= 10)

Variable	Category	Frequency	Percent
Daycare type	Non-governmental	5	50
	Governmental	5	50
Number of children(n=443)	Non-governmental	243	54.9
	Governmental	200	45.1

Highest educational qualification of caregiver	Secondary education	1	10
	Diploma or degree	9	90
Latrine type	Pit latrine	2	20
	Ventilated improved latrine	8	80
Training provided to institutions on childcare, nutrition and health	No	2	20
	Yes	8	80
Water availability in the daycare center	Yes	10	100
	No	0	

5.7. PREVALENCE OF UNDER NUTRITION

The prevalence of wasting, stunting, and underweight in daycare centers of Bahir Dar city during the study period was 10.4% (95% CI: 7.6%–13.2%)**,** 42.0% (95% CI: 37.4%–46.6%)**,** and 22.1% (95% CI: 18.2%–25.9%) respectively **(Table 10)**.

Table 10: Prevalence of under nutrition among children aged 6-59 month in daycare center of Bahir Dar city, 2025(n= 443)

Variable	**Category**	**Frequency**	**Percent %**
Wasting	Normal (WHZ ≥ −2)	397	89.6
	Moderate wasting (−3 ≤ WHZ < −2)	21	4.7
	Severe wasting (WHZ < −3)	25	5.7
	Overall wasting (severe + moderate)	46	10.4
Stunting	Normal (HAZ ≥ −2)	257	58.0
	Moderate stunting (−3 ≤ HAZ < −2)	81	18.3
	Severe stunting (HAZ < −3)	105	23.7
	Overall stunting (severe + moderate)	186	42.0
Underweight	Normal (WAZ ≥ −2)	345	77.9
	Moderate underweight (−3 ≤ WAZ < −2)	64	14.4
	Severe underweight (WAZ < −3)	34	7.7
	Overall underweight (severe +moderate)	98	22.1

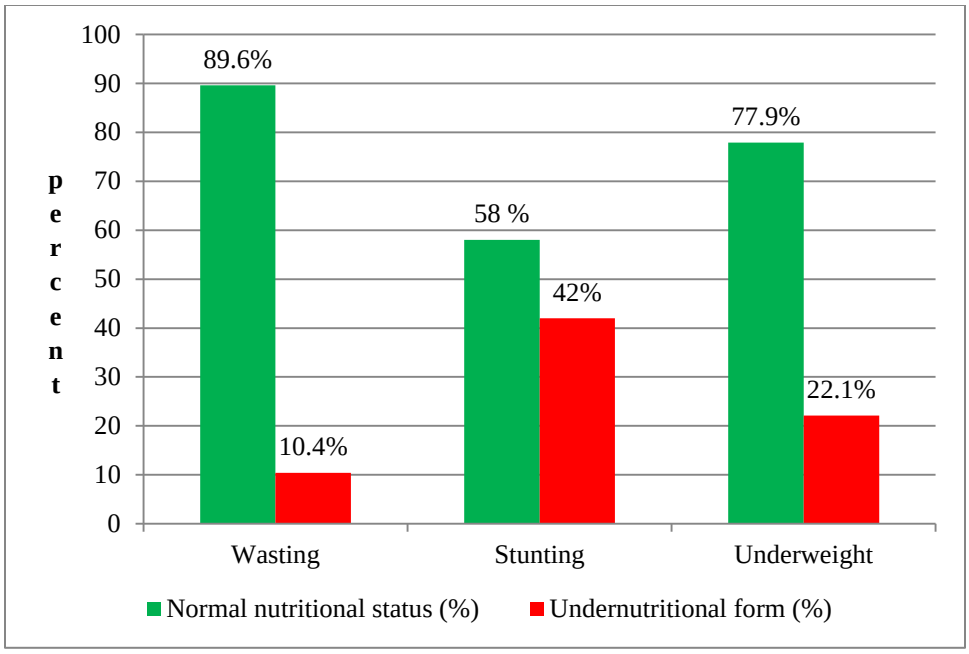

Figure 5: Prevalence of under nutrition in children aged 6-59 month in daycare centers of Bahir Dar city, 2025

5.8. FACTORS ASSOCIATED WITH WASTING IN DAYCARE CHILDREN

Variables with p-value <0.25 in the bi-variable logistic regression analysis were included as candidates in the multi-variable logistic regression model. In the multi-variable analysis, maternal knowledge and recent diarrhea were significantly associated with wasting among children. Children whose mothers had poor knowledge were 2.4 times more likely to be wasted compared to those whose mothers had good knowledge (AOR = 2.42; 95% C I: 1.22–4.80). Additionally, children who experienced diarrhoea in the two weeks prior to the survey had 2.5 times higher odds of wasting compared to children without diarrhoea (AOR = 2.55; 95% CI: 1.21–5.36) **(Table 11)**.

Table 11: Bi-variable and multi-variable logistic analyses of wasting in the day care study, Bahir Dar city, 2025(n=443)

Variable	Category	Wasted		COR (95% CI)	AOR (95% CI)	p-value
		Yes	No			
Child sex	Male	30 (12.1%)	218 (87.9%)	1.54 (0.81–2.91)	1.68 (0.86–3.27)	0.130
	Female	16 (8.2%)	179 (91.8%)	1	1	
MDD status	Did not meet MDD	31 (14.4%)	185 (85.6%)	2.37 (1.24–4.52)	1.71 (0.85–3.45)	0.132
	Meet MDD	15 (6.6%)	212 (93.4%)	1	1	
Maternal knowledge	Poor	29 (17.8%)	134 (82.2%)	3.35(1.78–6.31)	2.42 (1.22–4.80)	**0.011***
	Good*	17 (6.1%)	263 (93.9%)	1	1	
Diarrhoea	Yes	14 (23.3%)	46 (76.7%)	3.34 (1.66–6.72)	2.55 (1.21–5.36)	**0.014***
	No	32 (8.4%)	351 (91.6%)	1	1	
Fever	Yes	14 (14.7%)	81 (85.3%)	1.71 (0.87–3.35)	1.63 (0.80–3.34)	0.179
	No	32 (9.2%)	316 (90.8%)	1	1	
Daycare type	Governmental	27 (13.5%)	173 (86.5%)	1.84 (0.99–3.42)	1.57 (0.82–3.03)	0.175
	Non-governmental	19 (7.8%)	224 (92.2%)	1	1	

*Good maternal knowledge = good +moderate

5.9. FACTORS ASSOCIATED WITH STUNTING IN DAYCARE CHILDREN

Bi-variable logistic regression was first performed, and variables with $p < 0.25$ were included in the multi-variable logistic regression model. In the multi-variable analysis, stunting was significantly associated with child age, recent cough, and maternal mental status. Children aged 24–59 months were about 1.7 times more likely to be stunted compared with children aged 6–23 months (AOR = 1.70; 95% CI: 1.06–2.72). Children who had coughed in the two weeks prior to the survey were nearly twice as likely to be stunted as those without cough (AOR = 1.94; 95% CI: 1.09–3.44). Additionally, children of mothers with a mental disorder were about 2.1 times more likely to be stunted compared with children of mothers without a mental disorder (AOR = 2.06; 95% CI: 1.33–3.19) **(Table 12)**.

Table 12: Bi-variable and multi variable logistic analyses of stunting in the day care study, Bahir Dar city, 2025 (n=443)

		Stunted				
Variable	**Category**	**Yes**	**No**	**COR (95% CI)**	**AOR (95% CI)**	**p-value**
Child age group	24–59 months	147 (45.4%)	177 (54.6%)	1.70 (1.10–2.65)	1.70 (1.06–2.72)	**0.027***
	6–23 months	39 (32.8%)	80 (67.2%)	1	1	
Wealth index	Poor	66(37.9%)	108 (62.1%)	0.63 (0.41–0.95)	0.71 (0.45–1.13)	0.147
	Middle class	31 (34.8%)	58 (65.2%)	0.55 (0.32–0.92)	0.60 (0.34–1.04)	0.068

	Rich	89 (49.4%)	91 (50.1%)	1	1	
Maternal knowledge	Poor	80 (49.1%)	83 (50.9%)	1.52 (0.97–2.38)	1.12 (0.68–1.84)	0.650
	Moderate	47 (36.7%)	81 (63.3%)	0.92 (0.56–1.49)	0.93 (0.56–1.55)	0.782
	Good	59 (38.8%)	93 (61.2%)	1	1	
Cough	Yes	35 (56.5%)	27 (43.5%)	1.97 (1.15–3.40)	1.94 (1.09–3.44)	**0.024***
	No	151 (39.6%)	230 (60.4%)	1	1	
Measles	Yes	5 (27.8%)	13 (72.2%)	0.52 (0.18–1.48)	0.42 (0.13–1.30)	0.132
	No	181 (42.6%)	244 (57.4%)	1	1	
Immunization status	Partially immunized	11 (31.4%)	24 (68.6%)	0.61 (0.29–1.28)	0.54 (0.24–1.18)	0.121
	Fully immunized	175 (42.9%)	233 (57.1%)	1	1	
Maternal mental status	Mental distress	78 (56.5%)	60 (43.5%)	2.37 (1.57–3.57)	2.06 (1.33–3.19)	**0.001***
	No mental distress	108 (35.4%)	197 (64.6%)	1	1	
MDD status	Not meet MDD	104 (48.1%)	112 (51.9%)	1.64 (1.12–2.40)	1.42 (0.94–2.16)	0.100

	Meet MDD	82 (36.1%)	145 (63.9%)	1	1

5.10. FACTORS ASSOCIATED WITH UNDERWEIGHT IN DAYCARE CHILDREN

Variables with p < 0.25 in the bi-variable analysis were included in the multi variable logistic regression model. After adjusting potential confounders, underweight were significantly associated with dietary diversity, maternal nutrition knowledge, and diarrhoea (last two weeks). Children who did not achieve the minimum dietary diversity were four times more likely to be underweight compared with those who did (AOR = 4.06; 95% CI: 2.25–7.33). Children of mothers with low nutrition knowledge were about 4.3 times more likely to be underweight compared with those whose mothers had high nutrition knowledge (AOR = 4.3; 95% CI: 2.13–8.71). Children who experienced diarrhoea in the past two weeks had nearly three times the risk of being underweight compared with children without diarrhoea (AOR = 2.89; 95% CI: 1.44–5.79) **(Table 13)**.

Table 13: Bi-variable and multi variable logistic analyses of underweight the day care study, Bahir Dar city 2025(n=443)

		Underweight				
Variable	**Category**	**Yes**	**No**	**COR (95% CI)**	**AOR (95% CI)**	**p Value**
Child age	24–59 months	82 (25.3)	242 (74.7)	2.18 (1.22–3.91)	0.55 (0.28–1.07)	0.076
	6–23 months	16 (13.4)	103 (86.6)	1	1	
Child sex	Male	62 (25.0)	186 (75.0)	1.47 (0.93–2.34)	1.51 (0.88–2.59)	0.136
	Female	36 (18.5)	159 (81.5)	1	1	

Birth weight	Low birth weight	7 (33.3)	14 (66.7)	0.55 (0.22–1.40)	1.58 (0.49–5.15)	0.448
	Normal birth weight	91 (21.6)	331 (78.4)	1	1	
Minimum dietary diversity	Not meet MDD	78 (36.1)	138 (63.9)	5.85 (3.42–10.00)	4.06 (2.25–7.33)	**0.001***
	Meet MDD	20 (8.8)	207 (91.2)	1	1	
Maternal knowledge	Poor knowledge	66 (40.5)	97 (59.5)	7.28 (3.80–13.92)	4.30 (2.13–8.71)	**0.001***
	Moderate knowledge	19 (14.8)	109 (85.2)	1.86 (0.88–3.94)	1.96 (0.89–4.32)	0.095
	Good knowledge	13 (8.6)	139 (91.4)	1	1	
Diarrhoea (last 2 weeks**)**	Yes	26 (43.3)	34 (56.7)	3.30 (1.87–5.85)	2.89 (1.44–5.79)	**0.003***
	No	72 (18.8)	311 (81.2)	1	1	
Cough (last 2 weeks)	Yes	18 (29.0)	44 (71.0)	1.54 (0.84–2.81)	1.15 (0.57–2.34)	0.692
	No	80 (21.0)	301 (79.0)	1	1	
Immunization status	Partially immunized	5 (14.3)	30 (85.7)	0.57 (0.21–1.50)	0.44 (0.14–1.39)	0.163
	Fully immunized	93 (22.8)	315 (77.2)	1	1	
Daycare type	Governmental daycare	55 (27.5)	145 (72.5)	1.76 (1.12–2.77)	1.47 (0.86–2.49)	0.157
	Non-governmental	43 (17.7)	200 (82.3)	1	1	
Maternal mental distress	Mental distress	44 (31.9)	94 (68.1)	2.18 (1.37–3.46)	1.31 (0.75–2.29)	0.336

Maternal attitude	No mental distress	54 (17.7)	251 (82.3)	1	1	
	Neutral/negative	76 (26.2)	214 (73.8)	2.115 (1.25–3.56)	1.45 (0.79–2.66)	0.233
	Positive	22 (14.4)	131 (85.6)	1	1	

6. DISSCUSSTION

The main aim of the study was to assess under nutrition, and associated factors among children aged 6-59 months in day care center in Bahir Dar City, Ethiopia 2025. In this study the prevalence of stunting were 42.0 % with 95% CI (37.4%–46.6%) which, according to WHO classification, represents a very high public health burden. This indicates that children in the study area experience chronic nutritional deficits and growth failure, increasing the risk of morbidity and long-term developmental problems. This study is Comparable with the study in the Amhara National Regional State reported as 40% (50), the national survey of Ethiopia under five children 39% (49), the 2016 Ethiopia Demographic and Health Survey (EDHS) reported 44.4% (45, 46). The reason for this similarity may be that the underlying determinants such as inadequate dietary intake, frequent childhood infections, low maternal education, and limited access to health services are common across Ethiopia. Additionally, these studies focus on similar populations of children under five years. The result were higher than the study conduct in Bahir Dar 30.9% (51), Naivasha Kenya 13.8% (42), Mwea Kirinyaga Kenya 24.2 % (40), Busia Kenya (43), South Africa 29% (41), from Port Harcourt Nigeria 5.5% (38) and São Paulo in Brazil 22.6 % (39). The possible reason maybe year of age discrepancy (most of study in daycare center were 6-23 months age) but this study included 6- 59 months children, differences in household income levels and the quality of childcare services, health system and program coverage.

In this study prevalence of wasting were 10.4% with 95% CI (7.6%–13.2%) indicating a moderate public health concern according to WHO classification. This study is align with the study conducted in Amhara National Regional State in Ethiopia 10% (48), the national survey of Ethiopia on under five children reported 11% (49), 2016 Ethiopia Demographic and Health Survey (EDHS) 9.7% (45, 46), Mwea Kirinyaga in Kenya 9.7 % (40), Naivasha in Kenya 8% (42) but higher than the study conducted in Bahir Dar Ethiopia 7% (51), South Africa 6% (41), Port Harcourt Nigeria 7.1% (38) and Busia Kenya (43). The possible reason for those differences may be linked to variations in age range. This study included children aged 6 to 59 months, which captures older children who are still at risk of acute malnutrition due to poor complementary feeding and repeated infections. In addition, better socioeconomic status, stronger health systems, improved food security, and greater access to nutrition and healthcare

services in South Africa and urban areas like Port Harcourt may explain the lower prevalence noted in those studies. Changes over time and recent economic challenges may have worsened food insecurity and childhood illnesses in the current study area, resulting in a relatively higher burden of wasting.

The prevalence of underweight in this study was 22.1% with 95% CI (18.2%–25.9%). The result is comparable with the study conducted in Bahir Dar in Ethiopia which reported underweight 18.7% (49), national survey of Ethiopia 22% (49). The consistent findings across these studies are likely due to similar social and economic backgrounds, examined comparable age groups, similar population, shared eating habits, and common childhood illnesses. The result was lower than the study conducted in 2016 Ethiopia Demographic and Health Survey (EDHS) 28.7% (45, 46) . The reason may be due to temporal improvements in child nutrition interventions, including expanded community-based nutrition programs, increased health service coverage, and improved awareness of infant and young child feeding practices over time. This study was higher than the study conducted in Addis Ababa 11.7% (44), Mwea Kirinyaga in Kenya 6.1% (40), Busia Kenya (43), Port Harcourt in Nigeria 3% (38) and South Africa 13% (41). The observed reduction in these rates may be primarily attributed to enhanced urban characteristics, encompassing elevated household income, improved food security, broader dietary diversity, and superior access to health and nutrition services. Notably, highly urbanized contexts such as Addis Ababa and Port Harcourt furnish households with improved access to healthcare and diversified food markets. Conversely, South Africa benefits from robust social protection and child nutrition programs. Furthermore, discrepancies in demographic composition and temporal parameters of investigation may also account for the observed variation.

Maternal knowledge emerged as a strong determinant of wasting. Children of mothers with poor knowledge were almost two and half more likely to be wasted as those whose mothers had good knowledge with 95% CI (1.22–4.80). this study is align in studies conducted in Ghana have shown positive link between caregiver nutritional knowledge and child nutrition outcomes (61). This result also align study conduct in Sub Saharan Africa found that higher maternal knowledge on nutrition and health was associated with lower risk of child wasting **(57).** This underscores the critical role of maternal education and awareness in promoting appropriate feeding practices, hygiene, and timely healthcare seeking. Poor maternal knowledge may lead to inadequate

complementary feeding, delayed recognition of illness, or inappropriate responses to child illness, all of which can increase the risk of acute malnutrition**.**

Presence of diarrhoea in the past 2 weeks prior to data collection was an independent predictor for wasting among children in daycare centers. Children who experienced diarrhoea in the two weeks prior to the survey had more than 2 times higher odds of wasting compared to children without diarrhoea within 95% CI (1.21–5.36). The observed association between recent diarrhoea and wasting is consistent with findings from a community-based study conducted in South Ari District, Ethiopia (61) and Sodo Zuria District, South Ethiopia (69). That study reported that children who had experienced diarrhoea in the previous two weeks were nearly twice as likely to be wasted compared to those without a history of diarrhoea. During diarrhoea episodes children get loss of appetite, poor digestion, and mal absorption of nutrients. These biological pathways support the current finding, as diarrhoea can rapidly lead to weight loss and depletion of body reserves, which are characteristic features of wasting.

Children aged 24–59 months were approximately two times more likely to be stunted compared with those aged 6–23 months within 95% CI (1.06–2.72). This study align with the study conduct in Kenya (40) and Rwanda(62). This age pattern of stunting aligns with findings from Demographic and Health Survey analyses and community-based studies in Ethiopia and similar low-income settings, which consistently report elevated stunting prevalence among older under-five children relative to younger age groups. Growth faltering usually begins during the early complementary feeding period (6–24 months) due to inadequate dietary intake and repeated infections. It might because of as children grow older; the cumulative effect of poor nutrition, reduced breastfeeding, and increased exposure to infections becomes more evident, resulting in a higher prevalence of stunting in the 24–59-month age group.

The association between cough in the past two weeks and stunting observed in this study highlights the role of infectious morbidity in undermining child growth. Children who had coughed in the two weeks prior to the survey were nearly twice as likely to be stunted as those without cough with 95% CI (1.09–3.44). This study align with study conducted in Ethiopia (67). Cough, often a proxy indicator for acute respiratory infections (ARI), is biologically plausible as a risk factor for stunting because recurrent or prolonged respiratory illnesses can disrupt nutrient intake, increase metabolic demands, and exacerbate systemic inflammation. Although most literature has focused on diarrhea disease and enteric infections in relation to stunting,

epidemiological research also shows that ARI and stunting co-occur in low- and middle-income countries.

Children of mothers with a mental disorder were more than twice as likely to be stunted compared to those whose caregivers had no mental disorder within 95% CI (1.33–3.19). This study align with the study conduct in Rwanda where mother who have mental disorder get 1.67 more times to have stunted children compared from mother who have not mental disorder(62). Caregiver mental health, particularly depressive symptoms, has been linked to sub-optimal child feeding practices, reduced responsiveness to child needs, and decreased engagement with health services, all of which can compromise child growth trajectories

Children who failed to achieve the minimum dietary diversity (MDD) were nearly four times more likely to be underweight compared with those who met the minimum standard within 95% CI (2.25–7.33). This finding is consistent with a comprehensive multi-country analysis across 32 sub-Saharan African countries using Demographic and Health Survey data showed that children who achieved adequate dietary diversity had significantly lower odds of being underweight (63). Similarly, this result have align with evidence from Ethiopia using the 2019 Mini Demographic and Health Survey indicated that children aged 6–23 months with adequate MDD had lower odds of being underweight (64). Diets lacking diversity are often dominated by starchy staples, which may meet caloric needs but fail to provide sufficient protein and essential micro-nutrients required for optimal growth, thereby increasing the risk of underweight.

Children whose mothers had poor levels of nutrition knowledge were more than four times as likely to be underweight compared with those whose mothers had good knowledge within 95% CI (2.13–8.71). This finding aligns with evidence from a multi-country analysis across sub-Saharan Africa, which reported that higher maternal knowledge of nutrition and child health was significantly associated with a reduced risk of child underweight after adjustment for confounders(57). In that context, mothers with limited knowledge faced challenges in practicing appropriate complementary feeding, leading to poor growth outcomes. Further supporting this finding, studies conducted in Nairobi Kenya demonstrated that inadequate maternal knowledge toward nutrition was significantly associated with underweight (59).

In this study, diarrhoea in the two weeks preceding the survey was identified as a significant factor associated with underweight among children. Children who experienced diarrhoea in the past two weeks had almost three times the risk of being underweight compared with children without diarrhoea within 95% CI (1.44–5.79). This study aligns with evidence from a cross-sectional study conducted in Sodo Zuria District, South Ethiopia. That study demonstrated that diarrhoea morbidity in the two weeks prior to data collection was an independent predictor of both wasting and underweight among children aged 6–59 months(69).

7. CONCLUSTION

According to WHO cut off value stunting was very high public health burden, underweight was high public health burden and wasting was serious public health burden in day care center of Bahir Dar city. More than four in ten, one in ten and two in ten of children in the studied day care centers in Bahir Dar city were found to be stunted, wasted and under weighted respectively. Child age, diarrhoea (in the last two weeks), maternal nutritional knowledge, maternal mental distress, and inadequate dietary diversity were key associated factors. As a study conducted in urban (Bahir Dar) area all 3 forms of under nutrition (stunting, wasting and underweight) are high in the day care center.

8. RECOMMENDATION

- ✓ For Bahir Dar City Administration Child, Youth and Maternal Office**:** Link licensing and license renewal to fulfillment of nutrition, sanitation, and safety requirements. Strengthen oversight and management of daycare centers by regularly monitoring their operations and maintaining an updated registry of all functioning centers within the city.
- ✓ For Daycare Centers Administrator: Maintain appropriate caregiver to provide personalized attention and timely feeding. Regular growth monitoring (weight-for-age, height-for-age, and weight-for-height) should be conducted. Train daycare staff on nutrition-sensitive care giving, growth monitoring, and early identification of illness. Day care centers should collaborate with nearby health centers and health extension workers for Management of acute malnutrition.
- ✓ For Bahir Dar city Health Department: Provide regular nutrition counseling sessions for mothers on IYCF, hygiene, and dietary diversity, under nutrition. Identify and provide counseling, psychosocial support to mothers facing mental health challenges.
- ✓ For NGOs and Community Organizations: Facilitate maternal education campaigns on under nutrition, hygiene, and early care-seeking for illness. Support mental health and psycho-social interventions for mothers to improve care giving quality.

STRENGTH AND LIMITATION OF STUDY

One of the strengths of this study is that it provides current evidence on all of three forms of under nutrition and factors associated with stunting and wasting and underweight among daycare center children. The study included as many important factors as possible that could affect the outcomes. The other strength of this study is that it added new variables (maternal mental distress), which was not conducted by other researchers to provide an association with under nutrition among children in daycare center.

The limitation of this study was certain level of recall bias was expected with regard to events happened in the past; such as minimum dietary diversity, immunization status.

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10. APPENDICES

10.1. Information Sheet

Research Project: - under nutrition and associated factors among children aged 6 -59 months in day care center in Bahir Dar city, Ethiopia.

Name of Principal Investigator: Yohannes Dereje Tadesse

This information sheet and consent form is prepared by the investigator whose main aim is to study nutritional statues and associated factors among children attending daycare in Bahir Dar city, Ethiopia

The investigator is (Mph nutrition) student from Bahir Dar University

Purpose: To assess under nutrition and associated factors among daycare children in Bahir Dar, Ethiopia.

Procedures: you are kindly invited to take part in our research because we believe you can provide the necessary information for the research. Participation into the study is on voluntary basis. If you are willing to participate in our research, you need to understand and sign the consent form. Then, you will be asked to give your response by the data collectors. All the responses given by the participants and the results obtained will be kept anonymous and confidential. No one outside the research team will have access to your responses.

Risk and/or Discomfort: By participating in this study you may feel that it has some discomfort specially on wasting your time (about 20－ 30minutes) but if someone compares its Potential benefits it contributes to this study, giving this minute to fill the questioner means nothing. So you can definitely be sure that there is no risk in participating in this research project.

Benefits: If you participate in this study, you may not get direct benefit but your participation is likely to help me in assessing under nutrition and associated factors among daycare children in Bahir Dar, Ethiopia.

Confidentiality and Anonymity: The information that we will collect from this research project will be kept confidential. Information about you that will be collected from the study will be stored in a file, which will not have your name on it, and it will not be revealed to anyone except the principal investigator.

Right to Refuse or Withdraw: you have the full right to refuse from participating in this research (you can choose not to respond some or all of the questions) if you do not wish to participate; and this will not affect you. You have also the full right to withdraw from this study at any time

Persons to contact for further information: If you have any question you can contact the principal investigator in the following address:

Name: Yohannes Dereje Tadesse

Tel: +251953267689

Email: yohannesdere460@gmail.com

Contact information for complaint: If you have any concern that the research team is conducting their activities unethically or inappropriately please contact Bahir Dar University with the following address:

Tel: 251583209653

Email: bduinfo@bdu.edu.et

If you agree to participate in this study, I appreciate your truthfulness. And after having this consent form, please put a sign below to show if you are willing to participate (No need of writing your name).

10.2. Informed Consent

I have read the participant information sheet. I have clearly understood the purpose of the research, the procedures, the risks, and benefits, issues of confidentiality, the rights of participating and the contact address for any queries. I have been given the opportunity to ask questions for things that may have been unclear. I was informed that I have the right to withdraw from the study at any time or not to answer any question that I do not want.

Therefore, I declare my voluntary consent to participate in this study with my initials (signature).

Signature of participant: ----------

Name and Signature of data collection facilitator ----------

10.3. Questioners

Section 1: Socio-Demographic and Economic Information of Parents/Guardians

Code	Questions	Response Options	Remarks
1	Relationship of the respondent to the child	1. Biological mother 2. Non-biological mother	
2	Mother's age (in years)	_____ years	
3	Religion	1. Orthodox 2. Protestant 3. Catholic 4. Muslim 5. Other (specify): _____	
4	Marital status of the mother	1. Married 2. Single 3. Divorced 4. Widowed	
5	Maternal education status	Unable to read and write Primary education incomplete Primary education completes Secondary (Grades 9–12) Diploma and above	
6	Paternal education status	Unable to read and write Primary education incomplete Primary education	

		completes Secondary (Grades 9–12) Diploma and above	
		Unable to read and write Primary education incomplete Primary education completes Secondary (Grades 9–12) Diploma and above	
7	Maternal occupation	1. Government employee 2. NGO employee 3. Private sector employee (e.g., factory, hotel, company) 4. Merchant/trader 5. Housewife 6. Daily laborer 7. Other (specify): _____	Clarified private employee
8	Paternal occupation	1. Government employee 2. NGO employee 3. Private sector employee (e.g., factory, hotel, company) 4. Merchant/trader 5. Unemployed 6. Daily laborer	

		7. Other (specify): _____	
9	Family size	_____ persons	Include all household members
10	How many are under 5?	_____ children	Make specific
S.N	Wealth index variables in the family	Options	See EDHS 2016 tool
11	Do you have an electric supply?	1. Yes 2. No	
12	Do you have a smartphone?	1. Yes 2. No	
13	Do you have a television?	1. Yes 2. No	
14	Do you have a refrigerator?	1. Yes 2. No	
15	Do you have an electric pan?	1. Yes 2. No	
16	Do you have a table?	1. Yes 2. No	
17	Do you have a sofa?	1. Yes 2. No	
18	Do you have a separate bedroom?	1. Yes 2. No	
19	Do you have a car?	1. Yes 2. No	

20	Do you have a bicycle?	1. Yes 2. No	
21	Do you have a motorbike?	1. Yes 2. No	
22	Do you have gari?	1. Yes 2. No	
23	Where do you get drinking water?	1. Piped water 2. Groundwater 3. Spring water 4. Both piped and ground water	
24	Do you have a toilet?	1. Yes 2. No	
25	If yes to Q 24 What type of toilet do you have the most?	1. Ventilated pit latrine 2. Traditional pit latrine	
26	What is the source of energy that you usually use for cooking?	1. Electric 2. Wood/charcoal 3. Both	
27	What is the floor of the house made of?	1. Mud 2. Cement 3. Ceramic 4. Other Specify-----	
28	What is the wall of your house is made of?	1. Mud 2. Cement 3. block 4. Other specify----------	

		-	
29	What is the roof of your house is made of?	1. Iron 2. Plastic 3. Other specify_____	
30	Do you have a laundry machine?	1. Yes 2. No	
31	Do you have a computer?	1. Yes 2. No	

The HFIAS consists of two types of related questions. The first question type is called an occurrence question. Nine occurrence questions ask whether a specific condition associated with the experience of food insecurity ever occurred during the previous four weeks (30 days). Each severity question is followed by a frequency-of-occurrence question, which asks how often a reported condition occurred during the previous four weeks Rarely (once or twice in the past four weeks), Sometimes (three to ten times in the past four weeks), Often (more than ten times in the past four weeks).

No	Question	Response Option
32	In the past four weeks, did you worry that your household would not have enough food?	0 = No (skip to Q2) 1 =Yes
32.a	How often did this happen?	1 = Rarely 2 = Sometimes 3 = Often
33.	In the past four weeks, were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?	0 = No (skip to Q3) 1=Yes
33.a	How often did this happen?	1 = Rarely 2 = Sometimes 3 = Often

34.	In the past four weeks, did you or any household member have to eat a limited variety of foods due to a lack of resources?	0 = No (skip to Q4) 1 = Yes
34.a	How often did this happen?	1 = Rarely 2 = Sometimes 3 = Often
35.	In the past four weeks, did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food?	0 = No (skip to Q5) 1 = Yes
35.a	How often did this happen?	1 = Rarely 2 = Sometimes 3 = Often
36.	In the past four weeks, did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food?	0 = No (skip to Q6) 1 = Yes
36.a	How often did this happen?	1 = Rarely 2 = Sometimes 3 = Often
37.	In the past four weeks, did you or any other household member have to eat fewer meals in a day because there was not enough food?	0 = No (skip to Q7) 1 = Yes
37.a	How often did this happen?	1 = Rarely 2 = Sometimes 3 = Often
38.	In the past four weeks, was there ever	0 = No (skip to Q8)

	no food to eat of any kind in your household because of lack of resources to get food?	1 = Yes
38.a	How often did this happen?	1 = Rarely 2 = Sometimes 3 = Often
39.	In the past four weeks, did you or any household member go to sleep at night hungry because there was not enough food?	0 = No (skip to Q9) 1 = Yes
39.a	How often did this happen?	1 = Rarely 2 = Sometimes 3 = Often
40.	In the past four weeks, did you or any household member go a whole day and night without eating anything because there was not enough food?	0 = No 1 = Yes
40.a	How often did this happen?	1 = Rarely 2 = Sometimes 3 = Often

Feeding Children (6–59 Months)

Introduction: I am going to ask you some questions about the nutrition of children aged 6 to 59 months. Please let me know if you need me to clarify any of my questions. Feel free to ask any questions you may have.

IYCF Practices

Code	Question	Response	remark
41	Child age		
42	Child sex		
43	Is the child still breastfeeding? (only for 6 up to 23 month child)	Yes No	
	Yesterday, during the day or at night, did your child eat any of the following		
44	Grains, roots and tubers (Porridge, bread, rice, noodles, or other grain-based foods; white potatoes, yams, manioc, cassava, or other roots)	Yes No	
45	Legumes and nuts(Beans, peas, lentils, nuts, or seeds)	Yes No	
46	Dairy products(Infant formula (local examples: _____), milk (tinned, powdered, or fresh), yogurt, cheese)	Yes No	
47	Flesh foods(Liver, kidney, heart, organ meats; meat (beef, pork, lamb, goat, chicken, duck); fish, shellfish)	Yes No	
48	Eggs	Yes No	
49	Vitamin A-rich fruits and vegetables(Pumpkin, carrots, squash, yellow/orange sweet potatoes; dark green leafy vegetables (local examples: _____); ripe mangoes, papayas, musk melon; foods with red palm oil or nuts)	Yes No	

50	Other fruits and vegetables(Any other fruits or vegetables)	Yes No	
51	Others (not counted in diversity score) [Oils, fats, butter; sugary foods (chocolates, sweets, pastries); condiments (chillies, spices, herbs, fish powder)]	Yes No	
52	How many times did your child eat foods other than liquids (meals and snacks) yesterday during the day or night?	Number of times: _____	

Knowledge

Code	Question	Response	Remar
53	How long is it recommended that a mother breastfeeds her child?	1, Six months or less 2, 6–11 months 3, 12–23 months 4, 24 months or more 5, Other 6, don't know	
54	At what age should babies start eating foods in addition to breast milk?	1, At six months 2, Other 3,Don't know	
55	Why is it important to give foods in addition to breast milk starting at six months?	1, Breast milk alone is not sufficient to meet nutrient needs after six months 2,Other 3, Don't know	
5	Please look at these two	1, Thick porridge	

6	pictures of porridges. Which one do you think should be given to a young child?	2, Watery/thin porridge 3, Don't know	
57	Why did you pick that picture?	1, Because it is thicker than the other 2, Because thick porridge is more nutritious and made with diverse ingredients 3,Other 4, Don't know	
58	Many mothers feed their children rice porridge or borbor. Can you tell me ways to make rice porridge more nutritious or better for your child's health?	1, Add animal-source foods (meat, poultry, fish, liver, eggs) 2, Add pulses and nuts (groundnut flour, beans, peas, lentils, etc.) 3, Add vitamin A-rich fruits and vegetables (carrot, orange sweet potato, pumpkin, mango, papaya) 4, Add green leafy vegetables (spinach, etc.) 5, Add energy-rich foods (oil, butter, ghee) 6,Other	
59	Do you know any ways to encourage young children to eat?	1, Give them attention during meals, talk to them, make mealtimes happy 2, Clap hands, make funny faces, play or laugh 3, Model eating by opening your mouth wide	

		4, Say encouraging words 5, Draw the child's attention 6, Other 7,Don't know	
60	What are the signs of undernutrition?	1, Lack of energy/weakness: cannot work, study or play as normal (disability) *2,Weakness of the immune system (becomes ill easily or becomes seriously ill)* *3, Loss of weight/thinness* *4, Children do not grow as they should (growth faltering)* *5, Other* 6, Don't know	
61	What are the reasons why children are undernourished?	*1, Not getting enough food* *2, Food is watery, does not contain enough nutrients* *3, Disease/ill and not eating food* *4, Other* 5, Don't know	
62	What are the reasons why children do not get enough food?	*1, Not having enough money to buy food* *2, Food is not available* *3, Other* 4, Don't know	
63	How can you (caregiver) find out if the baby is growing well or not?	*1, Go to the health centre/ask a doctor or nurse (health professional)(seeking health-*	

		care services for growth monitoring) *2, Other* 3, Don't know	
64	Have you heard about iron-deficiency anaemia?	1, Yes 2, No 3, Don't know/no answe	
64.a	*If Yes:* Can you tell me how you can recognize someone who has anaemia?	*1,Less energy/weakness* *2,Paleness/pallor* *3,Spoon nails/bent nails (koilonychia)* *4,More likely to become sick (less immunity to infections)* *5,Other* *6, Don't know*	
65	Can you list examples of foods rich in iron?		
66	What are the health risks for infants and young children of a lack of iron in the diet?	*1, Delay of mental and physical development* *2, Other* *3,Don't know*	
67	Have you heard about vitamin A deficiency or lack of vitamin A?	1, Yes 2, No 3, Don't know/no answer	

67.a	*If Yes:* Can you tell me how you can recognize someone who lacks vitamin A in his or her body?	*1, Weakness/feels less energetic* *2, Be more likely to become sick (less immunity to infections)* *3, Eye problems: night blindness (inability to see at dusk and in dim light), dry eyes, corneal damage, blindness* *4, Other* *5, Don't know*	
68	What is food source of vitamin A		
69	What causes a lack of vitamin A in the body?	*1, Poor variety of foods* *2, Eat too little food/not eat much (poor intake)* *3,Other* 4, Don't know	
70	How can one prevent a lack of vitamin A in the body?	*1,Eat/feed vitamin-A-rich foods – having/giving a diet rich in vitamin A* *2,Eat/feed foods fortified with vitamin A* *3,Give vitamin A supplements/sprinkles* *4,Other* *5, Don't know*	
71	Food poisoning often results from contact with germs from faeces. What can you do to avoid	*1, Wash hands (after going to the toilet and cleaning the baby's bottom)* *2,Remove faeces from the home*	

	sickness from germs from human or animal faeces?	*and surroundings (use a latrine, teach small children to use a potty and put children's faeces in the latrine, and clean up faeces from animals)* *3,Other* 4, Don't know	
72	There are key moments when you need to wash your hands to prevent germs from reaching food. What are these key moments?	*1, After going to the toilet/latrine* *2, After cleaning the baby's bottom/changing a baby's nappy* *3, Before preparing/handling food* *4, Before feeding a child/eating* *5, After handling raw food* *6, After handling garbage* *7, Other* *Don't know*	
73	If you know that the water you are going to use for cooking or drinking is not safe or does not come from a safe source, what should you do?	*1, Boil it* *2, Add bleach/chlorine* *3, Strain it through a cloth* *4, Use a water filter (ceramic, sand, composite, etc.)* *5, Use solar disinfection* *6, Let it stand and settle* *7, Discard it and get water from a safe source* *8, Other* *9, don't know*	

Attitudes

Code	Question	Response	Remark
74	How confident do you feel preparing food for your child?	How confident do you feel preparing food for your child? 1, Not confident 2, Ok / So-so 3, Confident If Not confident, why?_____ ___	
75	How good do you think it is to give different types of food to your child each day?	1, Not good 2, Not sure 3, Good If Not good, why?_____	
76	How good do you think it is to feed your child several times each day?	Not good Not sure Good If Not good, why?_____	
77	How difficult is it for you to give your child different types of food daily?	Not difficult So-so Difficult If Difficult, why?_____	
7	How difficult is it	Not difficult	

8	for you to feed your child several times a day?	So-so Difficult If Difficult, why?_____	
79	How good do you think it is to continue breastfeeding beyond six months?	Not good Not sure Good If Not good, why?_____	
80	How difficult is it for you to continue breastfeeding beyond six months?	Not difficult So-so Difficult If Difficult, why?_____	
81	How likely do you think your child is to be undernourished, that is they stop growing or lose weight?	1. Not likely 2. You're not sure 3. Likely *If Not likely:* Can you tell me the reason why it is not likely? _____	
82	How serious do you think undernutrition is for a baby's health?	1. Not serious 2. You're not sure 3. Serious *If Not Serious:* Can you tell me the reason why it is not serious? _____	
83	How likely do you think your child is	1. Not likely 2. You're not sure 3. Likely	

	to be iron-deficient/anaemic?	*If Not likely:* Can you tell me the reason why it is not likely? _____	
84	How serious do you think iron-deficiency/anaemia is?	1. Not serious 2. You're not sure 3. Serious *If Not Serious:* Can you tell me the reason why it is not serious? _____	
85	How good do you think it is to prepare meals with iron-rich foods such as beef, chicken or liver?	1. Not good 2. You're not sure 3. Good *If Not good:* Can you tell me the reasons why it is not good? _____	
86	How difficult is it for you to prepare meals with iron-rich foods?	1. Not difficult 2. So-so 3. Difficult *If Difficult:* Can you tell me the reasons why it is difficult? _____	
87	How confident do you feel in preparing meals with iron-rich	1. Not confident 2. Ok/so-so 3. Confident *If Not confident:* Can you tell me the reasons why you do not	

	foods?	feel confident? _____	
88	How likely do you think your child is to lack vitamin A in his/her body?	1. Not likely 2. You're not sure 3. Likely *If Not likely:* Can you tell me the reason why it is not likely? _____	
89	How serious do you think a lack of vitamin A is?	1. Not serious 2. You're not sure 3. Serious If Not Serious: Can you tell me the reason why it is not serious? _____	
90	How good do you think it is to prepare meals with vitamin-A-rich foods such as carrots, green leafy vegetables, sweet-potatoes or liver?	1. Not good 2. You're not sure 3. Good *If Not good:* Can you tell me the reasons why it is not good? _____	
91	How confident do you feel in preparing meals with vitamin-	1. Not confident 2. Ok/so-so 3. Confident	

	A-rich foods?	*If Not confident:* Can you tell me the reasons why you do not feel confident? _____	
92	How good do you think it is to wash your hands before feeding a child/eating?	1. Not good 2. You're not sure 3. Good *If Not good:* Can you tell me the reasons why it is not good? _____	
93	How difficult is it for you to wash your hands before feeding a child/eating?	1. Not difficult 2. So-so 3. Difficult *If Difficult:* Can you tell me the reasons why it is difficult? _____	
94	How likely do you think your child is to get diarrhoea from using unsafe water?	1. Not likely 2. You're not sure 3. Likely *If Not likely:* Can you tell me the reason why it is not likely? _____	
95	How good do you think it is to boil water before drinking or using	1. Not good 2. You're not sure 3. Good *If Not good:* Can you tell me the reasons why it is not	

	it?	good? _____	
96	How difficult is it for you to boil water before drinking or using it?	1. Not difficult 2. So-so 3. Difficult *If Difficult:* Can you tell me the reasons why it is difficult? _____	

Illness and Immunization Status Tool for Children Aged 6–59 Months

Code	Question	Response Options	Remarks
97	Has the child received a Vitamin A supplement in the last 6 months?	1 = Yes 2 = No	Based on caregiver recall or card
99	Did the child have diarrhoea in the last 2 weeks?	1 = Yes 2 = No	≥3 loose stools in 24 hours
100	Did the child have fever in the last 2 weeks?	1 = Yes 2 = No	Measured or perceived
101	Did the child have cough in the last 2 weeks?	1 = Yes 2 = No	Dry or productive cough
102	Has the child had measles in the past 1 year?	1 = Yes 2 = No	Based on symptoms or confirmation
103	What is the child's current immunization	1 = Not immunized	Verify with card if possible

	status?	2 = Partially immunized 3 = Fully immunized	

Day care center related questioner y			
104	Type of daycare center	1, Non govermental 2, Govermental	
105	Total number of employed caregivers at the center:	----------	
106	How many children are assigned to one caregiver on average?	----------	Observational
107	Is there separate classroom for different age groups?	----------	Observational
108	Number of children per classroom	----------	Observational
109	What is the highest educational qualification of caregivers?	1, No formal education 2,Primary education 3,Secondary education 4, Diploma or Degree in a related field	

		5,Other (specify): _	
110	Is there a water source available at the daycare center?	1 yes 2 no	
110.a	If yes, what is the main source of drinking water?	1,Piped to dwelling 2,Public tap 3,Tube well 4,Tanker truck 5,Springwater 6 other..	Observational
111	Is there a latrine available for children at the daycare center?	1, yes 2 no	Obsevational
111.a	Is there potty (popo) available for children at the daycare center?	1,yes 2,no	Observational
111.b	Type of latrine	1,Pit latrine 2,Ventilated improved latrine 3,Flush toilet	Observational

112	Children wash their hands before eating? (for child eat by their own self)	1 yes 2 no	observa tional
113	Facility Care giver wash their hands during feeding of child(for child that didn't eat by their own self)	1 yes 2 no	Observ ational
114	Is there any training provided to caregivers on child nutrition and health?	1, yes 2, no	

Mental health questionnaires of care givers

Code	Question	Answer	
115	Do you often have headaches?	1, yes 0, no	Last 30 days
116	2. Is your appetite poor?	1, yes 0, no	
117	3. Do you sleep badly?	1, yes 0, no	
118	4. Are you easily frightened?	1, yes 0, no	
119	5. Do your hands shake?	1, yes 0, no	

120	6. Do you feel nervous, tense or worried?		
121	7. Is your digestion poor?	1, yes 0, no	
122	8. Do you have trouble thinking clearly?	1, yes 0, no	
123	9. Do you feel unhappy?	1, yes 0, no	
124	10. Do you cry more than usual?	1, yes 0, no	
125	11. Do you find it difficult to enjoy your daily activities?	1, yes 0, no	
126	12. Do you find it difficult to make decisions?	1, yes 0, no	
127	13. Is your daily work suffering?	1, yes 0, no	
128	14. Are you unable to play	1, yes 0, no	

	a useful part in life?		
129	15. Have you lost interest in things?	1, yes 0, no	
130	16. Do you feel that you are a worthless person?	1, yes 0, no	
131	17. Has the thought of ending your life been on your mind?	1, yes 0, no	
132	18. Do you feel tired all the time?	1, yes 0, no	
133	19. Do you have uncomfortable feelings in your stomach?	1, yes 0, no	
134	20. Are you easily tired?	1, yes 0, no	

Measurements			
Code	Question	Response	Remark
135	Weight of child at birth	----------	
136	Weight		

137	Height		
138	MUAC		
139	Maternal Height		
140	Maternal weight		

አባሪዎች

የመረጃ ወረቀት

የምርምር ፕሮጀክት፡ በኢትዮጵያ ባሕር ዳር ከተማ ውስጥ ሕጻናት ማዋያ ማዕከላት የሚገኙ ከ6–59 ወራት ዕድሜ ያላቸው ሕፃናት መካከል UNDER NUTRITION እና ከእርሱ ጋር የተያያዙ ምክንያቶች

የዋና ምርምር አስኪያጅ ስም፡ ዮሐንስ ደረጄ ታደሰ

ይህ የመረጃ ወረቀትና የፈቃድ ቅጽ የተዘጋጀው በምርምር አስኪያጁ ሲሆን፣ ዋና ዓላማው በባሕር ዳር ከተማ ውስጥ ሕጻናት ማዋያ ማዕከላት የሚመጡ ሕፃናት መካከል የአመጋገብ ሁኔታን እና ከእርሱ ጋር የተያያዙ ምክንያቶችን ማጥናት ነው።ምርምር አስኪያጁ ከባሕር ዳር ዩኒቨርሲቲ የህብረተሰብ ጤና (MPH) ሥነ- ምግብ ትምህርት ተማሪ ነው።

ዓላማ: በባሕር ዳር ከተማ ውስጥ ሕጻናት ማዋያ ማዕከላት የሚገኙ ሕፃናት መካከል የበታች አመጋገብን እና ከእርሱ ጋር የተያያዙ ምክንያቶችን መገምገም።

ሂደቶች: በዚህ ምርምር ለመሳተፍ በአክብሮት ተጋብዘዋል፤ ምክንያቱም ለምርምሩ አስፈላጊ መረጃ መስጠት ትችላላችሁ ብለን እናምናለን። በምርምሩ መሳተፍ ፈቃደኛ ነው። ለመሳተፍ ፈቃደኛ ከሆኑ፣ የፈቃድ ቅጹን መረዳትና መፈረም ያስፈልጋል። ከዚያ በኋላ መረጃ ሰብሳቢዎች ጥያቄዎችን ያቀርቡልዎታል። ተሳታፊዎች የሚሰጡት ሁሉም መረጃ እና የምርምሩ ውጤቶች ሙሉ በሙሉ ሚስጥራዊ እና ስም አልባ ይሆናሉ። ከምርምር ቡድኑ ውጭ ማንም ወደ መረጃዎ መዳረሻ አይኖረውም።

አደጋ እና/ወይም ያልተመቻቸ ሁኔታ: በዚህ ጥናት ሲሳተፉ ትንሽ ያልተመቻቸ ሁኔታ ሊሰማዎት ይችላል፣ በተለይም ጊዜዎን መውሰድ (ከ20–30 ደቂቃ) ሊሆን ይችላል። ነገር ግን ከምርምሩ

የሚገኘውን አጠቃላይ ጥቅም ጋር ሲነጻጸር፣ ይህ ጊዜ ትንሽ ነው። ስለዚህ በዚህ ምርምር መሳተፍ ምንም አደጋ እንደሌለ መተማመን ትችላላችሁ።

ጥቅሞች: በዚህ ጥናት መሳተፍዎ ቀጥታ ጥቅም ላያመጣ ይችላል፤ ነገር ግን በባሕር ዳር ከተማ ውስጥ ሕጻናት ማዋያ ማዕከላት የሚገኙ ሕፃናት መካከል የበታች አመጋገብን እና ከእርሱ ጋር የተያያዙ ምክንያቶችን ለመገምገም ይረዳኛል።

ሚስጥራዊነት: ከዚህ ምርምር የሚሰበሰበው መረጃ ሁሉ ሚስጥራዊ ይሆናል። ስለእርስዎ የሚሰበሰበው መረጃ ስምዎ ያልተጻፈበት ፋይል ውስጥ ይቀመጣል እና ከዋና ምርምር አስኪያጁ በስተቀር ለማንም አይገለጥም።

መልቀቅ መብት: በዚህ ምርምር መሳተፍን ሙሉ በሙሉ የመካድ መብት አለዎት (አንዳንድ ወይም ሁሉንም ጥያቄዎች መመልስ መካድ ይችላሉ)፤ ይህም በእርስዎ ላይ ምንም ተፅዕኖ አያሳድርም። እንዲሁም በማንኛውም ጊዜ ከዚህ ጥናት ለመውጣት ሙሉ መብት አለዎት።

ለተጨማሪ መረጃ የሚገኙ አድራሻዎች

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የፈቃድ ቅጽ (Informed Consent)

እኔ የተሳታፊ መረጃ ወረቀት አንብቤለሁ። የጥናቱ ዓላማ፣ ሂደቶች፣ አደጋዎችና ጥቅሞች፣ የሚስጥራዊነት ጉዳዮች፣ መሳተፍ መብት እና ለጥያቄ መገናኛ አድራሻ በግልጽ ተረድቼአለሁ። አንዳንድ ነገሮች ካልተረዳኩ ለመጠየቅ እንዲችል ዕድል ተሰጥቶኛል። በማንኛውም ጊዜ ከጥናቱ የመውጣት ወይም የማልፈልገውን

ማንኛውንም ጥያቄ ላለመመለስ መብት እንዳለኝ ተነግሮኛል። ስለዚህ፣ በዚህ ጥናት ለመሳተፍ ፈቃዴን በ ፊርማ አውጃለሁ።

የተሳታፊ ፊርማ: ----------

የመረጃ ሰብሳቢ ስም እና ፊርማ: ----------

Questioners

ክፍል 1፡ የወላጆች/ጠባቂዎች ማህበራዊ-ስነ-ሕዝብ እና ኢኮኖሚያዊ መረጃ።

ኮድ	ጥያቄ	ምላሽ አማራጮች	አስተያየቶች
1	የተጠሪ ለልጁ ግንኙነት	1. ባዮሎጂካል እናት 2. ባዮሎጂካል ያልሆነች እናት 3. አባት 4. ሌላ ተንከባካቢ	
2	የእናትዕድሜ	_____ _ ዓመት	
3	ሃይማኖት	1. ኦርቶዶክስ 2. ፕሮቴስታንት 3. ካቶሊክ 4. ሙስሊም 5. ሌላ (ይግለጹ): _____	
4	የእናት የጋብቻ ሁኔታ	1. ባለትዳር 2. ነጠላ 3. ፍቺ 4. መበለት	

5	የእናት የትምህርት ደረጃ	1.ማንበብ እና መጻፍ አልችልም። 2.የመጀመሪያ ደረጃ ትምህርት ያልተሟላ 3.የመጀመሪያ ደረጃ ትምህርት የተጠናቀቀ 4.ሁለተኛ ደረጃ (9–12ኛ ክፍል)። 5.ዲፕሎማ እና ከዚያ በላይ	
6	የአባት ትምህርት ደረጃ	1.ማንበብ እና መጻፍ አልችልም። 2.የመጀመሪያ ደረጃ ትምህርት ያልተሟላ 3.የመጀመሪያ ደረጃ ትምህርት የተጠናቀቀ 4.ሁለተኛ ደረጃ (9–12ኛ ክፍል)። 5.ዲፕሎማ እና ከዚያ በላይ	
7	የእናት ሥራ	1. የመንግስት ሰራተኛ 2. መንግሥታዊ ያልሆነ ድርጅት 3. የግል ዘርፍ ሰራተኛ (ለምሳሌ ፋብሪካ፣ ሆቴል፣ ኩባንያ)። 4. ነጋዴ/ነጋዴ 5. የቤት እመቤት 6. ዕለታዊ ሠራተኛ 7. ሌላ (ይግለጹ): _____	

8	የአባት ሥራ	1. የመንግስት ሰራተኛ 2. መንግሥታዊ ያልሆነ ድርጅት 3. የግል ዘርፍ ሰራተኛ (ለምሳሌ ፋብሪካ፣ ሆቴል፣ ኩባንያ)። 4. ነጋዴ/ነጋዴ 5. የቤት እመቤት 6. ዕለታዊ ሠራተኛ 7. ሌላ (ይግለጹ):	
9	የቤተሰብ መጠን	_____ ሰዎች	
10	ስንት ሰዎችከ 5 ዓመት በታች ናቸው?	_____ልጆች	
በቤተሰብ አማራጮች ውስጥ የሀብት መረጃ ጠቋሚ ተለዋዋጮች			
11	የኤሌክትሪክ አቅርቦት አለ?	1. አዎ 2. የለም	
12	ስማርትፎን አለ?	1. አዎ 2. የለም	
13	ቴሌቪዥን አለ?	1. አዎ 2. የለም	
14	ማቀዝቀዣ አለ?	1. አዎ 2. የለም	
15	የኤሌክትሪክ መጥበሻ አለ?	1. አዎ 2. የለም	

16	ጠረጴዛ አለ?	1. አዎ 2. የለም	
17	ሶፋ አለ?	1. አዎ 2. የለም	
18	የተለየ መኝታ ቤት አለ?	1. አዎ 2. የለም	
19	መኪና አለ?	1. አዎ 2. የለም	
20	ብስክሌት አለ?	1. አዎ 2. የለም	
21	ሞተር ሳይክል አለ?	1. አዎ 2. የለም	
22	ጋሪ አለ?	1. አዎ 2. የለም	
23	የመጠጥ ውሃ የት ነው	1. የቧንቧ ውሃ	

	የሚያገኙት?	2. የከርሰ ምድር ውሃ 3. የምንጭ ውሃ 4. ሁለቱም የቧንቧ እና የከርሰ ምድር ውሃ	
24	መጸዳጃ ቤት አለ?	1. አዎ 2. የለም	
25	ለ ጥያቄ24 አዎ ከሆነ ምን አይነት መጸዳጃ ቤት አለህ?	1. አየር የተሞላ ጉድጓድ መጸዳጃ ቤት 2. ባህላዊ ጉድጓድ መጸዳጃ ቤት	
26	ብዙውን ጊዜ ለማብሰያነት የሚጠቀሙበት የታይል ምንጭ ምንድን ነው?	1. ኤሌክትሪክ 2. እንጨት/ከሰል 3. ሁለቱም	
27	የቤቱ ወለልየተሠራው ከምንድን ነው?	1. ጭቃ 2. ሲሚንቶ 3. ሴራሚክ 4. ሌላ ዝርዝር-----	
28	የቤትዎ ግድግዳ ከምን ነው የተሰራው?	1. ጭቃ 2. ሲሚንቶ 3. ግንብ 4. ሌላ ይግለጹ----------	
29	የቤትዎ ጣሪያ ከምን ነው የተሰራው?	1. ብረት 2. ፕላስቲክ 3. ሌሎች	

30	የልብስ ማጠቢያ ማሽን አለ?	1. አዎ 2. የለም	
31	ኮምፒውተር አለ?	1. አዎ 2. የለም	
የቤተሰብ የምግብ ዋስትና እጦት መዳረሻ ልኬት መጠይቅ			
32	ባለፉት አራት ሳምንታት ውስጥ ቤተሰብዎ በቂ ምግብ አይኖረውም ብለው ተጨነቁ?	0 = አይ (ወደ Q33 ዝለል)። 1 = አዎ	
32.a	ይህ ምን ያህል ጊዜ ተከሰተ?	1 = አልፎ አልፎ 2 = አንዳንድ ጊዜ 3 = ብዙ ጊዜ	
33	ባለፉት አራት ሳምንታት ውስጥ እርስዎ ወይም ማንኛውም የቤተሰብ አባል በሀብት እጥረት ምክንያት የመረጡትን አይነት ምግብ መብላት አልቻሉም?	0 = አይ (ወደ Q34ዝለል)። 1 = አዎ	

33.a	ይህ ምን ያህል ጊዜ ተከሰተ?	1 = አልፎ አልፎ 2 = አንዳንድ ጊዜ 3 = ብዙ ጊዜ	
34	ባለፉት አራት ሳምንታት ውስጥ እርስዎ ወይም ማንኛውም የቤተሰብ አባል በሀብት እጥረት ምክንያት የተወሰኑ የተለያዩ ምግቦችን ተመግበዋል ?	0 = አይ (ወደ Q35ዝለል)። 1 = አዎ	
34,a	ይህ ምን ያህል ጊዜ ተከሰተ?	1 = አልፎ አልፎ 2 = አንዳንድ ጊዜ 3 = ብዙ ጊዜ	
35	ባለፉት አራት ሳምንታት ውስጥ እርስዎ ወይም ማንኛውም የቤተሰብ አባል ሌሎች የምግብ ዓይነቶችን ለማግኘት በግብአት እጥረት ምክንያት መብላት የማይፈልጓቸውን አንዳንድ ምግቦች መብላት አለብዎት?	0 = አይ (ወደ Q36 ዝለል)። 1 = አዎ	
35.a	ይህ ምን ያህል	1 = አልፎ አልፎ	

	ጊዜ ተከሰተ?	2 = አንዳንድ ጊዜ 3 = ብዙ ጊዜ	
36	ባለፉት አራት ሳምንታት ውስጥ እርስዎ ወይም ማንኛውም የቤተሰብ አባል በቂ ምግብ ስለሌለ እርስዎ ከሚፈልጉት ያነሰ ምግብ መብላት አለብዎት?	0 = አይ (ወደ Q37ዝለል)። 1 = አዎ	
36,a	ይህ ምን ያህል ጊዜ ተከሰተ?	1 = አልፎ አልፎ 2 = አንዳንድ ጊዜ 3 = ብዙ ጊዜ	
37	ባለፉት አራት ሳምንታት ውስጥ እርስዎ ወይም ሌላ ማንኛውም የቤተሰብ አባል በቂ ምግብ ስላልነበረ በቀን ውስጥ ጥቂት ምግቦችን መመገብ አለብዎት?	0 = አይ (ወደ Q38ዝለል)። 1 = አዎ	
37.a	ይህ ምን ያህል ጊዜ ተከሰተ?	1 = አልፎ አልፎ 2 = አንዳንድ ጊዜ 3 = ብዙ ጊዜ	
38	ባለፉት አራት ሳምንታት	0 = አይ (ወደ Q39ዝለል)።	

	ውስጥ ምግብ ለማግኘት የሚያስችል ግብአት ባለመኖሩ በቤተሰብዎ ውስጥ ምንም አይነት ምግብ አይበላም?	1 = አዎ	
38,a	ይህ ምን ያህል ጊዜ ተከሰተ?	1 = አልፎ አልፎ 2 = አንዳንድ ጊዜ 3 = ብዙ ጊዜ	
39	ባለፉት አራት ሳምንታት ውስጥ እርስዎ ወይም ማንኛውም የቤተሰብ አባል በቂ ምግብ ስለሌለ በረሃብ ተኝተው ነበር?	0 = አይ (ወደ Q40ዝለል)። 1 = አዎ	
39.a	ይህ ምን ያህል ጊዜ ተከሰተ?	1 = አልፎ አልፎ 2 = አንዳንድ ጊዜ 3 = ብዙ ጊዜ	
40	ባለፉት አራት ሳምንታት ውስጥ እርስዎ ወይም ማንኛውም የቤተሰብ አባል በቂ ምግብ ስለሌለ ምንም ሳይበሉ ቀንና ሌሊት ሙሉ	0 = አይ 1 = አዎ	

	አሳለፉ		
40.a	ይህ ምን ያህል ጊዜ ተከሰተ?	1 = አልፎ አልፎ 2 = አንዳንድ ጊዜ 3 = ብዙ ጊዜ	
የጨቅላ እና ትንሽ ልጅ የአመጋገብ ልምድ እና ዝቅተኛ የአመጋገብ ልዩነት መጠይቅ			
41	የልጅ ዕድሜ		
42	የልጅፆታ		
43	ልጁ አሁንም ጡት እያጠባ ነው? (ከ6 እስከ 23 ወር ልጅ ብቻ)	1.አዎ 2. የለም	
44	ትላንት፣ በቀን ወይም በሌሊት፣ ልጅዎ ከሚከተሉት አንዱን በልቷል። እህሎች፣ ሥሮች እና ሀረጎች (ገንፎ፣ ዳቦ፣ ሩዝ፣ ኑድል ወይም ሌሎች በእህል ላይ የተመሰረቱ ምግቦች፣ ነጭ ድንች፣ ያምስ፣ ማኒዮክ፣ ካሳቫ ወይም ሌሎች ሥሮች)	1.አዎ 2.የለም	

45	ጥራጥሬዎች እና ለውዝ (ባቄላ፣ አተር፣ ምስር፣ ለውዝ)	1.አዎ 2.የለም	
46	የወተት ተዋጽኦዎች (የጨቅላ ፎርሙላ ፣ ወተት (የተሸፈነ፣ ዱቄት ወይም ትኩስ)፣ እርጎ፣ አይብ)	1.አዎ 2.የለም	
47	የስጋ ምግቦች (ጉበት፣ ኩላሊት፣ ልብ፣ የአካል ክፍሎች ስጋ፣ ስጋ (የበሬ፣ የአሳማ ሥጋ፣ በግ፣ ፍየል፣ ዶሮ፣ ዳክዬ)፣ አሳ፣ ሼልፊሽ)	1.አዎ 2.የለም	
48	እንቁላል	1.አዎ 2.የለም	
49	በቫይታሚን ኤ የበለጸጉ ፍራፍሬዎችና አትክልቶች (ዱባ፣ ካሮት፣ ስኪሽ፣ ቢጫ/ብርቱካን ማ ስኪር ድንች፣ ጥቁር አረንጓዴ ቅጠላማ አትክልቶች፤ የበሰለ ማንጎ፣ ፓፓያ፣ ማስክ ሐብሐብ፣ ቀይ	1.አዎ 2.የለም 1.አዎ 2.የለም	

	የዘንባባ ዘይት ወይም ለውዝ ያላቸው ምግቦች)		
50	ሌሎች ፍራፍሬዎችና አትክልቶች (ሌሎች ፍራፍሬዎች ወይም አትክልቶች)	1.አዎ 2.የለም	
51	ሌሎች (በልዩነት ነጥብ ውስጥ ያልተጠረ) [ዘይት, ስብ, ቅቤ; ስኳር የበዛባቸው ምግቦች (ቸኮሌት, ጣፋጮች, መጋገሪያዎች); ቅመማ ቅመሞች (ቺሊ, ቅመማ ቅመሞች, ቅጠላ ቅጠሎች, የዓሳ ዱቄት)]	1.አዎ 2.የለም	
52	ትናንት በቀን ወይም በሌሊት ልጅዎ ከፈሳሽ (ምግብ እና መክሰስ) ውጪ ስንት ጊዜ በልቷል?	የጊዜ ብዛት፡ _____	
የእውቀት መጠይቅ			
53	እናት ልጇን ጡት እንድታጠባ ለምን ያህል ጊዜ ይመከራል?	1, ስድስት ወር ወይም ከዚያ ያነሰ 2፣ 6–11 ወራት።	

		3, 12–23 ወራት 4, 24 ወራት ወይም ከዚያ በላይ 5, ሌላ 6, አላውቅም	
54	ሕፃናት ከጡት ወተት በተጨማሪ ምግብ መመገብ የሚጀምሩት በምን ዕድሜ ላይ ነው?	1, በስድስት ወር 2, ሌላ 3, አላውቅም	
55	ከስድስት ወር ጀምሮ ከጡት ወተት በተጨማሪ ምግቦችን መስጠት ለምን አስፈላጊ ነው?	1, ከስድስት ወራት በኋላ የንጥረ-ምግብ ፍላጎቶችን ለማሟላት የጡት ወተት ብቻ በቂ አይደለም 2, ሌላ 3, አላውቅም	
56	እባክዎን እነዚህን ሁለት የገንፎ ምስሎች ይመልከቱ። ለአንድ ትንሽ ልጅ መሰጠት ያለበት የትኛው ነው ብለው ያስባሉ?	1, ወፍራም ገንፎ 2, የውሃ/ቀጭን ገንፎ 3, አላውቅም	
57	ለምን ያንን ምስል መርጠዋል?	1, ምክንያቱም ከሌላው የበለጠ ወፍራም ነው 2, ምክንያቱም ወፍራም ገንፎ የበለጠ ገንቢ እና በተለያዩ ንጥረ	

		ነገሮች የተሰራ ነው 3, ሌላ 4, አላውቅም	
58	ብዙ እናቶች ልጆቻቸውን ሩዝ ገንፎ , አጥሚት ይመገባሉ። ገንፎን, አጥሚትን, የበለጠ ገንቢ ወይም ለልጅዎ ጤና የተሻለ ለማድረግ መንገዶችን ልትነግሩኝ ትችላላችሁ?	1, የእንስሳት ምንጭ ምግቦችን (ስጋ, የዶሮ እርባታ, አሳ, ጉበት, እንቁላል) ይጨምሩ 2, ጥራጥሬዎችን እና ለውዝ (የተጠበሰ ዱቄት, ባቄላ, አተር, ምስር, ወዘተ) ይጨምሩ 3, በቫይታሚን ኤ የበለጸጉ ፍራፍሬዎችን እና አትክልቶችን (ካሮት, ብርቱካንማ ድንች ድንች, ዱባ, ማንጎ, ፓፓያ) ይጨምሩ 4, አረንጓዴ ቅጠላማ አትክልቶችን (ስፒናች, ወዘተ) ይጨምሩ 5, በሃይል የበለጸጉ ምግቦችን (ዘይት, ቅቤ, ጋይ) ይጨምሩ 6, ሌላ	
59	ትናንሽ ልጆች እንዲመገቡ ለማበረታታት ማንኛውንም መንገድ ያውቃሉ?	1, በምግብ ወቅት ትኩረት ይስጧቸው, ያነጋግሯቸው, የምግብ ጊዜን ማስደሰት 2፣ እጅ ማጨብጨብ፣ አስቂኝ ፊቶችን ይስሩ፣ ይጫወቱ ወይም ይስቃሉ። 3, አፍን በስፋት በመክፈት	

		ሞዴል መብላት 4፣ አበረታች ቃላት ይበሉ። 5, የልጁን ትኩረት ይስቡ 6, ሌላ 7, አላውቅም	
60	የተመጣጠነ ምግብ እጥረት ምልክቶች ምንድ ናቸው?	1, የኃይል እጥረት/ደካማነት: እንደ መደበኛ (አካል ጉዳተኝነት) መስራት, ማጥናት ወይም መጫወት አይችልም 2, የበሽታ መከላከያ ስርዓት ደካማነት (በቀላሉ ይታመማል ወይም በጠና ይታመማል) 3, ክብደት/ቀጭን ማጣት 4, ልጆች በሚፈለገው መጠን አያድጉም (እድገት እያሽቆለቆለ ነው) 5, ሌላ 6, አላውቅም	
61	ልጆች የተመጣጠነ ምግብ እጥረት ያለባቸው ምክንያቶች ምንድናቸው	1, በቂ ምግብ አለማግኘት 2, ምግብ ውሃ ነው, በቂ ንጥረ ነገሮችን አልያዘም 3, በሽታ/ህመም እና ምግብ አለመብላት 4, ሌላ 5, አላውቅም	

62	ልጆች በቂ ምግብ የማያገኙበት ምክንያቶች ምንድናቸው?	1, ምግብ ለመግዛት በቂ ገንዘብ ስለሌለው 2, ምግብ አይገኝም 3, ሌላ 4, አላውቅም	
63	ህፃኑ በደንብ እያደገ መሆኑን ወይም አለመሆኑን እንዴት ማወቅ ይችላሉ	1, ወደ ጤና ጣቢያው መሂዱ/ዶክተር ወይም ነርስ (የጤና ባለሙያ) ጠይቁ (ለዕድገት ክትትል የጤና እንክብካቤ አገልግሎቶችን ይፈልጋሉ) 2, ሌላ 3, አላውቅም	
64	ስለ iron እጥረት የደም ማነስ ሰምተሃል?	1፣ አዎ 2, አይ	
64.a	አዎ ከሆነ: የiron እጥረትደም ማነስ ያለበትን ሰው እንዴት ማወቅ እንደሚችሉ ልትነግሩኝ ትችላላችሁ?	1, ያነሰ ጉልበት/ደካማነት 2, Paleness/pallor 3, የተጣበቁ ጥፍሮች (koilonychia) 4, የበለጠ ሊታመም ይችላል (የኢንፌክሽን መከላከያ ያነሰል) 5, ሌላ 6, አላውቅም	
65	በiron የበለጸጉ	1, የአካል ክፍል ስጋ እንደ ጉበት,	

	ምግቦችን ምሳሌዎችን መዘርዘር ይችላሉ?	ኩላሊት 2, የፍየልስጋ , ዶሮ 3, ዓሳ እና የባህር ምግቦች 4, አላውቅም	
66	በእመጋገብ ውስጥ የiron እጥረት ላለባቸው ሕፃናት እና ትናንሽ ልጆች የጤና አደጋዎች ምንድናቸው?	1, የአእምሮ እና የአካል እድገት መዘግየት 2, ሌላ 3, አታውቅም	
67	ስለ ቫይታሚን ኤ እጥረት ወይም የቫይታሚን ኤ እጥረት ሰምተሃል?	1፣ አዎ 2፣ አይ 3፣ መልስ የለም።	
67.a	አዎ ከሆነ: በሰውነቱ ውስጥ ቫይታሚን ኤ የሌለውን ሰው እንዴት ማወቅ እንደሚችሉ ልትነግሩኝ ትችላላችሁ?	1፣ ድክመት/ጉልበት ያነሰ ሆኖ ይሰማዋል። 2, የመታመም ዕድላቸው ከፍተኛ ነው (የኢንፌክሽን መከላከያ ያነሰ) 3, የአይን ችግሮች: የምሽት ዓይነ ስውርነት (በምሽት እና በደበዘዘ ብርሃን ማየት አለመቻል), ደረቅ ዓይኖች, የኮርኒያ ጉዳት, ዓይነ ስውርነት 4, ሌላ	

		5, አላውቅም	
68	የቫይታሚን ኤ የምግብ ምንጭ ምንድን ነው	1, የእንስሳት ምንጭ ምግቦች እንደ ጉበት, ኩላሊት, እንቁላል, እርጎ/እንቁላል ከዶሮ, ወተት, አይብ, 2, እንደ ብርቱካን, ጣፋጭ ድንች, ካሮት ያሉ ብርቱካንማ ቀለም ያላቸው አትክልቶች 3, በቫይታሚን ኤ የተጠናከሩ ምግቦች 4 አላውቅም	
69	በሰውነት ውስጥ የቫይታሚን ኤ እጥረት በምን ያከሰላል?	1, የተለያዩ ምግቦችንአለመመግብ 2, በጣም ትንሽ ምግብ መመግብ/ብዙአለመመግብ (ደካማ ቅበላ) 3, ሌላ 4, አላውቅም	
70	በሰውነት ውስጥ የቫይታሚን ኤ እጥረትን እንዴት መከላከል ይችላል?	1, በቫይታሚን-ኤ የበለጸጉ ምግቦችን ይመግቡ – በቫይታሚን ኤ የበለፀገ አመጋገብ መኖር/መስጠት። 2, በሉ/በቫይታሚን ኤ የተጠናከሩ ምግቦችን ይመግቡ። 3, የቫይታሚን ኤ ተጨማሪዎችን ይስጡ	

		4, ሌላ 5, አላውቅም	
71	የምግብ መመረዝ ብዙውን ጊዜ የሚከሰተው ከሰገራ ጀርሞች ጋር በመገናኘት ነው። ከሰው ወይም ከእንስሳት ሰገራ ጀርሞች በሽታን ለማስወገድ ምን ማድረግ ይችላሉ?	1, እጅን ይታጠቡ (ወደ መጸዳጃ ቤት ከሄዱ እና የሕፃኑን የታችኛው ክፍል ካጸዱ በኋላ) 2, ሰገራን ከቤት እና ከአካባቢው ያስወግዱ (መጸዳጃ ቤት ይጠቀሙ, ትናንሽ ልጆችን ማሰሮ እንዲጠቀሙ ያስተምራሉ እና የልጆች ሰገራ በመጸዳጃ ቤት ውስጥ ያስቀምጡ እና ሰገራን ከእንስሳት ያጸዱ) 3, ሌላ 4, አላውቅም	
72	ጀርሞች ወደ ምግብ እንዳይደርሱ ለመከላከል እጅዎን መታጠብ የሚያስፈልግዎ ቁልፍ ጊዜያት አሉ። እነዚህ ቁልፍ ጊዜያት ምንድ ናቸው?	1, ወደ መጸዳጃ ቤት/መጸዳጃ ቤት ከሄዱ በኋላ 2, የሕፃኑን የታችኛው ክፍል ካጸዱ በኋላ/የሕፃን ናፒ ከቀየሩ በኋላ 3, ምግብ ከማዘጋጀት/ከማያያዝ በፊት 4, ልጅን ከመመገብዎ በፊት 5, ጥሬ ምግብን ከተቆጣጠረ በኋላ 6, ቆሻሻን ከተቆጣጠረ በኋላ 7፣ ሌላ።	

		8, አላውቅም	
73	ለማብሰያ ወይም ለመጠጥ የሚጠቀሙበት ውሃ ደህንነቱ የተጠበቀ እንዳልሆነ ወይም ከአስተማማኝ ምንጭ እንደማይመጣ ካወቁ ምን ማድረግ አለብዎት?	1፣ ቀቅሉት። 2፣ bleach/chlorine ጨምር። 3, በጨርቅ ውስጥ ጣሉት 4, የውሃ ማጣሪያ (ሴራሚክ, አሸዋ, ድብልቅ, ወዘተ) ይጠቀሙ 5, የፀሐይ መከላከያ ይጠቀሙ 6፣ ቆሞ ይረጋጋ። 7፣ ጣሉት እና ከአስተማማኝ ምንጭ ውሃ ያግኙ። 8፣ ሌላ 9፣ አላውቅም።	
የአመለካከት መጠይቆች			
74	ለልጅዎ ምግብ ማዘጋጀት ምን ያህል በራስ መተማመን ይሰማዎታል?	1, በራስ መተማመንየለም 2፣በመጥኑ ። 3, በደንብ በራስ መተማመንይሰማኛል በራስ መተማመን ከሌለ ለምን?_____	
75	በየቀኑ ለልጅዎ የተለያዩ አይነት ምግቦችን መስጠት ምን ያህል ጥሩ ነው ብለው ያስባሉ?	1, ጥሩ አይደለም 2, እርግጠኛ አይደለም 3, ጥሩ ጥሩ ካልሆነ ለምን?_____	

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76	ልጅዎን በየቀኑ ብዙ ጊዜ መመገብ ምን ያህል ጥሩ ነው ብለው ያስባሉ?	1, ጥሩ አይደለም 2, እርግጠኛ አይደለም 3, ጥሩ ጥሩ ካልሆነ ለምን?_____	
77	ለልጅዎ በየቀኑ የተለያዩ አይነት ምግቦችን መስጠት ምን ያህል ከባድ ነው?	1.አስቸጋሪ አይደለም 2.በመጥኑ 3.አስቸጋሪነው አስቸጋሪ ከሆነ ለምን?_____	
78	ልጅዎን በቀን ብዙ ጊዜ መመገብ ምን ያህል ከባድ ነው?	1.አስቸጋሪ አይደለም 2.በመጥኑ 3.አስቸጋሪ አስቸጋሪ ከሆነ ለምን?_____	
79	ከስድስት ወር በላይ ጡት ማጥባት መቀጠል ምን ያህል ጥሩ ነው ብለው ያስባሉ?	1.ጥሩ አይደለም 2.እርግጠኛ አይደለሁም 3.ጥሩነው? ጥሩ ካልሆነ ለምን?_____	
80	ከስድስት ወር	1.አስቸጋሪ አይደለም	

	በላይ ጡት ማጥባትን መቀጠል ምን ያህል ከባድ ነው?	2.በመጥኑ 3.አስቸጋሪ አስቸጋሪ ከሆነ ለምን?_____	
81	ልጅዎ የተመጣጠነ ምግብ እጥረት ያለበት ምን ያህል ሊሆን ይችላል ብለው ያስባሉ, ማለትም ማደግ ያቆማሉ ወይም ክብደታቸውን ይቀንሳሉ?	1, ላይሆን ይችላል 2. እርግጠኛ አይደለሁም። 3. ሊሆን ይችላል ካልሆነ: የማይሆንበትን ምክንያት ልትነግሩኝ ትችላላችሁ?	
82	የተመጣጠነ ምግብ እጥረት ለህፃን ጤና ምን ያህል ከባድ ነው ብለው ያስባሉ?	1. ከባድ አይደለም 2. እርግጠኛ አይደለህም። 3. ከባድ ነው ከባድ ካልሆነ: ከባድ ያልሆነበትን ምክንያት ልትነግሩኝ ትችላላችሁ?	
83	ልጅዎ የiron እጥረት/የደም ማነስ ሊሆን የሚችለው ምን ያህል ነው ብለው	1, ሊሆን አይችልም 2. እርግጠኛ አይደለህም። 3. ሊሆን ይችላል ካልሆነ: የማይሆንበትን ምክንያት	

	ያስባሉ?	ልትነግሩኝ ትችላላችሁ? _____	
84	የiron እጥረት/የደም ማነስ ምን ያህል ከባድ ነው ብለው ያስባሉ?	1. ከባድ አይደለም 2. እርግጠኛ አይደለሁም። 3. ከባድ ከባድ ካልሆነ: ከባድ ያልሆነበትን ምክንያት ልትነግሩኝ ትችላላችሁ? _____	
85	እንደ የበሬ ሥጋ፣ ዶሮ ወይም ጉበት ባሉ በብረት የበለጸጉ ምግቦች ምግቦችን ማዘጋጀት ምን ያህል ጥሩ ነው ብለው ያስባሉ?	1. ጥሩ አይደለም 2. እርግጠኛ አይደለሁም። 3. ጥሩ ጥሩ ካልሆነ: ጥሩ ያልሆነበትን ምክንያቶች ልትነግሩኝ ትችላላችሁ? _____	
86	በiron የበለጸጉ ምግቦች ምግቦችን ማዘጋጀት ምን ያህል ከባድ ነው?	1. አስቸጋሪ አይደለም 2. በመጥኑ 3. አስቸጋሪነው አስቸጋሪ ከሆነ: አስቸጋሪ የሚሆንበትን ምክንያት ልትነግሩኝ ትችላላችሁ? _____	

87	በiron የበለጸጉ ምግቦች ምግቦችን ለማዘጋጀት ምን ያህል በራስ መተማመን ይሰማዎታል?	1, በራስ መተማመንየለም 2፣በመጥኑ ። 3, በደንብ በራስ መተማመንይሰማኛል በራስ መተማመን ከሌለ ለምን?____	
88	ልጅዎ በሰውነቱ ውስጥ ቫይታሚን ኤ እጥረት ያለበት ምን ያህል ነው ብለው ያስባሉ?	1. አይነርበትም 2. እርግጠኛ አይደለህም። 3. ሊሆን ይችላል ካልሆነ: የማይሆንበትን ምክንያት ልትነግሩኝ ትችላላችሁ?	
89	የቫይታሚን ኤ እጥረት ምን ያህል ከባድ ነው ብለው ያስባሉ?	1. ከባድ አይደለም 2. እርግጠኛ አይደለህም። 3. ከባድ ከባድ ካልሆነ: ከባድ ያልሆነበትን ምክንያት ልትነግሩኝ ትችላላችሁ? _____	
90	እንደ ካሮት፣ አረንጓዴ	1. ጥሩ አይደለም 2. እርግጠኛ አይደለህም።	

	ቅጠላማ አትክልት፣ ጣፋጭ ድንች ወይም ጉበት ባሉ በቫይታሚን ኤ የበለጸጉ ምግቦች ምግቦችን ማዘጋጀት ምን ያህል ጥሩ ነው ብለው ያስባሉ?	3. ጥሩ ነው ጥሩ ካልሆነ: ጥሩ ያልሆነበትን ምክንያቶች ልትነግሩኝ ትችላላችሁ? _____	
91	በቫይታሚን-ኤ የበለጸጉ ምግቦች ምግቦችን ለማዘጋጀት ምን ያህል በራስ መተማመን ይሰማዎታል?	1, በራስ መተማመንየለም 2፣በመጥኑ ። 3, በደንብ በራስ መተማመንይሰማኛል በራስ መተማመን ከሌለ ለምን?___	
92	ልጅን ከመመገብዎ በፊት እጅዎን መታጠብ ምን ያህል ጥሩ ነው ብለው ያስባሉ?	1. ጥሩ አይደለም 2. እርግጠኛ አይደለሁም። 3. ጥሩ ነው ጥሩ ካልሆነ: ጥሩ ያልሆነበትን ምክንያቶች ልትነግሩኝ ትችላላችሁ? _____	
93	ልጅን	1. አስቸጋሪ አይደለም	

	ከመመገብዎ በፊት እጅዎን መታጠብ ምን ያህል ከባድ ነው?	2. በመጥኑ 3. አስቸጋሪነው አስቸጋሪ ከሆነ: አስቸጋሪ የሚሆንበትን ምክንያት ልትነግሩኝ ትችላላችሁ?	
94	ልጅዎ ደህንነቱ ያልተጠበቀ ውሃ ከመጠቀም ተቅማጥ ሊያገኝ የሚችለው ምን ያህል ነው ብለው ያስባሉ?	1, ላያገኝ ይችላል 2. እርግጠኛ አይደለሁም። 3. ሊያገኝ ይችላል ካልሆነ: የማይሆንበትን ምክንያት ልትነግሩኝ ትችላላችሁ?	
95	ከመጠጣት ወይም ከመጠቀምዎ በፊት ውሃ ማፍላት ምን ያህል ጥሩ ነው ብለው ያስባሉ?	1. ጥሩ አይደለም 2. 2. እርግጠኛ አይደለህም። 3. ጥሩነው ጥሩ ካልሆነ: ጥሩ ያልሆነበትን ምክንያቶች ልትነግሩኝ ትችላላችሁ? _____	
96	ከመጠጣትዎ ወይም ከመጠቀምዎ በፊት ውሃ	1. አስቸጋሪ አይደለም 2. ስለዚህ-ስለዚህ 3. አስቸጋሪነው አስቸጋሪ ከሆነ:	

	ማፍላት ምን ያህል ከባድ ነው?	አስቸጋሪ የሚሆንበትን ምክንያት ልትነግሩኝ ትችላላችሁ? _____	
እድሜያቸው 6–59 ለሆኑ ህጻናት የህመም እና የክትባት ሁኔታ መሳሪያ።			
97	ልጁ ባለፉት 6 ወራት ውስጥ የቫይታሚን ኤ ማሟያ አግኝቷል?	1 = አዎ 2 = አይ	
98	ህጻኑ ባለፉት 2 ሳምንታት ውስጥ ታምሟል?	1 = አዎ 2 = አይ	
99	ህጻኑ ባለፉት 2 ሳምንታት ውስጥ ተቅማጥ አጋጥሞታል?	1 = አዎ 2 = አይ	
100	ህጻኑ ባለፉት 2 ሳምንታት ውስጥ ትኩሳት ነበረው?	1 = አዎ 2 = አይ	
101	ልጁ ባለፉት 2 ሳምንታት ውስጥ ሳል ነበረው?	1 = አዎ 2 = አይ	
102	ህጻኑ ባለፈው 1 አመት ውስጥ የኩፍኝ በሽታ አለበት?	1 = አዎ 2 = አይ	

103	የልጁ ወቅታዊ የክትባት ሁኔታ ምንድን ነው?	1 = ክትባት አልተሰጠም። 2 = በከፊል የተከተበ 3 = ሙሉ በሙሉ ክትባት ተሰጥቷል	
Day care center related questioners			
104	የመዋዕለ ሕፃናት ዓይነት	1, የግል 2,Public 3,NGO 4, ሌላ: _____	
105	በማዕከሉ ውስጥ የተቀጠሩ ተንከባካቢዎች ጠቅላላ ቁጥር	----------	
106	በአማካይ ለአንድ ተንከባካቢ ስንት ልጆች ተመድበዋል?	----------	
107	በዕድሜ ቡድኖች የተለየ ክፍል አለ?	----------	
108	በአንድ ክፍል የልጆች ብዛት	----------	
109	የተንከባካቢዎች ከፍተኛው የትምህርት ብቃት ምንድነው?	1, መደበኛ ትምህርት የለም 2, የመጀመሪያ ደረጃ ትምህርት 3, ሁለተኛ ደረጃ ትምህርት 4, ዲፕሎማ ወይም ዲግሪ	

		5, ሌላ	
110	በመዋዕለ ሕፃናት ማእከል ውሃ አለ	1 አዎ 2 የለም	
110. a	አዎ ከሆነ ዋናው የመጠጥ ውሃ ምንጭ ምንድን ነው?	1, በቧንቧ ወደ መኖሪያ ቤት 2, የህዝብቧንቧ 3, የውሃ ቱቦ 4, Tanker የጭነት መኪና 5, *የምንጭ ውሃ*	
111	በመዋዕለ ሕፃናት ማእከል ውስጥ ለልጆች መጸዳጃ ቤት አለ?	1 አዎ 2 የለም	
111. a	የመጸዳጃ ቤት ዓይነት	1, ፒት መጸዳጃ ቤት 2, Ventilated የተሻሻለ መጸዳጃ ቤት 3, Flush መጸዳጃ ቤት	
112	ልጆች ከመብላታቸው በፊት እጃቸውን ይታጠባሉ? (ልጆች በራሳቸው ከበሉ)	1 አዎ 2 የለም	
113	የፋሲሊቲ ኬር ሰጪ ልጅን በሚመገቡበት ጊዜ እጃቸውን ይታጠባሉ (በራሳቸው ለማይበላ ልጅ)	1 አዎ 2 የለም	

114	በልጆች አመጋገብ እና ጤና ላይ ተንከባካቢዎች ስልጠናወስደዋል ?	1 አዎ 2 የለም	

የአእምሮ ጤና ራስን ሪፖርት ማድረግ ጥያቄ (SRQ) የአእምሮ ጤናን በተመለከተ ሪፖርት ማድረጊያ ጥያቄ (SRQ) የሚከተሉት ጥያቄዎች ከተወሰኑ ህመሞች እና ችግሮች ጋር የተያያዙ ናቸው፣ ይህም ባለፉት 30 ቀናት ውስጥ አስጨንቆዎት ይሆናል። ጥያቄው እርስዎን የሚመለከት ከመሰለዎት እና ባለፉት 30 ቀናት ውስጥ ችግሩን መግለጽ ካለቦት፣ አዎ ብለው ይመልሱ። በሌላ በኩል፣ ጥያቄው እርስዎን የማይመለከት ከሆነ እና ባለፉት 30 ቀናት ውስጥ ችግሩ ከሌለዎት፣ አይ መልስ ይስጡ።		
115.ብዙ ጊዜ ራስ ምታት አለዎት/ሽ?	አዎ (1)	አይ (0)
116. የምግብ ፍላጎትሽ ደካማ ነው?	አዎ (1)	አይ (0)
117 . መጥፎ እንቅልፍ ትተኛለሽ?	አዎ (1)	አይ (0)
118 . በቀላሉ ትፈራለሽ?	አዎ (1)	አይ (0)
119. እጆችሽ ይንቀጠቀጣሉ?	አዎ (1)	አይ (0)
120. የመረበሽ ወይም የመጨነቅ ስሜት ይሰማዎታል?	አዎ (1)	አይ (0)
121. የምግብ የመፈጨት ችግር አለብሽ?	አዎ (1)	አይ (0)
122. በግልጽ ማሰብ ይቸገራሉ/ትቸገርለሽ?	አዎ (1)	አይ (0)
123. ደስተኛ ያልሆነ ስሜት ይሰማዎታል/ሻለ?	አዎ (1)	አይ

		(0)
124. ከወትሮው በላይ ታለቅሻለሽ?	አዎ (1)	አይ (0)
125. በዕለት ተዕለት እንቅስቃሴዎ መደሰት ይከብደዎታል/ሻል?	አዎ (1)	አይ (0)
126. ውሳኔ ለማድረግ አስቸጋሪ ይሆንበወታል?	አዎ (1)	አይ (0)
127. የዕለት ተዕለት ሥራሽ እየተሰቃሽ ነው?	አዎ (1)	አይ (0)
128. በህይወት ውስጥ ጠቃሚ ሚና መጫወት አልችልም የሚል ስሜት አለሽ/አለበ?	አዎ (1)	አይ (0)
129. ለነገሮች ፍላጎት አጥተዋል?	አዎ (1)	አይ (0)
130. ዋጋ ቢስ ሰው እንደሆንክ ይሰማሃል?	አዎ (1)	አይ (0)
131. ህይወታችሁን የማጥፋት ሀሳብ በአእምሮዎ ውስጥ ነበር?	አዎ (1)	አይ (0)
132. ሁል ጊዜ ድካም ይሰማዎታል?	አዎ (1)	አይ (0)
133. በሆድዎ ውስጥ የማይመቹ ስሜቶች አሉዎት?	አዎ (1)	አይ (0)
134. በቀላሉ ደክመዋል?	አዎ (1)	አይ (0)

Measurements		
135	ሲወለድ የልጅ ክብደት	
136	የልጅ ክብደት	

137	የልጅ ቁመት	
138	MUAC የልጅ	
139	የእናቶች ቁመት	
140	የእናቶች ክብደት	