

WOLKITE UNIVERSITY

COLLEGE OF MEDICINE AND HEALTH SCIENCES

DEPARTMENT OF PUBLIC HEALTH



UNDERNUTRITION AND ASSOCIATED FACTORS AMONG MOTHERS ENROLLED IN PRODUCTIVE SAFTY NET PROGRAM IN SILTI WOREDA IN RURAL COMMUNITY'S SOUTHERN ETHIOPIA: COMPARATIVE CROSS-SECTIONAL STUDY.

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MASTER OF PUBLIC HEALTH (IN PUBLIC HEALTH NUTRITION) THESIS

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### Examiners' approval sheet

We, the undersigned, members of the Board of Examiners of the final open defense by \_\_\_\_\_ (Chairperson) have read and evaluated his/her thesis entitled “undernutrition and associated factors among mothers enrolled to productive safety net program in Silti woreda in rural community, southern Ethiopia 2021: comparative cross sectional study”, and examined the candidate. This is, therefore, to certify that the thesis has been accepted in partial fulfillment of the requirements for the degree.

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I hereby declare that this MPH thesis is my original work and has not been presented for a degree in any other university, and all sources of material used for this thesis have been duly acknowledged.

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## LIST OF ABBREVIATIONS

BMI	Body mass index
CED	Chronic energy deficiency
CI	Confidence interval
EDHS	Ethiopian Demographic and Health Survey
FAO	Food and Agriculture Organization
FMOH	Federal Ministry of Health
HH	House holds
HSDP	Health Sector Development Platform
HDDS	Household dietary diversity score
LM	Lactating mother
MUAC	Middle upper-arm circumference
MDD-W	Minimum dietary diversity women
NNP	National Nutrition Program
NPNL	Non pregnant and non-lactating
OR	Odds ratio
PSNP	Productive safety net program
PM	Pregnant mother
SPSS	Statistical package of social sciences
TSF	Targeted supplementary feeding
SNNPR	Southern Nation Nationalities of People Region
WHO	World Health Organization

## Abstract

**Background:** maternal under nutrition is an issue of prime importance for every country worldwide including Ethiopia. As a result, this study is proposed to generate required comparative information among enrolled and non-enrolled mothers in the program in Silti woreda, Southern Ethiopia

**Objective:** To determine under nutrition status and associated factors among mothers enrolled to productive safety net program in Silti woreda in rural community, southern Ethiopia 2021.

**Method:** Community-based comparative cross-sectional study design was employed from April 10, 2021 to June 10, 2021 among 642 mothers selected sample in Silti woreda..

**Result:** The overall prevalence of undernutrition among mothers was 25.8% (95%CI: 22.3-29.0) the prevalence was higher among mothers for those enrolled in PSNP (28.8% (95%CI: 23.7-33.9) than for those non- enrolled in PSNP (22.9% (95%CI: 18.4-27.6). Mothers education (AOR =2.375, 95%CI: 1.267-4.451), nutrition information (AOR =1.896, 95%CI: 1.040-3.457) ,dietary diversity(AOR =2.464 frequency of meal per day (AOR = 2.233, 95% CI: 1.204-4.140)and hand washing (AOR =1.999, 95%CI: 1.139-3.510) were found to be a significant predictors of undernutrition among mothers non enrolled in PSNP while ,mothers education (AOR =1.973, 95%CI: 1.182-3.293), frequency of meal per day (AOR = 2.188, 95% CI: 1.239-3.863) , nutrition information (AOR =2.821, 95%CI: 1.469-5.419) and time take to fetch water(AOR =1.974, 95%CI: 1.091-3.573) were found to be a significant predictors of undernutrition among mothers enrolled in PSNP

**Conclusion and recommendations:** Lack of formal education ,low exposure of nutritional information and lack adequate frequency of meal were found to be a significant predictors of undernutrition among mothers both enrolled and non-enrolled in PSNP. Therefore, need attention through creating awareness about nutritional information, and other sector collaboration with in the study area.

**Keyword:** Undernutrition, Mothers, Productive safety net program, Silti woreda

## **CHAPTER ONE Introduction**

### **1.1 Background**

Maternal undernutrition is of the public health relevance of breaking the intergenerational cycle of malnutrition and affects the health of both mothers and children and has influence on economic and social development. Also maternal undernutrition includes both macro and micronutrient deficiencies (1) In developing countries women are more susceptible to undernutrition as they are less likely to access food, health care, and education (2) where the risk is increased in situations of social, economic, and gender inequities (3)

Maternal nutrition in pregnancy and lactation effects of the growth and development of the fetus .as result of adequate nutrition for mother during lactation and pregnancy is important for the health of mothers and their children(4) A healthy diet during pregnancy and lactation is essential for good nutritional health(5) The nutrition of mothers during pregnancy plays a vital role in the short- and long-term health of a mother and her growing foetus(6). A woman's nutritional status during pregnancy and breastfeeding is not only critical for her health, but also for that of future generations(7)

Ethiopia's Safety Net program is the second largest in Africa (after South Africa) and is one of the largest safety net programs in the world. Ethiopia has initiated and implemented the PSNP to care for malnutrition and associated problems through cash or food transfer and chronically food insecure households against food insecurity. The safety net has three key components: the direct support program; public works program; and temporary program(8)

The Programme covers households in Afar, Amhara, Dire Dawa, Harari, Oromiya, Southern Nations, Nationalities and Peoples (SNNP), Somali and Tigray regions and targets households that are chronically and transitorily food insecure. Furthermore, PSNP have been implemented in the country, which may have a direct impact on consumption and a secondary impact on school attendance, enrolment and retention, utilization of health services, and food.(9)

The Programme provides cash and/or food transfers to these households. Households that are able-bodied adult for labor were engaged in public works and will receive fund transfers for 6 months in the year. The Programme facilitates linkages with health and nutrition services, particularly for pregnant and lactating women who have antenatal care and nutrition-related core possibilities (soft conditionality's) through temporary direct support. It also supports for public works clients, who are participating in nutrition behavioral change and communication (BCC) sessions contribute towards their public health and maternal nutrition improvement (10)

Hence, PSNP was planned and implementation was initiated in Ethiopia. Accordingly, a study conducted in Bale Zone, Southeast Ethiopia, showed that PSNP was effective in helping beneficiaries for consumption smoothing, asset accumulation, and development of the local community. However, the practice of PSNP was challenged by a lack of monitoring and evaluation of structures, low payment systems and limited awareness of beneficiaries about the program and its duties(11)

Despite studies have been conducted in different countries undernutrition and associated factors among mothers a very few studies have been conducted in Ethiopia in regard to maternal undernutrition with a focus on productive safety net program. Given the importance of integrating and coordinating interventions to optimize outcomes for maternal undernutrition, the study were generate vital recommendation to arrive at a set of priority actions to guide the program's development plans and the implementation processes and will produce lessons for future interventions.

## **1.2. Statement of the problem**

Maternal undernutrition is a major problem globally, mostly in low- and middle-income countries .Global prevalence of chronically undernourished people increased from 17.8 % in 2010 to27.0 % in 2018(12)In addition 200 million pregnant women each year, many pregnant

women in developing countries suffer from nutritional deficiencies and these nutritional problems(13) Maternal undernutrition is estimated to account for 20% of childhood stunting(14)

Maternal undernutrition remains highly prevalent in developing countries In Africa 256 million or 20% of the populations are undernourished of which 239 million are located in Sub Sahara Africa and 17 million are found in northern Africa(15).Maternal underweight exceeds 20% in Ethiopia(16).In addition, Ethiopian demographic health survey showed that chronic-energy malnutrition with severely thin (BMI < 17) category among reproductive-age women was 30.1%. Though, the magnitude of underweight was highest in the Afar region (39.6%) followed by Tigray (34.3%), and lowest in Addis Ababa (13.5%) followed by SNNPR (15.1%), the problem persists in all regions(17)

Moreover, the Demographic and Health Survey (DHS) stated that 2 % of women from an age range 15-49 are of short stature (below 145cm) and thin( 22%(18)

On the other hand comparative study done in northwest Ethiopia showed that 8.8% and 16.4% in the beneficiary of PSNP area and non-beneficiary PSNP area were undernourished respectively(19). Also the likelihoods undernourished mother are to give birth to newborns with low birth weight and these newborns are at high risk of malnutrition leading to an intergenerational cycle of malnutrition(20) likewise study done shown that female illiteracy, poverty, and lack of empowerment of women as common associated factors to maternal undernutrition in developing countries((21),(22)).

Insufficient quality and quantity diet is one of the crucial reasons for high levels of malnutrition during pregnancy and lactation mothers (23) In developing countries, women are generally vulnerable to undernutrition especially during lactation because of inadequate nutrient intake (24) In addition Poor nutrition during lactation has a significant negative consequence to mothers and children's survival, growth, and development(25)

In general lack of food for longer periods will lead to hunger and starvation that can cause death. Enough food is necessity condition to be well nourished. On the other hand poor maternal nutrition is directly associated with mother's lack of resistance to infection and to maternal ill health during pregnancy and childbirth, particularly among the poor(26)

The government of Ethiopia has been comprehensive strategy considers pregnant and lactating mothers as a target group for the implementation in maternal undernutrition such as 'Seqota' Declaration to end hunger and under nutrition and a lack of healthy nutrition by 2030(27), The NNP II planned to address priority with mothers and children ,by the year 2015 of Ethiopia was reducing the prevalence of undernutrition from 27 to 19 %, but not yet achieved(28), HSDP-IV to improve the dietary status of mothers and children(29) and significant improvement of undernutrition (30) , likewise the level of the maternal undernutrition still problems exists .

As a result, the governments of Ethiopia, WFP and development partners work together to increase families' long-term resilience to food shortages and therefore established PSNP in 2005, is aimed at enabling the rural poor facing chronic food insecurity to resist shocks, create assets and become food self-sufficient.

Hence, this study was proposed to investigate magnitude of low BMI (BMI <18.5), MUAC (< 23cm) and its associated link with mother undernutrition in Silti woreda, and then to identify the gaps in undernutrition mother for future interventions.

### **1.3 Significance of study**

In spite of important progress in economic growth and welfare improvement in developing countries over the recent decades, sharp women in terms of maternal healthiness have not been attained in most developing countries. In particular, undernutrition among women continues to form a deep seated problem in several sub-Saharan African (SSA) countries including Ethiopia.

The finding from this study would have great contribution on planning preventive action of maternal undernutrition. It would help health policy makers and other concerned bodies to have a clear understanding about undernutrition among mothers enrolled to productive safety net program and its associated factors in Silti wereda southern Ethiopia. This study was also used as a base line for researchers to conduct further researches on related issue.

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## CHAPTER TWO Review of Literature

### 2.1 Socio Demographic factors

A study conducted in northern Maharashtra in India showed that large family size were 2.186% as well as having less frequency of meal were 0.226% affects the health of mothers(31).

Another study conducted in Surabaya in Indonesia identified several factors like outdated technological interventions, lack of family support, harmful cultural values, inappropriate political and legal principles, poor economic conditions and absence of access to as having a significant negative effect on the nutritional status of pregnant women(32).

The study conducted in Pakistan showed that 18 % ( 36- 40 years) and 17 % (26- 35 years) of mothers understand the nutritional requirements for mothers productive safety, which reveals the mothers belonging to relatively higher productive age groups were more likely to be allowed to family food choices food quality and their family food requirements(33).

On the other hand study done in China showed that younger women were more likely to be underweight. This means that age was significantly associated with under nutrition women. (34)also another study done in Tanzania women aged 15-19 years, 19% and 13% from rural and urban areas were chronically undernourished respectively. Whereas, of the women aged 40-49 years, 14% from rural and 4% from urban areas were chronically undernourished.(35)

likewise in Nigeria Undernutrition in women aged 15–49 years was found to be more prevalent among rural women (13%) compared to urban dwellers(10%)((36)36) Also another study done in Sri Lanka in rural area showed that the prevalence of pregnant mothers was 15 % (37).

In Ethiopia, a study done in rural Tigray in 2017 revealed that mothers with less than 30 years of age, were about 1.7 times more likely to be underweight than those above 30 years. On the other hand the odds of being underweight for mothers who were fasting during their

pregnancy and lactation period were 1.7 and 2.8 times higher than those who were not fasting in both periods respectively (38) Also another study done in general public hospital in Tigray region showed that the magnitude of undernutrition among pregnant women was 40.6% ,significantly associated with maternal undernutrition such as occupation and unwanted pregnancy(39)

Moreover, study carried out in rural kebeles of Dera district of , north west Ethiopia in 2019 showed that non- pregnant and non-lactating women with family size above five  $\geq 5$  were 1.89 times more likely to be chronically energy deficient than those with family size less than five(40)

The study conducted in University of Gondar hospital, northwest Ethiopia showed that the prevalence of undernutrition among pregnant women was 16.2% a factors identified significantly associated with the undernutrition were living in rural areas (AOR=2.26), low educational status [no formal education (AOR=2.91), primary education (AOR=2.69)], history of too many births (AOR=2.55),and anemia (AOR=2.01).(41)

## **2.2 Nutritional related factors**

A study conducted in Bangladesh from total 17,842 married women (15–49age) the prevalence of being underweight among childbearing mothers was 32.1 % (urban 25 % and rural 35.1 %) according to the scale used in this study, 11.9 % were classified as underweight mothers (severe CED), while 62.2 % and 25.9 % were classified as mild and moderately underweight mothers(42)

Another study conducted in India showed that CED among pregnant mothers was very high with undernutrition classified as 19.4% and 51.5% were underweight and normal respectively (43) and In addition study done in Iran showed that prevalence of undernutrition Lactating women in the urban and rural areas were 22.9%(44)

Furthermore, a study conducted in Uganda showed that children whose mothers were employed by non-family members had higher odds of wasting and being underweight compared with children whose mothers were employed by family members (45)

In Ethiopia recent study done national representative data the prevalence of maternal undernutrition showed that was 21%.(46).A cross-sectional study made in Debre- tabor general hospital showed that mothers who had daily laborer husband were 5 times more likely to develop CED as compared to mothers who had merchant husband. Moreover; lactating mothers who had no PNC follow up were 6 times more likely to acquire CED than mothers who had PNC follow up. Furthermore, lactating mother who ate only 2 times per day were 5 times more likely to had CED as compared to those who ate more than three times per day. (47)

Another cross-sectional study, which was conducted in Miesso health center Ethiopia in 2017, indicated that lactating mothers 12.6% were underweight, respectively. This study also presented direct association of malnutrition with lower family incomes and age of women were 2.056% and 2.169% respectively(48). In addition, a study conducted in eastern zone of Tigray region, showed that the prevalence of maternal undernutrition was 38% (49)49).Another study done in Moyale district, Borena Zone of Oromia region, showed prevalence's of undernutrition among lactating women was 17% (BMI=17.7%, 95% CI: 14.2–20.9) ,while b, 16% of lactating women had undernutrition less than 21cm (MUAC=16%, 95% CI: 13.1, 19.4)(50).

Furthermore, a study from Dega damot woreda, northwest Ethiopia illustrated that lactating mothers who were unmarried were 2.65 times more likely to become undernourished than those lactating women who were married(51).

A study done in Goro dola district of southern Ethiopia showed that women who were not participating in health development meetings were 3.64 times more likely to develop

undernutrition than their counterparts who were participating in such meetings((52).Study done in Offa woreda, Wolayita Zone, SNNPRs showed that CED among the lactating mothers was high. According to the scale used in this study chronic energy deficiency and normal were 15.84 % and 74.23 % respectively(53).

On another study done in rural Ethiopia, maternal wasting increased from 45.4% during post-harvest season to 51.5 % during pre-harvest season, while maternal anemia increased from 21.5 to 34.1%, signifying a strong impact of food shortages in the lean season on mother under nutritional status (54).

Also a comparative cross-sectional study done in Shashemene woreda, west Arsi Zone Oromia Ethiopia showed that the prevalence of under- nutrition(MUAC < 23 cm) among women in rural areas was twice as high as that of those who live in urban.(55)

On the other study conducted showed that moderate to high levels of maternal undernutrition in Zeway and Halaba were found to be 14% and 22% respectively.(56) In addition study done in, South Omo Zone SNNPR, Ethiopia of under nutrition was 63.9% high in low land when compared with high land was 40.9% and over all prevalence of undernutrition was 54.2%.(57)

Similarly, a study conducted in Assayita district in Afar regional state Ethiopian showed that the prevalence of underweight was 41.1%, according to the scale used in this study, 2.7 % were classified as severe while 34.5% and 3.9 % were classified as mild and moderately underweight women.(58)

Another study done in Mettu Karl referral hospital, southwest Ethiopia showed that under-nutrition was 17.5%,while lack of formal education , lack of iron supplementation , WDDS less than six, and not taking additional meal were found to be 9.4% , 3.2%,4.1% and 2.3% respectively a factors identified significantly associated with under-nutrition (59).Besides a study conducted in Siltie zone, southern Ethiopia showed that the prevalence of undernutrition among pregnant women was 21.8%(60).

According to the study conducted done in Rayitu district humanitarian setting in Ethiopia mothers who did not received antenatal care (ANC) during their pregnancy were 1.83 times more likely to be malnourished (MUAC <21 cm) as compared to mothers who received ANC. Whereas mothers belonging to families from which at least one person did not receive targeted supplementary feeding (TSF) in the 6 months before the study were 62% less likely to have acute malnutrition compared to those who lived in families who received TSF.(61).

Likewise study done in Tahtay adiyabo woreda northwest Tigray in kunama population prevalence of undernutrition was 47.9%, according to the scale used in this study, 6.3 % were classified as severe while 31.0% and 10.6 % were classified as mild and moderately underweight(62).

Also another study conducted in Womberma woreda, northwest Ethiopia showed that lactating women with normal and underweight were 498 (74.5%), and 170(25.4%) respectively. A factor identified significantly associated with underweight of lactating women such as less than five family sizes, age of first pregnancy was less than 18 years old, and the absence of nutritional education programs in the community (63).

Also another study conducted in Gondar town and Central Refit Valley showed that pregnant mother prevalence of undernutrition were 14.4%(64)and 31.1%(65) respectively. In addition study done among lactating mothers who ate < 5 food groups were more likely to be undernourished (66) A cross sectional study done in Anlemo woreda lactating mothers who had no formal education were more likely at risk to undernutrition than mothers who had were formal education(67)

Furthermore study done in Illu Aba Bor Zone, southwest Ethiopia pregnant mothers who had no formal education, poor wealth status and less meal frequency were 3.49 ,3.65 and 2.88 times higher were more likely at risk to undernutrition compared to those counter parts(68)

community-based cross-sectional study was done in Kombolcha district the prevalence of undernutrition 27.3% and 20.2% for women from PSNP and non-PSNP households respectively (69).

Moreover, the study conducted done in Kacha Birra District pregnant mothers 52.6% was undernourished, statistically significant association with maternal undernutrition such as dietary diversity, education and age (70) Institution based quantitative cross-sectional study done in Maychew Zone, Northern Ethiopia, shows that as compared with pregnant women with educational level of university, women with no formal education reduces chance of being under nutrition by 75 % (71). Also another study done in Gumay District, Jimma Zone, Hosanna and Malga District prevalence of pregnant mother 44.9%, 24.6% and 26% were undernourished respectively three study showed that monthly income statistically significant association with maternal undernutrition. ((72), (73),(74))

### **2.3 Environmental related factors**

A study conducted in Nigeria showed that more women unimproved with (17.2%) and partially improved (15.5%) house hold environmental condition who were underweight lived in houses compared to those who lived in houses with improved 7.2% house hold environmental condition (75)

Also a study from in Adama district Oromia Region Ethiopia lactating mothers disposed household wastes on open field were more than three times as likely to be underweight compared to those who disposed to the household wastes to disposal pit. (76)

In addition study done in Arba Minch Zuria district in 2018 showed that the respondents who live in the house hold with no toilet were 6.4 times more likely to undernourished compared to their counterparts (77)

## 2.4 Conceptual frame work

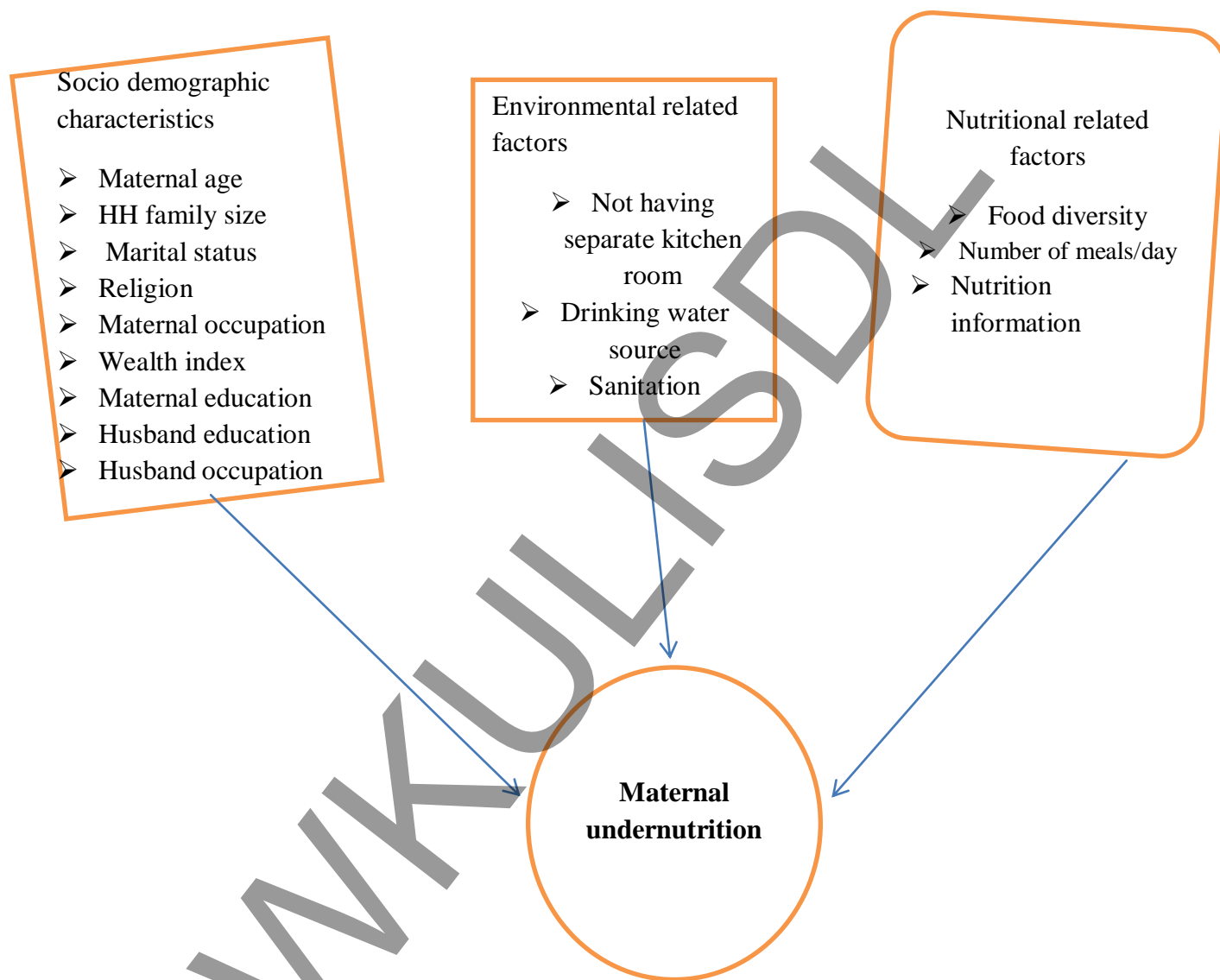


Figure 1. Conceptual framework adapted from literatures to assess under nutrition among mothers enrolled to productive safety net program and its associated factors in Silti woreda in rural community southern Ethiopia

## **CHAPTER THREE Objective**

### **3.1 General Objective.**

The purpose of this study was to assess under nutrition and associated factors among mothers enrolled and non-enrolled to productive safety net program in Silti woreda in rural community southern Ethiopia.

### **3.2 specific objectives**

- ✓ To compare the magnitude of maternal under nutrition among mothers between enrolled and non-enrolled of PSNP
- ✓ To identify associated factors of nutritional status among mothers between enrolled and non-enrolled of PSNP

### **3.3 Hypothesis**

#### **3.3.1. Null Hypothesis: -**

- Mother difference in frequency of meal per day will not have any effect on the level of undernourishment in both enrolled and non-enrolled in PSNP
- Mothers with varying dietary diversity score will have the same level of undernutrition in both enrolled and non-enrolled in PSNP
- Mother with different wealth index will face equivalent level of undernutrition in both enrolled and non-enrolled in PSNP
- Mothers who had no formal education will be equally undernourished as of those mothers who had formal education in both enrolled and non-enrolled in PSNP
- Mothers variation for an exposure to nutrition information will not cause a difference in the level of undernourishment in both enrolled and non-enrolled in PSNP

### 3.3.2 Alternative Hypothesis: -

- ❖ Mother with less frequency of meal per day will be more likely to be undernourished as compared to those mothers with high frequency of meal per day in both enrolled and non-enrolled PSNP
- ❖ Mothers with low dietary diversity score will likely experience more undernutrition than those mothers with high dietary diversity score in both enrolled and non-enrolled PSNP
- ❖ Mother with less wealth index will likely to be more undernourished as compared to those mothers with high wealth index in both enrolled and non-enrolled in PSNP
- ❖ Mothers who had no formal education will likely to be more undernourished as compared to those mothers who had formal education in both enrolled and non-enrolled in PSNP
- ❖ Mothers who had no exposure to nutrition information will be more likely to be undernourished compared to those mothers who had exposure to nutrition information

## **CHAPTER FOUR METHODS AND MATERIALS**

### **4.1 Study area and period**

The study was conducted in Silti wereda, Siltezone, Southern Nation and Nationalities peoples region. Silti wereda is located at 147 km to the south of Addis Ababa. There are 25 rural and 3 urban kebeles in the woreda, but this study was carried out in rural community of the woreda. The total population of Silti woreda projected from 2007 housing census was 151,573 (77,226 females and 74,347 males). According to the rural community of the woreda report, 55278 people from 15 kebeles and 10771 households were enrolled in safety net program while 90,623 peoples from 10 kebeles and 19,004 households were no enrolled in safety net program. The study was conducted from April 10th to June 10th/2021.

### **4.2 Study design**

A Community based comparative cross sectional study design was employed

### **4.3 Source Population**

Mothers living in Silti woreda in rural community were the source population

#### **4.3.1 Study population**

Randomly selected mothers in Silti woreda in rural community was the study populations.

### **4.4. Sample size determination and sampling technique**

#### **4.4.1 Sample size determination.**

Sample size was determined using Epi Info7 using stat- calc by taking main predictor of undernutrition among mothers from a previous study in Kacha Birra district(79) Adama town(76), Degamot district(51)and Rara district Almata in southern in Tigray (80) in table (table- 1). Based on this, i have taken the largest sample size. Therefore final sample size becomes 642 by considering 10 % non-response rates.

Table 1. Associated Variables for sample size determination

Associated variables	% outcome among of unexposed	% outcome among exposed	Power (80%)	95% CI	Ratio	AOR	Sample size			Largest sample size	Reference
							Exposed	Unexposed	total		
Nutrition information	8	20	80	95	1	2.36	147	147	294		(79)
Maternal education	10.4	25.4	80	95	1	4.96	114	114	228		(76)
Dietary diversity	8.9	25.6	80	95	1	2.1	292	292	584	584	(51)
Husband occupation	8.6	18.67	80	95	1	0.105	148	148	296		(80)

#### 4.4.2 Sampling technique

My study area was composing of 25 kebeles. Of this, 15 kebeles were in productive safety net program. Five kebeles from enrolled PSNP and three kebeles from non-enrolled PSNP was selected respectively by simple random sampling (SRS) .Systematic random sampling was conducted using the list of lactating , pregnant mothers, non-pregnant and non-lactating mothers attending in the family folder , and the formula  $(N/n = k)$  was used to determine the size of the sampling interval. Where N is the house hold, n is sample size enrolled and non-enrolled mothers from PSNP whereas k is interval size of the sampling. Finally, participants was selected enrolled kebeles every 8 intervals starting from the first unit of the study (attendant mothers)

### Schematic presentation of sampling procedures

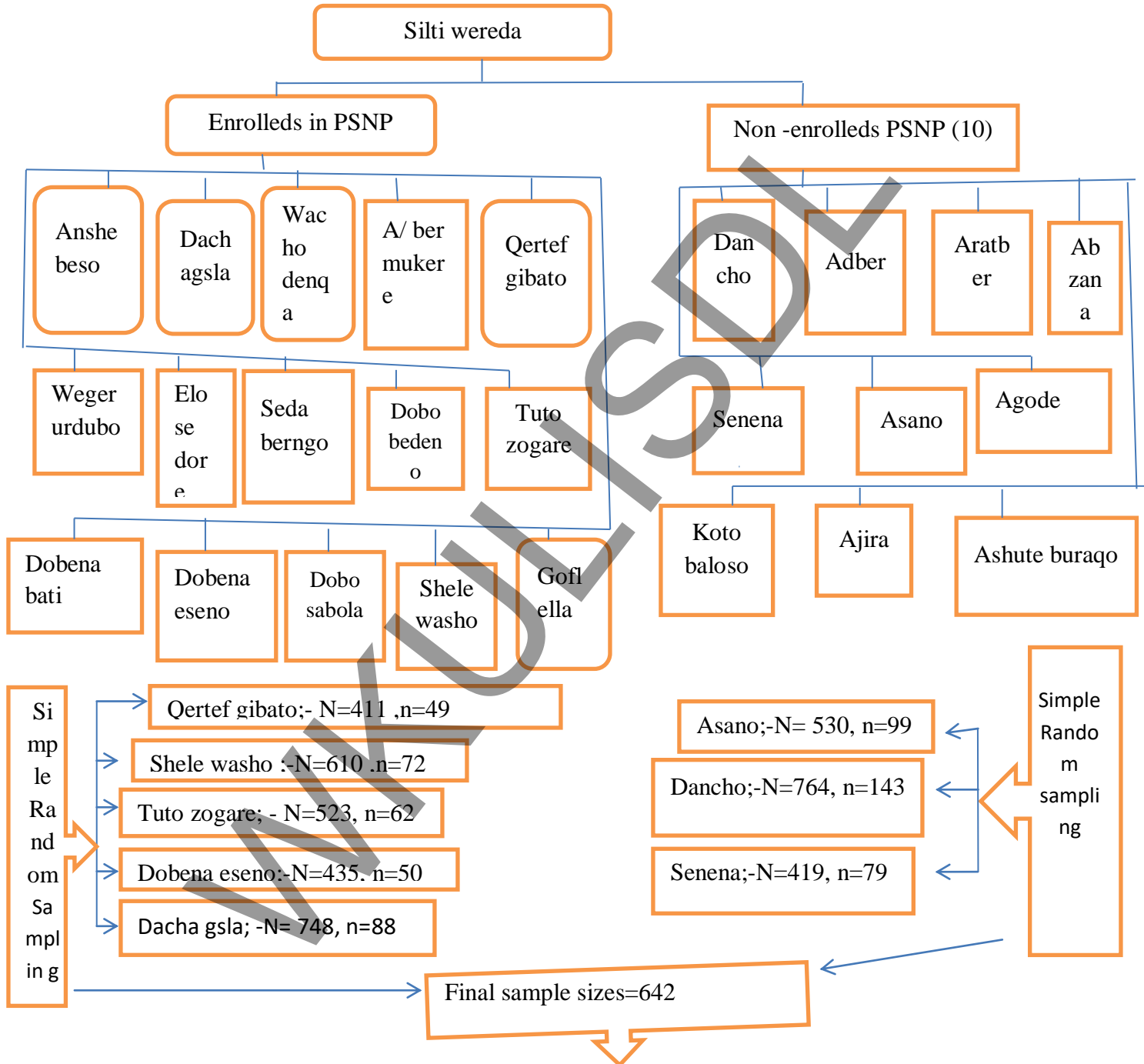


Figure 2. Schematic presentation of sampling procedure, in Silti wereda in rural community enrolled PSNP and non-enrolled PSNP kebeles, South Ethiopia, 2021

## **4.5 Study variables**

### **4.5.1. Dependent variable**

- Undernutrition

### **4.5.2 Independent variables**

- Mothers socio-economic and demographic factors:-, maternal age, marital status, family size, maternal education, ,maternal occupation, religion and wealth
- Nutritional related factors;- food diversity, nutrition information ,number of pregnancy and number of meals/day
- Environmental related factors :-not having separate kitchen room, drinking water source, and sanitation

## **4.6 Inclusion and Exclusion criteria**

### **4.6.1 Inclusion criteria**

Selected mothers between 15-49 years old. This study included all lactating mother whose child age was less than two years, all pregnant mother who had any trimester pregnancy and non-pregnant and non-lactating mother in rural community of Silti woreda who had lived at least for six months in the study areas.

### **4.6.2 Exclusion criteria**

Mother who are unable to communicate and very sick were excluding from the study .In addition lactating mothers with pregnancy, mothers having more than two years old child, mothers who live less than six months ,mothers overweight and obese were excluding from the study

#### **4.7 Data collection**

Semi-structured questionnaire was used to collect the primary data. It was prepared by adapting information and ideas from different literature and anthropometric measuring devices. The questionnaire was designed to capture the socioeconomic factors, nutritional related factors and environmental related factors associated with maternal undernutrition from the participant. Anthropometric measurements were taken at end of the interview. Instrument checked against a standard weight for its accuracy daily and calibration of the indicator against zero reading was checked. Data collectors and supervisors were trained for two days given on the objective, the importance of the study, confidentiality of information, participant's right, informed consent, verbal assent and techniques of the face to face interview and physical measurements of MUAC, height and weight. In addition, PSNP as well as different literatures were also used as secondary data supporting and justifying documents.

#### **4.8 Anthropometric Measurements**

Measurement of MUAC) was used to determine the nutritional status of pregnant and lactating mothers. MUAC was measured halfway between the tip of the shoulder (olecranon process) and the tip of the elbow (acromion process) to the nearest 0.1 cm. An insertion type MUAC tape that is non-elastic and non-stretchable was used to take the measurement. The measurement was taken at the mid-point on the relaxed left arm, without any clothing and with optimal tape tension (not too loose or not too tight) following the standard instructions and steps. Undernourished considered when pregnant and lactating mothers MUAC was <23cm and ≥23cm was considered well-nourished. (81),(81)(82)

Measurement of BMI was used to determine the nutritional status of non-pregnant and non-lactating mothers. Undernutrition or chronic energy deficiency considered when non pregnant and non-lactating mothers BMI was < 18.5 kg/m<sup>2</sup>((5)) (82). These measures of height and weight was done no shoes and with light closing the mother facing away from the scale

according to the standard protocol. The measures of height and weight were recorded on the questionnaire and were later used to calculate the Body Mass Index (BMI) of the mother.

#### **4.9 Data quality control**

Before data collection the questionnaire was translated by language expert from English version to Amharic language and siltigna language before interviewing and then it was translated to English language by different translators after interviewing to keep the consistency of the questionnaire. Training was given for two days to supervisors and data collectors prior to actual data collection by the principal investigator about the objective of the study and on how to supervise and collect anthropometric measurement data. The instrument was pretested on 5% of the actual sample in kebeles with similar socioeconomic status with the study population before actual data collection and correction were taken accordingly. The principal investigator and two supervisors was monitored the data collection process. They were included in the spot of data collection every day to check and review all the questionnaires to ensure completeness and consistency of the information. During data collection, questionnaires were checked for completeness on daily basis by data collectors and supervisors. Data was double entered by using Epi Data before exported to SPSS for analysis.

#### **4.10 Data analysis and management**

Data was coded and entered into epi-data and exported to and analyzed using SPSS. The data was cleaned for both Epi-data and SPSS by running frequency and checking for consistency. The outcome variable, undernutrition, was categorized and coded as 1 for “yes” if MUAC and BMI were  $<23$  cm and  $<18.5$  kg/m<sup>2</sup> similarly 0 for “no” for MUAC and BMI were  $\geq 23$  cm and  $\geq 18.5$  kg/m<sup>2</sup> respectively. A mother was assigned in the low dietary diversity if the score is  $<5$  and high if the score is  $\geq 5$ . Principal Component Analysis was employed for wealth index and all assumptions like sample size, ratio of variables to cases, the variables included were dichotomous, measure of sampling adequacy (KMO and Anti-Image  $\geq 0.5$ ), Bartlett test of sphericity is statistically significant ( $P < 0.05$ ), and

No complex structures were seen and explained variation also satisfied. To reduce intra- and inter observer variability in measurements, relative technical error of measurement was considered during the training among 20 mothers.

The actual location of the start of the study in each area was decided based on random walk method by rotary a pen to select the direction of the first household. Descriptive statistics such as frequencies, percentage, summary measures, tables and graphs was used to describe the results of the respondents. Bi-variable logistic regression model was used to see the association between each independent and dependent variable by estimating crude odds ratio with 95% CI. Variables with p -value < 0.25 were entered to the multivariate logistic regression. Then the multivariate logistic regression was tested for model fitness by using Hosmer-Lemshow model test(83) Multicollinearity of the independent variables was checked by standard error and variables with standard error of >2 were dropped from the multivariate analysis. Adjusted odds ratio (AOR) with 95% CI and p value were used to measure strength of association with undernutrition. Finally, statistical significance was declared at p value less than 0.05

#### **4.11 Ethical clearance**

Ethical clearance letter was obtained from Institutional Review Board of College of Medicine and Health Sciences, Wolkite University. A support letter was obtained from Silti woreda agriculture offices, Silti woreda health offices and safety net program coordination offices of Silti woreda. Informed verbal consent and verbal assent form was obtained from the study participants after explaining the purpose of the study. In addition, confidential of information was assured and privacy of the study population were respected and kept as well. Moreover, to ensure confidentiality the names of participant were not written in the consent and assent form. Participants were allowed to refuse provision of required information or discontinue their participation at any time.

#### **4.12 Dissemination plan**

The finding of the study may be presented to the department of Public Health College of Medicine and Health Science, Wolkite University. Furthermore, the finding of the study may disseminated for the Silti woreda agricultural offices, woreda Health office and safety net coordinator offices of Silti woreda. The findings may also be disseminated to different stakeholders that have a contribution to improve undernutrition. Finally, it may be presented in different conference and published in reputable journals.

#### **4.13 Operational Definition**

**BMI** is calculated by dividing weight in kilograms by height in meters squared ( $\text{kg}/\text{m}^2$ )(5)

**Household:** A household is defined as an individual or gathering of related or non-related people who live and share something in a similar.

Households with PNSPs: households identified as chronically food insecure and currently under a cash transfer or asset-building program ((8),(9))

**Maternal undernutrition:** Chronic energy deficiency defined by a low BMI of less than  $18.5\text{kg}/\text{m}^2$  (5)

**Minimum dietary diversity women** is a dichotomous indicator of whether or not have consumed at least five out of ten high dietary diversity and less than five out of ten low dietary diversity defined food groups the previous day or night.(84)

Briefly, the mothers were asked to recall the foods they had consumed in the previous 24 h (sunrise to sunrise). Consideration was given to exclude special days of food consumption such as traditional or ceremonial days. The ten food groups are: 1. Grains, white roots and tubers, and plantains, 2.Pulses (beans, peas and lentils), 3. Nuts and seeds, 4. Dairy, 5.Meat, poultry and fish, 6. Eggs, 7. Dark green leafy vegetables 8. Other vitamin A-rich fruits and vegetables , 9. Other vegetables, 10. Other fruits.

**Meal frequency:** number of regular meal intake 3 times per day

**MUAC** refers at the midpoint between the elbow and the shoulder. MUAC of <23 cm will be considered to be a sign of undernutrition.(82)(83)

**Sanitation:** Provision and use of facilities and services that safely dispose of human urine and faeces, thereby preventing contamination of the environment.((85)

**Improved sanitation facilities** as defined by hygienically separate human excreta from human contact and include flush or pour-flush toilets to piped sewer systems, septic tanks or pits, ventilated improved pit latrines, pit latrines with slab, and composting toilets (85)

**The Wealth Index-** It is studied by using Principal Component Analysis (PCA) and the wealth score was divided into wealth-tertile (poor, medium and rich)(86)

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## Chapter Five Result

### 5.1. Socio-demographic characteristics of study participants

A total of 642 mothers aged between 15 to 49 years old were included in the study with the 98.3% response rate from each group. Among them 315 (49.9%) were enrolled in PSNP and 316 (50.1%) were not enrolled in PSNP. The age of the participants were  $29.13 \pm 5.226$  (mean  $\pm$  St. Deviation) with minimum and maximum ages of 17 and 46 years old, respectively. More than half, 62.3% (393) the participant in the age range of 20-29 years, 32.5% (205) were from the 30-39 year range, 1.1% (7) were from the 15-19 year range and others, 4.0% (26) in the age were from 40-49 years old. In addition from the total participants 96 (30.5%) were not in PSNP ( $X^2=8.11$ , P-value=0.004) and 98 (31.0%) enrolled in PSNP had no formal education exposure ( $X^2=9.3$ , P-value=0.002) (Table.2)

Table 2. Socio demographic related characteristics of under nutrition among mothers from enrolled and non-enrolled to safety net program in Silti Woreda, southern Ethiopia, 2021

Variables	Category	Undernutrition among mothers										X <sup>2</sup>	P-value
		Mothers enrolled in safety net program (N=316)		X <sup>2</sup>	P-value	Mothers not enrolled in safety net program (N=315)		X <sup>2</sup>	P-value	Total (N=631)			
		N	%			N	%			N	%		
Age	15-19	2		1.42	0.70			5.42	0.143	7	1.1	1.7	0.761
	20-29	196	62.0			197	62.5			393	62.3		
	30-39	105	32.2			100	31.7			205	32.5		
	40-49	13	4.1			13	4.1			26	4.0		
	Total	316	98.4			315	98.1			631	98.3		
Marital	Married	312	98.7	0.028	0.866	310	98.4	1.51	0.471	623	98.6	1.55	0.67
	Divorced	4	1.3			3	1.0			7	1.1		

status	Widowed	0	0			2	0.6			2	0.3		
	Total	316	98.1			315	98.1			631	98.3		
Mother education	No formal education	191	60.4	9.30	0.002	248	78.7	8.11	0.004	439	69.6	14.8	<0.0001
	Formal education	125	39.4			67	21.3			192	30.4		
	Total	316				315				631			
Husband education	No formal education	274	86.7	1.28	0.257	267	84.8	0.06	0.807	541	85.7	8.17	0.004
	Formal education	42	13.3			48	15.2			90	14.3		
	Total	316				315				631			
Current occupation of mother	Government employed	4	1.2	3.2	0.524	6	1.9	4.43	0.351	10	1.6	0.80	0.938
	Private employed	7	2.2			11	3.5			18	2.9		
	Housewife	211	66.8			199	63.2			410	65.0		
	Merchant	60	19.0			73	23.2			133	21.1		
	Farmers	34	10.8			26	8.3			60	9.5		
	Total	316				315				631			
Current occupation	Government employed	7	2.2	15.96	0.003	14	4.4	6.18	0.186	21	3.3	6.35	0.174
	Private	18	5.7			21	6.7			39	6.2		

of husband	employed												
	Day laborer	57	18			52	16.5			109	17.3		
	Merchant	74	23.4			48	15.2			122	19.2		
	Farmers	160	50.6			180	57.1			340	57.7		
	Total	316				315				631			
Household family size	>=5	284	89.9	0.832	0.362	276	87.6	0.716	0.398	560	88.7	12.8	<
	<5	32	10.1			39	12.4			71	11.3	8	0.000
	Total	316				315				631			1
Wealth index	Poor	110	34.8	1.114	0.573	82	26	5.73	0.334	192	30.4	15.5	<
	Medium	78	24.7			117	37.1			195	32.9	1	0.000
	Rich	128	40.5			116	36.8			244	38.7		1
	Total	316				315				631			

## 5.2 Maternal health and nutrition characteristic

The overall percentage of mother who had low exposure of nutritional information was 262 (82.9%) from enrolled in PSNP ( $X^2 = 9.73$ ,  $p$ -value = 0.002) and 232 (73.7%) from non-enrolled in PSNP ( $X^2 = 7.22$ ,  $p$ -value = 0.007) of the study area. In addition the overall proportion of mother who visit ante natal care less than four times were 15 (14%) and 10 (9.4%) from those enrolled and non-enrolled in PSNP respectively. Moreover, mothers who had not received iron and folate supplementation during pregnancy were 27 (15%) and 21 (8.3) from those enrolled in PSNP and non-enrolled in PSNP respectively. The detail of maternal health and nutrition characteristics in the study area are presented in the table below (Table.3)

Table 3. Maternal Health's and Nutrition related characteristics of undernutrition among mothers enrolled and non-enrolled to safety net program in Silti Woreda, southern Ethiopia, 2021.

Variables	Category	Undernutrition among mothers										X2	P-value
		Mothers enrolled safety net program(N =316)		X2	P-value	Mothers not enrolled in safety net program(N =315)		X2	P-value	Total (N=631)			
		N	%			N	%			N	%		
Nutrition information	Yes	54		9.73	0.002	83	26.3	7.22	0.007	137	21.7	26.4	<0.001
	No	262	82.9			232	73.7			494	78.3		
	Total	316				315				631			
Frequency ANC	> = 4 times	93	86	3.46	0.063	96	90.6	0.76	0.383	189	88.3	36.99	<0.001
	< 4 times	15	14			10	9.4			25	11.7		
	Total	108				106				214			
Anthropometric	MUAC >=23cm	176	27.8	254	0.000	196	31.1	254	0.000	372	59.0	508	<0.001
	MUAC <23cm	78	12.4			58	9.2			136	21.5		

	Total	254				254				508			
	BMI $\geq$ 18. kg/m <sup>2</sup>	48	7.61	62.00	0.000	48	7.6	61.0	0.000	96	15.2	123.0	<0.001
	BMI<18. kg/m <sup>2</sup>	14	2.2			13	2.1			27	4.3		
	Total	62				61				123			
Dietary diversity	$\geq$ 5	76	24	0.012	0.915	103	32.7	5.97	0.015	179	28.4	88.46	< 0.0001
	<5	240	76			212	67.3			452	71.6		
	Total	316				315				631			
Iron folate	Yes	219	85.0	0.96	0.757	231	96.7	0.68	0.411	450	90.4	26.61	$\leq$ 0.001
	No	27	15.0			21	8.3			48	9.6		
	Total	246				252				498			
Current family planning utilization	Yes	89	28.2	1.12	0.289	122	38.7	4.99	0.025	420	66.6	0.231	0.631
	No	227	71.8			193	61.3			211	33.4		
	Total	316				315				631			
Frequency of meal	$\geq$ 3 times per day	128	40.5	3.96	0.047	37	11.7	10.2	0.001	165	26.1	77.23	< 0.0001

< 3 times per day	188	59.5	278	88.3	466	73.9
Total	316		315		631	

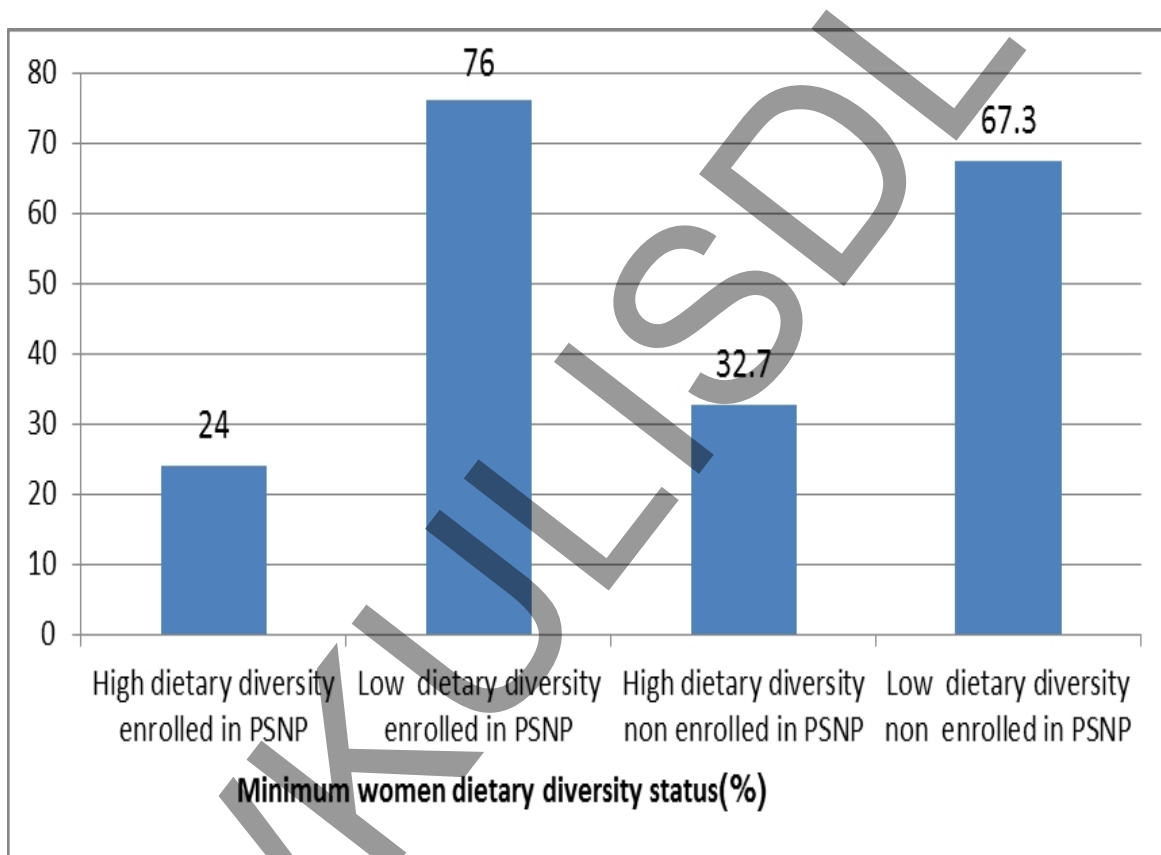


Figure 3 . Dietary diversity status of among mothers (n= %), in Silti woreda in rural community enrolleds in PSNP and non-enrolleds in PSNP kebeles, South Ethiopia, 2021

### 5.3 Nutritional status of mothers

The overall prevalence of undernutrition among mothers was 25.8% (95% CI: 22.3-29.0) while it was 28.8% (95% CI: 23.7-33.9) and 22.9% (95% CI: 18.4-27.6) from enrolled in PSNP and non-enrolled in PSNP in this study area, respectively

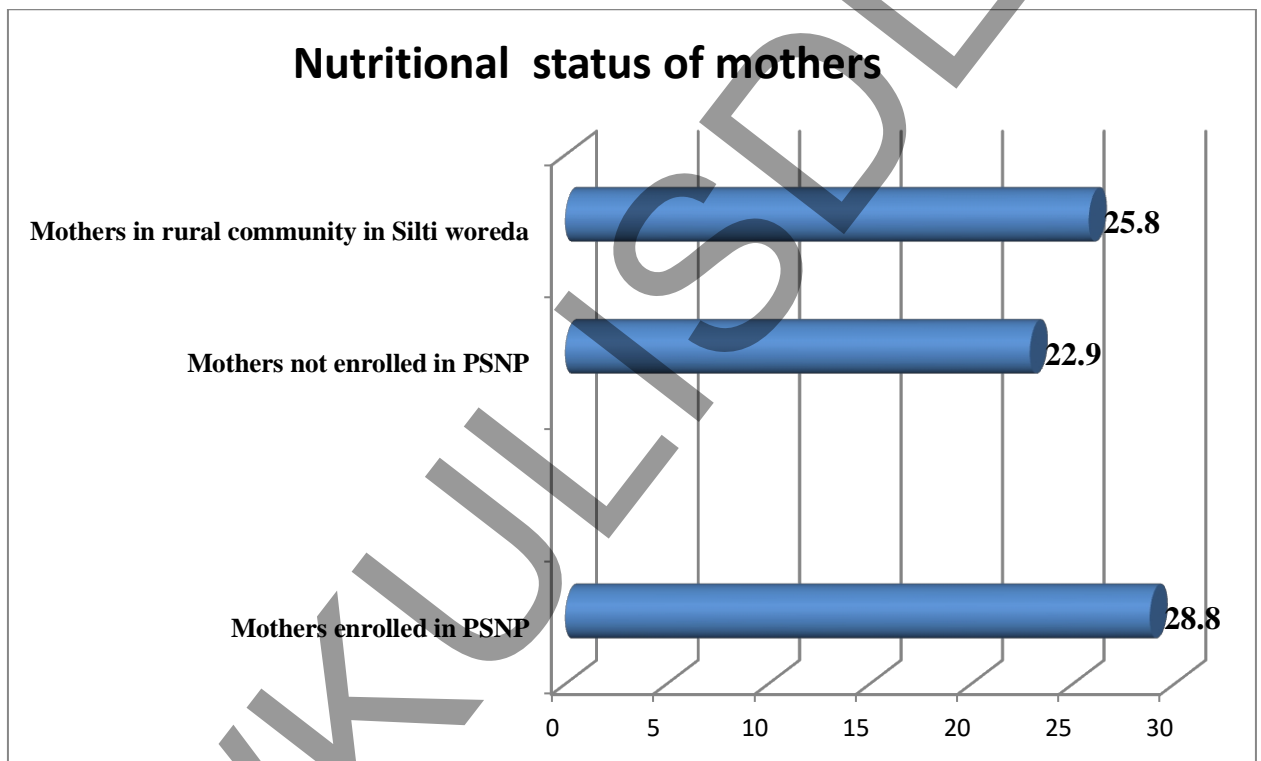


Figure 4. Bar chart showing comparison nutritional status of among mothers (n= %), in Silti woreda in rural community enrolleds in PSNP and non-enrolleds in PSNP kebeles, South Ethiopia, 2021

### 5.4 Environmental related characteristics

Environmental related characteristics of the participants were also evaluated during the study period and therefore, about 260 (82.3%) and 261(82.8%) having presence of toilet facility But, not having presence of toilet facility 56 (17.7%) and 56(17.2%), households of the participant from enrolled in PSNP and non-enrolled in PSNP respectively, as a result not having presence

of toilet facility were contributes to undernourished mothers from those enrolled in PSNP and non-enrolled in PSNP. In addition poor sanitation, hygiene and disposal of house hold waste including human excreta major cause of diarrhea and other disease that cause of undernutrition. . Furthermore, Mothers not only who delivered low birth weight baby but also reason of undernutrition had not separate kitchen, it was around 204(64.6%) and 210(61.9) from enrolled and non-enrolled in PSNP respectively, in the study area. Details of environmental characteristics are presented in table 4

Table 4.Environmental related characteristics of under nutrition among mothers enrolled and non-enrolled to safety net program in Silti woreda, southern Ethiopia, 2021.

Candidate variables	Category	Undernutrition among mothers										X2	P-value
		Mothers enrolled safety net program(N =316)		X2	P-value	Mothers non-enrolled safety net program(N =315)		X2	P-value	Total (N=631)			
		N	%			N	%			N	%		
Toilet facility	Improved ventilated latrine	62	19.6	0.633	0.729	67	21.3	0.49	0.783	129	20.4	0.92	0.627
	Unimproved latrine	198	62.7			194	61.6			392	62.1		
	No facility (bush) filed	56	17.7			54	17.1			110	17.4		

	Total	316				315				631			
Time hand washing	Yes	118	37.3	7.0	0.008	133	42.2	5.04	0.025	251	39.8	74.12	<0.0001
	No	198	62.7			182	57.8			380	60.2		
	Total												
Solid waste disposal	Dumped in street or open space	175	55.4	4.86	0.302	117	37.1	6.88	0.142	292	46.3	10.40	0.006
	Disposed in the compound	45	14.2			61	19.4			106	16.8		
	Pit	76	24.1			48	15.2			124	19.7		
	Burned	13	4.1			23	7.3			36	5.7		
	Other (specify)	7	2.2			66	21.0			73	11.3		
	Total												
Separate kitchen room	Yes	112	35.4	0.106	0.745	120	38.1	0.45	0.502	262	36.8	0.127	0.721
	No	204	64.6			210	61.9			399	63.2		
	Total												
Time take to fetch water	Less than 30 minute	99	31.3	5.19	0.023	117	37.1	0.73	0.394	216	34.2	55.3	<0.0001
	More than 30 minute	217	68.9			198	62.9			415	65.8		

## 5.5 Factors associated to undernutrition among mothers

### 5.5.1 Bi-variate logistic regression analyses both enrolled in PSNP and non-enrolled in PSNP

During bivariate logistic regression analysis indicate both enrolled in PSNP and non-enrolled in PSNP a significant predictors of undernutrition among mothers were drawn from Sociodemographic associated factor, nutritional associated factors and environmental related factor (table .5)

Table 5. Bivariate logistic regression of independent variable and under nutrition among mothers enrolled and non-enrolled to safety net program in Silti woreda, southern Ethiopia, 2021

Candidate Variables	Category		COR with 95% CI	P-value
Mothers education level	No formal education	439(63.6)	2.393 (1.521,3.763)	0.0001
	Formal education	192(30.4)	1.(reference)	
Family size	≥5	560(88.7)	1.784 (1.061, 3.000)	0.029
	<5	71(11.3)	1.(reference)	
Wealth index	Poor	192(30.0)	2.296(1.429, 3.689)	0.001
	Medium	195(31.0)	2.378(1.437,3.689)	0.0001
	Rich	244(39)	1.(reference)	
Dietary diversity	≥5	179(28.4)		
	< 5	452(71.6)	16.954	0.0001

			(8.719,32.966)	
Nutrition information	Yes	190(30.1)	1	
	No	441(69.9)	2.616(1.802,3.799)	0.000
Meal frequency	>= 3 meal per day	165(26.1)	1	
	< 3 meal per day	466(73.9)	8.215(4.819,13.697)	0.0001
Frequency of ANC	four times	189(88.3)	1.00(ref)	
	< 4	25(11.7)	1.132 (0.560 ,2.287)	0.23
Iron folate	Yes	450 (90.4)	1(ref)	
	No	48 (9.6)	1.615 (1.116,2.339)	0.011
Time take to fetch water	Less than 30 minute	415(65.8)	1(reference))	
	Less than 30 minute	216(34.2)	1.943 (1.348 , 2.800)	0.000
Toilet facility	Unimproved pit/latrine	310(49.1)	0.930(0.578,1.496)	0.764
	No facility(bush) filed	158(25.0)	1.596(0.445,1.237)	0.036
	improved ventilated pit/latrine(VIP)	163(25.8)	1	

### 5.5.2 Multivariable logistic regression analysis both enrolled in PSNP and non-enrolled in PSNP

Multivariable logistic regression analysis indicated that lack mother formal education, low exposure nutrition information, low dietary diversity, lack adequate frequency of meal per day and poor wealth index were a significant predictors of undernutrition among mothers.

The odds of undernutrition among mothers who had no formal education were 2 times higher compared to counter parts (AOR=2.093,95% CI: 1.220-3.583).Moreover, mothers who had no

exposure to nutrition information were 2 times more likely to be undernourished compared to those who had exposure to nutrition information (AOR =2.073, 95% CI: 1.332-3.205).

Similarly mothers who had with low dietary diversity were 8.5 times more likely to be undernourished compared to those mothers with high dietary diversity (AOR=8.574, 95% CI 4.248-17.307).Likewise mothers who had less than three times meal per day were 37 times higher more likely to be undernourished than those mother had greater than or equal to three and above meal per day (AOR=3.712, 95%CI: 2.105-6.546).

The likelihoods of undernutrition among mothers from 1st quintile wealth index households 2.34 times more likely to be undernourished compared to those mothers from 3rd quintile wealth index (AOR =2.377 ,95%CI: 1.385-3.437)( Table 6 )

Table 6. Multivariable logistic regression analysis of factors associated undernutrition among mothers enrolled PSNP and non-enrolled to PSNP Silti woreda in 2021.

Candidate Variables	Category		COR with 95% CI	AOR(95%CI)	P-value
Mothers education level	No formal education	535(84.8)	2.393(1.521,3.763)	2.093(1.220,3.583)	0.007
	Formal education	96(15.2)	1	1	
Nutrition information	Yes	190(30.1)	1	1	
	No	441(69.9)	2.616(1.802,3.799)	2.066(1.332,3.205)	0.0001
Meal frequency	>= 3 meal per day	253(40.1)	1	1	
	< 3 meal per day	378(59.1)	8.125(4.819,13.697 )	3.712(2.105,6.546 )	0.0001
Dietary diversity	>=5	256(40.6)	1	1	
	<5	375(59.4)	13.926(7.162,27.078)	8.574(4.248,17.307)	0.0001
Wealth index	Poor	222(35.2)	2.378(1.473, 3.839)	2.355(1.375,3.033)	0.002
	Medium	207(32.8)	2.378(1.437,3.689)	1.849(1.162,3.158)	0.024

	Rich	202(32.0)	1	1	
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### 5.5.3 Factors associated with undernutrition among mothers enrolled in PSNP

Table 7. Bivariate logistic regression of independent variable and under nutrition among mothers enrolled in safety net program in Silti woreda, southern Ethiopia, 2021

Candidate Variables	Category		COR with 95% CI	P-value
Mothers education level	No formal education	191(60.4)	2.146 (1.308,3.520)	0.003
	Formal education	192(39.6)	1.(reference)	
Nutrition information	Yes	54(17.1)	1	
	No	262(82.9)	2.616(1.400,4.680)	0.002
Meal frequency	>= 3 meal per day	128(40.5)	1	
	< 3 meal per day	188(59.5)	1.680(1.005,2.807 )	0.048
Time take to fetch water	Less than 30 minute	99(31.3)	1	
	Less than 30 minute	217(68.7)	1.921(1.090,3.385)	0.024
hand washing after toilet	yes	108(34.2)	1	
	No	208(65.8)	0.476(0.273,0.830)	0.009

In multivariable analysis, four of them were found to be significantly associated undernutrition among mothers enrolled in PSNP. Mothers who had no formal education were 1.97 times more likely to be undernourished as compared to those who had formal education (AOR =1.973, 95%CI: 1.182-3.293).

Moreover, mothers who had no exposure to nutrition information were 2.8 times more likely to be undernourished compared to those who had exposure nutrition information (AOR =2.821, 95% CI: 1.469-5.419). Likewise mothers who had less than three meal per day were three times higher more likely to be undernourished than those mother had greater than or equal to three and above meal per day (AOR=2.188, 95%CI: 1.239-3.863). In addition mothers who had time take to fetch water more than 30 minute were 1.97 times more likely to be undernourished as compared to those counterparts (AOR =1.974, 95%CI:1.091-3.573). (Table.8)

Table 8. Multivariable logistic regression analysis of factor associated under nutrition among mothers enrolled in safety net program (N=316) in Silti woreda, southern Ethiopia, 2021.

Candidate Variables	Category		COR with 95% CI	AOR(95%CI)	P-value
Mothers education level	No formal education	191(60.4)	2.146(1.308,3.520)	1.973(1.182,3.293)	0.009
	Formal education	125(39.6)	1	1	
Nutrition information	Yes	54(17.1)	1	1	0.002
	No	262(82.9)	2.560(1.400,4.680)	2.821(1.469,5.419)	
Meal frequency	>= 3 meal per day	128(40.5)	1	1	0.007
	< 3 meal per day	188(59.5)	1.680(1.005,2.807)	2.188(1.239,3.863)	
Time take to	Less than 30 minute	99(31.3)	1	1	

fetch water	More than 30 minute	217(68.7)	1.921(1.090,3.385)	1.974(1.091,3.573 )	0.025
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#### 5.5.4 Factors associated with undernutrition among mothers non- enrolled in PSNP

Table 9. Bivariate logistic regression of independent variable and under nutrition among mothers non enrolled to safety net program in Silti woreda, southern Ethiopia, 2021

Candidate Variables	Category		COR with 95% CI	P-value
Mothers education level	No formal education	247(78.7)	2.326 (1.289,4.197)	0.005
	Formal education	67(21.3)	1.(reference)	
Nutrition information	Yes	80(25.4)	1	
	No	235(74.6)	2.151(1.221,3.788)	0.008
Meal frequency	>= 3 meal per day	130(41.3)	1	
	< 3 meal per day	185(58.7)	2.565(1.422,4.627 )	0.002
Dietary diversity	>= 5	10(32.7)	1	
	< 5	212(67.3)	2.157(1.154,4.035)	0.016
hand washing after toilet	yes	126(40)	1	
	No	189(60)	1.829(1.076,3.110)	0.026

In multivariable analysis, four of them were found to be significantly associated undernutrition among mothers non-enrolled in PSNP. Mothers who had no formal education were 2.37 times more likely to be undernourished as compared to those who had formal education (AOR =2.375, 95%CI: 1.267- 4.451). Also, mothers who had no exposure to nutrition information were 1.89 times more likely to be undernourished compared to those who had exposure nutrition information (AOR =1.896, 95% CI: 1.040-4.457) .Similarly mothers with low

dietary diversity score were 2.46 times (AOR=2.464, 95% CI: 1.272- 4.774) more likely to experience undernutrition than those mothers with high dietary diversity score. (Table.10)

Table 10. Multivariable logistic regression analysis of factors associated undernutrition among mothers (N=315) non enrolled in PSNP in Silti woreda, southern Ethiopia, 2021

Candidate Variables	Category		COR with 95% CI	AOR(95%CI)	P-value
Mothers education level	No formal education	248(78.7)	1	1	0.007
	Formal education	67(21.3)	2.326(1.289,4.197)	2.375(1.627,4.451)	
Nutrition information	Yes	83(26.3)	1	1	0.037
	No	232(73.7)	2.151(1.221,3.788)	1.896(1.040,3.457)	
Dietary diversity	>=5	103(32.7)	1		0.008
	< 5	212(67.3)	2.157(1.154,4.035)	2.464(1.272,4.774)	
Meal frequency	>= 3 meal per day	130(41.3)			0.011
	< 3 meal per day	185(58.7)	2.565(1.422,4.627)	2.233(1.204,4.140)	
hand washing after toilet	yes	126(40)	1	1	0.016
	No	189(60)	1.829(1.076,3.110)	1.999(1.139,3.510)	

## Chapter Six discussion

The study found an alarming level of undernutrition among mothers both from enrolled in PSNP and non-enrolled in PSNP. The overall prevalence of undernutrition among mothers was 25.8% (95%CI: 22.3-29.0) while it was 28.8% (95%CI: 23.7-33.9) and 22.9% (95%CI: 18.4-27.6) from those enrolled in PSNP and non-enrolled in PSNP in this study area, respectively. The prevalence of undernutrition was higher among mothers in the enrolled in PSNP compared to mothers in the non-enrolled in PSNP. This might be due to the discrepancy individual house hold economic status and farming attributes.

The prevalence of undernutrition among mothers both in the enrolled and non-enrolled in PSNP groups is in line with studies conducted in India (22.7%)(43) and Iran (22.9%)(44) and different studies conducted in Ethiopia Kombolcha District ( 27.3%)(69) for those enrolled in PSNP ,Raya alamata high land 24.6.5%(80), in Womberma woreda northwest Ethiopia (25.4%,)(63), Anlemo woreda(24.8%)(67), Hosanna(24.6%)(73), Malaga district MUAC<22(26%)(74)), the observed difference in might be as a result of low exposure to maternal /nutritional information, MUAC cut off point , topographical setting and socioeconomic related factors.

Similarly the finding among mother higher than the result obtained from in east and west Gojjam zones for enrolled in PSNP 8.8% and non-enrolled in PSNP 16.4%(19) ,Offa woreda (15.8%)(53),Gondar university (16.2%)(41),Debre Tabor (17.9%)(47), Moyale district(17.7%)(50), and also elsewhere results obtained from Tanzania(11)(35), Sri Lanka(15%)(37) ,and Indonesia (19.2%)(32).In addition the current finding was slightly higher than the 2016 EDHS report of (22% )( 17) as well as studies conducted in Dega damot woreda (21.8%)(48), Maychew zone(22.3%)(71) and some studies in countries like India (21.8%)(31). This because difference may be due to study period current study and previous studies conducted.

Another discrepancy may be due to countries such as (31, 32, 35, 37) are better in economic development as compared with Ethiopia.

On the contrary, the finding in this study was lower percentage undernutrition compared with previous studies conducted in Bangladesh (32.1 %) with  $BMI \leq 18.5 \text{ kg/m}^2$  (42), General public hospital Tigray region (40.6%) (40), Miesso woreda (30.3%) (48), rural Tigray (50.5%) (38), eastern zone of Tigray (38%) (49), central rift valleys (31.8%) with MUAC  $< 21 \text{ cm}$  (65), Gumay district (44.9%) (72) and another study Kacha Birra district (52.6%) (70). The justification for such variation might be related due to variations in socioeconomic characteristics, MUAC and BMI cutoff point, and geographical location or study methods followed, as compared with current study.

The present study showed that mothers who had no formal education were more likely to be experience of undernourished as compared to those who had formal education in both enrolled and non-enrolled in PSNP. In this study finding was supported to a previous study conducted in Gondar hospital (41), Offa woreda (53), South Omo Zone (57), Assayita district (58), Mettu (59), Womberma (63), Anlemo (67), Maychew Zone woldia town (74), and in another place from other countries like Indonesia (32), Pakistan (33), Bangladesh (42), Iran (44) and Uganda (45). Such aim of the reason might be as a result successively mothers who are able read and write can get nutritional and maternal health information and different reading material compared to those who are unable to read and write. Others related studies advised that mother with higher educational status had improved health and nutritional status (87)

Moreover, mothers who had no exposure nutrition information were 2.8 and 1.8 times for those enrolled in PSNP and non-enrolled in PSNP more likely to be undernourished than those who had exposure of nutrition information respectively. The current study finding also supported with a previous studies conducted in Kacha Birra District, (80) and Arab Minch Zuria district (78)

this may be due the fact that mothers experience of nutrition information during pregnancy and lactation period a mother improvement maternal/nutritional information explaining and better ways of reducing undernutrition compared to those who had no exposure information

Likewise from in the non-enrolled in PSNP current study finding showed those mother who had no washed hands with soap or ash after toilet facility were 1.9 times more likely to be under nourished compared to their counterparts.in this finding supported in a previous study conducted in Adama district (76),Zeway and another study conducted in Nigeria (75) The reason might be due to mothers have probability to be contaminated with during the time their child after defecation ,preparation food and poor sanitation and hygiene facility results in increased risk of diarrheal disease contributes to undernutrition(85)

Additionally the current study finding frequency of meal per day significantly associated with undernutrition among mothers enrolled and non-enrolled in PSNP. Mothers who were eating less than three times meal per day were more likely to experience undernourished than those their counterparts. This might be the fact that having less meals per day intake of food during pregnancy and lactation may increase the chance of undernourished mothers ,in this study finding is supported with the studies conducted in northwest Ethiopia(19), in Rural Tigray(38),Dera district(40) , Debre- tabor(47) , kunama (62) ,Hosanna (73 )and India(32) the reason such difference might be due to cultural factor, shortage of food ,lack of awareness and socio economic

.On the other hand, dietary diversity is a significant predictor of undernutrition among mothers in non-enrolled in PSNP, the present investigation outlined that mothers who were taking less than five dietary diversified food groups were 2.4 times more likely to be undernourished compared to their counterpart. In this study finding related with studies conducted in Dega Damot(51), Eastern Oromia and South-Central Tigray(56) ,Goro Dola District(52) ,

Shashemene(55), South Omo (57), Mettu southwest Ethiopia(59), kunama(62), Angecha district Kembata zone(66), Illu Aba Bor(68), Raya Alamata (80) , Kacha Birra(70) and Hosanna(73) .Lower dietary diversity and/or low intake of diversified food during pregnancy and lactation could significantly lead mothers to undernourishment and it would be related to socioeconomic and the study population difference ((89),(90).

Ages of the mothers were not significant associated with undernutrition among mothers. This studies related with studies conducted in Pakistan(33),China(34), Iran(44).Tanzania(35) and in Ethiopia rural Tigray (38), Miesso(48) ,Maychew Zone woldia town(71) and Malga district(74),. The potential reasons for this might be in adolescence and young women nutritional needs increase because of their rapid growth that go with puberty and the increased demand for iron that is related with the start of menstruation

Also mothers who visit ANC were not significant associated with undernutrition among mothers. Mothers who visit ANC less four times were more likely to be undernourished This study agreement with mother study conducted in Rayitu district (61) and Arab Minch Zuria district (77), Malga district(74), this indicate information that mothers who visit ANC is a time when maternal/nutritional information gain and important to reducing possible to receiving undernutrition

### **6.1 Strength and limitation of the study**

The finding of the current investigation alarming proved alarming rate of the prevalence of undernutrition among mothers in the study area both in enrolled in PSNP and non-enrolled in PSNP. This can be used as a good feedback to the government and its development partners. Therefore guiding integrated and intensified efforts towards undernutrition mothers would be the strengths of the current study and its findings

However the study has limitations: Urban areas were not included in this study and anthropometry measurement error may occur.

There might be chances of recall bias as this study was sought to get some data based on participants past history like dietary diversity, number of ANC visit, number previous pregnancy. But, efforts were made to minimize such biases, for example, by remembering mothers to recall last menstrual period by local calendar method.

## Chapter seven conclusions and Recommendation

### **7.1 Conclusion**

We concluded that both enrolled PSNP and non-enrolled PSNP mothers have high rate under nutrition in the study area. It could be expected to have PSNP enrolled mothers would be better off compared to non-enrolled ones because they got some supports. However, it was noticed that those mothers selected for PSNP program were with a relatively base minimum socio-economic and educational backgrounds with a need for better supports in terms of finance and/or food compared to those non-enrolled one. Majority of the mothers involved in PSNP were with a relatively lesser diversity and frequency of meal, lower family planning practices and inappropriate sanitation and waste disposal options compared to those non enrolled ones in the study area. In addition, the study also revealed that high number of PSNP involved mothers had inadequate exposure to nutrition information, less experience of visiting health facilities and low practice of getting required supplementations during pregnancy periods. That means, there would be a need for longer period of support and awareness creation through the PSNP program to fill the availing gap between the two groups in the study area.

On the other hand, the binary logistic regression analysis proved that the common determinant factor such as mother's education, nutrition information, frequency of meal and length of time to fetch water significantly affects nutritional status mothers who were enrolled in the PSNP program.

Similarly, it also indicated that the common determinant factor such as mother's education, nutrition information, frequency of meal, dietary diversity and sanitation options to significantly affect nutritional status mothers of non-PSNP enrolled ones.

## **7.2 Recommendation**

A woman's nutritional status during pregnancy and breastfeeding is not only critical for her health, but also for that of future generations. Based on the findings of study the following recommendations were forwarded:-

### **Community level**

- ❖ Kebele leaders, a health extension workers and others stakeholders close linkage to improve awareness about nutritional information
- ❖ It improve adequate quality and quantity diet is one of the critical reasons for high levels of malnutrition during pregnancy and lactation mothers
- ❖ It also necessary to improve increase awareness of the society about maternal nutrition before and during pregnancy and lactation

### **Woreda health offices, education offices and women affairs**

- ❖ It is better to timely support both enrolled PSNP and non-enrolled PSNP mothers to reduce a risk of undernourishment
- ❖ It improve good nutrition during lactation and pregnancy has a significant effect of mothers and children's survival, growth, and development
- ❖ It should build up awareness of the mothers on how to improve nutritional out come during lactation and
- ❖ It should focus on multisectoral coordination and collaboration towards the need of adequate intake and nutrition diversification and balanced diet for undernourished mothers enrolled PSNP and non-enrolled PSNP
- ❖ Focus should also be needed to improve health and nutritional status of mothers in terms of providing nutrition education, nutritional information, dietary diversity and enough amount of meal both enrolled PSNP and non-enrolled PSNP

### **Federal ministry of health and other responsible body**

- ❖ They should better strengthen implementation of designed strategies to reduce risks on undernourished mothers and to increase supplementations of additional food and/or food programs in the study area
- ❖ Federal Ministry of health and other responsible body should give attention to improve nutritional and maternal health information.
- ❖ It is also vital to further increase the nutritional status of mother's through establishment of support and saving options in collaboration with government offices (woreda to federal) and donor organizations including PSNP

**Researchers**

- ❖ Conduct additional research study to obtain extra information about undernutrition and associated factor

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## 9. Annexes

### Annex I

#### Consent form

Wolkite University College of Medicine and health science

Wolkite university public health- English version questionnaire on the assessment undernutrition among mothers enrolled to productive safety net program and its associated factors in Silti woreda in rural community southern Ethiopia study.

Hello! My name is \_\_\_\_\_ am from Wolkite University and I am going to collect some information about assessment undernutrition among mothers enrolled to productive safety net program and its associated factors in Silti woreda in rural community.

**Objective:** To assess undernutrition among mothers enrolled to productive safety net program and its associated factors in Silti woreda in rural community.

**Potential risks:** There is no potential risk that may cause any harm on study participants.

**Benefits:** No financial benefits are related with this study. But by participating in this study, you contribute to improve the prevention undernutrition among mothers.

**Confidentiality:** your name was not written in this form and was never used in connection with any information you tell us. Your participation is important for the success of this research. You are selected randomly to participate in this study, your willingness and support to answer all of the questions would be highly appreciated.

Would you participate in responding to questions in this questionnaire?

Yes \_\_\_\_\_ No \_\_\_\_\_

If No, acknowledge the respondent and proceed to the next respondent

Study participant sign \_\_\_\_\_ date \_\_\_\_\_

Data collector sign \_\_\_\_\_ date \_\_\_\_\_

### Verbal assent form

Wolkite University College of Medicine and health science Wolkite university public health-English version questionnaire on the assessment undernutrition among mothers enrolled to productive safety net program and its associated factors in Silti woreda in rural community southern Ethiopia study.

Hello! My name is \_\_\_\_\_ am from Wolkite University and I am going to collect some information about assessment undernutrition among mothers enrolled to productive safety net program and its associated factors in Silti woreda in rural community.

**Objective:** To assess undernutrition among mothers enrolled to productive safety net program and its associated factors in Silti woreda in rural community. You are selected randomly as a possible participant in this study as a subject.

**Potential risks:** There is no potential risk that may cause any harm on study participants.

**Benefits:** No financial benefits are related with this study. But by participating in this study, you contribute to improve the prevention undernutrition among mothers.

**Confidentiality:** your was not written in this form and was never used in connection with any information you tell us. Your participation is important for the success of this research.. You are selected randomly to participate in this study, your willingness and support to answer all of the questions would be highly appreciated

Interviewer sign \_\_\_\_\_ date \_\_\_\_\_ code \_\_\_\_\_

## Annex II: Questionnaires English Version

**Wolkite University College of medicine and health science.** This questionnaire is designed to collect information from participants in respect to determine the predictors' undernutrition among mothers in Silti woreda in rural community.

<b>Part A. Demographic and socio-economic characteristics the participant</b>			
Q.no	Questions	Choices for response	
A01	Questionnaire with name of kebeles& ID Number of study subjects (to be numbered before interview)	Name of kebeles..... Woreda ..... Zone ..... Gote.....	
A02	Age of the mother	Age in years _____	
A023	Ethnicity of the mother	3. Siltie 4. Amhara 5. Oromo 6. Gurage 7.Others(Specify	
A04	Religion of the mother.	6. Muslim 7. Orthodox 8. Protestant 9. Catholic 10. Other (specify	
A05	Educational status of the mother	6. Not read and write 7. Read and write only 8. Primary education 9. Secondary school	

		10. Collage and above	
A06	Current marital status of the mother	5.single 6.married 7.divorced 8 widowed	
A07	Educational status of husband	6. No formal education 7. Can read and write 8. Primary school 9. Secondary school 10. College and above	
A08	Current occupation of the participants	3. Government employed 4. Private employee 5. Merchant 6. House wife( Student ) 7. Others (Specify)	
A09	Current occupation of husband	3. Government employed 4. Private employee 5. Merchant 6. house wife (Student) 7. Day laborer 8. Farmer 9. Others (Specify)	
A10	Your household family size	Number_____	
A11	Who is the head of household?		
	1. Father	2. Mother	3, .Other (Specify).....
A12	Who decides on house hold income? 1, my Father 2, my mother 3,Both jointly		

**Part B. House hold wealth index**

**Now I will ask you about some fixed assets that your household has.**

Q.no.	Does your household have any of the following (circle all answers)	Yes (1)	No (2)	
B01	Table			
B02	Chair			
B03	Has household access to electricity?			
B04	Kerosene lamp/pressure lamp			
B05	mobile phone			
B06	Have separate room for sleeping			
B07	Radio/tape/CD player			
B08	Bedwithcotton/sponge/spring mattress			
B09	Water pump			
B10	Cart/Gari			
B11	Generator			
B12	Has household toilet facility?			
B13	Do you share this toilet facility with other households?			
B14	Does any member of this household own any agricultural land?			
B15	Does any member of this household have a bank or microfinance saving account?			
	Does the household have any of the following animals? (Circle)	Yes(1)	No(2)	How many
B16	Oxen			
B17	Cows			
B18	Horse/mules			
B19	Goats/Sheep			
B20	Chickens			

B21	Donkey			
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**Part C. Maternal Health and Nutrition**

NO.	QUESTIONS	RESPONSE OPTIONS (CODE	
C01	Did you suffer from any sickness in the last two weeks or currently?	1. No 2. Yes	
C02	If yes for Q # 1, what were your sicknesses? (Please list everything the mother mentions)	.....	
C03	The last time menstruation have	4..In this months 5. Before one months 5.Do not kown	
C04	What is your current Physiological status?	3. Pregnant 4. Lactating 5. Non pregnant Non lactating	
C05	How many times did you attend antenatal care during your last pregnancy?	_____ number of times	
C06	Did you take iron/folate during your last pregnancy?	No....3 Yes....4 Don't kown...5	
C07	Current do you use family planning?	2. No 3 .yes	
C08	If 'Yes' for Q #7, Which method used?.	4. Dipo 5 pills 6 .implant 7. IUCD	
C09	Did you receive any nutrition and health message from the local HEW or VCHWs during your pregnancy or after delivery of (child name)?	1. No 2. Yes	

C10	If 'Yes' for Q #7, on what area was the message you got? (More than one answer is possible. Circle on the best options or write them on the space provided).	5. On Exclusive breastfeeding and Complementary Feeding 6. On Hygiene & Sanitation 7. On Family planning and child caring practices 8. Other, specify _____	
C11	Number of previous pregnancy?	..... number of times	
C12	How many meals do you usually eat within a day?	1. Once 2. Twice 3. Three times 4. Four times and above	
C13	During your pregnancy, do you stop eating any food for cultural reasons and others factors?)	1.No 2.Yes	
C14	If 'Yes' for Q #13, what foods do you stop eating and why? /	4 Coffee 5. Meat 6 sugar cane and honey 7. Other(specify)	
C15	If cultural belief, what cultural reason/s make the above food items difficult forbidden to eat?	4. Will make baby big & labour 5. Will be plastered on fetal head and body 6. Fear of abortion 7. Evil eye 8. Fetal abnormality 9. Other, specify	
C16	During the current pregnancy, did you have any habit of skipping meal?	1. Yes 2. No 3. Don't know	If answer is "No/don't know" skip

			to C18
C17	If yes to #Q 16, what is/are your reason/s to skip your meal?	3. Tiredness 4. Busy at work so I forget 5. Not to increase weight 6. Other (specify)	
C18	Where did you give birth to (name youngest child)?	3. Own home 4. Government hospital/clinic/health center 5. Private hospital/clinic/health center 6. Other place (specify) 7. Don't know	
C19	Was (name) weighed immediately after birth?	3. No 4. Yes 5. Don't know	
C20	Do you know what 'balanced diet' mean/what a 'varied diet mean?	1. No 2. Yes	
C21	Which of the following fortify rich in iron foods?	6 Teff 7.Pulses (chickpeas, lentil, beans) 8. Green /Dark vegetables and fruits 9. Other (specify)_____	10. Don't know

**Part D. Minimum Dietary Diversity-Women**

	READ OUT THE LIST Circle “1” for mentioned and “0” for not mentioned Food categories	coding	
D01	Any food made from grains (sorghum, maize, wheat, teff, millet,).....	1	0
D02	Any other food made from roots or tubers? (Potato, sweet potato, cassava, or other local roots or tubers).....	1	0
D03	Any food made from pulses (e.g. lentils, beans, soybeans, or peas).....		
D04	Any food made from nuts (e.g. peanut butter, peanuts).....	1	0
D05	Any food made with oil, fat or butter...		
D06	Any dairy product (e.g. milk, cheese or yoghurt).....	1	0
D07	Meat (e.g. lamb, beef, veal, goat , liver, brain, all other organ meats like tripe, Offal).....	1	0
D08	Poultry (e.g. Chicken, turkey, duck).....		
D09	Fish .....	1	0
D10	Eggs ....		
D11	Dark green leafy vegetables (Swiss chard, kale, lettuce, spinach).....	1	0
D12	Any food made from pumpkins, carrots, cabbage, red sweet potatoes, mango, papaya, bell paper, green		
D13	Any other fruits? (e.g., bananas, apples, avocados, fig, grapes, guava, orange, lime.....	1	0

D14	Any other vegetables? (E.g. onion, tomatoes, garlic) ...	1	0
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### Part E. Environmental factors

Know I will like to ask you about the sources of water and availability of latrine for your household members.

s.no.	Questions	Choices for response	
E1	What is the main source of drinking water for your household members? Source of drinking water	4.Public tap/standpipe 5.Tube well/borehole 6.Surface water (river, lake, pond, and irrigation channel 7.others(specify)	
E2	How long does it take to fetch water? That means get water and come back to your home?	3.Less than 30 minute 4. more than 30 minute	
E3	Do you treat your water in any way to make it safer to drink? (Do not include washing water container)	1.No 2.Yes, always 3.Yes, sometimes	
E4	What do you usually do to the water to make it safer to drink? Anything else? (More than one answer is possible)	2.No 3..Boil 4.Add bleach/chlorine/wuha agar 5.Strain it through a cloth 6. Use water filter (sand, composite, etc.). 7.04 Let it stand and settle 8. Water purifying product 9.Other (specify)	
E5	What kind of toilet facility do	4.Flush to pit/latrine	

	members of your household usually use?	5. Ventilated improved pit/latrine (VIP) 6. Pit/latrine with slap 7. Pit/latrine without slap/open pit 8. Composting toilet 9. No facility/bush (field) 10. Other (specify) 11 Don't know	
E6	How does your household primarily dispose of household waste.	4. Dumped in street/open space 5. Disposed in the compound 6.Pit 7.Burned 8.Other (specify)	
E6	Do you wash your hands after coming from the toilet	3.No 4. Yes, usually 5. Yes, sometimes	
E7	If yes, what do you use when you wash your hands after coming from the toilet? (more than one answer is possible)	4.SoapAsh 5.Plant 6.None 7.Other, specify	
E8	Have you separate kitchen?	1.No 2.Yes	

**Part f. maternal anthropometric measurement**

No.		
1	Maternal MUAC in cm	In cm.....
2	Maternal height in meter	In meter.....
3	Maternal weight	In k.g.....

**Annex III: Amharic version of the questioner**

የውልቁጤ ዩኒቨርሲቲ ሜዲካልና ጤና ሳይንስ ኮሌጅ ዲፓርትመንት አፍ ፕላን ሄልዝ ከጤና ጋር የተያያዘ ጥናታዊ ፅሁፍ የተሳታፊዎች መረጃ መስጫ ቅጽ

ጤና ይስጥልኝ። ስሜ..... ሲሆን ዛሬ እዚህ የተገኘሁት የውልቁጤ ዩኒቨርሲቲ ሜዲካልና ጤና ሳይንስ ኮሌጅ ዲፓርትመንት አፍ ፕላን ሄልዝ ኒውትሪሽን በስርዓተ-ምግብ የጋራ ዓመት የማስትሬት ድግሪ ተመራቂ ተማሪ ነኝ። በአሁኑ ሰዓት በስልጣኔ ወረዳ የሚያጠቡ እናቶች፣ነፍሰጡር እናቶች እንዲሁም አጥቢ ያልሆኑና ነፍሰጡር ያልሆኑ እናቶች ላይ በቂ ምግብ ያለማግኛት (ዝቅተኛ ክብደት) ና ተጓዳኝ ምክንያቶችን ለመለየት በማጥናት ላይ እገኛለሁ።

**ጥናት አላማ:** -የሚያጠቡ እናቶች፣ነፍሰጡር እናቶች እንዲሁም አጥቢ ያልሆኑና ነፍሰጡር ያልሆኑ እናቶች ላይ በቂ ምግብ ያለማግኛት(ዝቅተኛ ክብደት) ና ተጓዳኝ ምክንያቶችን በተመለከተ የደሰሰ ጥናት መረጃ እሰበስባለሁ።

**የጎንዮሽ ጉዳት:-** በዚህ ጥናት መሳተፍ በእርስዎ ላይ ምንም አይነት ጉዳት አያመጣም።

**ጥቅማ ጥቅም:-** በዚህ ጥናት መሳተፍ ምንም አይነት ገንዘብ አያስገኝም። ከእርሶ የምናገኘው መረጃ በቂ ምግብ ያለማግኛት(ዝቅተኛ ክብደት) ና ተጓዳኝ ምክንያቶችን ለመከላከል እቅድ ለማዉጣት ይረዳናል።

**የመጠይቁ አላማ :-** የሚያጠቡ እናቶች፣ነፍሰጡር እናቶች እንዲሁም አጥቢ ያልሆኑና ነፍሰጡር ያልሆኑ እናቶች ላይ በቂ ምግብ ያለማግኛት(ዝቅተኛ ክብደት) ና ተጓዳኝ ምክንያቶችን ያሉበትን ሁኔታ በተመለከተ መረጃ ለመሰብሰብ ነው። በዚህ መጠይቅ በቂ ምግብ ያለማግኛት(ዝቅተኛ ክብደት) በተመለከተ እጠየቅሻለሁ። በተጨማሪ የእርስዎ አካላዊ ልኬት(ፎቶግራፍ፣ ክብደት ና ቁመት )መጠን እንለካለን። የሚሰበሰበውን መረጃ ምስጢራዊነቱን ለመጠበቅ መጠይቁን ሲሞሉ ስምዎ በየትኛውም ቦታ ላይ አይፃፍም። መጠየቅ የሚፈልጉት ማንኛውም አይነት ግሌጽ ያልሆነ ጥያቄ መጠየቅ የሚቻል

ሲሆን ለመመለስ ፍቃደኛ ያልሆኑባቸውን ያለመመለስ ወይንም ደግሞ የማቆም መብትም የተጠበቀ ነው። መረጃ መስጠት ካልፈለጉ መብትዎ ነው። ይሁን እንጂ የእርስዎ ትብብርና ትክክለኛ ምላሽ ጥናት መሳካት አስተዋፅኦ ያደርገዋል። ስለዚህ ለሚቀርብልዎት ጥያቄ ትክክለኛና ፍቃደኛ ሆነው። በትዕግስት እንዲመልሱልን እንጠይቀዎታለን። መጠይቁ እስከ 30 ደቂቃ ሊወስድ ይችላል።

በዚህ ጥናት ለመሳተፍ ፍቃደኛ ነዎት 1.አዎ (ቃለመጠይቁን እንቀጥላለን) ----- 2.አይደለሁም (አመሰግናለሁ) -- የቀበለው ስም:----- የጠያቂው ስም \_\_\_\_\_ ፋርማ. \_\_\_\_\_ የሱፐርቫይዘር ስም \_\_\_\_\_ ፋርማ. \_\_\_\_\_ የተጠየቀበት ቀን (በኢትዮጵያ አቆጣጠር) -----/-----

ክፍል A: ይህ መጠይቅ የእናቶቹን ማህበራዊና ኢኮኖሚያዊ ሁኔታዎች የሚገልጽ ነው

ተ.ቁ	ጥያቄዎች	ለምርጫ የቀረቡ ምላሾች	እለፍ
A01	መጠይቅ የቀበሌው ስም ና የእናት መለያ ቁጥር (ከቃለ መጠይቁ በፊት ቁጥር መሰጠት አለበት)	የቀበሌው ስም: ..... ወረዳ..... ዞን..... ጎጥ.....	
A02	የተጠየቀበት ቀን	[____ ____ ____] ቀን  ወር  ዓ.ም	
A023	እዴሜሽ ስንት ነው?	እዴሜሽ በአመት _____	
A04	ሃይማኖትሽ ምንድን ነው?	3. ሙስሊም	

		<p>4 አርቶዶክስ</p> <p>5. ፕሮቴስታንት</p> <p>6 ካቶሊክ</p> <p>7. ሌላ ካለ ይጠቀስ</p>	
A05	ብሄርሽ ምንድን ነው?	<p>6. ስልጤ</p> <p>7. አማራ</p> <p>8. ኦሮሞ</p> <p>9. ጉራጌ</p> <p>10. ሌላ ከሆነ ይጠቀስ----</p>	
A06	የእናትየዋ የትምህርት ደረጃ	<p>6. ማንበብ እና መጻፍ የማልችል</p> <p>7. ማንበብ እና መጻፍ የምችል</p> <p>8. የመጀመሪያ ደረጃ</p> <p>9. ሁለተኛ ደረጃ</p> <p>10. ኮሌጅና ከዚያ በሊይ</p>	
A07	የባለቤትነት የትምህርት ደረጃ	<p>6. ማንበብ እና መጻፍ የማይችል</p> <p>7. ማንበብ እና መጻፍ የሚችል</p>	

		8. የመጀመሪያ ደረጃ 9. ሁለተኛ ደረጃ 10. ኮሌጅና ከዚያ በሊይ	
A08	በአሁኑ ወቅት የትዳር ሁኔታዎ ምንድን ነው?	6. ያገባው 7. ግላዊ/ብቸኛ 8.. የተፈታች 9.. ባለቤቷ ህይወቱ ያለፈ	
A09	የስራ መስክዎ ምንድን ነው?	3. የመንግስት ተቀጣሪ 4. የግሉ ድርጅት ተቀጣሪ 5. ንግድ 5. የቤት እመቤት 8. ሌላ (ይገለፅ).....	
A10	የባለቤትነት የስራ መስክ ምንድን ነው?	1. ተማሪ 2. የመንግስት ተቀጣሪ 3. የግል ድርጅት ተቀጣሪ 4. ንግድ 5. ገበሬ 6. የቀን ሰራተኛ 7. ሌላ (ይገለፅ).....	
A11	የቤተሰባችሁ አባላት ብዛት ስንት	1. ከ5 በታች 2. ከ5 በላይ	

	ነው?		
A12	የቤተሰብ ሀላፊ	1. ሚስት 2. ባል 3 ሁለቱም	

ክፍል B: የቤተሰብ የገቢ ሁኔታ

ተ.ቁ	ጥያቄዎች	አዎ	የለም	
ቤተሰቡ ወይም ከቤተሰቡ መካከል አንድ አባል/ከታች የተዘረዘሩት ንብረቶች ባለቤት ከሆነ ይፃፈ ከሌለ ደግሞ 2 ይፃፈ። (ማክበብ)				
B01	ጠረጴዛ			
B02	ወንበር			
B03	የኤላትሪክ አገልግልት በቤት ውስጥ ይገኛል?			
B04	በጋዝ የሚሰራ አምጋሌ(ኩራዝ)			
B05	ተንቀሳቃሽ ስልክ			
B06	መኝታ ቤት ተለይቶታል			
B07	ራዲዮ ወይም ቴብ			
B08	አልጋ ሞዝቮሌድ የጥጥ/የስፖርት/የስፕሪንግ ፍራሽ			
B09	የህዝብ የባንባ ዉሀ			
B10	በእንስሳት የሚጎተት ጋሪ			
B11	መጻጃ ቤት			
B12	የጋራ መጻጃ ቤት			
B13	የባንክ ወይም የቁጠባ ደብተር			
B14	የሚታረስ መሬት			
B15	የባንክ ወይም የቁጠባ ደብተር			
	ቤተሰቡ ወይም ከቤተሰቡ መካከል አንድ አባል ከታች የተዘረዘሩት እንስሳት አሉት (ማክበብ)	አዎ(1)	የለም(2)	ብዛት

B16	በሬ			
B17	ላም			
B18	ፈረስ/በቅልሎ			
B19	ፍየል/በግ			
B20	ዶሮ			
B21	አህያ			

ክፍል. C. የእናትየዋ ጤና እና ስርዓተ ምግብ

ተ.ቁ	ጥያቄዎች	ለምርጫ የቀረቡ ምላሾች	አዎ(1)	አይ(2)
C01	በባለፉት ሁለት ሳምንታት ታመሽ ታቂያለሽ	አዎ.....1 አይ.....2		
C02	መልሶአ አዎ ከሆን ተ.ቁ # 1፣ምን አይነት በሽታ ነው የአመመሽ ይገለፅ	.....		
C03	የመጨረሻ ጊዜ የወር አበባሽ ያየሺው መቼ ነው?	4. በዚህ ወር 5. ከአንድ ወር በፊት 6. አላውቅም		
C04	አሁን ያለሽበት አካላዊ (Physiological status) ሁኔታ	ነፍሰጡር.....3 አጥቢ.....4 ነፍሰጡርምአጥቢም ያሉነች.....5		
C05	የበለፈው እረግዝና ወቅት ምን ያህል ግዜ የቅድመ ወሊድ ክትትል አድረገዋል?	_____ ስንት ግዜ		

C06	የመጨረሻውን እረግዝና ወቅት አይረን ፎሊክ አሲድ እንክብል ወስደሻለሁ?	3.አይ 4. አዎ 3.አላውቅም		
C07	በአሁኑ ሰዓት የቤተሰብ እቅድ ይጠቀማሉ?	2. አይ 3.አዎ		
C08	የትኛውን የቤተሰብ እቅድ አገልግሎት የሚጠቀሙት?	4.መርፌ 5.ኪኒኒ 6.ኢንተላንት 7.አዩሲዲ		
C09	ማንኛውም ስለ ስርዓተ ምግብ ናጤና መልክት/መረጃ በእረግዝናሽ ወቅት ወይም ከወሊድ በኋላ በጤና ኤክስቴንሽን ባለሙያ ወይም በጤና ረዳቶች አግኝተው ያውቃሉ?	1.አዎ 2.አይ		
C10	መልሱ አዎ ከሆነ ተ.ቁ #7 ምን ምን መልክት/መረጃ አግኝተዋል?(ከአንድ በላይ መልስ መስጠት ይቻላል.በምርጫው ላይ ስላለ መክባብ ይቻላል )	5. ስለ ጡት አጠባብ ተጨማሪ ምግብ 6.የጤና አጠባበቅና የአካባቢ ጽዳት 7.ስለ ቤተሰብ እቅድ ና የህጻና ጤና አገልግሎት 8.ሌላ ካለ ይገለጽ...		
C11	ምን ያህል ጊዜ እረግዝና ነበርዎት?	እረግዝና በቁጥር: _____		
C12	አብዛኛውን ጊዜ በቀን ውስጥ ስንት ጊዜ ምግብ ይመገባሉ?	1. አንድ ጊዜ 2. ሁለት ጊዜ 3. ሶስት ጊዜ 4. አራት ጊዜና ከዛ በላይ		
C13	በእረግዝናሽ ወቅት ምግብ መመገብ አቁመዋል በማንኛውን በባህላዊ ምክኒያት ?	1.አይ 2.አዎ 3. አላስታውስም		

C14	መልሶ አዎ ከሆነ ተ.ቁ #13, ምን አይነት ምግብ ነው?	<ul style="list-style-type: none"> <li>4. ቡና</li> <li>5. ስጋ</li> <li>6 ሸንኮራ አገዳ ና ማር</li> <li>7. ሌላ ካለ ይገለጹ..</li> </ul>		
C15	የላይኞቹ ምግቦች በነፍሰጡር እናቶች እንዲይበሉ የሚከለክልበት በባህላዊ ምክንያት ምንድነው?	<ul style="list-style-type: none"> <li>4 ሌጁን ትልቅ በማድረግ ምጥ አስቸጋሪ እንዲሆን ያደርጋል</li> <li>5. የፅንሱ ጭንቅላትና ሰውነት ስለሚለጠፍ</li> <li>6. ውርጃ ስለሚያመጣ</li> <li>7. የቡዲ አይን እንዲይበሉ</li> <li>8. ፅንሱ ሊይ ችግር ስለሚያመጣ</li> <li>9 ሌላ ከሆነ ይጥቀ</li> </ul>		
C16	መደበኛ የምግብ ጊዜዎን የመዘለል ልምድ አሎት?	<ul style="list-style-type: none"> <li>1. አለኝ 2. የለም</li> <li>3. አለስታውስም</li> </ul>	የለኝም ከሆነ ወደ C18 እለፍ	
C17	የጥ.ቁ C16 መልስዎ አለኝ ከሆነ, የምግብ ጊዜዎን የሚዘለበት ምክንያት ምንድነው?	<ul style="list-style-type: none"> <li>1. ስለሚደክመኝ 2. ስራ ስለሚበዛብኝ እረሳዋለው</li> <li>3. ክብደቴ እንዲይጨምር (እንዳልወፍር)</li> <li>4. ሌላ ከሆነ ይጥቀሱ</li> </ul>		
C18	ህጻኑን የት ነው የወለድሽው (ከሁሉም ትነሹ ህጻን ስም)	<ul style="list-style-type: none"> <li>4. በቤት</li> <li>5. የመንግስት ሆስፒታል/ክልኒክ/ጤና ጣቢያ</li> <li>6. የግል ሆስፒታል/ክልኒክ/ጤና ጣቢያ</li> <li>7. አላውቅም</li> <li>8. ሌላ ካለ ይገለጹ _</li> </ul>		

C19	ህጻኑ ከተውደ በኋላ ክብደቱ ወዲያውኑ ተመዝናዋል?	3.አዎ 4. አይ 5. አላውቅም		
C20	የተመጣጠነ ምግብ ምን ማለት እንደሆነ ያውቃሉ?	1.አይ 2. አዎ		
C21	ከሚከተሉት ውስጥ በአይረን ንጥረ ነገር የበለጸጉ ምግቦችን የተሾችሁ ናቸው ?	6 ጤፍ 7.ከጥራጥሬ የተሰሩ ምግቦች (ሽብብራ, ምስር, ባቄላ) 8.አረንጉዋዴቅጠላቅጠል/አትክልት 9.ሌላካለ ይገለጽ) _____ 10.አላውቅም		

ክፍል D: የእናትየዋ አመጋገብ ሁኔታ

ከዚህ በመቀጠል ደግሞ ባለፈት 24 ሰዓት ውስጥ ማለትም ትላንት ፀሀይ ከወጣችበት ጀምሮ እስከ ዛሬ ፀሀይ እስከወጣችበትጊዜ ድረስ ስለተመገቡት የምግብ አይነት ይሆናል::

ተ.ቁ	ዝርዝሩን አንብብ ማክበብ“1” ለተገለጸው እና “2” ለልተገለጸውየምግብ አ	መለያ ቁጥር	
		1	2
D01	ማንኛውም ከእህል የተሰሩ ምግቦች (ማሽላ፣ በቆሎ፣ ስንዴ፣ ጤፍ,).....		
D02	ማንኛውም ከስራስር የተሰሩ ምግቦች (ድንች፣ ስኩዋር ድንች፣ ቀይ ስር፣ ወይም ሌላ በአካባቢውያለ ከስራስር የተሰሩ ምግቦች).....		

D03	ማንኛውም ከጥራጥሬ የተሰሩ ምግቦች (ምሳሌ. ምስረጃ፣ ባቄላ፣ አኩሪአተር፣ ወይም አተር).....		
D04	ማንኛውም ከለውዝ የተሰሩ ምግቦች (ምሳሌ የለውዝ ቅቤ፣ ለውዝ).....		
D05	ማንኛውም በዘይት ፣ በስብ ወይም በቅቤ የተሰሩ ምግቦች .....		
D06	ማንኛውም የወተት ውጤቶች (ምሳሌ ወተት፣ አይብ ወይም እርጎ)		
D07	ስጋ (ምሳሌ. የበግ፣ የበሬ፣ የጥጃ፣ የፍየሌ፣ ጉበት፣ አንጎሌ፣ ሌሎች እንደ ጨጉዋራ፣የከብትአንጀቶችያለምግቦች).....		
D08	የሚበለ የወፍ ዘሮች (ምሳሌ. ድሮ፣ የአሜሪካ ድሮ፣ ዲክዬ).....		
D09	አሳ .....		
D10	እንቁላል.....		
D11	አረንጉዋዴ ቅጠላ ቅጠል አትክልቶች (ቆስጣ፣ ሰላጣ፣ ጎሙን).....		
D12	ሌሎች ፍራፍሬዎች? (ምሳሌ ሙዝ፣ አፕሌ፣ አሸካይ፣ የሸላ ፍሬ፣ ወይን፣ ብርትኪን፣ሎሚ .....		
D13	ሌሎች አትክልቶች ? (ምሳሌ ሽንኩርት፣ ቲማቲም፣ ነጭ ሽንኩርት) .....		
D14	ቅባተናዘይት?(ምሳሌ ዘይት፣ ጫማ ወይም ቅቤ ምግብ ላይ ጨምራቸው ትጠቀማላች)		
D15	ጣፋጭ( ሱካር፣ማር፣ጣፋጭየሆኑ ጁሶችና ለስላሳ)		
D16	ቤትዎ ላይ ምግብ በልተዘጋጀበት ወቅት ቀለል ያሉ ምግቦች ውጪ ላይ ትጠቀሟልያለሽ		
D17	በቀን ምን ያህል ግዜ ይጠቀማሉ	1 በቀን አንድ ጊዜ	

		2.መከሰስ ላይ 3ሁለተኛም አንድ ላይ	
D18	ምን ያህል ጊዜ ነው የሚመጡት	1.መደበኛ ጊዜ 2. መደበኛ ባሉኑ ጊዜ	
D19	የምግብ አይነቶች ምርጫ በምንገበበት በአብዛኛው ጊዜ ብይን የሚያገኘው በማነው	1/በኔ ብቻ 2/ በቤተሰብ 3/ ከኔና ቤተሰብ አንድላይ 4/በባለቤት 5/ ሌላ ካለ ይጠቀስ	

ክፍል E. የ አካባቢያዊ ሁኔታዎች

ከዚህ በመቀጠል ስለመጠጥ ውሃ ምንጭ እና መፀዳጃ ቤት ሁኔታዎች እጠየቅሻለሁ

ተ.ቁ	ጥያቄዎች	ለምርጫ የቀረቡ ምላሾች	እለፍ
E01	የቤቱ የመጠጥ ውሃ አይነት ምንድነው	3.የባንባ ውሃ መኖሪያ ቤት ውስጥ 4.የህዝብየባንባውሀ, 5.የጉድጉድውሀ 6.የታንከር ውሀ 7.የመሬት ውስጥ ውሀ (ውሀ፣ ሀይቅ፣ ኩሬ.....) ሌላ ካለ ይጠቀስ _____	
E02	ውሀ ለመቅዳት ምን ያክል ጊዜ	3.ከአንድ ሰዓት በታች	

	ይወስዳል? ማለትም ዉሀ ለመቅዳት እና ወደ ቤት ለመመለስ	4.አንድ ሰዓት እና ከዛ በላይ 5.ከህንፃ እስከ መሬት	
E03	የዉሃ ማጣሪያ ትጠቀሚያለሽ?	3.አይ 4.አዎ, ሁሌጊዜ 5.አዎ, አልፎ አልፎ	
E04	ለማጣሪያነት የምትጠቀሙት ምንድን ነዉ?	2.አይ 3.ማፍላት 4.ማንጨ/ክልሪን/ዉሀአጋ 5.በጨርቅ ማጣራት 6.ዉሀ ማጣሪያ በመጠቀም (አሽዋ፣ ወዘተ) 7.ወደታች እንዲዘቅጥ በማዳረግ 8.ዉሀ ማጣሪያ ውጤቶች 9.ሌላ ከሆነ ይጥቀሱ .....	
E05	የምትጠቀሙት የመጠዳጃ ቤት አይነት	ቆሻሻ መተላለፊያ ያለዉ ዉሃ ማፍሰሻ ያለዉ.....01 ዉሃ ማፍሰሻዉ ወደታንኩ የሚገባ.....02 ዉሃ ማፍሰሻዉ ወደ ጉድጓድ የሚገባ.....03 ወሃ ሌላ ቦታ የሚፈስ.....04 አዩሮ ማስወጫ ያለዉ (VIP)... ..05 የጉድጉዋ ድክዳን ያለዉ.....06 የጉዳጉ ዋዳ ክዳን የሌለዉ .....07 ቆሻሻ ያለዉ.....08 መጠዳጃ ቤት የለም/ሜዳ ሊይ.....09 ሌላ ከሆነ ይጥቀሱ .....	

		አለስታዊስም .....	
E06	ቆሻሻን የምታስወግደበት መንገድ	4.መንገድ ላይ ይጣላል /ባድ ቦታ ላይ 5.በግቢ ውስጥ 6.ወንዝውስጥ 7.ይቃጠላል 8.ሌላ ከሆነ ይጥቀሱ	
E07	ከመፀዳጃ ቤት መልስ እጅሽን የመታጠብ ልማድ አለሽ?	የለም .....01 አዎ, ብዙጊዜ.....02 አዎ, አልፎ አልፎ .....03	
E08	አዎ ካልሽ, እጅሽን ለመታጠብ የምትጠቀሙ ምንድን ነው (ከአንድ በላይ መልስ ይቻላል)	በሰሙና.....01 Ash.....02 በቅጠሌ.....03 በምንም.....04 ሌላ ከሆነ ይጥቀሱ.....	

ክፍል F. የእናትየዋ አካላዊ ልኬት

ተ.ቁ	ጥያቄዎች	
F 01	የእናትየዋ MUAC በ ሴ.ሜ	.....
F 02	የእናትየዋ ቁመት በሜትር	በሜትር -----
F 03	የእናትየዋ ክብደት በኪ.ግ	በኪ.ግ.....

**Annex Iv: Siltigna version of Version Questioner (የስልጥኝ ሱልጥኝ)**

ፈየ ሲነበቱን :: ሱሜያ..... ቲሆን አውጄ ቢቢታይ ኤት የትረከብኩይ በውልቅጤ የኒሽርሲቲ ሜደስን ዋ አፊያ ሳይንስ ኮሌጅ ፕፕሊክ ሄሌዝ ዱፓርትመንት አፍ ሁዩማን ኦትሪሽን ደረሰ የሆነይ የኡስማን ሽፋ ሁሴን በወከሎት ቲሆን ሙጣሎ የማስተርስ ድግሪ ለርከበት ኢፈዪደያን ሆኖን የስነ-ስንቅ ኢነሶት አነግና የኢባጂሎ ኡንስነት ሆኖን አሽት ፎል የሆንት ኢንደት:ሰብዮ ወልድ ታጦባት ኢንደት ኢንኩምንጋ አሽት ፎል ያልሆንት ኢንደት ዋሰብዮ ወልድ አታጦባት ኢንደት ያትጋልጦን ግዝቸ ምን የሆነከ ስልጢ ኡስጥ ቢትረከባን ቀበላሎ በቢላን ዱም ኢትሪሽን :: ዩቲታሚ ጥናት ውጣትከ ለሉላሉሌ ባለድርሻ አካላትቸ ሙሉ ያትኬሺማን ነጥብቸ የስነ-ስንቅ ኢነሶት አነግና የኢባጂሎ ኡንስነት ሆኖን አሽት ፎል የሆንት ኢንደት:ሰብዮ ወልድ ታጦባት ኢንደት ኢንኩምንጋ አሽት ፎል ያልሆንት ኢንደት ዋሰብዮ ወልድ አታጦባት ኢንደት ያትጋልጦን ግዝቸ ምን የሆነከ ያትጋልጦይማነይ ጊዝቸ ምን የሆነከ ለላሎት ያግዘን:: የሬሬሳይ ሚስጥረካይ ለቂሮት ሱልቻይ ቲሜሊ ሱማሙ በሃድም ኤት ኢላትከተብ:: ጥናትሚ ቢንደትምቴ ደር ሀድም አይነት ጉዳት ኢላጄጅ:: ተሳሎት ኢከሱያን ማነም ካሌ ሱለ ኩፍተ

በሎንንኩም ተሳሎት ታቀትሎም ቲሆን ለክኒብሎት ፍቃደኝ ያልሆንኩቡይሙ ሱር የልኪኒብሎት ሀነግን ደግሞ ያቃኖት አምራሙ የትቆረን::

በኢታይ ጥናት ለትሳተፎት ፍቃደኛንኩም 1.አዎ (ሱለይ ኢቅጥልናን) ----- 2.አሎንኩ (አህተ ዩውዳው)

የቀበሌ \_\_\_\_\_ ሱም:----- ኢትሳላነይ  
 ሱም \_\_\_\_\_ ሙልከት. \_\_\_\_\_ የሱፐርቫይዘር  
 ሱም \_\_\_\_\_  
 ሙልከት. \_\_\_\_\_ የትሳልቡይ አያም (በኢትዮጵ ኢልቅ) ---  
 ---/-----/

**ጎልጌ 1. ሂታይ ሱል የእንደትቻይ ማህበራዊ ዋ ኢኮኖሚያዊ ሁኔታ ኢትሳላንን**

ወ.ኢ	ሱልቸ	ለምርጫ የቀረቡ ጀዋብቸ	
	የትሳክልቡይ አያም	[____ ____ ____] አያም  ወሪ  አይዶ	
A01	የቀበሌ ሱም ዋ የኢንደት መለየ ኢልቅ(ተሱሊ ቀደ ኢልቅ ታቦት አለቢ)	የቀበሌ ሱም: ..... ወረዳ..... ዞን.... ጎጥ.....	
A02	ኡምራሽ ምስትን?	እዴሜ በአመት_____	
A03	ዲናሽ ምንግዝን?	6. ሙስሊም 7. አርቶዶክስ 8. ፕሮቴስታንት 9. ካቶሊክ 10 ገን ባለ ጥቀስ	
A04	ብሄራሽ ምንግዝን?	6. ስልጤ 7. ጉራጌ 8. አማራ 9. አሮሞ 10. ሌላ ከሆነ ይጠቀስ----	
A05	የአሽር ደረጃ/መቃም	6. ኪተቦት ዋ አኒቦት ኢለውቺል 7. ኪተቦት ዋ አኒቦት ኢሽላው 8. ያፍቴ መቃም 9. ሆሽትለኛ መቃም 10. ኮሌጅ ዋ ሀቲ ደር	

A06	የጋር አባታሽ የአሸር መቃም / የባለቤቶች የትምርት ደረጃ	6. ኪተቦት ዋ አኒቦት ኢሸላን 7. ኪተቦት ዋ አኒቦት ኢሸላን 8. ያፍቴ መቃም 9. ሆሽትልኔ መቃም 10. ኮሌጅ ዋ ሀቲ ደር	
A07	ባኩ ወክት የዘውጅ ሀላት አይነኮን?	6. አገባሆ 7. ቢቾንኩ 8. ተፋታሆ 9. የጋር አባቴ የሞተ	
A08	ብላሽ ምንግዝን	10. የመንግስት ብላትኘ 11. የግሌ ድርጅት አለኝ 12. ዝልዛሎ 13. የጋር እንደት 16. ገንባላ (ኢወጂ).....	
A09	የጋር አባትሽ ብል ምንግዝን?	8. ደረሰ 9. የመንግስት ብላትኘ 10. የግሌ ድርጅት አለኝ 11. ዝልዛሎ 12. የያም ብላትኘ 13. አራሽ 14. ገንባላ (ኢወጂ).....	
A10	ያበረሰሙ ብዥት ምስትን?	3. ከ5 ኮሎ 4. ከ5 ደር	

A11	ያበረሳ አሚር ማኒ?	3. ሚሽት 4. ሚሽ	በአለቅ
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**ጎልጌ2: የአበረሳ የገቢ ሁኔታ**

ወ.አ	ሱልቻ	አዎ	ኤለ
	የጋራ ሰብ ሀገግን ተጋራሰብ ሀድ ለኮሎ የትክተቱይ ንብረትቸ አቦት በሆነ፤ የክተብ ቤለ 0 የክተብ። (ኪቦት		
B01	የኤላትሪክ ጊልጋሎ በጋር ዉስጥ ኢትረከባን?		
B02	ቴሊቪዥን		
B03	ሰአት (የግርግደ ሀገግን ዩኦጅ		
B04	ማቀዝቀዣ		
B05	ሬዴዮ		
B06	ተቅላቃይ ስልክ		
B07	መደበኛ ስልክ		
B08	ጠረጴዛ		
B09	ወንበር		
B10	አልጋ ሞዝቫሌድ የጥጥ/የስፖርት/የስፕሪንግ ፍራሽ		
B12	በጋዝ ያሻን አምቦል(ኩራዝ)		
B16	በብሰወ ኢትጎተታን ጋሪ		
B17	መኪና/የጭነት መኪና		
B18	የጭነት ጋሪ		
B19	የመይ ፓንፕ		
B20	የባንባ መይ በጋር ዉስጥ		
B21	የባንባ ብገቤይ ዉስጥ		
B22	የአማይ የባንባ መይ		

B27	የሚዴ/የሃይቅ/የኩሬ /በትገደበ		
B29	ሹማት ጋር		
B30	የቂጦ ሹማት ጋር		
B31	ያርሱያን ደች		
B32	የባንክ ሀገግን የቁጠባ ደብተር		
	ተጋሪ አበሮስ ሀድ ሰብ ለኮሎ የተዘረዘሩት እንስሳት አሉዎ? (ባኪቦት)	አዎ	አሌ
B33	ከራብ		
B34	ለም		
B35	ፈረዝ/ቦቅሎ		
B35	ፊቅ/ጣይ		
B35	ሂንጫቆ		
B36	ኡማር		

**ጎልጌ. 3. የኢንደቴ ፈይነት ዋ አዳብ ስነ ስንቅ**

ወ.ኢ	ሱልቻ	ለምርጫ የቀረቡ ኪባያዎ	አዎ(1)	ኤለ(0)
C01	በባለፉት ሆሽት ሳምንቶቻቸው ታንጫሽ ትሽሌሽ?	አዎ.....1 ኤለ....0		
C02	ክንባያሽ አዎ በሆነ ወ.ኢ # 1፣ አይነካሌን ነቶ ያንጫሽ ?ኢወጂ	.....		
C03	ሃሚል(የወር አበባሽ) ያንዜሺ መቼን ናር ?	4. ቢቢታይ ወሬ 5 ታድ ወሬ ቀዳ 6. እለውሽል		

C04	አኩ ያለትቢ አከላዊ (Physiological status ) ሁኔታ	አሽት ፎል.....04 አጠባሎ.....05 አሽት ፎል ያልሆንትኢደት ዋአጠባሎ ያልሆንት ኢደት ....06		
C05	ያለፈይ አሽት ፎል ወክት ምነ ቅጫ ወክት የቅድመ ወሊድ ክትትል አሾሾሽ?	_____ ምስተ ግና		
C06	የመጨረሻይ አሽት ፎል ወክት አይረን ፎሊክ አሲድ እንክብል ወሰድሾሽ?	አልወሰድኮ.....0 አዎ.....1 አልውሽል.....2		
C07	በአኩ ወቅት የአበሮስ አትራሪቆ ጨኖት ውጥን ተድጋለዬሽ?	2. አይ 3. እድጋለላው		
C08	ክንባያሽ አው በሆነ አይነካሌን የአበሮስ አትራሪቆ ጨኖት ውጥን ተድጋለዬሽ?	4. መርፌ 5. ኪኒኒ 6. ኢንተላነት 7. አዩሲዲ		
C09	ማንኛም አዳብ ሰነስንቅ ና ፈይነት ሉክት በአሽት ፎል ወክት አነግና በጭኛሽ ሬር በአፊያ ኤክስቴነሽን ሉባም / በአፊያ ሉባምቻ ረከብሾ ትሽሌሽ ወይ?	2. አዎ 3. አልወሰድኮ		
C10	ክንባያሽ አዎ በሆነ ወ.ኢ #7 አይነካሌ ሉክት የረከብሺ?(ታአድ ደር ክንባያ ዋበት ያቀትሌን.	1. ስለ ጡብ አጥቦት 2. ስለ ስነ ስንቅ ድበሎት 3. ስለ ያዝጋግ ጡዋርነት ቂሮት 4. ስለ አበሮስ አሪቆ ጨኖት 5. ስለ ሰብዬ ወልድ አክማምቶት ዋ ቂሮት 6. ገነ ባለ ኢውጂ...		

C11	ምን ያህሉን ወቅተ ኡሽታ ፎል ናረሽ?	ኡሽተ ፎል በኢልቅ: _____		
C12	በአያም በለወቅታ ምስታ ግና ስንቅ ትበዩሽ?	1. አድ ጊና 2. ሆሽተ ግና 3. ሽሽታ ግና 4. አራት ጊናና ታቲ ደር		
C13	በኡሽት ፎል ወክት ስንቅ ብሎት ያቃነንሽቢ ሀላት በአደኛ ምካት አለ ?	2.ኤለ 3.አለ		
C14	ክንባያሽ አዎ በሆነ ወ.ኢ# 9፣አይነካሌ ስንቅ ምግብ ብሎት ያቃነንሽ ዋ ለምግዝን? ኢውጂ..	4. ቀወ 5. በሰር 6 ሸንኮራ አገዳና ጥገይ 7. ገና በለ ኢውጂ..		
C15	የደረይ ስንቅቻ አትበይቢያሽ አነግና ስንቃ ብሎት እታተርቢያ አደኛ ኡንጋ ለምንግዝን ?	4 ጩሎይ የሮሬ ሊያሺነኮ በምጥ እትመኬነኮ ያሺያን 5. የጩሎይ ዱምዋሰ-ብነትካ ሊትለጠፋነኮ 6. በቁብለ(ውርጃ) ለያመጫነኮ 7. የቡዲ ኢን ላይበላይ 8. በፅንሱ ደር መረካት ለያመጫነኮ 9 ገና በለ ኢውጂ		
C16	በሳምት መደበኛ ስንቅ የዝለሎት ተሮሻት አለሽ?	1. አለኝ 2. የለም 3. አላስታውስም	ኤለ በሆነ ወደ C18 እለፎ ት	
C17	ክንባያሽ አው በሆነ ወ.ኢ#C16 ለምንግዝን ስንቃ	1. ልልጩጣውኮ 2. ብል		

	ኢዘሉብያን ሀላት?	<p>ሊበዝብኛነኮ እረሳውስራ</p> <p>3. ኢባጂሎ ላይደብልኝ(ለልወፍር)</p> <p>4. ገና ባለ ኢውጂ</p>		
C18	ሰብዬ በአይሽን የትግላገልሺ/የጭኜሺ (+ሁልምካ ያነሰይ ሰብዬ ሱም )	<p>8. በጋር</p> <p>9. የመንግስትሆስፒታሊ/ክልኒክ/ጤና ጣቢያ</p> <p>10. የግልሆስፒታሊ/ክልኒክ/አፊያ ጣቢያ</p> <p>11. እለውሽል</p> <p>12. ገን ባለ አውጂ.</p>		
C19	ሰብዬይ በጭኜሽ ሬር ኢባጂ/ኢባጂሎ ኮሞ ባሌን መዘኑያን?	1. አው 0. አይ 2. እለውሽል		
C20	የተመጣጠነ ስንቅ በሎት ም የሆነኮ ትሽሌሽ ?	<p>1. አይ</p> <p>2. አው</p>		
C21	በአይረን ንጥረ ነገር የበለጸጉ ስንቅቻ ልቴውጂኝ ታቀትሌሽ ?	<p>1 ጣፊ 2 ስረይ 3 እክል</p> <p>4. ከጥራጥሬ የትረሱ ስንውቻ (ሹምብራ, ምስር, ባቄላ)</p> <p>5. አምልደናቁጠላቁጠልቅ/አትክልት</p> <p>6. አትክልት, ፍራፍሬ</p> <p>7. ቁርጭጫ, በሰር, የኡንፍ ዘርች</p> <p>8. የአይብ ውጣትቻ (እሴቼ, አይብ፣ ኡጋት፣ ቄሳ፣ እርጎ)</p> <p>9. ፋትእናአይልስ(ጮማዋቅባትየበዘቢ ሙ ስንቅቻ)</p> <p>9. አሰቦ</p> <p>10. ገን ባለ አውጂ_____</p>		

		11.አለውችል		
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**ጎልጌ 4: ዩንደቴ ያአመጋግቦ ሃለትሽ**

ቲቲ ቀጠላኔ ደግሞ ባለፈይ 24 ሰአት ውስጥ ባይትም ታቼን አይር ቶጣትቢ ጀመራኔ እስከ አውጄ አይር ዮጣትቢ ጃንጎ የበላሺ ስንቀ አይነት ዮናን።

	የትጭቀሙ ሱር ባሉ አኪቦት“1” ለትጭቀሙ እና “0” ላልትጭቀሙ ያለውን ኢይነት	መለያ	
		1	0
D01	ማንኛምከ ከእህል የትረሱ ስንቅች (ማሸላ፣ በቆሎ፣ ስረይ፣ ጣፍ).....		
D02	ማንኛውምከ ተስራስር የትረሱ ስንቅች (ድንች፣ ስኩዋር ድንች፣ ቡሽ ስር፣ ሀነግነ ገነ በአካባቢ ያሉ ተስራስር የትረሱ ስንቅች		
D03	ማንኛውምከ ተጥራጥሬ የትረሱ ምግቦች (ለባይትከ. ምስር፣ ባቄላ፣ አኩሪአተር፣ ወይም አተር).....		
D04	ማንኛውምከ ተለዉዝ የተሰሩ ስንቅች (ለባይትከ የለዉዝ ኢሴቼ፣ ለዉዝ).....		
D05	ማንኛውምከ በዘይት ፣ በስብ ወይም ቢኤቼ የትረሱ ስንቅች .....		
D06	ማንኛውምከ የወተት ውጤቶች (ለባይትከ ወተት፣ አይብ ወይም እርጎ)		
D07	በሰር (ምሳሌ. የጣይ፣ የበሬ፣ የጥጃ፣ የፊቅ፣ ጉበት፣ አንጎሌ፣ ገነገናም እንደ ጨጉዋራ፣ የዲነት አንጀቶችያለ ስንቅች).....		
D08	ኢትባላን ዩንፍ ዘርች (ለበይተከ. ድሮ፣ የአሜሪካ ድሮ፣ ዲክዩ)....+.....		
D09	ቁርጭኞ .....		
D10	ቡጳ.....		

D11	አረንጉዋዬ ቅጠላማ አትክልትች (ቆስጣ፣ ሰላጣ፣ ሀምል).....		
D12	ማንነኛምከ ተደባ፣ ካሮት፣ ጥቅል ጎመን፣ ቀይ ስኩዋር ድንች፣ ማንጎ፣ ፓፓያ፣ .....		
D13	ገንገናም ፍራፍሬዎች? (ባይት ሙዝ፣ አፕሌ፣ አሸካይ፣ የሸላ ፍሬ፣ ወይን፣ ብርትኪን፣ሎሚ .....		
D14	ገንገናም አትክልቶች ? (ባይት ሸንኩርት፣ ቲማቲም፣ ነጭ ሸንኩርት) .....		
D15			

**ጎልጌ 5. የ ቡርድ ዋ የጋር ሃላፊዎች**

ቲቲ ኮሎ ቢቀጥላንይ እሰኩያን መይ አት ዋ የዌሴ ሹማት ጋር ሀላፊ እሳለሻው ::

ወ.ኢ	ሱልቻ	ለምርጫ የቀረቡ ምላሾች	
E01	የጋሪ ሰብ ኢሰቺያንይ መይ አይነካሌን	የባንባ መይ በጋር ወስጥ.....01 የአማይ የባንባ መይ.....02 የጉርጋድ መይ.....03 የታንከር መይ.....04 የአችዉስጥ መይ (መይ፣ ሀይቅ፣ ኩሬ.....)05 ገነ በሆነ ጥቀሺ _____06	
E02	መዌ ለቅዶት ምን ያህላን ወክት የስዳን? ለቅዶት ዋ ጋር ላጂጎት?	ታድ ሳት ኮሎ.....01 ሀድ ሳት ዋ ሃቲ ኮሎ .....02 ትህንጻ አቼ ጃንጎ.....03	
E03	የመይ ማጣሪያ ትጠቀሜሽ?	አይ.....00 አዎ, ሁለ ግን.....01	

		አዎ, ሀድሀድ ግን .....02	
E04	ለማጣሪያነት ትጠቀሙ ያሙይ ምንግዝን?	አይ.....00 አፍሎት.....01 ማንጨ/ክልሪን/ዉሀ አጋር.....02 በጨርቅ አጣሮት.....03 መይ ማጣሪያ በጠቀሞት (አሸዋ፣ ገናም).....04 ኮሎሬኖ ኢዘቅጣነኮ ባሶት.....05 መይ ምጣሪያ ዉጣትቸ.....06 ገነ በሆነ ጥቅሺ .....77	
E05	ትድጋላልቡያም /ትጠቀሙ ያሙ ሹማት ጋር አይነት?	ቆሻሻ መተላለፊያ ያለይ መይ ማፍሰሻ ያለይ.....01 መይ ማፍሰሻይ ወደ ታንኪ ኢገባን.....02 መይ ማፍሰሻይ ወደ ጉርጋድ ኢገባን.....03 መይ ገኔት ኢፈሰን.....04 አዩር ማስወጫ ያለይ(VIP)... .....05 የጉድጉዋድ ክዳን ያለይ.....06 የጉዳጉዋዳ ክዳን ይለይ .....07 ቆሻሻ ያለይ.....08 ሹማት ጋር ኤለ/በጠበ ደር.....09 ገነ በሆነ የጥቀሱ .... .....10 ኢለዋስታውስ .....11	
E06	ቆሻሻን ኢጢልቡያን ኡንገ	በከተማ ማዘጋጃ ጋር ኢትሲበሰባን.....01 ኢትቀባራን.....02 በግል ማህበረ ኢትሲበሰባን.....03 ቡንገ ደር ኢጢሉያን .....04 በግቢ ዉስጥ.....05	

		በሚዳ ውስጥ .....06 ኢማግኒን.....07 ገን በሆነ ይጥቀሱ .....08	
E07	ተሹማት ጋር ዞፍ ኢንጃሙ ቲትራሎሙ?	ኢለትራሚ .....01 አዎ, በለወክት.....;.....02 አዎ, አልፎ አልፎ .....03	
E08	አወ በባሽ ኢንጃሽ በምንግን ትትራጩሽ?	በሳሙነ.....01 Ash.....02 በቁጠል.....03 በምንም .....04 ገን በሆነ ይጥቀሱ.....05	

**ጎልጌ 6. የእንደቱ Anthropometric ሌኬት/መቃጫ**

ወ.አ	ሱልቻ	
F 01	የእንደቱ MUAC በ ሴ.ሜ	
F 02	የእንደቱ ጉባ በሜትር	
F 03	የእንደቱ ኢባጂሎ በኪ.ግ	

**ለትጋገዝኩምኝ አሃተ ይውዳው!!!**