

ESSENTIAL NUTRITION ACTION PRACTICES
AND ASSOCIATED FACTORS AMONG
PREGNANT WOMEN IN AMBO DISTRICT,
WEST SHOA ZONE, ETHIOPIA

BY
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Abstract

Background: Pregnancy is a critical time of human development. Anything that compromises the fetal environment may have important and lasting effects on the child's future health. During pregnancy, the expecting mother needs optimal nutrients of superior qualities to support the developing fetus. Essential nutrition actions have been adopted by the Ethiopian government and as an intervention framework with specific doable actions since 2005. This intervention has been rolling out both during contact with health facilities and through the health extension workers. However, there is no study that documented the practice of pregnant women in this regard.

Objective: The general Objective of the study was to assess essential nutrition action practice and associated factors among pregnant women in Ambo district.

Methods: A cross-sectional study was conducted in Ambo district, Western Shewa Zone during March, 2016 to April 2016 among 724 pregnant women. The study participants were selected from thirteen Kebele's (two from urban and eleven from rural strata) of Ambo district based on probability proportional to size (PPS) allocation technique. Data were edited, coded and entered into EPI-data 3.1, and then exported to SPSS for windows version 20 for cleaning and analyses. Both descriptive statistics and multivariable logistic regression analyses were used to describe essential nutrition action practices and to identify their independent predictors, respectively.

P value <0.05 was used to declare statistical significance.

Results: It was observed that 28.7% of participants practiced ENA, 32% had favorable attitude towards ENA and 39% had good knowledge on ENA, respectively. Pregnant women had limited quality of meal 11%, quantity of meal 42%, disease prevention and treatment 10%, limited provision of iron/folate supplements 30% and supportive life style 89% given to pregnant women in the study area. With regard to food taboos, a significant number of pregnant women restricted some important foods (cabbage, milk, chilies, meat and fish) due to misconception of these foods to be the cause of plastered on the child (66%), baby become whitish (60%), big baby (51%), burn the child (43%) and injure the child (32%).

The results of multivariable logistic regression analyses showed that, knowledge (AOR= 3.12, 95% CI [1.86, 5.25]), Health service availability (AOR= 3.76, 95% CI [2.39, 5.92]), Health & nutrition information (AOR= 3.25, 95% CI [1.94, 5.43]), Mother's education (AOR= 3.41, 95% CI: [1.40 - 8.29]), husband education, (AOR= 5.6, 95% CI: [1.79- 17.5]), husband occupation (AOR= 3.57, 95% CI: [1.34- 9.53]), gestational age (AOR= 2.7, 95% CI: [1.47 - 4.92]), number of children (AOR= 0.25 & 0.14, 95% CI: [0.13-0.46]) and number of pregnancy (AOR= 0.44, 95% CI: [0.21- 0.91]) were independent predictors of ENA practice of pregnant women.

Conclusion and recommendations: -The ENA practice of pregnant women was Low. This finding showed that, quantity & quality of meal, iron/folate supplement and disease prevention and treatment practice of pregnant women was very low in the study area. Knowledge, mother & husband education, father occupation, number of child & pregnancies, gestational age health service availability and health & nutrition information were significant independent predictors of optimal ENA practice. The finding imply, the need for strengthening the ENA BCC to create the demand for ENA services and refreshment training of health providers on ENA guidelines to improve ENA practices during pregnancy.

Keywords: Essential Nutrition Action, Pregnancy, Ambo, Ethiopia.

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Table of contents

Contents	page
Abstract.....	i
Acknowledgments.....	ii
Table of contents.....	iii
List of table.....	iv
List of figures.....	v
List of Abbreviations.....	vi
1. Introduction.....	1
1.1 Background of the study.....	1
1.2 Statement of the Problem.....	4
2. Literature Review.....	7
2.1. Practice of Dietary Intake during Pregnancy.....	7
2.2. Drivers of Poor Nutritional Practices.....	8
2.3 Prevalence of Chronic Disease during Adulthood Period.....	10
2.4 Maternal Weight Gain, Birth Weight, Fetal Loss, Fetal Malformation and Fetal Growth.....	10
2.5 Determinants of Maternal Nutritional Status.....	11
2.6 Important Nutrients Required during Pregnancy and their Functions.....	14
3. Significance of the Study.....	17
4. Objectives.....	18
5. Methods and Clients.....	19
5.1. Study Area and period.....	19
5.2. Study design.....	19
5.3. Populations.....	19
5.4. Inclusion and Exclusion Criteria.....	20
5.5. Sample size and sampling technique.....	20
5.6. Study Variables.....	22
5.6. Data Collection and Measurement.....	22
5.8 Data Processing and Analysis.....	23
5.9. Data Quality control.....	23
5.10. Operational Definitions.....	24
5.11. Ethical Consideration.....	27
5.12. Plans for Dissemination of Findings.....	27
Results.....	28

Discussion.....	47
Conclusion and Recommendation	52
6. References.....	54
Annex-I: Informed consent agreement form.....	60
Annex-II: Structured questionnaire (quantitative) (English)	61
Annex III: Amharic version Informed consent agreement form.....	74
Annex-IV: Amharic version questionnaire	75
Annex V: Oromic language version Informed consent agreement form	85
Annex VI: Oromic language version questionnaire.....	86

List of tables

Table 1: Socio-demographic characteristics of the study participants.....	28
Table 2: Maternal and social characteristics of the study participants	30
Table 3: Knowledge related results of the study participants	31
Table 4: Attitude related results of the study participants	32
Table 5: Citrus fruits consumption of the study participants.....	35
Table 6 : Coffee/tea and alcohol consumption of the study participants	35
Table 7: Coffee/tea and alcohol consumption of the study participants.....	36
Table 8: Salt and Additional food consumption of the study participants.....	37
Table 9: Family support of the study participants	39
Table 10: Water supply of pregnant women.....	40
Table 11: ANC Service of the study participants	41
Table 12: Result of bivariate logistic regression analysis.....	42
Table 13: Result of multivariable logistic regression analysis	45

List of figures

Fig. 1: Conceptual frame work 16

Fig. 2: Schematic presentation of sampling technique in the study area 21

Fig. 3: Food aversion of the pregnant women. 34

Fig. 4: Food taboos of participants 38

Fig. 5: Counseling..... 38

Fig. 6: The five key messages of ENA practice of pregnant women 40

Fig. 7: The Knowledge, Attitude and Practice of pregnant women..... 42

List of Abbreviations

BCC: Behavior Change Communication

CSA: Central Statistics Agency

DDS: Dietary Diversity Score

EDHS: Ethiopian Demographic Health Survey

EMDHS: Ethiopian Mini Demographic Health Survey

ENA: Essential Nutrition Action

ENGINE: Empowering New Generations to Improve Nutrition and Economic Opportunities

FP: Family Planning

FAO: Food and Agriculture Organization

FMOH: Federal Ministry of Health

HEW: Health Extension Worker

HIV: Human Immunodeficiency Virus

HMIS: Health Management Information System

IDA: Iron Deficiency Anemia

IFA: Iron and Folic Acid

IFRC: International Federation of Red Cross and Red Crescent Societies

KAP: Knowledge, Attitudes and Practices.

LBW: Low Birth Weight

MDG: Millennium Development Goal

NGO: Non Governmental Organization

NNS: National Nutrition Strategy.

RDA: Recommended Dietary Allowance

SACN: Scientific Advisory Committee on Nutrition

SPSS: Statistical Package for Social Sciences

UNICEF: United Nations International Children Education Fund

USAID: United States Agency for International Development

VCHWs: voluntary community health workers

WASH: Water, Sanitation and Hygiene

WFP: World Food Programm

WHO: World Health Organization

1. Introduction

1.1 Background of the Study

Nutrition is considered to be the bedrock of wellbeing and prevention of ill health in the society. It is also an essential factor in promoting health of the pregnant women as well as the public. (Montasser *et al*, 2012). All human beings need a balanced amount of nutrients for proper functioning of the body system. Nutrition is one of the foundations of human health and development throughout the entire life span (World Bank, 2006). Good nutrition is important at all stages of life. Our bodies need enough of the right foods to give us energy to grow, learn, work and stay healthy. Health and nutrition are closely linked; a person must be well nourished to be healthy, while poor health can affect nutritional status(IFRC, 2013).

Adequate nutritional intake is one of the most important factors affecting on one's health and well-being, especially during pregnancy (Szwajcer *et al*, 2006). And adequate nutritional status of women is important for good health and increased work capacity of women themselves as well as for the health of their offspring(Black *et al.*, 2008). Pregnant women and breastfeeding mothers especially need to have an adequate variety and amount of foods in their diets. Pregnant women need at least one extra meal a day, along with plenty of safe water. Consumption of iron-rich foods and iodized salt is also important(IFRC, 2013). Micronutrient malnutrition can affect all age groups, but young children and women of reproductive age are most at risk of developing micronutrient deficiencies. Iodine Deficiency Disorders (IDD), folic acid and Iron Deficiency Anemia) are three important Public Health problems (IJCH, 2014).

Maternal under-nutrition, maternal stunting, and infection restrict growth in utero. This highlights the importance of maternal nutrition to achieve adequate child height. Adequate maternal nutrition and weight gain during pregnancy is the cornerstone of health for women and their children, affecting pregnancy outcomes as well as the growth and development of children (Stewart *et al.*, 2013).

Pregnancy is a critical time of human development, and anything that compromises the fetal environment may have important and lasting effects on the child's future health. It is important as a society to prioritize helping women understand the impact that their life style choices have on their children. Maximizing the health of pregnant mother will insure her child the best start at life possible. Pregnancy is such a critical phase in a woman's life, when the expecting mother needs optimal nutrients of superior qualities to support the developing fetus. Naturally, the urge to eat more is experienced by nearly all pregnant women(World Bank, 2006). This physiological state places extra demands on the body systems of pregnant women, necessitating optimal intakes of essential nutrients(Oluwafolahan *et al.*, 2014).

Pregnancy increases a woman's nutritional requirements and micronutrient needs. Extra energy is needed for the growth of the fetus, placenta, and associated maternal tissues. If a woman's nutritional intake is inadequate during pregnancy, her fetus keeps growing at the expense of her own nutritional status (USAID & AED, 2005). Weight gain during pregnancy depends on pre pregnancy weight, body size, and activity level. The average woman should gain about 12.5 kg during pregnancy (individual energy requirements vary according to pre-pregnancy height and weight, metabolic rate and activity level). Many women gain barely half this amount because of poor diets and heavy workloads. Women need about 340 kcal more food per day in the second trimester of pregnancy and 452 kcal more food per day in the third trimester. Women who enter pregnancy underweight need more calories to achieve adequate weight gain (Nomajoni *et al.*, 2005). Malnutrition in pregnant women, compounded by gender discrimination, leads to an intergenerational cycle of nutrition problems which manifest as stillbirths, miscarriages, low birth weight, growth failure, increased risk of maternal and neonatal mortality, impaired cognitive development, sub-optimal productivity in adults and reduced economic growth for the nation (Benson & Shekar, 2006).

ENA is a set of affordable and highly effective nutrition interventions delivered at health facilities and in communities to improve the growth and micronutrient status of children. Growth failure in children is concentrated in to the first two years of life; therefore, reduction in child malnutrition depends on interventions during fetal development and very early childhood. Women, particularly pregnant women, breast feeding women and children less than two years of age are the primary target group of ENA (ENGINE, 2013).

Implementation of ENA package promotes and supports the achievement of seven priority nutrition behaviors (evidence-based actions) to improve the nutritional status of women and children, especially those less than two years of age. These behaviors are exclusive breastfeeding for six months, adequate complementary feeding starting at about six months with continued breastfeeding for two years, appropriate nutritional care of sick and severely malnourished children, adequate intake of vitamin A for women and children, adequate intake of iron for women and children, adequate intake of iodine by all members of the household and maternal nutrition (Joan and Mesfin, 2008). In addition, mounting evidence suggests it is necessary to give more separate attention to the Essential Hygiene Actions which were previously embedded within complementary feeding and feeding the sick child. These actions include: promotion of safe drinking water (such as chlorine dispensers at water points), hand washing at five critical occasions (after defecation; after cleaning child who has defecated; before preparing food; before

feeding child; before eating), safe disposal of feces, safe storage and handling of food, use of latrines and promotion of open defecation free communities, and creating barriers between toddlers and soiled environments and animal feces (USAID, 2014).

ENA takes advantage of key contact points at critical stages in the lifecycle to deliver these interventions so that the nutritional status of women and children will be improved. These contact points are: pregnancy, delivery and early neonatal consultations, postnatal and family planning (FP) contacts, immunization contact, well child visits, including growth monitoring and promotion, sick child visits, especially during and just after illness.

The ENA framework has been developed with the support of United States Agency for International Development (USAID) and implemented in Africa and Asia since 1997 (Guyon & Quinn, 2011). It is an operational framework for managing the advocacy, planning and the delivery of an integrated package of preventive nutritional actions encompassing infant and young child feeding (IYCF), micronutrients and the nutrition of woman. It uses multiple contact points and targets health services and behavior change communication (BCC) support to women and young children during the first 1000 days of life. This period is critical as nutrient requirements are increased, the risks of under nutrition are great and the consequences of deficiencies are most likely to be irreversible (Guyon & Quinn, 2011).

It is believed that breastfeeding counseling, appropriate complementary feeding and vitamin A and zinc are important to reduce child deaths and future diseases burden related to under nutrition. The ENA framework explains nutrition through life cycle approach addressing women's nutrition during pregnancy and lactation, optimal infant and young child feeding, nutritional care for sick children and control of anemia, iodine and vitamin A deficiencies. It also underlines using multiple contact points at health institutions and beyond to reach mothers and children to provide and reinforce ENA messages. The goal is to capitalize on multiple program opportunities and communication channels to deliver life cycle appropriate nutrition messages at every opportunity possible to pregnant women and mother with children under age of two years and other care givers and influential family members (Guyon & Quinn, 2011).

At the request of USAID/Ethiopia, from March 2003 to September 2006, LINKAGES provided support to the Ethiopian government and its partners for the introduction of the ENA package as an approach to improve the nutritional status of women and children less than two years of age. Accordingly, the Ethiopian Federal Ministry of Health (FMOH) adopted this approach and included it in child survival strategies in 2004 (Joan and Mesfin, 2008).

1.2 Statement of the Problem

Women are more likely to suffer from nutritional deficiency than men for several reasons, including their reproductive biology, low social status, poverty and lack of education. In addition, socio-cultural traditions and disparities in household work patterns can also increase women's chance of being malnourished (Ransom & Elder, 2003).

The diet consumed during pregnancy deserves special consideration, to ensure that the health of mother and fetus is not compromised. Studies showed that the importance of the nutritional status of women at the time of conception and during pregnancy, both for the health of the mother and for ensuring healthy fetal growth and development. Thirty two million babies are born small-for-gestational-age annually representing 27% of all births in low and middle income countries (Marie *et al.*, 2013).

The landmark Lancet Series on maternal and child under nutrition estimates that maternal and child under nutrition is the cause of 45 percent of under-five deaths (black *et al.*, 2013). According to UNICEF, each year, more than half a million women die from causes related to pregnancy and childbirth. Nearly 4 million newborns die within 28 days of birth (UNICEF, 2009). Many of the 200 million women who become pregnant each year, most of them in developing countries, suffer from ongoing nutritional deficiencies repeated infections and the long term cumulative consequences of under nutrition during their own childhood (Mora & Nestel, 2000). Maternal short stature and iron deficiency anemia, which can increase the risk of death of the mother at delivery, also contribute to at least 18% of maternal deaths in low- and middle-income countries (BESICS, 2008) and Globally, almost 50% of pregnant women (56 million) are anemic (White & Masset, 2007).

Eastern and western Africa and south-central Asia have the highest prevalence of stunting; the largest number of children affected by stunting, 69 million, live in south-central Asia. In Africa, only small improvements are anticipated on the basis of present trends, with the number of affected children increasing from 56 to 61 million (black *et al.*, 2013). According to (Safe Motherhood Fact Sheet, 2003), one out of 13 pregnant women face a lifetime risk of maternal death in Nigeria, while some suffer ill health and under nutrition. Each year, 8 million neonatal deaths, maternal deaths, stillbirths and disability occur as a result of factors that include poor maternal health, malnutrition, unhygienic environment and inappropriate management of pregnancy and childbirth (WHO, 2014)

Many women suffer from a combination of chronic energy deficiency, poor weight gain in pregnancy, anemia, and other micronutrient deficiencies, as well as infections like HIV and malaria. Malaria infection during pregnancy is a major public health problem, with substantial risks for the mother, her fetus and the

newborn (WHO, 2014) and inadequate obstetric care, contribute to high rates of maternal mortality and poor birth outcomes(Huffman *et al.*, 2001)

Under nutrition during pregnancy is a critical determinant of maternal, neonatal, and child health outcomes. Improving dietary adequacy during pregnancy is important to help women accommodate their nutritional requirements as well as their children's requirements during intrauterine development (USAID, 2014). The incidence of dietary inadequacies as a result of dietary habits and patterns in pregnancy is higher during pregnancy than at any other stage of the life cycle(Rao *et al.*, 2006).

No single method for ensuring adequate nutrition to childbearing women has been identified to date. Indeed, nutritional counseling for malnourished women during pregnancy or during inter-pregnancy intervals has not been shown to be an effective method for reducing malnutrition(Doyle, *et al.*, 2001). The supplemental ingestion of important nutrients such as iron, folate, and calcium is contingent upon the availability of supplements, the purchasing power of poor women, and their toleration of side effects from some supplements such as iron(Beard, 2000).

Maternal malnutrition in Ethiopia is higher than the level for many African countries(Uthman & Aremu 2008). Malnutrition is one of the main health problems facing women and children in Ethiopia. The country has the second highest rate of malnutrition in Sub-Saharan Africa (SSA). Ethiopia faces the four major forms of malnutrition: acute and chronic malnutrition, iron deficiency anemia (IDA), vitamin A deficiency (VAD), and iodine deficiency disorder (IDD).

The analysis of Ethiopian Demographic Health Surveys (EDHS) 2000, 2005, 2011 and EMDHS 2014 data revealed that 58%, 51%, 44% and 40% of under five children were stunted and 41%, 33%, 29% and 25% of under five children were underweight respectively(CSA/FMOH, 2014). From 2011 EDHS data, 27% of Ethiopian women are too thin, while 6% of women are overweight or obese. Women living in rural areas are more likely to be thin than women living in urban areas (29% versus 20%). Seventeen percent of Ethiopian women were anemic, pregnant women should take iron tablets for at least 90 days during pregnancy to prevent anemia and other complications. Less than one percent of women took iron tablets for at least 90 days during their last pregnancy(EDHS, 2011).

The landmark Lancet Series on Maternal and Child Under nutrition published in early 2008 estimates that effective, targeted nutrition interventions to address maternal and child under nutrition exist and, if implemented at scale during the window of opportunity (conception and up to 24 months of age), could reduce nutrition-related mortality and disease burden by 25% (NuPITA, 2011).

According to the review of the integration of ENA in public health service delivery points of Ethiopia, advocacy, training and support from stakeholders were conditions that facilitated institutionalization of its practice while lack of formal approval for the draft of National Nutrition Strategy(NNS), lack of ENA-related indicators in the Health Management Information System (HMIS) and lack of regularly scheduled training courses on ENA for new and continuing healthcare professionals were inhibitory factors. LINKAGES trained a great number of people who still are working within the public health system; staff turnover is still cited as problem in continuing implementation of ENA. There is, therefore, a continuing need for training in ENA among health workers (Joan & Mesfin, 2008).

In addition to this, Supervisor visit, attitudes of health managers, availability of micronutrient supplies and availability of information, education, and communication (IEC) materials were factors associated with practice of ENA(Dewey & Brown, 2003).

In Oromia region, less than one woman out of ten reported to have eaten more because she was pregnant. In terms of the type of community health worker contacted during pregnancy, 24% and 7% of the women from project and non project area reported health Extension workers (HEWs) and 17% and 3% reported voluntary community health workers (VCHWs), respectively. Beside this, in this region women were asked to spontaneously mention message they heard or were told during pregnancy. Among those contacted by voluntary community health workers, the following nutrition related information was reported: to get extra food(60%), to put the baby to the breast immediately after birth(18%), to give colostrums to the new born(16%), to take rest(18%) and to take iron/folic acid(9%)(USAID, 2008).

Although the essential nutrition action has been outlined by the ministry of health and health extension workers have been deployed since 2005, some pocket studies indicate that there are still suboptimal practices. As a result, the reductions in maternal malnutrition and consequent child malnutrition were not that notable. Therefore, this study set out to explore the essential nutrition action practice of pregnant women and associated factors to generate evidence for program planning and intervention.

2. Literature Review

2.1. Practice of Dietary Intake during Pregnancy

Eating a balanced and adequate diet has beneficial effects to both the pregnant women and the unborn child. Generally, women who are malnourished are prone to anemia, infections and poor quality of life, which could give rise to death during pregnancy or childbirth. Such women may experience premature delivery (WHO, 2013). The study done in New Zealand revealed that most Chinese pregnant mothers did not meet the recommended intake of vegetables, cereals and dairy food during pregnancy (Jingjing, 2014). Similar study at Ndhiwa subdistrict Hospital, Kenya found that most pregnant women (88%) did not meet their Recommended Dietary Allowances (RDA) for vitamin A as indicated by intake of less than 800 μ g per day and Majority (91.4%) did not meet their RDA for iron as indicated by consumption levels of less than 30mg per day (Othoo, *et al*, 2014). Another study done in Saudi Arabia, revealed that the diets of the pregnant mothers' were below the RDA for Vitamin B1 (93.9%), calcium (82.5%), iron (98.2%) and energy (51.8%). This profile shows that the average nutrient intake was deficient in some of the important nutrients (Khalid *et al*, 2007).

A study done in LGA in Osun State, Nigeria noted that about 70%, 72% , 75% , of the pregnant women had inadequate dietary intake of Vitamin C, Folate and Energy respectively. But more than 71% of the pregnant women receive folic acid supplementation (Ojofeitinm *et al.*, 2008). Similar study done in Egypt revealed that, women routinely receive iron and folic acid (IFA) supplementation during antenatal care. Mothers do not always understand why health care providers have prescribed iron-folic acid pills for anemia, nor are they given appropriate counseling on how to deal with temporary side effects of IFA supplements. Seeking health care services from different health care providers who provide different pills of varying color added to the confusion about IFA supplements. The lack of both consistent and correct guidance and information on IFA contributed to the lack of adherence to IFA among pregnant women (Justine *et al*, 2014).

The study conducted in Guto Gida Woreda, East Wollega Zone, Ethiopia, shows only 34% of the respondents were found to have good nutritional practices during their pregnancy. There was a positive significant relation between information about nutrition and family size and nutritional practices of mothers during pregnancy (Fekadu *et al.*, 2015).

A study done in Shebedino District, SNNPR, Ethiopia in 2012 shows that, 94.5% and 89.9%, of health workers reported delivering of iron/folic acid and counseling of diet in pregnancy respectively during

antenatal care (ANC) visits (Habte and Amanuel, 2012). Similar study done in Mekelle City, Tigray, Ethiopia, revealed that Most of the pregnant women (89%) had practiced in weighing their weight during pregnancy and 91% of them were utilized ANC service in that pregnancy (kidist *et al*, 2015).

2.2. Drivers of Poor Nutritional Practices

2.2.1 Nutritional Knowledge

Nutritional knowledge was predictive of change in dietary habits and health advices encouraged expectant women to advance their food intake. This is supported by the Study done in O'Brien and Davies that reflects nutritional knowledge affects the quality of food intake and also healthy choices of purchased food(O'Brien & Davies, 2007).

The study done in America at El-Menshawy hospital reveal that more than half (54%) of pregnant women did not have enough knowledge regarding the meaning, the importance, the constituents of a well balanced diet, the consequences of inadequate nutrition during pregnancy on mother and fetus and the basic and the essential knowledge regarding the sources of most of the types of vitamins and minerals(Latifa *et al.*, 2012). In addition, lack of knowledge regarding the quantity of certain foods required to ensure nutritional adequacy is also one factor(Begley, 2002). In qualitative study(focus group analysis) done, on women's views and experiences shows that confusion regarding the dose and timing of folic acid supplementation and lack of knowledge regarding the benefits of folic acid prevent for not using it properly(Barbour *et al.*, 2012)

The study done in Kishoreganj districts, Bangladesh revealed that knowledge about the consequences of malnutrition in pregnancy, and the amount and types of food to be taken during pregnancy was found unsatisfactory (Salim *et al.*, 2014). The study done in Borno State, shows. A good knowledge of dietary practice during pregnancy among pregnant women will reduce the rate of intrauterine death of fetus, low birth weight (LBW) and maternal mortality (Kever *et al*, 2015).

The study done in Guto Gida Woreda, East Wollega Zone, Ethiopia showed that more than half (57.8%) of the respondents did not knew the meaning of food(Daba *et al.*, 2013), and similarly The study done in Mekele, Ethiopia, revealed that average mean of mothers knowledge on vitamin A, iodine, iron, food diversity and food frequency were: 0.95, 1.02, 0.7, 1.22 and 0.85 respectively (Amanuel *et al.*, 2013).

There is also a mean nutrition knowledge difference among the monthly income and mother's educational level.

2.2.2 Cultural Issue/Food Taboos

Socio-cultural practices reflect attitudes values and beliefs held by members of the community for periods often spanning generations (SM, 2005). Eggs is a taboo for young girls in Lesotho, who are warned not to eat eggs, since it is believed that eggs increase the sexual desire in girls. Fruits - mango, orange and banana are also restricted since they are believed to cause worms, malaria and diarrhea to the growing child and also sources of vitamins and minerals are restricted during pregnancy mainly due to the fear of offensive discharges during delivery and skin diseases(Guillermo *et al.*;2013).

The food habit and availability of supplies determine in large measure the nutritional level and health status of the women. The study done in Borno State, Nigeria, revealed that 61% of the respondents avoid some diets like eggs, fish, fruits, Milo drinks during pregnancy. Forty percent responded that they avoid some good diets during pregnancy because of cultural belief of having a (macrodom baby) fat baby when this foods are consumed, which may predispose the woman to prolonged labor and eventual Caesarean section(Kever *et al.*, 2015). Another similar study done in LGA of Imo State, Nigeria showed that 15% of study participants adhering to traditional beliefs about nutrition and feeding practices in pregnancy(Madiforo, 2010).

Another study done in dale wereda, sidama Zone, SNNPRS, Ethiopia, reveals that, 68% of pregnant women were avoiding at least one food during their pregnancy period due to food aversions, cravings and pica practicing are closely linked to meal pattern of pregnant women (Halala Y., 2014).

Primary research conducted by the Save the Children (forthcoming) in over 100 locations around the country, Ethiopia found that women avoid eating nutritious foods during pregnancy for fear that the baby will be large and labour more difficult. Child marriage and adolescent pregnancy also increase nutritional vulnerability, as girls have not yet finished growing themselves(Benson, 2005).

2. 2. 3 Attitudes

Women should be made aware of the ramifications of healthy nutritional attitudes either pre-conceptually or as early as possible in pregnancy (Maher &Lowe, 2015). The study done in Borno State, shows that majority of the respondents 63% had positive attitude towards dietary intake during pregnancy which was demonstrated by a qualitative and quantitative increase in their dietary intake, only 37% do not increase their dietary intake because the general belief of women in the study area is that when food substances like (adequate fruits and vegetables, eggs, Milo beverages and fish) are consumed during pregnancy; there is a likely hood of having a (macrodom baby) fat baby which may predispose the woman to prolonged labour

and eventual caesarean section. The avoidance may also be partly due to low socio-economic background of the women and their spouses who may not be able to afford these items from the market due to high cost considering the high cost of vegetables and fruits in the area (Kever *et al*, 2015). Another study done in Ogun State revealed that majority of the mothers have positive attitude towards antenatal check up to ensure proper growth and development of the child as well as having a safe delivery, although very few of them were knowledgeable on the effect of pregnancy related risk factors (Tolu *et al*, 2015).

2.3 Prevalence of Chronic Disease during Adulthood Period

There is growing evidence that maternal nutrition can induce epigenetic modifications of the fetal genome. Only relatively recently has evidence from epidemiological and animal studies emerged suggesting that fetal responses to the intrauterine environment may underlie the prevalence of many chronic diseases of adulthood including Type 2 (noninsulin-dependent) diabetes (NATSINWP, 2009). Poor in utero nutrition can increase adult risk of cardiovascular disease (Kajantie *et al.*, 2005), high blood pressure (Huxley *et al.*, 2000), obesity (Tounian, 2011) and metabolic syndrome (Barker *et al.*, 2005). Even babies with seemingly normal birth weight have increased risk of cardiac death in later life if malnourished in utero (Barker *et al.*, 2012). Obese women are more than twice as likely to give birth to a large for gestational age baby compared to a normal weight women (Sebire *et al.*, 2012). It is now of crucial importance to gain the understanding of the molecular mechanisms underlying the relationship between fetal alterations to the intra-uterine environment and their long-term effects on the health of an individual (Williams, 2003).

2.4 Maternal Weight Gain, Birth Weight, Fetal Loss, Fetal Malformation and Fetal Growth

An adequate nutrient supply to the fetus is an important area of research while investigating interventions to enhance birth weight. The finding of Perera & Wijesinghe reveals that maternal energy intake over 2200kcal/day and protein intake over 55 g/day were associated with higher pregnancy weight gain and higher new born birth weights (Perera & Wijesinghe, 2007). Evidence from systematic reviews of randomized controlled trials on the effectiveness of nutritional interventions aimed at reducing IUGR has demonstrated the beneficial effects of macronutrient (protein/energy) supplementation, for reducing IUGR (deo nis *et al.*, 1998). Ideally women who are underweight, overweight or obese should be seen for pre-pregnancy dietary counseling in the community to optimize weight prior to conception and therefore reduce associated risks during pregnancy (HSE, 2010).

The effect of micronutrients is significantly decreasing the risk of low birth weight has been demonstrated in randomized trials of multiple micronutrient supplementation in pregnant mothers in Nepal (Osrin *et al.*,

2005). Nutrients such as vitamins A, B-6, B-12 and folic acid and zinc also affect embryogenesis that occurs early in pregnancy and may be related to pregnancy loss and fetal malformations (Cetin & Alvino, 2009). Women decreasing their energy intake during pregnancy have a higher risk of preterm delivery (Siega *et al.*, 2001).

2.5 Determinants of Maternal Nutritional Status

2.5.1 Social Pressure

Support and information from family and friends was found to have both positive (Fowles *et al.*, 2011, Pouchieu *et al.*, 2013) and negative effects (Reyes *et al.*, 2013, Tessema *et al.*, 2009) on dietary choices. Negative influences included family and friends encouraging women to consume larger portions of food and to eat when not hungry (Reyes *et al.*, 2013) and discouraging the use of recommended prenatal supplements based on their own experiences (Tessema *et al.*, 2009).

2.5.2 Health Care Provider's Advice

Study done in Egypt revealed that, Mothers most often reported valuing and trusting the advice from medical doctors, who provide routine antenatal care, on the “best” foods to eat and which foods to avoid during pregnancy. In addition to doctors’ advice, mothers also expressed their regard and appreciation for advice from family and other members of their communities (Justine *et al.*, 2014). Pregnant women were more motivated to comply with their doctor’s recommendations and reported making the specific dietary changes advised by their health care provider even if the changes were not appealing (Lenka *et al.*, 2013).

2.5.3 Provision of Nutrition Information

Mass media campaigns have been shown to be effective in achieving change in health-related behaviors and could be used for dissemination of up-to-date, evidence-based dietary recommendations for pregnancy (Wakefield *et al.*, 2010).

A combination of expert advice and maternal knowledge is necessary, empowering women and their families to consider diet, while not undermining parents (O’Key & Hugh-Jones, 2010).

2.5.4 Automated Daily Feedback

Providing women with personalized and automated daily feedback on their compliance with dietary guidelines and supplement recommendations may improve their nutritional knowledge, adherence to dietary guidelines and self-efficacy in consuming a healthy diet. Mobile phone applications and websites

can be designed to provide pregnant women with automated daily feedback supported by evidence-based guidelines for preconception and pregnancy. This would allow women to self-monitor dietary intake and make adjustments if needed (Lenka *et al.*, 2013)

The choice of food consumed is determined by a number of factors, including availability of natural resources, economics, religious beliefs, social status and traditional taboos (Szwajcer *et al.*, 2006). Ages of women, marital status, occupation, education, household income and/or wealth index are also known risk factors (Bitew & Telake, 2010; Davies *et al.*, 2011).

2. 5.5 Socioeconomic and Demographic Variables

2. 5.5.1 Economic Class/Income

Household wealth and assets also emerged as being significantly related to lower incidences of stunting, wasting and underweight in one-year old children (SDPRP, 2005).

Pregnant women of low socio economic class were not aware of the importance of the consumption of a balanced diet during pregnancy and this affects the nutritional intake and consequently the outcome of pregnancy (Diane and Margerat, 2009) and there was significant association between income level and mean protein intake and Zinc (Koryo-Dabarah *et al.*, 2012).

The study done in America showed that 71.8% of women were housewives and they stated that inadequate income considered as one of the main problems affecting the intake of well balanced diet during pregnancy, similarly it is also found that Urban women had higher mean percentage of nutritional practices compared to women in rural area (Latifa *et al.*, 2012). Socio economic status was a major risk factors for Intrauterine growth retardation(IUGR) (Fikree & Berendes, 1994).

The DHS working paper in Ethiopia with support provided by the United States Agency for International Development (USAID) to measure DHS progress showed that women in the rich category were less likely to be affected by under nutrition than their non-rich counterparts, women in the age of 15-19 and 40-49 were more likely to suffer from under nutrition compared with women age 20-29. Never-married women and widowed/divorced/separated women were more likely to be affected by the chronic energy deficiency than women who were married or living together (Fikrewold *et al.*, 2010).

2.5.5.2 Educational Status

A community based study done in Egypt, shows that the high educated housewives (85.6%) and middle educated housewives (67.7%) consumed a balanced diet, but the majority of poorly educated house

wives(73.5%) did not have adequate knowledge of nutritional requirements during pregnancy, and were accustomed to consume an unbalanced diet during this period (Angele, 1982).

The study done in Ghana, Accra on dietary practice and nutrient intakes of pregnant women showed that there was significant association between the educational level and mean protein intake (Koryo-Dabarah *et al.*, 2012).

From the study done in Harar, Ethiopia; husband illiteracy shows an association with maternal malnutrition, accordingly the risk of malnutrition doubled among women with illiterate husband compared with those with literate husbands (Haji *et al.*, 2010).

2. 5.5.3 Age of Pregnancy and Level of Maternal Autonomy

The study done in Harar, Ethiopia, revealed, the distribution of maternal malnutrition among pregnant women was statistically associated with trimester of pregnancy, prenatal dietary advice and level of maternal autonomy. The risk of malnutrition among respondents in the second and third trimesters of pregnancy increased by 66% in second trimester and nearly doubled in the third trimester and similarly malnutrition was positively and significantly associated with lower levels of maternal autonomy in household decision-making. Accordingly, there was more than two fold increased risk of malnutrition in pregnant women with low and medium levels of autonomy in household decision-making than those who had high level of autonomy in household decision-making (Haji *et al.*, 2010).

2.5.6 Prenatal Dietary Advice and Behavior Change Communication

According to the study done in New Delhi, India; Baseline findings was compared with post nutrition education between participants who received nutrition education and did not received nutrition education. There was a significant increase in the amount and quality of almost all the food groups consumed in the post- nutrition education as compared to non- nutrition education and pre- nutrition education group. Mean hemoglobin levels significantly increased in post- nutrition education when compared to non-nutrition education and anemia prevalence reduced in post- nutrition education compared to non-nutrition education (Aashima & Sushma, 2006).

Increasing nutritional practice during pregnancy is highly influenced by effective counseling and behavioral change communication. The evaluative study done in Bangladesh showed that nutritional consumption during pregnancy increased following effective counseling and behavioral change

communication regardless of the women's circumstances, reasonably likely to increase their actual consumption (Karim *et al.*, 2002).

The study done in Harar, Ethiopia, reveals that the distribution of maternal malnutrition among pregnant women was statistically associated with prenatal dietary advice. The risk of malnutrition was reduced by 39% among pregnant women who had received prenatal dietary advice, compared with those who had not received prenatal dietary advice (Haji *et al.*, 2010). One of the main contributions of Essential Nutrition Action(ENA) to the efforts addressing the nutrition problems in Ethiopia was its use of multiple channels/materials to strengthen and harmonize behavior change messages (USAID/GH's LINKAGES Project, 2008).

2. 5.7 Maternal Work Load

The study done in rural Nigeria showed that there was an association between workload and nutritional intakes of women to get energy, niacin and vitamin C and protein (Ene-Obong *et al.*, 2001). From the assessment done by USAID/BASICS on community essential nutrition action in Malawi, 2009 shows that the community ENA program has been able to significantly increase male involvement during pregnancy and the postnatal period, most notably by men helping with household chores to reduce women's workload. Male involvement is greater in the program communities(intervention group, 38.7%), especially during pregnancy when compared with the control group, 22.6%) the differences were statistically significant during pregnancy (USAID/BASICS, 2009).

2.6 Important Nutrients Required during Pregnancy and their Functions

Dietary factors, including presence or absence of food restriction, overall quality of the diet, feeding habits and dietary indiscretions are well documented independent variables associated with pregnancy outcomes and maternal weight gain in pregnancy(Campbell & Campbell 2008).

Vegetables and fruits are excellent sources of vitamins and minerals, such as folate and iron, as well as a good source of fiber(SACN, 2011) and a pregnant woman's require increased levels of certain micronutrients like folic acid(400µg during the first 12 weeks of pregnancy to prevent neural tube defects (FSAI, 2011)), iron(Appropriate use of supplementation and iron rich diet has the potential of reducing incidence iron deficiency anemia and subsequent adverse outcomes throughout pregnancy (Barroso *et al.*, 2011). Study done in Bahirdar, Ethiopia, reveal that folate intake during pregnancy has shown a significant independent effect on the prevention of preeclampsia (M. Endeshaw *et al*; 2014).

Iodine(during pregnancy iodine requirements increase by 50% and supplementation of iodine may decrease the risk of cognitive and psychomotor developmental delay (Stagnaro-Green *et al.*, 2011), Sufficient dietary intake of calcium (before and during early pregnancy may reduce the risk or severity of pre-eclampsia (Hofmeyr *et al.*, 2007), Vitamin A; WHO published a guideline indicating that vitamin A supplementation is not recommended during pregnancy as part of routine antenatal care for the prevention of maternal and infant morbidity and mortality. The use of a supplement is only recommended for the prevention of night blindness when there is a severe public health problem. That is if the prevalence of night blindness is $\geq 5\%$. It is currently estimated that 9.8 million pregnant women are affected by night blindness worldwide (WHO, 2013). and Vitamin D(adequate provision of vitamin D has been found, in ecological, cross-sectional and observational studies, to be associated with reduction in the risk of many types of cancer, cardiovascular diseases (CVDs), autoimmune diseases, diabetes mellitus types 1 and 2, neurological disorders and several bacterial and viral infections (FSAI, 2011) is important throughout pregnancy.

The following conceptual framework was adapted from a guide of formative research for Promoting Maternal Nutrition, 2011, based on the findings from the literatures reviewed and the objective of the study, to show the link among, socio-demographic & economic characteristics, maternal characteristics, cultural practices and affecting the essential nutrition action of pregnant women.

The conceptual framework guiding this study was based on literature that explains the impact of multiple of risk factors for ENA practice of pregnant women and associated factors.

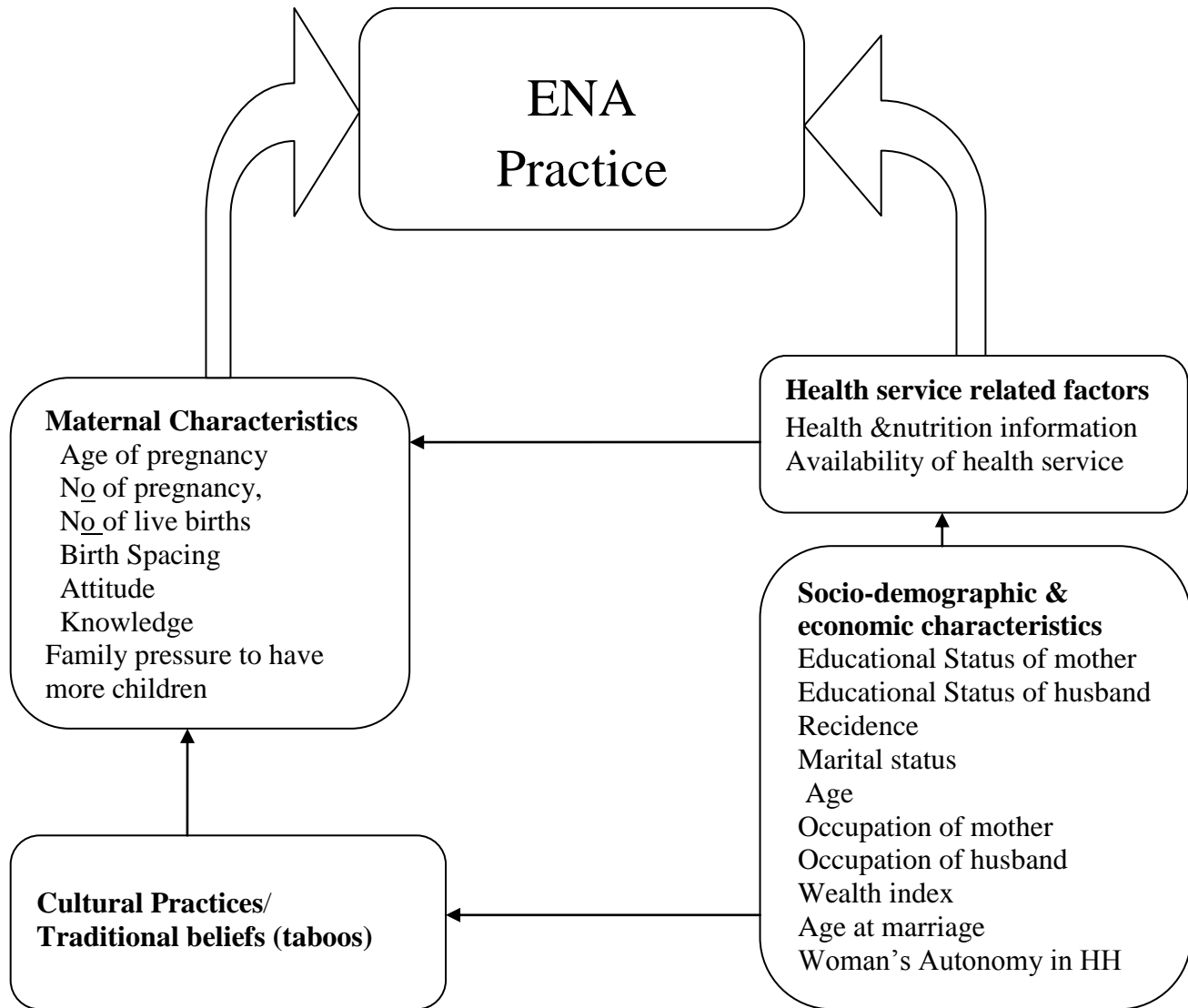


Figure 1: Conceptual frame work developed after reading different literatures to study associated factors on essential nutrition action in ambo district from March-April, 2016.

3. Significance of the Study

Essential nutrition actions have been adopted by the Ethiopian government as an intervention framework with specific doable actions since 2005. This intervention has been rolling out both during contact with health facilities and through the health extension workers. However very few studies assessed essential nutrition action practices during pregnancy. Particularly, data on the Ethiopian situation regarding the nutritional status of pregnant women are lacking. However, such data are important in designing evidence-based maternal nutrition interventions for this vulnerable group. Governments would be better informed about where to allocate their scarce resources in their effort to improve the essential nutrition action status of their general population, and of women in particular.

Thus, this study aimed to contribute a lot on essential nutrition action practices among pregnant women related to ENA concept and associated factors in the community of Ambo District, West Shoa Zone, Ethiopia. The findings will inform policy makers and nutrition programmers on factors that facilitate and inhibit the practice of ENA on pregnant women, and as well used as aninput to formulate strategies in improving nutrition services to pregnant women and to be used as a baseline evidence for other researchers in the area.

4. Objectives

4.1. General objective

- To assess essential nutrition action practice of pregnant women and associated factors in Ambo district, West Shoa Zone, Ethiopia, from March 2016 to April 2016

4.2. Specific objective

- To determine the level of essential nutrition action practice of pregnant women in Ambo district, West Shoa Zone, Ethiopia.
- To identify factors associated with essential nutrition action practice of pregnant women in Ambo district, West Shoa Zone, Ethiopia.

5. Methods and materials

5.1. Study Area and period

The study was conducted in Western Shoa Zone of Ambo district, Ethiopia from March 2016 to April 2016. Oromia Regional State has 19 zone, with the estimated total population of 32,815,995, of whom 16,472,996 were male and 16,342,999 were female.

According to the data obtained from West Shoa Zone Health Office, West Shoa Zone is one of the 19 zones of the Oromia regional state. West Shoa Zone has 19 Districts (wereda's) with the total population of 2,381,077, of whom 1,189,930 were males and 1,191,147 were females. From the total population mentioned 456,114 were women in reproductive age group 15- 49 years, of whom 84,972 were pregnant women and 371,142 were non pregnant women. The study was specifically conducted in one Woreda of West Shoa Zone namely Ambo district.

The total number of reproductive age group and pregnant women in Ambo Woreda is 37,454 and 6976 respectively(West Shoa Zone health office, 2015).

Ambo Town is the main city of West Showa Zone and has three kebele's which are divided in to sub classes locally known as Got's (Cluster). Ambo is a town is spread over an area of 8837 hectares. Ambo town is located 112 Km West of the capital city of Ethiopia, Addis Ababa, on the road to Nekemte.

5.2. Study design

A cross sectional study design was used

5.3. Populations

5.3.1. Source Population

All pregnant women who live in the Ambo district during the study period

5.3.2. Study Population

All pregnant women, who were living in the selected Kebele's of Ambo district during the study period.

5.3.3 Sample population

All randomly selected pregnant women, who were living in the selected Kebele's of Ambo district during the study period.

5.4. Inclusion and Exclusion Criteria

5.4.1. Inclusion Criteria

Pregnant women who were permanent residents (women who live in the study area for more than six months) of Ambo District of the selected clusters of the kebele's and pregnant women who were between the ages of 15-49 years were included in the study.

5.4.2. Exclusion Criteria

Pregnant women who are mentally ill, have chronic diseases, unable to speak and hear were excluded.

5.5. Sample size and sampling technique

5.5.1. Sample Size Determination

The sample size was calculated using EPI info 7 soft ware, using by the assumption that 34% (beyene *et al.*, 2015) of the pregnant mothers had optimal nutritional practices during pregnancy with 5% marginal error and 95% confidence level, with a total number of pregnant Women 6976 in Ambo district, a design effect of 2 and none response rate 10%. Then the actual sample size for the study was **724**.

5.5.2. Sampling Technique/Procedure

A Simple Random Sampling method (SRS) was used to select the Kebele's and study participants using probability proportional to size allocation (PPS). The total kebele's in the Woreda were stratified into rural and urban areas. Then, thirteen kebele's (two urban and eleven rural) from the woreda were selected randomly from the existing 39 kebele's (6 urban & 33 rural) then the sample size was allocated based on Proportional to Size sampling technique. The households in the selected Kebele's with pregnant women were identified through house-to-house visits by the data collectors with the guide of Health Extension Workers (HEWs). A sampling frame was prepared by registering all the identified eligible pregnant women in each kebele's. After that, simple random sampling was used to select the required number of pregnant women.

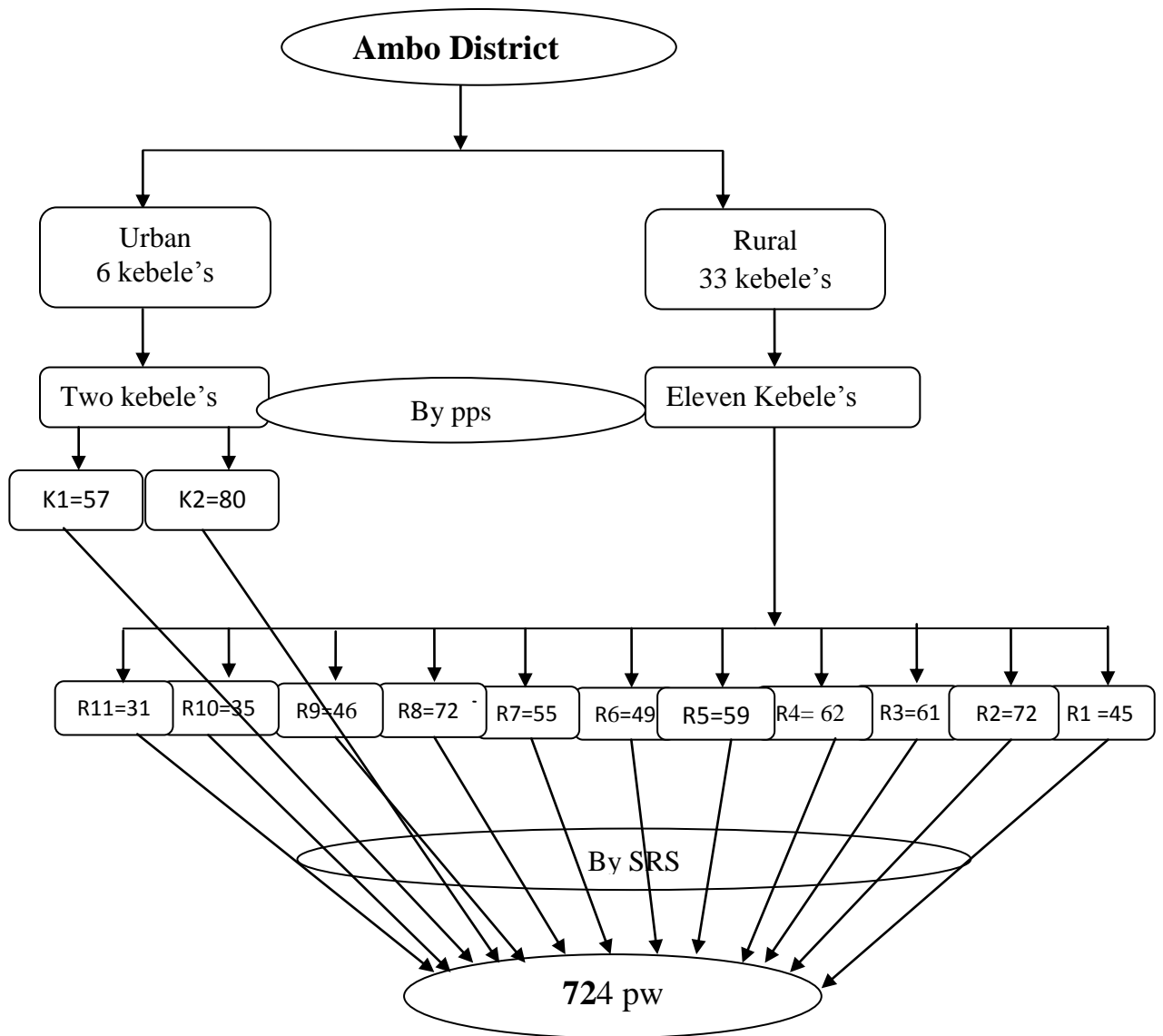


Figure 2: Schematic presentation of sampling technique in Ambo district from March to April, 2016.

5.6. Study Variables

5.6.1. Dependent Variables

Essential Nutrition Action (ENA) practices of pregnant women.

5.6.2. Independent (predictor) Variables

Socio-demographic and economic characteristics(Educational status, marital status, age, wealth index and status in HH).

Health service related factors (Health & nutrition information and Availability of health service)

Maternal and community characteristics (Age of pregnancy, No of pregnancy, No of children, birth Spacing, attitude & knowledge, Autonomy and Pressure to have more children)

Cultural Practices/Traditional beliefs (taboos)

5.6. Data Collection and Measurement

5.7.1. Data Collection Procedures

Structured questionnaires prepared in English language was translated in to Amharic & Afan Oromo then translated back to English by local language experts to check for consistency.

5.7.2. Pre-testing Questionnaire

The structured questionnaire was pretested in Ginchi Town. The pre-test was done on 37(5%) pregnant women of the total sample size. The questionnaire was then assessed for its clarity, length and completeness. Some skip patterns were then corrected; questions difficult to ask were rephrased.

5.7.3. Data Collection

For administering the structured questionnaire, eight nurses who had diploma were recruited to conduct an interview. Training was given on the objective, relevance of the study, confidentiality of information, respondent's right, informed consent and techniques of interview. Four supervisors' who has fist degree were assigned to supervise the data collection.

Data collectors fluent in the local language (Afan Oromo and Amharic) were administered the pre-tested questionnaire to the selected pregnant women in their own respective homes. The questionnaire was used to assess the socio-demographic characteristics, maternal characteristics, the essential nutrition action, Knowledge and attitude towards essential nutrition action of pregnant women

5.8 Data Processing and Analysis

5.8.1 Data processing

Data were checked manually for the completeness and consistency during data collection and before data entry. Then it was entered in to EPI data version 3.1 and exported to SPSS for windows version 20 (Illinois, Chicago) for cleaning and analyses.

5.8.2 Data Analysis

The descriptive analysis such as proportions, percentages, frequency distribution and measures of central tendency were used. After descriptive statistics, logistic regression was performed.

Initially, bivariate analysis was performed between essential nutrition action practice during pregnancy and each of the potential factors one at a time. Their odds ratios (OR) at 95% confidence intervals (CI) and p-values was obtained. The Hosmer -Lemeshow goodness - of - fit statistic is used to assess whether the necessary assumption for the application of multivariable logistic regression was fulfilled and multicollinearity of independent variables with each other checked. Factors that were significantly associated with essential nutrition action practice of mothers during pregnancy at bivariate analysis and variables having P-value <0.25 and those not significant but with previous evidence from literature review indicating possible association with essential nutrition action of pregnant women were considered in multivariable logistic regression model after adjusting for potential confounders. Backward stepwise regression model was used and P- values <0.05 was used to declare statistical significance. Principal component Analyses (PCA) was done and the household wealth index ranked into quantiles.

5.9. Data Quality control

Structured questionnaire to collect data from the respondents was used. Administration of pre-test among 37(5%) of the sample in one kebele's of Ambo District which is out of study kebeles to ensure consistency and reliability of the instrument was conducted.

Cronbatch's alpha value of knowledge, attitude and practice > 0.7 for Attitude, Knowledge and Practice was obtained which make it fit for use in the study area. To ensure the quality of data, training of data collectors & supervisors was undertaken. The questionnaire was also translated in to local language (Afan Oromo & Amharic) to facilitate understanding of the respondents. Supervisors & principal investigator were closely followed the data collection process. Filled questionnaires were checked daily for completeness & errors were corrected. Data were double entered into EPI data version 3.1.

5.10. Operational Definitions.

ENA: is an operational framework for managing the advocacy, planning and the delivery of an integrated package of preventive nutritional actions encompassing infant and young child feeding, micro nutrients and the nutrition of woman.

Essential Nutrition Action practice of pregnant mother should include the following key essential message of ENA (ENA/EHA, 2015).

Dietary Quantity:

- ✓ Eating at least one extra meal of staple food a day while pregnant.
- ✓ Consuming enough extra calories (at least one additional meal) to gain at least 1.5 kg per month in the second and third trimesters of pregnancy.

Dietary Quality:

- ✓ Increase daily consumption of fruits, vegetables, animal products (meat, milk, eggs, etc), and fortified foods.
- ✓ Use iodized salt for the family with appropriate usage
- ✓ Decrease consumption of iron-inhibiting foods, such as tea, with meals.

Micronutrient supplements Intake:

- ✓ Take daily supplements of iron and folic acid or multiple vitamin/mineral supplements during pregnancy for six months.
- ✓ If pregnant and anemic, continue taking iron and folic acid per day for three months after delivery.

Disease Prevention and Treatment (high priority for malaria and worms)

- ✓ Seek immediate treatment for diet-related symptoms like nausea, vomiting, diarrhea, fever, loss of appetite, sores in mouth, constipation, heartburn and bloating.
- ✓ Diagnosis and treatment of malaria through antenatal care is a high priority.
- ✓ Pregnant women with fever need to be taken to a health facility for immediate treatment.

- ✓ In the second and third trimesters, take at least three doses of intermittent prevention treatment (one dose is three tablets of SP) for malaria. Doses should be at least one month apart.
- ✓ Sleep under an insecticide-treated bed net
- ✓ Take albendazole/mebendazole in the 2nd & 3rd trimester of pregnancy to prevent intestinal parasites.
- ✓ Wash hands with soap before eating and only drink treated water.

Supportive Lifestyle and Care:

- ✓ Rest more during pregnancy
- ✓ Support from family/friend

The respondents had asked to choose **yes=1** or **no=0** answers by indicating whether a given **major statement** (5 practices) will be there in the essential nutrition action practice or not by allowing them to list or state how they will practice for those correctly answered respondents to explore how much they will practice about what they will be responded correctly with open ended questions. To determine the level of essential nutrition action practice of the respondents, scores was computed for the essential nutrition action practice variables. One point was allocated to a correct response for each questions and zero for incorrect response and was summed together (the sum of the total scores for essential nutrition action varied from (0 up to 5 points maximum score) and converted out of 100. Then this score was converted to tertile.

Essential Nutrition Action **optimally practiced**: when recommended behaviors of ENA above tertile delivered to pregnant woman.

Essential Nutrition Action **sub-optimally practiced**: when recommended behaviors of ENA below tertile delivered to pregnant woman.

Attitude of pregnant mothers towards essential nutrition action:

Under the construct of attitude towards essential nutrition action, there were twenty six questions for study. Nutrition attitude questions aimed in assessing nutrition attitude of pregnant women on the aspects of essential nutrition action required during pregnancy. Attitude about ENA was measured using a likert scale of 3 categories including responses of: affirmative, equivocal and negative. Finally, responses of the study participants to each question were labeled as 1= for favorable for affirmative responses, and =0 for unfavorable for the rest responses. Then each score was summed to generate an overall attitude score ranging from 0- 26, which was then converted to percentage and rank divided into tertiles. The highest

tertile was labeled as favorable attitude, while the two lowest teriles combined were used to define unfavorable attitude.

Knowledge of pregnant women on Essential Nutrition Action:

Knowledge: is awareness and understanding that one has gained on nutrition during pregnancy through learning and practice.

Under the construct of essential nutrition action knowledge, there were 26 questions for study. Essential nutrition action knowledge questions aimed in assessing key nutrition action message knowledge of pregnant women. The questions assessed respondent's essential nutrition action knowledge which was assumed to be measured through the following questions:

Questions related to quantity of food:

- ✓ One extra serving of staple food
- ✓ Source of carbohydrate to be consumed to get enough extra calories and need of weight gain during pregnancy.

Questions related to Dietary quality:

- ✓ Important dietary sources to be consumed
- ✓ Salt iodization and usage with food.
- ✓ Food sources to be decrease with meals.

Questions related to Micronutrient intake:

- ✓ Supplements to be taken during pregnancy.
- ✓ If she is anemic its management.

Questions related to disease prevention and treatment (high priority for malaria and worms):

- ✓ Management for diet related symptoms like nausea, vomiting, diarrhea, fever, loss of appetite, sores in mouth, constipation, heartburn and bloating?
- ✓ Measure taken if she develops fever?
- ✓ In malarias area need of bed net
- ✓ Prevent and management of hookworm
- ✓ About hand washing practice

Supportive Lifestyle and Care:

- ✓ Husband or other family members influence and decision on the type and frequency of taking food in the current pregnancy

Accordingly, respondents were allowed to choose correct answers by indicating whether a given statement was “Yes=1” or “No=0”. Finally, the responses to each question were summed to generate an overall knowledge score of essential nutrition action ranging from 0-26. Then the score was converted in to percentage and rank divided into tertiles. The highest tertile was labeled as knowledgeable while the two lowest tertiles combined were labeled as not knowledgeable.

- **Cultural Drivers of Poor essential nutrition action:** traditional /cultural practices that reflect values and beliefs learned and held by members of a community for periods that hinder the pregnant mother for not fulfilling essential nutrition action.

- **Permanent Residents:** women who lived in the study area for more than six months.

5.11. Ethical Consideration

The study protocol was reviewed and approved by the Institutional Review Board of Jimma University. Permission to undertake the study was obtained from every relevant authority in the Woreda's. The nature of the study was fully explained to the study participants to obtain their written informed consent prior to participation in the study and data was kept confidential. No resistance was made if a woman wanted to withdraw at any time from participating in the research.

5.12. Plans for Dissemination of Findings

The final report will be submitted to Jimma University, Ambo town health department and present on different conference. Also the results will be disseminated through Publication in international journals

Results

A total of 724 pregnant women were interviewed, with a response rate of 100%. The study participants included 587(80%) pregnant women from rural kebele's and 137(20%) pregnant women from urban kebele's. The age of study participants ranged from a minimum of 18 years to a maximum of 38 years and the mean (SD) of the respondents age was 27(\pm 4.4) as shown in (Table 1)

More than two thirds of the study participants, 497 (68.6%), were in the age range of 25-34 years and 299(41.3%) of pregnant women married at the age range of 15-19. Almost half 333(46%) pregnant women were Orthodox & 311(43%) were protestant religion followers. Majority 650(89.8%) of pregnant women belongs to the Oromo ethnic group. Six hundred eighty eight (95%) pregnant women were married. Concerning educational level, 283(39.1%) and 222(30.7%) of pregnant women and their husbands were illiterate respectively. With regard to occupation, 582(80.4%) of pregnant women were housewives and 440(60.8%) of their husbands were farmers. About one fourth 174(24%) of pregnant women had >5 HH members. Wealth index showed that 202(41.7%) of participants were poor as shown in (Table 1)

Table 1: Socio-demographic characteristics of the study participants (n=724) in Ambo district from March-April, 2016

Characteristics(n=724)		Number	Percent
Place of residence	Rural	587	81.1
	Urban	137	18.9
age of respondents	15-24	174	24.0
	25-34	497	68.6
	35-44	53	7.3
age at marriage	15-19	299	41.3
	20-24	389	53.7
	25-29	36	5.0
religion of respondents	Protestant	311	43.0
	Orthodox	333	46.0
	Catholic	22	3.0
	Muslim	15	2.1
	Wakefeta	43	5.9
educational status of women	no education	283	39.1
	1-4	164	22.7
	5-8	177	24.4
	9-12	71	9.8
	Diploma and Higher	29	4.0

Husband educational	No education	222	30.7
	1-4	123	17.0
	5-8	188	26.0
	9-12	135	18.6
	Diploma and Higher	56	7.7
Ethnicity of respondents	Oromo	650	89.8
	Amhara	55	7.6
	Others*	19	2.7
Marital status	Married	688	95.0
	Non married Partner	9	1.2
	Widowed	19	2.6
	Divorced	8	1.1
Occupation	Employed	40	5.5
	Housewife	582	80.4
	Daily laborers	11	1.5
	Merchant	43	5.9
	Farmers	48	6.6
	Husband occupation	Employed	81
	Merchant	79	10.9
	Farmer	440	60.8
	Daily laborer	69	9.5
	Private workers	55	7.6
Number of HH members	1-3	213	29.4
	4-5	337	46.5
	>5	174	24.0
Wealth index	Poorest	141	19.5
	Poor	161	22.2
	Medium	143	19.8
	Wealthy	140	19.3
	Wealthiest	139	19.2

* Gurage, Afar & Tigre

Maternal and social characteristics of participants

From the total pregnant women interviewed, 121(16.7%), 229(31.6%) and 374(51.7%) were at first, second and third trimester respectively. Majority 447(61.7%) pregnant women had 0-2 live birth and 401(55.4%) had 3-5 pregnancies. In 676(93.4%) of participants, the heads of the households were males. among the total participants, 316(43.6%) had family pressure to have more children. Almost half 343(47.4%) of participants had less than 3 year interval b/n pregnancies as shown in (Table 2)

Concerning nutrition information 217(30%) of pregnant women didn't get any nutrition information. among the participants 507(70) that found information, 392(77.3%) of them get nutrition information from Health professionals and majority 438(86.3%) of them get nutrition information irregularly.

Regarding to agricultural practice, 509(70.3%) of the households were participate in agricultural activity and almost all 498(97.8%) of them used their land for production of the agricultural products once per year. from this 406(79.7%) of them uses the agricultural products for both selling and consumption as shown below in (Table 2).

Table 2: Maternal and social characteristics of the study participants (n=724) in Ambo district from March-April, 2016

Characteristics(n=724)		Number	Percent
gestational age	1 st trimester	121	16.7
	2 nd trimester	229	31.6
	3 rd trimester	374	51.7
number of live birth	0-1	447	61.7
	2-4	258	35.6
	5 and above	19	2.6
Number of pregnancy	1 pregnancy	237	32.7
	2-4	401	55.4
	5 and above	86	11.9
The gap duration b/n pregnancies	≤ 3 years	343	47.4
	3-5 years	360	49.7
	> 5 years	21	2.9
Head of your HHs	Husband	676	93.4
	Myself	48	6.6
Family pressure to have more children	No	408	56.4
	Yes	316	43.6
Get HNI	No	217	30.0
	Yes	507	70.0
Source of HNI(507)	Health professionals	392	77.3
	Family	53	10
	Peers	24	4.7
	Mass media	38	7.5
Number of HNI (507)	Everyday	16	3.2
	At least once per week	53	10.5
	Irregularly	438	86.3
Participate in agricultural activity	No	215	29.7
	Yes	509	70.3
Purpose of agricultural product(509)	Home consumption	103	20.3
	for both	406	79.7

Knowledge of pregnant women towards toENA practice

Concerning nutritional knowledge, 378(52.2%) of pregnant women were knowledgeable about more quantity of food taken during pregnancy and 305(42.1%) were not knowledgeable on the fact that

pregnant woman need to eat more in comparison with a non-pregnant woman. Concerning to weight gain during pregnancy, 388(53.6%) of pregnant women were knowledgeable about weight gain during pregnancy is normal process and the rest were not. Major types of supplements, or tablets, taken during pregnancy were Iron supplements 279(38.5%), folic acid supplements 81(11.2%), both 39(5.4%) knowledgeable and 325(45%) were not. About one-third 244(33.7%) of respondents had information about iron-deficiency anemia and 155(63.5%) of them stated that they could recognize someone who has anemia by sign/symptom of less energy/weakness. Half 325(44.5%) of pregnant women knew vitamin A deficiency and 145(88.4%) of them knows the cause of IDA. In general regarding to knowledge, 282(39%) of pregnant women were knowledgeable about ENA practice as shown in (Table 3).

Table 3: Result of knowledge of pregnant women about ENA practice (n=724) in Ambo district from March-April, 2016

Characteristics(n=724)		Number	Percent
Quantity of food	Less than before	131	18.1
	Same as before	215	29.7
	More than before	378	52.2
weight gain is normal process	No	209	28.9
	Yes	388	53.6
	Don't know	127	17.5
major types of supplements	Iron supplements	279	38.5
	Folic acid supplements	81	11.2
	Both	39	5.4
	Don't know	325	44.9
heard about iron-deficiency anemia	No	299	41.3
	Yes	244	33.7
	Don't know/no answer	181	25.0
	4 or more food listed	4	1.6
foods that, help the body absorb and use iron(244)	Vitamin-C-rich foods	123	50.4
	Don't know	121	49.5
foods that decrease iron absorption(244)	Coffee	96	39.3
	Tea	26	10.7
	Pepsi, Coca-cola	10	4.1
	Don't know	112	45.9
information about lack of vitamin A	No	325	44.9
	Yes	164	22.7
	Don't Know	235	32.5
information about iodine deficiency	No	326	45.0
	Yes	228	31.5
	No answer	170	23.5

Attitude of pregnant women towards to ENA practice

About tow third 454(62.7%) of pregnant women were not sure whether they will have a low-birth-weight baby and 396(54.7%) of them were not sure of the seriousness of having low-birth-weight baby. More than half 409(56.5%) of pregnant women belief eating more food during pregnancy is good and only 189(26%) pregnant women said, eating at least one additional meal during pregnancy was not difficult. Concerning iron deficiency 447(61.7%) of participants felt that, they will be iron-deficient/ anemic and also 244(37.7%) of participants felt the seriousness of iron-deficiency/anemia. About half 358(49.4%) of participants believed that, it was good to prepare meals with iron-rich foods such as beef, chicken or liver and one-fourth 180(25%) of participants said that, it wasn't difficult to prepare meals with iron-rich foods. Only 148(20.4%) of participants were confident in preparing meals with iron-rich foods.

Concerning to vitamin A, 217(30%) of participants felt to have lack of vitamin A in their body and 174(24%) of participants felt the seriousness of lack of vitamin A. More than one-third 263(36.3%) of participants felt the seriousness of lack of iodine in the body and 333(46%) of participants believed to be good to prepare meals with iodized salt and 252(34.8%) of them said that it wasn't difficult to buy and use iodized salt. Regarding to the taste of foods, 520(71.8%) of pregnant women liked the taste of (Liver, Kidney, Heart, Egg , Milk, cheese, yogurt or other dairy product, Orange-colored vegetables, Orange sweet potato, Carrot, Pumpkin, and Green vegetables). The most disliked foods were liver, kidney and heart with respect to the other foods.

Generally, 231(32%) of the pregnant women had favorable attitude towards to ENA practices.

Table 4: Results of attitude of pregnant women towards ENA practice (n=724) in Ambo district from March-April, 2016

Characteristics(n=724)		Number	Percent
How likely to have low-birth-weight baby	Not likely	49	6.8
	You're not sure	454	62.7
	Likely	221	30.5
How serious do you believe it is for your baby to have a low-birth-weight	Not serious	25	3.5
	You're not sure	396	54.7
	Serious	303	41.9
How good do you believe it is to eat more food during pregnancy	Not good	91	12.6
	You're not sure	224	30.9

	Good	409	56.5
How difficult do you feel about eating at least one additional meal during pregnancy	Not difficult	189	26.1
	Indifferent	457	63.1
	Difficult	78	10.8
How likely do you feel you are to be iron-deficient/ anemic	Not likely	33	4.6
	You're not sure	447	61.7
How serious do you feel iron-deficiency/anemia is	Likely	244	33.7
	Not serious	38	5.2
	You're not sure	396	54.7
How good do you believe it is to prepare meals with iron-rich foods such as beef, chicken or liver	Serious	290	40.1
	Not good	26	3.6
How difficult do you feel is it to prepare meals with iron-rich foods?	You're not sure	340	47.0
	Good	358	49.4
	Not difficult	180	24.9
How confident do you feel in preparing meals with iron-rich foods?	Indifferent	482	66.6
	Difficult	62	8.6
How likely do you feel to have lack of vitamin A in your body?	Not confident	28	3.9
	Medium	548	75.7
	Confident	148	20.4
How serious do you think a lack of vitamin A	Not likely	33	4.6
	You're not sure	474	65.5
	Likely	217	30.0
How serious do you feel a lack of iodine in the body	Not serious	58	8.0
	You're not sure	492	68.0
	Serious	174	24.0
How good do you feel it is to prepare meals with iodized salt	Not serious	58	8.0
	You're not sure	403	55.7
	Serious	263	36.3
How difficult is it for you to buy and use iodized salt	Not good	19	2.6
	You're not sure	372	51.4
	Good	333	46.0
	Not difficult	252	34.8
	So-so	392	54.1
	Difficult	80	11.0

Food aversion

Regarding the food aversion of participants most of them disliked nutriceous foods. The most disliked foods were: liver, kidney and heart (fig. 3).

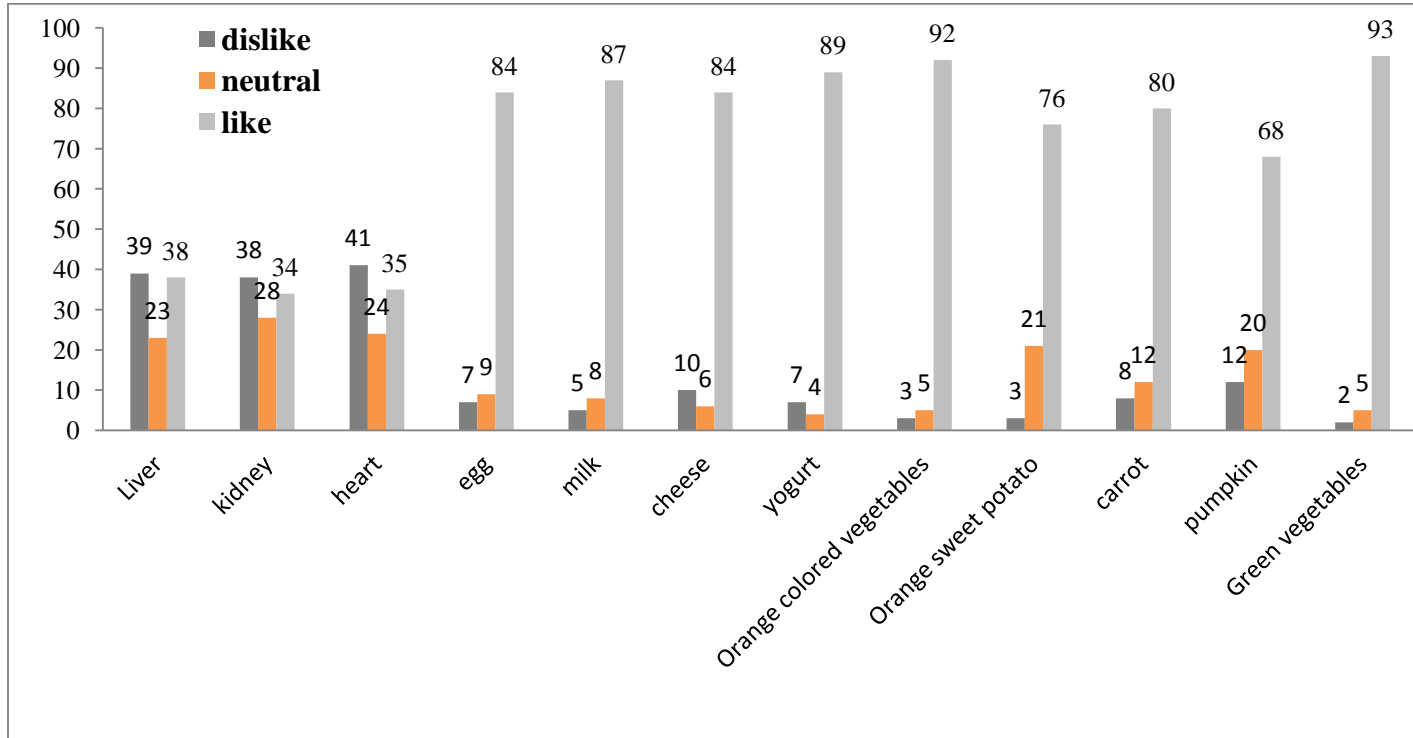


Figure 3: Food aversion of the pregnant women (n=724) in ambo district from March-April, 2016.

ENA Practices of pregnant women in the study area.

1. Citrus fruits eaten within the previous 24 hour recall

From the total respondents only 231(32%) of them ate fresh citrus fruits and only 8(3.5%) of them were ate fresh citrus fruits every day. More than half 132(56.7%) of the participants ate fresh citrus fruits after a meal while the others ate before and during a meal as shown below in (Table 5).

Table 5: Citrus fruits consumption of participants (n=724) in Ambo district from March-April, 2016

Characteristics(n=724)	Number	Percent	
Consume citrus fruit every day(231)	no	216	93.5
	yes	8	3.5
	Don't know	7	3.0
Time when they eat fresh citrus fruits(231)	Before a meal	56	27.7
	During the meal	21	10.8
	After a meal	132	56.7
	other	8	3.0
	Don't know	14	1.7

2. Coffee/tea and alcohol consumption

Regarding to Coffee/tea consumption, 583(88.5%) of pregnant women drunk Coffee/tea every day and only 24(3.6%) of them drunk Coffee/tea two hours or more after a meal. From the total pregnant women 106(14.6%) consume alcohol and from this women, 24(2.3%) drink alcohol three and more drinks per day as shown below in (Table 6).

Table 6 : Coffee/tea & alcohol consumption of participants (n=724) in Ambo district, March-April, 2016

Characteristics(n=724)	Number	Percent	
Drink coffee Every day(659)	no	65	9.9
	yes	583	88.5
	Don't know	11	1.7
Amount of coffee drink per day(659)	one	52	7.9
	two	158	24.0
	three & more	449	68.1
Time of drinking coffee or tea(659)	≥ 2 hours a meal	501	76.0
	Right before a meal	63	9.6
	During the meal	21	3.2
	Right after a meal	50	7.6
	≥ 2 hours a meal	24	3.6
Usually drink alcohol	no	618	85.4
	yes	106	14.6
Amount of drinks per day(106)	one	44	7.3
	two	38	5.0
	three & more	24	2.3

3. Foods eaten within the previous 24 hour recall and important supplements

From foods eaten within the previous 24 hour recall, 18.6%, 32.5%, 23% & 21% of study participants consumed egg, dairy products, green leafy vegetables and fruits respectively and almost all (98%) of the participants did not consumed meat. About two-third 448(62%) of participants took iron/folate tablet during pregnancy and from this participants, 193(47.2%) took iron/folate tablet during pregnancy for 3 months and above as shown below in (Table 7).

Table 7: Foods eaten within the previous 24 hour recall and important supplements of the study participants (n=724) in Ambo district from March-April, 2016

Characteristics(n=724)		Number	Percent
Egg	no	589	81.4
	yes	135	18.6
Dairy products	no	489	67.5
	yes	235	32.5
Green-leafy vegetables	no	557	76.9
	yes	167	23.1
Fruits	no	569	78.6
	yes	151	20.9
	Don't know	4	-
Took iron/folate tablet	no	270	37.3
	yes	448	61.9
	Don't know	6	-
Duration of iron/folate supplement(409)	1 month	120	29.3
	2 Month	96	23.5
	3 Month	162	39.6
	Greater than 3 Month	31	7.6
Reason for not taking iron/folate	No access for iron/folate	116	37.5
	it is costly	13	4.2
	it has gastric irritation	80	25.9
	I didn't go to HI	100	32.4

4. Salt and Additional food consumption

All pregnant women were used salt to cook the main meal eaten by members of their family within 24 hour and only 132(18.2%) of them used iodized salt. From this participants 81(61.4%) of them store the salt covered. Majority 590(81.5%) of the participants used non-iodized salt due to availability and cost problems as shown below in (Table 8).

Only 304(42%) of pregnant women ate additional foods during pregnancy before usual 420(58%) of them not due to the assumption of no need to increase, their economic status is not allowed and fetus increase in size and result in difficulty during labor. Most pregnant women increase their meal by increasing the frequency of eating and majority of pregnant women ate their meal with their husband and their household members as shown below in (Table 8).

Table 8: Salt and Additional food consumption of the study participants (n=724) in Ambo district from March-April, 2016

Characteristics(n=724)		Number	Percent
Kind of salt used	Iodized	132	18.2
	Not iodized	592	81.8
How do you store salt(132)	Covered	81	61.4
	anywhere in kitchen	43	32.6
	wet and open place	8	6.1
Ate additional foods?	No	420	58.0
	Yes	304	42.0
How did you increase meal	Frequency of meal	175	57.6
	Amount of meal	51	16.8
	Both	78	25.7
With whom you eat meal	With all HH member	258	35.6
	With my children	82	11.3
	With husband	331	45.7
	Alone	53	7.3

5. Food restriction & reason for food restriction

Regarding food restriction/avoidance, 145(20%) of pregnant women avoided to eat during pregnancy and the major food prohibited were: Cabbage, Milk, Meat, Chilies & Fish and the major reason for prohibition/avoidance were (66%) Plastered on the child, (60%) Baby become whitish, (51%) Big baby, (43%) burn the child and (32%) Injure the child as shown below in (fig. 4).

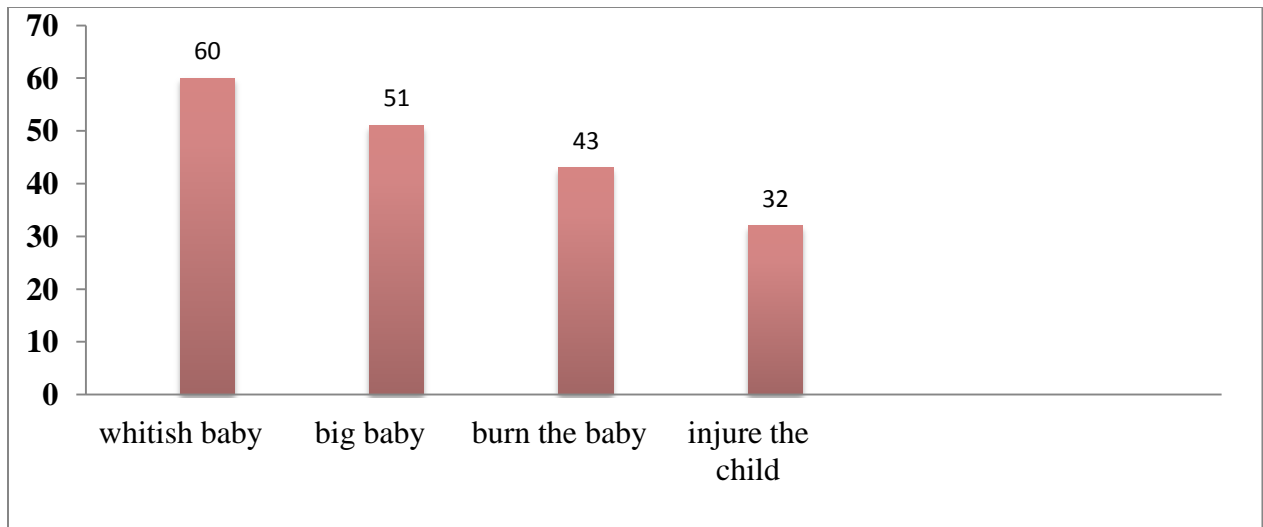


Fig.4: Food taboos of participants (n=145) in ambo district from March -April, 2016

6. Counseling

Regarding to counseling, 58%, 52%, 37% and 50% of participants were counseled on eating an extra meal than usual, diversified diet, snacks and or balance diet and the remaining participant didn't get counseling due to mainly health professionals didn't attend their house, they didn't attend health institution, Unwillingness of health professionals respectively as shown below in (fig.5).

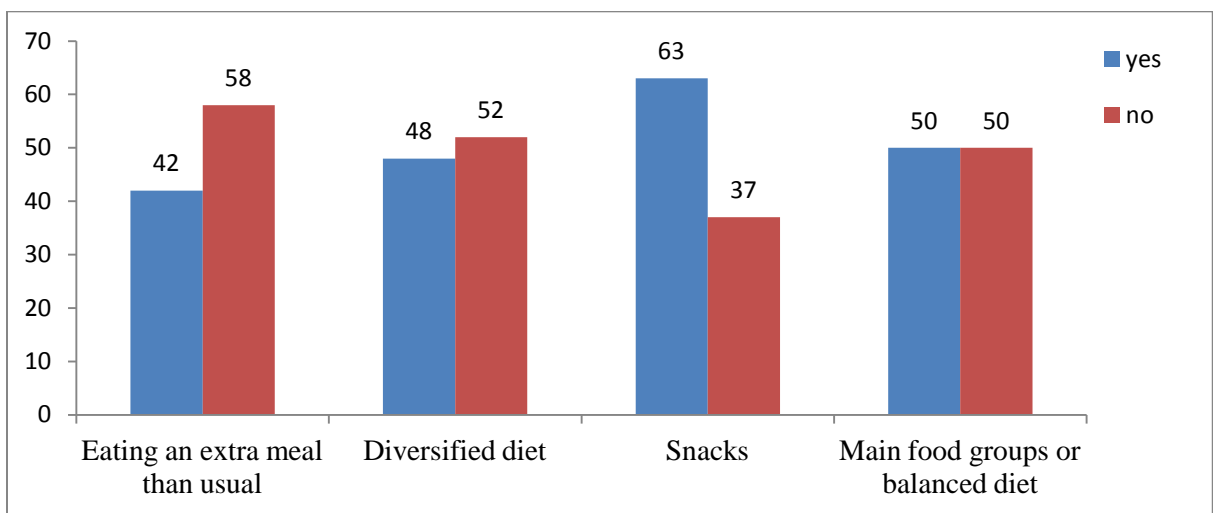


Figure 5: Issues on which Counseling was given to pregnant women (n=724) by the health professionals in ambo district from March- April, 2016.

7. Supportive lifestyle and care

Most 507(70%) of pregnant women participated in household food decisions and cooking alone. The remaining, who had support from others, 153(70.5%) of them got help from their husband. Majority of the participants 640(88.4%) got support from the family or the community since they gave birth and those who didn't got support were due to 20% they had no family, 29% not interested to support by others and 33% they didn't work much work. About three-fourth 528(73%) of pregnant women got enough rest during their pregnancy and the rest didn't have enough rest because of a lot of work was there at home 135(67%) and no one help them 54(28%) as shown below in (Table 9).

Table 9: Family support of the study participants (n=724) in Ambo district from March-April, 2016.

Characteristics(n=724)		Number	Percent
If yes, Who is it?	Husband	153	70.5
	Mothers	22	10.1
	mothers-in law	24	11.1
	Others*	18	8.3
Got support from the family/ community since you gave birth	No	84	11.6
	yes	640	88.4
If No, reason	No family	17	20.2
	Not interested	24	28.6
	No much work	28	33.3
	No response	15	17.9
Do you get enough rest	no	196	27.1
	yes	528	72.9
mention the reason	No one help me	54	27.6
	A lot of work is there at home	135	68.9
	I'm gown's employee	7	3.6

* Cousin, Grand mother

The practice of ENA by the five major messages of ENA (food quality, food quantity, iron/folate tablet, disease prevention and treatment and supportive life style and care) was 101(14%), 305(42%), 217(30%), 72(10%) & 644(89%) respectively as shown in (fig.6) below.

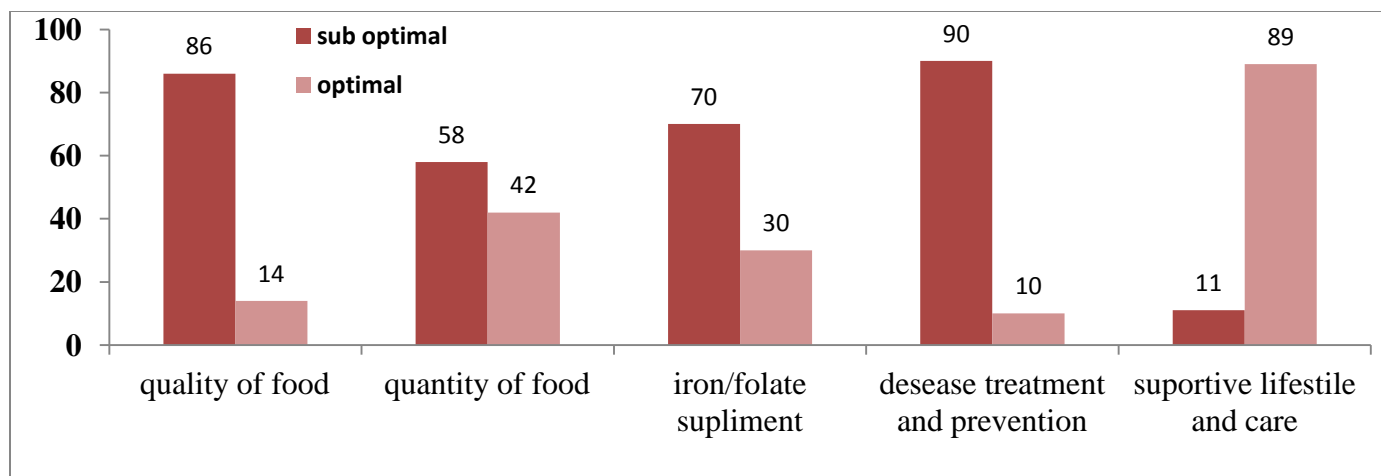


Fig.6: The five key messages of ENA practice of participants (n=724) in Ambo district, march-April, 2016

8. Water supply

Half 360(50%) of the participants used pipe water for drinking, cooking and hand washing and only 197(54%) of participants who used water from out of pipe source treated their water to make it safe to drink by 319(44%) Let it stand and settle, 122(17%) Boil it, 99(14%) Use wuiha agar/bishan gari and 115(16%) Strain it through a cloth. Almost all 671(93%) of participants were washed their hands to prevent germs from reaching food and 369(51%) of them mentioned three and above of key moments that they need to wash their hands as shown below in (Table 10).

Table 10: Water supply & sanitation of pregnant women (n=724) in Ambo district from march-April, 2016

Characteristics(n=724)		Number	Percent
Do you treat the water	no	149	40.9
	yes	197	54.1
	Don't know	18	4.9
key moments to wash hands	no	21	2.9
	yes	671	92.7
	Don't know	32	4.4
What are these key moments	one mentioned	33	4.9
	2 answers	295	44.0
	3 & more answers	343	51.1
Treatment method to make safer for drink	Boil it	122	16.9
	Use wuiha agar	99	13.7
	Strain	115	15.9
	Let it stand & settle	319	44.1
	Don't know	69	9.4

9. ANC Service

Concerning ANC service, 423(58.4%) of pregnant women had Antenatal care visit and the remaining participant not due to mainly (57%) of participants didn't decide to go health institution. from this 44% of them visited the first ANC before the 1st trimester.

Regarding the quality of the service half said medium and almost half of them said good quality of ANC service. About two-third 449(62%) of pregnant women experienced any history of illness during pregnancy. From these women 41% of them seek treatment from health institution.

Almost half (47.4%) of pregnant women were 5-10km far away from health institution and it took about more than 1hour for 291(40%) of pregnant women to get health service as shown below in (Table 11).

Table 11: ANC Service of the study participants (n=724) in Ambo district from March-April, 2016

Characteristics(n=724)		Number	Percent
Service you get at ANC clinic	1-2 listed	168	39.7
	3-4 listed	219	51.8
	All listed	21	5.0
	Other*	15	3.5
How do you rate the quality	Good	201	47.5
	Medium	210	49.6
	poor	12	2.8
Did you have any history of illness	no	275	38.0
	yes	449	62.0
Did you seek treatment	no	266	59.2
	yes	183	40.8
Estimated distance	< 5Km	381	52.6
	5-10km	246	34.0
	> 10km	97	13.4
Estimated time	< 1 hour	433	59.8
	1 to 2 hour	185	25.6
	> 2 hour	106	14.6

* Iodine supplementation, hygiene and sanitation

Generally essential nutrition practice of pregnant women related to ENA frame work of Ethiopia in the study area is low, which is only 208(28.7%) and the attitude 230(32%) & knowledge 282 (39%) as shown below in (fig.7).

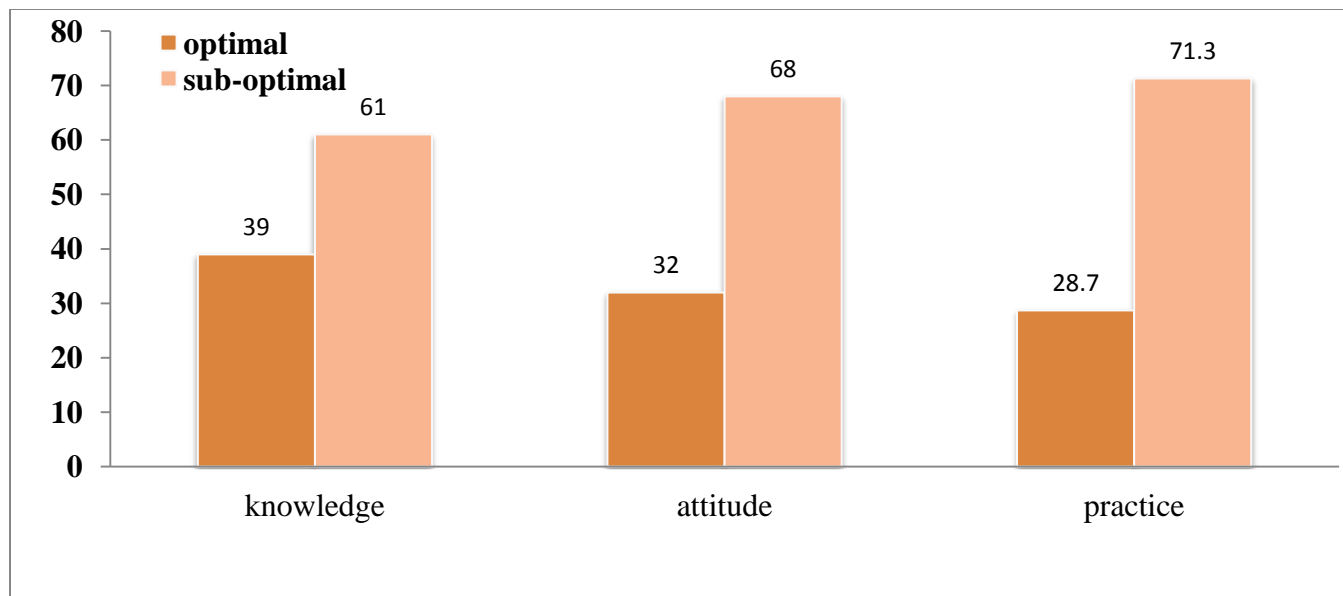


Fig.7: The Knowledge, Attitude and Practice of pregnant women (n=724) in Ambo District from march-April, 2016.

Factors associated with essential nutrition Action Practices during Pregnancy

At bivariate analysis, Knowledge of pregnant women, Husband occupation, Educational status of pregnant women & Husband, Number of live birth & pregnancy, health service availability and health & nutrition information have significant association with ENA practices of mothers on nutrition during their pregnancy ($P < 0.0001$). And Age, Residence, Wealth index and Food taboos like: Big baby, Burns the child, Food aversion of mothers also have significant association with ENA practices of mothers on nutrition during their pregnancy ($p < 0.05$).

The bivariate analysis (Table 12) shows all covariate variables which have association with the outcome variables at p-value of 0.25 were selected for multivariable analysis.

Table 12: Bivariate logistic regression model predicting optimal ENA practice of pregnant women(n=724) in Ambo District, from March-April, 2016.

Variables	ENA		COR	95% C.I.		P-value
	optimal	Sub-optimal		Lower	Upper	
Knowledge						
Yes	65	45	4.76	3.16	7.27	0.000
no	143	471	1.00			
Residence						
rural	51	86	1.00			
urban	157	430	1.62	1.10	1.40	0.015
Husband occupation						0.000
Employed	40	42	4.87	2.11	11.22	0.000
Business	33	46	3.67	1.58	8.52	0.003
Farmer	111	328	1.73	0.82	3.65	0.150
Daily laborer	15	54	1.42	0.57	3.54	0.450
Private worker	9	46	1.00			
Age of pw						0.005
15-24	11	13	1.00			
25-34	191	456	0.50	0.22	1.13	0.093
35-44	6	46	0.15	0.05	0.49	0.002
Mother occupation						.084
Employed	17	23	1.00			
House wife	166	416	0.54	0.281	1.036	0.064
Daily laborer	2	9	0.30	0.057	1.574	0.155
Merchant	15	28	0.72	0.299	1.759	0.477
farmer	8	40	0.27	0.101	0.724	0.009
Educational status						0.000
Have no formal education	34	249	1.00			
1-4	45	119	2.77	1.69	4.55	0.000
5-8	76	101	5.51	3.46	8.78	0.000
9-12	40	31	9.45	5.24	17.05	0.000
Diploma & above	13	16	5.95	2.63	13.44	0.000
Hus. Educational status						0.000
Have no formal education	28	194	1.00			
1-4	28	95	1.99	1.12	3.54	0.019
5-8	54	134	2.82	1.69	4.71	0.000
9-12	64	71	6.49	3.83	11.00	0.000
Diploma & above	34	22	10.82	5.53	21.16	0.000
Wealth index						0.01
Poorest	54	88	1.52	0.92	2.50	0.10
Poor	46	102	1.12	0.67	1.85	0.67
Medium	28	121	0.57	0.33	.99	0.05

Rich	40	106	0.93	0.56	1.57	0.80
richest	40	99	1.00			
HH size						0.004
1-3	79	134	2.04	1.30	3.21	0.002
4-5	90	247	1.26	0.82	1.94	0.290
6 & above	39	135	1.00			
Gestational age						0.062
1 st trimester	24	97	1.00			
2 nd trimester	71	158	1.82	1.07	3.01	0.027
3 rd trimester	113	261	1.75	1.06	2.88	0.028
Parity						0.000
0-1	163	284	1.00			
2-4	39	177	0.38	0.26	0.57	0.000
5 & above	6	55	0.19	0.08	0.45	0.000
Gravid						.000
1	91	146	1.00			
2-4	89	242	0.59	0.41	0.84	.004
5 & above	28	128	0.35	0.22	0.57	.000
Whitish baby						
Yes	18	69	0.61	0.36	1.06	0.08
no	190	447	1.00			
Big baby						
Yes	15	59	0.60	0.33	1.09	0.09
no	193	457	1.00			
It burn the baby						
Yes	9	54	0.39	0.19	0.80	0.01
No	199	462	1.00	1.00		
Food aversion						
Yes	57	182	0.69	0.49	0.99	0.04
no	151	334	1.00			
Health service availability						
Yes	122	138	3.89	2.77	5.45	0.000
no	86	378	1.00			
Health& nutrition information						
Yes	179	328	3.56	2.30	5.45	0.000
no	29	188	1.00			

In a multivariable analysis educational status of mothers, knowledge, number of live birth, health service availability and health & nutrition information significantly associated with a woman's odds of nutrition practices during pregnancy ($P < 0.001$). Husband education & Occupation, Gestational age and Number of pregnancy also associated with ENA practice of Pregnant women ($p < 0.05$). Relative to women who were not knowledgeable to ENA, women that had knowledge of ENA had 3.12 times higher odds of practices on nutrition during pregnancy (AOR= 3.12, 95% CI: [1.86 – 5.25]). Compared to illiterate women, women that had secondary school education had 3.41 times higher odds of practices on nutrition during pregnancy (AOR= 3.41, 95% CI: [1.40 - 8.29]) and pregnant women having husband who had diploma and above education had 5.6 times higher odds of ENA practices compared to pregnant women who had husband not educated (AOR= 5.6, 95% CI: [1.79- 17.5]). Compared to woman not getting nutrition information with woman that get nutrition information had 3.56 times higher odds of ENA practice (AOR= 3.56, 95% CI: [1.94- 5.43]).

Compared to women that didn't get health service with women that get health service had 3.76 times higher odds of ENA practices (AOR= 3.76, 95% CI: [2.39- 5.92]).

Relative to woman having 0-1 child, with woman that had 2-4 and 5 and more than five children had 75% and 86% times less odds of practices on nutrition during pregnancy (AOR= 0.25 & 0.14, 95% CI: [0.13- 0.46], [0.04-0.45]) respectively. Relative to women who were in first trimester, women that were in third trimester had 2.7 times higher odds of practices on nutrition during pregnancy (AOR= 2.7, 95% CI: [1.47 – 4.92]). Compared to woman having one pregnancy with women having 5 & above pregnancies had 56% times less odds of ENA practice (AOR= 0.44, 95% CI: [0.21- 0.91]). Compared to mother's whose husband was private worker with mother's whose husband was in business had 3.57 times higher odds of ENA practice (AOR= 3.57, 95% CI: [1.34- 9.53]).

Table 13: Multivariable logistic regression model predicting factors of ENA practice of the study participants (n=724) in Ambo district from March-April, 2016

Predictors	ENA		COR	AOR	95% C.I.		P
	optimal	Sub-optimal			Lower	Upper	
Educational status							
Have no f/education	34	249	1.00	1.00			0.001
1-4	45	119	2.77	1.81	0.97	3.36	0.062
5-8	76	101	5.51	3.10	1.57	6.14	0.001
9-12	40	31	9.45	3.41	1.40	8.29	0.007
Diploma & above	13	16	5.95	0.79	0.23	2.74	0.710
Hus. Educational status							
Have no f/education	28	194	1.00	1.00			0.023
1-4	28	95	1.99	1.33	0.66	2.68	0.419
5-8	54	134	2.82	1.41	0.71	2.78	0.325
9-12	64	71	6.49	2.47	1.17	5.24	0.018
Diploma & above	34	22	10.82	5.6	1.79	17.51	0.003
Gestational age							
1 st trimester	24	97	1.00	1.00			0.006
2 nd trimester	71	158	1.82	2.25	1.19	4.24	0.012
3 rd trimester	113	261	1.75	2.69	1.47	4.92	0.001
Parity							
0-1	163	284	1.00	1.00			0.000
2-4	39	177	0.38	0.25	0.13	0.46	0.000
5 & above	6	55	0.19	0.14	0.04	0.45	0.001
Gravida							
1	91	146	1.00	1.00			0.037
2-4	89	242	0.59	0.32	0.14	0.77	0.010
5 & above	28	128	0.35	0.44	0.21	0.91	0.026
Knowledge							
Yes	65	45	4.76	3.12	1.86	5.25	0.000
No	143	471	1.00	1.00			
Husband occupation							
Employed	40	42	4.87	2.25	0.77	6.56	0.018
Business	33	46	3.67	3.57	1.34	9.53	0.011
Farmer	111	328	1.73	2.37	0.97	5.79	0.057
Daily laborer	15	54	1.42	1.08	0.37	3.17	0.885
Private worker	9	46	1.00	1.00			
Health service availability							
Yes	122	138	3.89	3.76	2.39	5.92	0.000
No	86	378	1.00	1.00			
HNI							
Yes	179	328	3.56	3.25	1.94	5.43	0.000
No	29	188	1.00	1.00			

Discussion

This study has documented the level of ENA practice among pregnant women during pregnancy on maternal nutrition and associated factors in Ambo District, West Shewa Zone, Ethiopia. The results of this study showed that 80% of women were housewives and 61% of their husbands were farmers, while 39% and 31% of pregnant women and their husbands were illiterate respectively. In this study both mother and father education had strong statically association with ENA practice of pregnant women. Relative to illiterate women, women that had secondary school education had 3.4 times higher odds of practices on nutrition during pregnancy and pregnant women having husband who had diploma and above education had 5.6 times higher odds of ENA practices compared to pregnant women who had no education. This finding was in line with the study done in Ghana, Accra on dietary practice and nutrient intakes of pregnant women which showed that there was a significant association between the educational level and mean protein intake (Koryo-Dabarah *et al.*, 2012) and another study done in Harar, Ethiopia; where the risk of malnutrition doubled among women with illiterate husband compared with those with literate husbands (Haji *et al.*, 2010).

Most of participants stated that inadequate income was considered as one of the main problems affecting the intake of optimal diet during pregnancy. This might be attributed to the fact that the majority of them were housewives and their husbands followed traditional way of farming; leading to lower the food budget during pregnancy. As a result the expectant pregnant women would not be able to take the ideal optimal diet, which in turn may lead to many health problems for themselves, and their babies. This is also supported by a study done in china which concluded that the pregnant women of low socio economic class were not aware of the importance of consuming of a balanced diet during pregnancy and this affects the nutritional intake and consequently the outcome of pregnancy (Diane and Margerat, 2009)

It was also observed that relative to woman who had 0-1child, women that had 2-4 and five and above children were 75% and 86% times less odds of practices on nutrition during pregnancy respectively. In 676(93.4%) of all households included in the study, the heads of the households were males. From the total participants, 316(43.6%) had family pressure to have more children, and almost half 343(47.4%) of participants had less than 3 year interval b/n pregnancies. As revealed in this study, majority of mothers do not see anything wrong in being pregnant every year or in quick succession and this contradicts the recommendation of WHO that there should be spacing of at least two to three years between births to reduce infant and child mortality and improve maternal health. Also, the USAID in 2002, have suggested

that optimal birth spacing of three to five years might be more advantageous, and if no births occur within 36 months of a preceding birth, infant mortality rate and under five mortality rates would drop by 2% and 35 % respectively. According to the Ghana Maternal Health Survey, 2007, childhood and maternal mortality is strongly associated with variations in birth intervals. Unfortunately, many women in developing countries are only not able to achieve their own reproductive goals but are also falling far short of the three (3) to five (5) years intervals that new evidence suggests are healthiest.

It was discovered that 39% of the respondents showed a good knowledge about dietary practices during pregnancy. Relative to women who were not knowledgeable to ENA, women that had knowledge of ENA had 3.12 times higher odds of practices on nutrition during pregnancy. This finding is lower than with that of the study done in Guto Gida Woreda, East Wollega Zone, Ethiopia showed that only 64.4% of women had nutrition knowledge during pregnancy (Fekadu *et al.*, 2015). The possible reasons for the variation might be due to differences in socio- demographic variation of the study participants in the studies & questions forwarded to the participants.

A combination of expert advice and maternal knowledge is necessary, empowering women and their families to consider diet, while not undermining parents (O'Key & Hugh-Jones, 2010)

Concerning nutrition information 217(30%) of pregnant women didn't get any nutrition information. among the participants 507(70%) that found information, 392(77.3%) of them get nutrition information from Health professionals and majority 438(86.3%) of them get nutrition information irregularly.

Compared to woman didn't get nutrition information with woman that did, had 3.56 times higher odds of ENA practice. this finding is almost in line with the Study done in Egypt revealed that, mothers most often reported valuing and trusting the advice from medical doctors, who provide routine antenatal care, on the "best" foods to eat and which foods to avoid during pregnancy. In addition to doctors' advice, mothers also expressed their regard and appreciation for advice from family and other members of their communities (Justine *et al.*, 2014).

Concerning to attitude, generally the good attitude of pregnant women towards to ENA practice is very low, which is 32%. This finding is much lower than the study done in Borno State, shows that majority of the respondents 63% had positive attitude towards dietary intake during pregnancy (Kever *et al.*, 2015). The difference might be because of educational status, residence (rural, urban), geographical factors

Regarding food restriction/avoidance, 20% of the pregnant women avoided some important foods. The major foods prohibited/avoided were: cabbage, Milk, Meat, Chilies & Fish. The major reasons for prohibition/avoidance were: the food will be plastered on the child, baby become whitish, big baby, burn the child and injure the child. This finding is lower than the study conducted in Guto Gida woreda showed that (35.8%) of the respondents had practiced avoiding food during their pregnancy (Daba *etal*, 2013). These discrepancies might be due to: the difference in geographic and economic background of the study participants in the studies and cultural difference of mothers to ENA practice.

Increasing nutritional practice during pregnancy is highly influenced by effective counseling and behavioral change communication. The evaluative study done in Bangladesh showed that nutritional consumption during pregnancy increased following effective counseling and behavioral change communication regardless of the women's circumstances, reasonably likely to increase their actual consumption (Karim *et al.*, 2002). This study showed that about 58%, 52%, 37% and 50% of participants counseled on the need for eating an extra meal than usual, diversified diet, snacks and or balanced diet and the remaining participant didn't got counseling due to mainly health professionals didn't attended their house, they didn't attended health institution, Unwillingness of health professionals respectively.

Adequate nutrition is vital throughout the life span. During pregnancy; nutrition plays a key role in achieving an optimum outcome for the mother and her newborn. This study showed that Only 304(42%) of pregnant women ate additional foods during pregnancy which is a recommendation of the national guideline. This finding is higher with the study conducted in Accra, Ghana, where a greater proportion (37.7%) of the women ate more than three times during pregnancy than before usual (Alice *et al.*, 2012) and the study conducted in Guto Gida woreda, east Wollega zone, Ethiopia, which showed the 33.9% had meal frequency of meals 3-4 and >5 per day during their pregnancy (Daba *etal*, 2013). It is also higher with the report of a study conducted in Wondogenet District, SNNRP, Ethiopia, which showed only 20.6% of pregnant women ate one additional meal during pregnancy (dealing *etal*, 2015). These discrepancies might be due to: The difference in socio-economic back ground characteristics of the study participants in the studies and difference in questions forwarded to the participants.

The finding of this study revealed that, from the total respondents only 231(32%) of ate fresh citrus fruits (source of vitamins like: vitamin A, C & folate), and out of those who ate fresh citrus fruits during their pregnancy, only 8(3.5%) of them ate fruits every day. More than half 132(56.7%) of the participants ate

fresh citrus fruits after a meal while the others ate before and during meal. Similar study done in LGA in Osun State, Nigeria noted that about 70%, 72% , of the pregnant women had inadequate dietary intake of Vitamin C & Folate respectively, which is in agreement with this finding (Ojofeitinn *et al.*, 2008).

Regarding to iron/folic acid, about two-third (62%) of participants took iron/folate tablet during pregnancy and from this participants less than half (47.2%) took iron/folate tablet during pregnancy for 3 months and above, while (37.3%) participants didn't take the tablets due to mainly no access, not decided to go health institution and fear of side effects. This result was slightly lower than a study done in, Nigeria noted that more than 71% of the pregnant women received folic acid supplementation (Ojofeitinn *et al.*, 2008) & study done in Egypt which showed that women routinely receive iron and folic acid (IFA) supplementation during antenatal care. Mothers do not always understand why health care providers have prescribed iron-folic acid pills for anemia, nor are they given appropriate counseling on how to deal with temporary side effects of IFA supplements. Seeking health care services from different health care providers who provide different pills of varying color added to the confusion about IFA supplements. Lack of both consistent and correct guidance and information on IFA contributed to the lack of adherence to IFA among pregnant women (Justine *et al.*, 2014). The difference might be due to: socio-economic background characteristics of the study participants.

Regarding to Coffee/tea consumption, 583(88.5%) of pregnant women drunk Coffee/tea every day and only 24(3.6%) of them drunk Coffee/tea two hours or more after a meal. From the total pregnant women 106(14.6%) consume alcohol and from this women, 24(2.3%) drink alcohol three and more drinks per day. This result was higher than the study done in Temeke District, Dar-Es-Salaam revealed that, 98% of participants reported not consumed and 2% reported to have been consumed alcohol (Abela & Twin, 2013). Pregnant women who reported to have been consuming alcohol did not know that alcohol consumption during pregnancy was bad and did not know the bad effects of alcohol. One third of women (33%) were consuming tea/coffee/Pepsi/Coke drinks with food and they were not aware of the effects of these drinks on nutrient bioavailability (Abela & Twin, 2013). This difference might be due to socio-demographic and cultural variation.

Iodine(during pregnancy iodine requirements increase by 50% and supplementation and fortification of iodine may decrease the risk of cognitive and psychomotor developmental delay (Stagnaro-Green *et al.*, 2011). In this study, all pregnant women used salt to cook the main meal eaten by members of their family

within 24 hour and only 132(18.2%) of them used iodized salt. From this participants 81(61.4%) of them store the salt covered.

Most 507(70%) of pregnant women participated in household food decisions and cooking alone & remaining, who had support from others, 153(70.5%) of them got help from their husband. About three-fourth 528(73%) of pregnant women got enough rest during their pregnancy and the rest didn't have enough rest because of a lot of work at home 135(67%) and no one helped them 54(28%). This finding is in agreement with the assessment done by USAID/BASICS on community essential nutrition action in Malawi, 2009 shows that Male involvement is greater in the program communities(intervention group, 38.7%), especially during pregnancy when compared with the control group, 22.6%).

Antenatal care (ANC) is a key strategy to decreasing maternal mortality in low-resource settings. From this study, 58.4% of pregnant women had Antenatal care visit and the remaining participant did not due to the fact that (57%) of participants did not decide to go health institution. Out of this only 44% of them visited the first ANC before the 1st trimester. Almost half participants evaluated the quality of service provided as good which is in agreement with the study done in Temeke District, Dar-Es-Salaam (Abela & Twin, 2013). About 54% of pregnant women were not satisfied with antenatal services provided at the surveyed clinics Reasons mentioned included, spending long hours at clinic, high costs of some services and inadequate number of service providers. Majority of the surveyed pregnant women in this study initiated ANC attendance later than the recommended period. They initiated during their second trimester (4 to 6 months) of pregnancy, at an average of 5 months (Abela & Twin, 2013).

Infections put an additional burden on the dietary needs of women. Many infections mainly those associated with fever decrease appetite hence lowers dietary intake (LINKAGES, 2001). This study showed that, two-third (62%) of pregnant women experienced any history of illness during pregnancy and from these women 41% of them seek treatment from health institution. Half 360(50%) of the participants used pipe water for drinking, cooking and hand washing and only 197(54%) of participants who used water from out of pipe source treated their water to make it safe to drink.

In general the overall optimal ENA practice(food quantity & quality, supplements, supportive lifestyle & care and disease prevention and treatment) of the participant was only 28.7% which was almost in agreement with the study done in Guto Gida Woreda, East Wollega Zone, Ethiopia 33.9% of the respondents were found to have good practice during their pregnancy(Fekadu *et al.*, 2015), and much

lower than the study conducted in Malawi that (57%) of the pregnant women had good practices on nutrition and food groups in pregnancy (Naomi, 2010). This low nutritional practice might be due to low nutritional attitude of the pregnant mother and socio-demographic characteristics, low wealth index, relatively high family size, lack of information about nutrition during pregnancy and low educational status of the study participants and their husbands.

Strength of the study

A community based study and the response rate is hundred percent.

Limitation of the study

The limitation of this study was seasonal variation of eating habits of the participant's and seasonal availability of some nutritious foods during summer and winter time in the market. Social desirability and Recall bias during asking the pregnant women to remember the food eaten within 24 hour recall.

Conclusion and Recommendation

Based on the findings of the present study, it can be concluded that optimal ENA practice of pregnant women in the study area is low.

This study also showed that, quantity & quality of meal, iron/folate supplement and disease prevention and treatment practice of pregnant women was very low in the study area. The knowledge and attitude of the pregnant women towards ENA practice also low.

Knowledge, mother & husband education, father occupation, number of child & pregnancies, gestational age health service availability and health & nutrition information were significant independent predictors of optimal ENA practice. A significant number of pregnant women restricted some important foods (cabbage, milk, chilies, meat and fish) due to misconception of, bad taste/food aversion, and other reasons.

Recommendation

For policy makers and health office coordinators

Enforce in-service training programs to be carried out for health professionals and HEWs working antenatal units to enrich their capacity regarding the ENA practice during pregnancy. The government should focus on strengthening the ENA BCC to create the demand of the ENA services.

Supplying the antenatal units and MCH centers with enough vitamins and minerals necessary for pregnant women and supplying them with adequate audiovisual materials that help nurses in health teaching.

The Government should focus on refreshment training for health providers (especially for HEWs) on ENA practice. A better and evidence based understanding of the pregnant women on ENA is needed to promote the practice and to have access to appropriate utilization of the practice.

For mothers

Mothers should be counseled to eat nutritious and diverse foods during and after pregnancy, appropriate weight gain during pregnancy and incorporating a wide range of foods, including animal source food, fruits and vegetables, and grains is needed to support healthy pregnancy outcomes and overall maternal health. Counseling on anemia and its consequences and on why and how mothers should take IFA supplements should be strengthened in health facilities and at the community level

For health care providers

Since nutrition is recommended as the key to the health of the pregnant women, it is essential for all health care providers to understand the impacts of dietary intake to pregnant women's wellbeing and there by provide appropriate nutrition information to these women.

Advocacy, education and communication are needed to disseminate information about ENA practice and Face to face communication between the health care providers and the expectant mother is crucial and Health care providers as a nutritional counselor shows a concern and positive attitude towards the expectant mother, and seek to understand.

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Annex-I: Informed consent agreement form

I the undersigned have been informed that the purpose of this particular research project is to assess essential nutrition action practice of Pregnant Women and associated factors.

I have been informed that I am going to respond to this question by answering what I know concerning the issue. I have been informed that the information I give will be used only for the purpose of this study and does not cause any harm other than expensing a few minute for interview; my identity, the information I give will be treated confidentially. I have also been informed that I can refuse to participate in the study or not to respond to questions I am not interested. Furthermore I have been informed that I can stop responding to the questions at any time in the process. For detail information you can contact the investigator through

Cell phone 0916752526 and **e-mail:** ashebirend@gmail.com

Based on the above information I agree to participate in the research voluntarily with the hope of contributing (on behalf of one) to the effort of knowing the optimal nutrition and Health Practices of pregnant mother and to contribute my part to the research.

Signature of respondent's _____ Date: _____

Interviewer name----- signature -----

Date of interview ----- Supervisors name ----- signature-----

Checked on date-----

The outcome is (thick one) Complete_____ Incomplete_____

Annex-II: Structured questionnaire (quantitative) (English)

**Jimma University College of health sciences department of population and family health
Human nutrition unit**

Part-I- Socio-demographic data

S. No	Questions	Possible response
1	Residence	1.Urban 0. Rural
2	Age__	___ Years (age in completed years)
3	Age at marriage	___ Years (age in completed years)
4	Religion	1.Protestant 2.Orthodox 3.Catholic 4.Muslim 5.Others (specify)
5	What is the highest Educational level you Completed?	specify _____
6	What Ethnic group do you belong to?	1.Oromo 2. Amhara 3. Tigre 4. Gurage 5. Other specify
7	What is your Current Marital / relationship Status?	1.Married 2.Single 3.Widowed 4.Divorced 5.Non married partner 6.No response
8	What is your current Occupation?	1. Employed 2. House wife 3. Daily laborers 4. Business 5.Other (specify) _____
9	Respondents husband occupation	1. Employed 2. Business 3. Farmer 4. Daily laborer 5.Other (specify) _____
10	Respondents husband educational status	Specify_____
11	Household size	___ Number
12. Household Wealth		
Now I will ask you about some fixed assets that your household have.		
Does the household have any of the following properties? (Circle)		Yes No

1	Functioning radio/Tape recorder/CD player	1	0
2	Functioning Television	1	0
3	Gas Stove	1	0
4	Kerosene stove	1	0
5	Electric stove	1	0
6	Watch (Hand/Wall)	1	0
7	Mobile phone	1	0
8	Plough	1	0
9	Sofa	1	0
10	Spring mattress	1	0
11	Sponge/Foam mattress	1	0
12	Cotton mattress	1	0
13	Grass Mattress	1	0
14	Chair/Stool	1	0
15	Generator	1	0
16	Milling	1	0
17	Water pump	1	0
	Does the household have any of the following animals?	1. Yes 0. No	How many?
18	Oxen		
19	Cows		
20	Horse/mules		
21	Goats/Sheep		
22	Chickens		
23	Donkey		

Part II- Maternal and social characteristics

S. No	Questions	Responses
13	Number of Para	___ Number
14	Number of gravid	___ Number
15	Gestational age	___ months
16	What is the gap duration between pregnancies	___ years
17	Who is the head of your household?	1. Husband 2. Myself 3. Other (specify)
18	Did you have family pressure to have more children?	1. Yes 0. No
19	Did you get health and nutrition information?	1. Yes 0. No
20	If Yes, for question No. 19 What is your source of health and nutrition information?	1. Health professionals 2. family 3. Peers 4. Mass media 5. Other specify _____
21	If Yes, for question No. 19 how many times per week?	1. Everyday 2. At least once per week

		3. Irregularly 4. Other specify _____ 5. No answer
22	If rural residence, did you participate in agricultural activity (check their residence)	1. Yes 0. No
23	If yes, for question No. 22 for what purpose did you use it?	1 Home consumption 2. Selling 3. For both home consumption and selling purpose
24	If you are farmer, how often have you produced the agricultural products from your farming land?	1. once in a year 2. Twice or more yearly
Part III- Knowledge related questions		
25	What is the quantity of food taken during pregnancy?	1. Less than before 2. Same as before 3. More than before
26	How should a pregnant woman eat in comparison with a non-pregnant woman to provide good nutrition to her baby and help him grow? (more than one answer possible)	1. Eat more food (more energy) ✓ 1.1 Eat more at each meal (eat more food each day) Or ✓ 1.2 Eat more frequently (eat more times each day) 2. Eat more protein-rich foods 3. Eat more iron-rich foods 4. Use iodized salt when preparing meals 5. Other 6. Don't know
27	Do you think that weight gain during pregnancy is normal process?	1. Yes 0. No 2. Don't know
28	Most women would benefit from major types of supplements, or tablets, during pregnancy. Which are they? (more than one answer possible)	1. Iron supplements 2. Folic acid supplements 3. Other 4. Don't know
29	Have you heard about iron-deficiency anemia?	1. Yes 0. No 2. Don't know/no answer
30	If Yes: for question No. 29 Can you tell me how you can recognize someone who has anemia?(more than one answer could be possible)	1. Less energy/weakness 2. Paleness/pallor 3. Spoon nails/bent nails (koilonychia) 4. More likely to become sick (less immunity to infections) 5. Other 6. Don't know
31	If Yes: for question No. 29 What are the health risks for pregnant women of a lack of	1. Risk of dying during or after pregnancy

	iron in the diet? (more than one answer could be possible)	<ol style="list-style-type: none"> 2. Difficult delivery 3. Other 4. Don't know
32	If Yes: for question No. 29 What causes anemia? (more than one answer could be possible)	<ol style="list-style-type: none"> 1. Lack of iron in the diet/eat too little, not much 2. Sickness/infection (malaria, hookworm infection, other infection such as HIV/AIDS) 3. Heavy bleeding during menstruation 4. Other 5. Don't know
33	How can anemia be prevented? (more than one answer could be possible)	<ol style="list-style-type: none"> 1. Eat/feed iron-rich foods/having a diet rich in iron 2. Eat/give vitamin-C-rich foods during or right after meals 3. Take/give iron supplements if prescribed 4. Treat other causes of anemia (diseases and infections) – seek health-care assistance 5. Other 6. Don't know
34	If Yes: for question No. 29 Can you list examples of foods rich in iron? (more than one answer could be possible)	<ol style="list-style-type: none"> 1. Organ meat 2. Liver 3. Kidney 4. Heart 5. Flesh meat 6. Fish and seafood 7. Don't Know 8. other(specify)_____
35	If Yes: for question No. 29 When taken during meals, certain foods help the body absorb and use iron. What are those foods?	<ol style="list-style-type: none"> 1. Vitamin-C-rich foods, such as fresh citrus fruits (orange, lemons, etc.) 2. Other 3 Don't know
36	If Yes: for question No. 29 Some hot drinks and beverages decrease iron absorption when taken with meals. Which ones? (more than one answer could be possible)	<ol style="list-style-type: none"> 1. Coffee 2. Tea 3. Pepsi, Coca-cola 4. Other 5. Don't know
37	Have you heard about vitamin A deficiency or lack of vitamin A?	<ol style="list-style-type: none"> 1. Yes 0. No 2. Don't know/no answer
38	If Yes: to question No.37 Can you tell me how you can recognize someone who lacks vitamin A in her body? (more than one answer could be possible)	<ol style="list-style-type: none"> 1. Weakness/feels less energetic 2. Be more likely to become sick (less immunity to infections)

	possible)	3. Eye problems: night blindness (inability to see at dusk and in dim light), dry eyes, corneal damage, blindness 4. Other 5. Don't know
39	If Yes: to question No.37 What causes a lack of vitamin A in the body? (more than one answer could be possible)	1. Poor variety of foods 2. Eat too little food/not eat much (poor intake) 3. Other 4. Don't know
40	If Yes: to question No.37 How can one prevent a lack of vitamin A in the body? (more than one answer could be possible)	1. Eat/feed vitamin-A-rich foods/having/giving a diet rich in vitamin A 2. Eat/feed foods fortified with vitamin A 3. Give vitamin A supplements/sprinkles 4. Other 5. Don't know
41	If Yes: to question No.37 Can you list examples of foods rich in vitamin A? Check for all the list if the answer is Yes; Probe if necessary: Do you know of any animal-source foods, vegetables or fruits that are rich in vitamin A? (more than one answer could be possible)	1. Liver 2. Kidney 3. Heart 4. Egg 5. Milk, cheese, yogurt or other dairy product 6. Orange-colored vegetables 7. Orange sweet potato 8. Carrot 9. Pumpkin 10. Green vegetables 11. Spinach, cassava leaves, kale and other green leafy vegetables 12. Fruits (orange- or yellow-colored non-citrus fruits) 13. mango 14. papaya 15. Red palm oil 16. Other 18. Don't know
42	Have you heard about iodine deficiency?	1. Yes 0. No 2. Don't know/no answer
43	If Yes: to questions No. 42 ; Can you tell me what it is? Probe if necessary: Can you describe the signs of a lack of iodine in the body?	1. Apathy (lack of motivation and excitement) 2. Having difficulty working or

	(more than one answer could be possible)	<p>studying</p> <p>3. Goiter</p> <p>4. Other</p> <p>5. Don't know</p>
44	When a pregnant woman is undernourished, she is at risk of having a low-birth-weight baby, meaning that the baby is small or has a low birth weight. What are the health risks for these babies? (more than one answer could be possible)	<p>1. Slower growth and development</p> <p>2. Risks of infections/being sick</p> <p>3. Risks of dying</p> <p>4. Risks of being undernourished/having micronutrient deficiencies</p> <p>5. Risks of being sick once adult/developing chronic diseases in adulthood (heart disease, high blood pressure, obesity, diabetes)</p> <p>6. Other (specify)_____</p> <p>7. Don't know</p>
45	If Yes: to questions No. 42; What could be the consequences or health risks of lack of iodine in the diet of a pregnant woman for the baby? (more than one answer could be possible)	<p>1. Risk of being mentally impaired</p> <p>2. Risk of being physically damaged</p> <p>3. Other 4. Don't know</p>
46	If Yes: to questions No. 42; How can iodine deficiency be prevented? (more than one answer could be possible)	<p>1. Eat/prepare foods with iodized salt</p> <p>2. Other(specify)_____</p> <p>3. Don't know</p>
47	If somebody develop fever during pregnancy what should be done? (More than one answer)	<p>1. Seek treatment from health institution</p> <p>2. She should take ant malaria drug</p> <p>3. Nothing can do, subside by itself</p> <p>4. Don't know</p>
48	After you have prepared dinner, kitchen surfaces, pots, pans, plates and utensils are dirty. Can you describe how you clean them usually? (more than one answer could be possible)	<p>1. Scrape excess food into rubbish bin</p> <p>2. Wash with hot water</p> <p>3. Wash with detergent</p> <p>4. Don't know/no answer</p>
49	What should you do before eating raw fruits and vegetables?	<p>1. Wash them with clean water</p> <p>2. Other(specify)_____</p> <p>3. Don't know</p>
50	There are key moments when you need to wash your hands to prevent germs from reaching food. What are these key moments?	<p>1. After going to the toilet/latrine</p> <p>2. After cleaning a baby's bottom/changing a baby's nappy</p> <p>3. Before preparing/handling food</p>

		4. Before feeding a child/eating 5. After handling raw food 6. After handling garbage 7. Other (specify)_____ 8. Don't know
	Part IV: Questions related to Attitude	
51	How likely do you believe you will have a low-birth-weight baby?	1. Not likely 2. You're not sure 3. Likely
52	If Not likely: to questions No.51 Can you tell me the reason why it is not likely?	Reason _____
53	How serious do you believe it is for your baby to have a low-birth-weight?	1. Not serious 2. You're not sure 3. Serious
54	If Not Serious: to question No. 53 Can you tell me the reason why it is not serious?	Reasons _____
55	How good do you believe it is to eat more food during pregnancy?	1. Not good 2. You're not sure 3. Good
56	If Not good: to question No. 55 Can you tell me the reasons why it is not good?	_____
57	How difficult do you feel about eating at least one additional meal during pregnancy?	1. Not difficult 2. indifferent 3. Difficult
58	If Difficult: to question No.57 Can you tell me the reasons why it is difficult?	_____
59	How likely do you feel you are to be iron-deficient/ anemic?	1. Not likely 2. You're not sure 3. Likely
60	If Not likely: to question No. 59 Can you tell me the reason why it is not likely?	Reason _____
61	How serious do you feel iron-deficiency/anemia is?	1. Not serious 2. You're not sure 3. Serious
62	How good do you believe it is to prepare meals with iron-rich foods such as beef, chicken or liver?	1. Not good 2. You're not sure 3. Good
63	How difficult do you feel is it to prepare meals with iron-rich foods?	1. Not difficult 2. Indifferent 3. Difficult
64	How confident do you feel in preparing meals with iron-rich foods?	1. Not confident 2. Medium 3. Confident
65	How likely do you feel to have lack of vitamin A in your body?	1. Not likely 2. You're not sure 3. Likely

66	How serious do you think a lack of vitamin A is?	1. Not serious 2. You're not sure 3. Serious
67	How much do you like the taste of [Liver, Kidney, Heart, Egg , Milk, cheese, yogurt or other dairy product, Orange-colored vegetables, Orange sweet potato, Carrot, Pumpkin, and Green vegetables]? Do you dislike it; you neither like it nor dislike it (neutral) or do you like it? Circle	Liver 1. Dislike 2. Neutral 3. Like Kidney 1. Dislike 2. Neutral 3. Like Heart 1. Dislike 2. Neutral 3. Like Egg 1. Dislike 2. Neutral 3. Like Milk 1. Dislike 2. Neutral 3. Like Cheese 1. Dislike 2. Neutral 3. Like Yogurt 1. Dislike 2. Neutral 3. Like Orange colored vegetables 1. Dislike 2. Neutral 3. Like Orange sweet potato 1. Dislike 2. Neutral 3. Like Carrot 1. Dislike 2. Neutral 3. Like Pumpkin 1. Dislike 2. Neutral 3. Like Green vegetables 1. Dislike 2. Neutral 3. Like
68	How serious do you feel a lack of iodine in the body is?	1. Not serious 2. . You're not sure 3. Serious
69	How good do you feel it is to prepare meals with iodized salt?	1. Not good 2. You're not sure 3. Good
70	How difficult is it for you to buy and use iodized salt?	1. Not difficult 2. So-so 3. Difficult
	Part V: Questions related to Optimal nutritional and health Practices and associated factors	

71	I would like to ask you about particular foods you may eat on their own or as part of a dish. Yesterday, during the day and night, did you eat any of the following? (Read the list of the given foods and tick either yes or No for each food item) Circle	Organ meat 1. Liver 1. Yes 0. No 2. Kidney 1. Yes 0. No 3. Heart 1. Yes 0. No Flesh meat 4. Beef 1. Yes 0. No 5. Lamb 1. Yes 0. No. 6. Goat 1. Yes 0. No 7. Ship 1. Yes 0. No 8. Fish and seafood 1. Yes 0. No
72	Do you usually eat fresh citrus fruits, such as (orange, lemons, etc.) or drink juice made from them?	1. Yes 0. No 2. Don't know/no answer
73	If Yes: to questions No. 72 is it every day?	1. Yes 0. No 2. Don't know/no answer
74	When do you usually eat fresh citrus fruits? (Read the following options to the respondent)	1. Before a meal 2. During the meal 3. After a meal 4. Other (specify)_____ 5. Don't know/no answer
75	Do you usually drink coffee or tea?	1. Yes 0. No 2. Don't know
76	If Yes: to questions No.75 , Every day?	1. Yes 0. No 2. Don't know
77	If Yes: to questions No.76 , How much per day?	_____glass/cup per day
78	When do you usually drink coffee or tea? (Read the following options to the respondent)	1. Two hours or more before a meal 2. Right before a meal 3. During the meal 4. Right after a meal 5. Two hours or more after a meal 6. Other(specify)_____ 7. Don't know/no answer
79	Do you usually drink alcohol?	1. Yes 0. No 2. Don't know
80	If Yes to question No.79 how many drinks per day?	_____bottle/glass/cc per day
81	Yesterday, during the day and night, did you eat any of the following foods? Read the list of the given foods and tick Yes or No for each food item(Circle)	1. Egg 1.Yes 0.No 2. Milk, cheese, yogurt or other dairy products

		<p>1. Yes 0.No</p> <p>3. Orange-colored vegetables Orange sweet potato 1. Yes 1. No Carrot 1.Yes 0. No Pumpkin 1 Yes 0 No</p> <p>4. Green-leafy vegetables 1.Yes 0.No</p> <p>Fruits (orange- or yellow-colored non-citrus fruits) 5. Ripe mango 1 .Yes 0. No 6. Ripe papaya 1.Yes 0. No 7. Red palm oil 1 .Yes 0 .No</p>
82	Did you take iron/folate tablet during pregnancy?	<p>1. Yes 0. No 2. Don't know</p>
83	If Yes: to question No. 82 For how long did you took or given to you?	____months
84	If no: to question No. 82 What is the reason	<p>1. No access for iron/folate tablet 2. it is costly 3. it has gastric irritation 4. other (specify)_____</p>
85	Did you use salt to cook the main meal eaten by members of your family last night?	<p>1. Yes 0. No 2. Don't know/no answer</p>
86	If Yes: to question No. 85 What kind of salt did you use? (If possible, ask the respondent to show you the salt.)	<p>1. Iodized 2. Not iodized 3. No salt at home 4. Don't know/no answer</p>
87	If the salt used is iodized, how do you store it	<p>1. Covered(Closed) 2. anywhere in the kitchen 3. wet and open place 4. around fire 5. other</p>
88	If the salt used is not iodized, what is the reason	<p>1. not available 2. it is costly 3. others</p>
89	Is there any food you avoid eating during pregnancy?	<p>1-Yes 0-No 2-No response/answer</p>
90	If Yes to question No. 89 mention the food you avoid.	Specify _____
91	If Yes to question No. 89 what is the reason?	Specify _____
92	Have you counseled about, (read the options for respondents)	<p>1. Eating an extra meal than usual 1-Yes 0-No</p>

		2. Diversified diet 1-Yes 0-No 3. Snacks 1-Yes 0-No 4. Main food groups or balance diet 1-Yes 0-No
93	If NO to question No. 92 mentions the reason? more than one answer could be possible	1-I have not attend health institution 2-Health professionals didn't attend my house 3-Unwillingness of health professionals 4- Health professionals are busy 5- Other Specify_____
94	Did you ate additional foods during pregnancy before usual?	1-Yes 0-No 2-No response/answer
95	If NO to question No. 94 mentions the reason? (more than one answer could be possible)	1-No need to increase 2-My economic status is not allowed 3-Fetus increase in size and result in difficulty during labour 4- No response/answer 5- (Other)specify_____
96	If Yes to question NO. 94 how did you increase your meal?	1-Frequency of meal 2-Amount of meal 3-Both frequency and amount
97	With whom you eat your meal?	1- With all household member 2- With my children 3- With husband 4- Alone
98	Is there anyone to participate in household food decisions and cooking other than you?	1-Yes 0-No 2-No response/answer
99	If Yes to question NO. 98 Who is it?	1-Husband 2- Mothers 3- mothers-in law 4- Others specify
100	Have you got support from the family or the community since you gave birth.	1-Yes 0- No 2-No response/answer
101	If No to question NO. 100 Mention the reason	1- No family

		2-Not interested to help me 3-I have no much work 4-No response/answer
102	Do you get enough rest?	1-Yes 0- No
103	If No to question NO. 102 mention the reason	1-No one help me 2-A lot of work is there at home 3-I am government employee 4- Other specify
104	What is the main source of water used by your household for drinking, cooking and hand washing?	1. Piped water 2. Dug well ✓ 1 Protected well ✓ 0 Unprotected well 3. Water from spring ✓ 1 Protected spring ✓ 0 Unprotected spring 4. Surface water (1. river, 2. stream, 3. pond, 4. irrigation channel) 5, Bottled water 6. Other (specify)
105	If the answer for questions No. 104 the source is out of pipe, do you treat your water in any way to make it safe to drink?	1. Yes 0. No 2. Don't know/no answer
106	Are there key moments when you need to wash your hands to prevent germs from reaching food?	1. Yes 0. No 2. Don't know/no answer
107	If yes to questions No.106 What are these key moments that you need to wash your hands?	1. After going to the toilet/latrine 2. After cleaning a baby's bottom/changing a baby's nappy 3. Before preparing/handling food 4. Before feeding a child/eating 5. After handling raw food 6. After handling garbage 7. Other 8. Don't know
108	What do you usually do to the water to make it safer for drink?	1. Boil it 2. Use wuiha agar/bishan gari 3. Strain it through a cloth 4. Let it stand and settle 5. Other(Specify) 6. Don't know/no answer
109	Did you have Antenatal care visit	1. Yes 0. No
110	If Yes: for question No. 109 , how many ANC visit?	_____number

111	If Yes : for question No. 109 at what gestational age you visit the first ANC	___months
112	If Yes to question No.109 what service did you get at ANC clinic?	<input type="radio"/> Malaria management <input type="radio"/> Treatment of intestinal worms <input type="radio"/> Supplementation <input type="radio"/> Vita sign measurement <input type="radio"/> Weight measurement <input type="radio"/> Other specify _____
113	If Yes to question No.109 , how do you rate the quality of service given to you? (rate in terms of health professionals competency, availability of instruments, privacy etc)	1. Good 2. Medium 3. Poor
114	If No , to question No. 109 why?	1. Because it is far 2. Lack of transportation 3. Am not decide to go HI 4. Am busy 5. Other(specify)_____
115	Did you have any history of illness during pregnancy?	1. Yes 0. No
116	If Yes to question No.115 did you seek treatment from health institution?	1. Yes 0. No
117	What is the estimated distance of (nearest) health institution(s) from your locality?	___Km
118	Estimated time to reach the health institution?	___minutes

Thank you

Annex III: Amharic version

የጥናቱ ተሳታፊዎች ፍቃድ ማግኘት መጠየቂያ ቅጽ

እኔ የጥናቱ ተሳታፊ የዚህ ጥናት ዋና አላማ በነፍሱ-ጡር እናቶች ላይ በተሟላ ስነ-ምግብና ጤናቸው ላይ፤ ጥናት ለማካሄድ መሆኑን ተረድቻለሁ።

የዚህን ጥናት ዋና አላማ ለማሳካት የማውቀውን በፈቃድ ማግኘት ምላሽ እንድሰጥ ተጠይቂያለሁ።

ጥናቱ በኔ ላይ ጥቂት ደቂቃዎችን ከመውሰድ ውጪ ምንም አይነት ጉዳት እንደማያደርስ፤ እኔ የምሰጠው ማንኛውም መረጃ ምስጢራዊነቱ የተጠበቀ ለዚህ ጥናት ዓላማ ብቻ የሚውል መሆኑን ተረድቻለሁ። ስሜም ሆነ መለያ ቁጥሬ እንደማይመዘገብም ተነግሮኛል። በጥናቱ የመሳተፍ ወይም ያለመሳተፍ ወይም በማንኛውም ሰዓት የማቋረጥ መብቴም የተጠበቀ መሆኑን ተነግሮኛል።

ለበለጠ መረጃ የጥናቱ ባለቤት በሚከተለው አድራሻ ማግኘት ይችላሉ።

ስልክ: 0916752526 ኢሜይል: ashebirend@gmail.com

ከላይ በተሰጠን መረጃ መሰረት በፈቃድ ማግኘት በጥናቱ ለመሳተፍና የሚጠበቅብኝን ለማበርከት ተስማምቻለሁ።

የተሳታፊው ፊርማ----- ቀን-----

የጠያቂው ስምና ፊርማ-----

ውጤቱ (አንዱን ይምረጡ): ተሟልቷል----- አልተሟላም----- ሌላ ካለ ይጠቀስ-----

Annex-IV: Amharic version questionnaire

ክፍል-1- የማህበረሰብ መረጃ

ተ/ቁ	ጥያቄ	መልስ
1	መኖሪያ አካባቢ	1.ከተማ 0. ገጠር
2	እድሜ	___ አመት(ሙሉ)
3	የጋብቻ ጊዜ እድሜ	___ አመት(ሙሉ)
4	ሐይማኖት	1.ፕሮቴስታንት 2.አርቶዶክስ 3.ላቶሊክ 4.ሙስሊም 5. ሌላ(ጥቀስ)
5	የትምህርት ደረጃ	(ጥቀስ) _____
6	ብሔር	1.አሮሞ 2. አማራ 3. ትግሬ 4. ጉራጌ 5. ሌላ(ጥቀስ)_____
7	የጋብቻ ሁኔታ	1.ያገባ 2.ያላገባ 3.ባል የሞተባት 4.የፈታ ቸ 5. እጮኛ ያላት 6. መልስ የለም
8	ስራ	1. ተቀጣሪ 2. የቤት እመቤት 3. የቀን ሰራተኛ 4. ነጋዴ 5. ሌላ(ጥቀስ)_____
9	የባል ስራ	1. ተቀጣሪ 2. ነጋዴ 3. ገበሬ 4. የቀን ሰራተኛ 5. ሌላ(ጥቀስ)_____
10	የባል የትምህርት ደረጃ	(ጥቀስ) _____
11	የቤተሰብ ብዛት	___ ቁጥር

12. የቤተሰብ ሀብት አሁን ቤት ውስጥ ያለ ቋሚ ንብረትን በተመለከተ እጠይቅሻለሁ.

ቤተሰቡ የሚከተሉት ማንኛውም ንብረት አሉት? (ከብብ)	አዎ	አይደለም
1 የሚሰራ ፊደላዎች/ቴፕ የሚቀርጽ/ሲዲ የሚጫወት	1	0
2 የሚሰራ ቲቪ	1	0
3 የጋዝ ምድጃ	1	0
4 ቡታጋዝ	1	0
5 የኤሌክትሪክ ምድጃ	1	0
6 ሰዓት(የእጅ/የግድግዳ)	1	0
7 ሞባይል ስልክ	1	0
8 ማረሻ	1	0
9 ሶፋ	1	0
10 የስፕሪንግ ፍራሽ	1	0
11 የስቦንጅ ፍራሽ	1	0
12 የጥጥ ፍራሽ	1	0
13 የሳር ፍራሽ	1	0
14 ወንበር/በርጨማ	1	0
15 ጄኔሬተር	1	0
16 ወፍጮ	1	0
17 የቧንቧ ውሃ	1	0
ቤታችሁ ውስጥ የሚከተሉት እንስሳት አሉ?	1. አዎ	ስንት?

		0. የለም	
18	በሬ		
19	ላም		
20	ፈረስ/በቅሎ		
21	ፍየል/በግ		
22	ዶሮዎች		
23	አህያ		

ክፍል II- የእናትዬውና የህብረተሰብ ሁኔታ

S. No	ጥያቄዎች	መልስ
13	የወሊድ ቁጥር	_____ ቁጥር
14	የእርግዝና ቁጥር	_____ ቁጥር
15	የእርግዝና እድሜ	_____ ወር
16	በሰንት አመት ልዩነት ነው የምታረግገው	_____ አመት
17	የቤት አባወራ ማነው	1. ባል 2. እኔ 3. ሌላ (ጥቀስ) _____
18	ብዙ ልጅ እንዲኖርሽ የቤተሰብ ግፊት አለ	1. አዎ 0. አይደለም
19	የሰነ-ምግብና ጤና ት/ት ታገኛላችሁ	1. አዎ 0. አይደለም
20	ለጥያቄ ቁ.19፣ መልሱ አዎ ከሆነ ምንጩ ከየት ነው	1. ጤና ሙያተኞች 2. ቤተሰብ 3. ጓደኞች 4. መገናኛ ብዙሃን 5. ሌላ(ጥቀስ) _____
21	ለጥያቄ ቁ.19፣ መልሱ አዎ ከሆነ ስንቴ	1. በየቀኑ 2. ቢያንስ በሳምንት አንዴ 3. በተለያዩ ጊዜ 4. ምንም አልሰማም
22	የገጠር ነዋሪ ከሆንሽ እርሻ ታርሳላችሁ?	1. አዎ 0. አይደለም
23	ለጥያቄ ቁ.22፣ መልሱ አዎ ከሆነ ያመረታችሁትን ለምንድነው የምትጠቀሙት	1. ለቤት ውስጥ ምግብነት 2. ለሽያጭ 3. ለሁለቱም አገልግሎት
24	በግብርና ከሆነ የምትተዳደሩት በአመት ስንቴ ታመርታላችሁ?	1. በአመት አንዴ 2. በአመት ሁለቴና ከዛ በላይ
ክፍል III- እውቀትን በተመለከተ ጥያቄ		
25	በእርግዝና ጊዜ አንድ ነፍሰ-ጡር እናት የምትመገቡ ምግብ ከበፊቱ ጋር ሲነጻጸር ምን መሆን አለበት?	1. ከበፊቱ ያነሰ 2. ከበፊቱ ተመሳሳይ 3. ከበፊቱ በላይ
26	እጻኑ በቂ ምግብ እንዲያገኝና ለእድገቱ እንዲረዳው፣ ነፍሰ-ጡር እናት ነፍሰ-ጡር ካልሆነች ጋር ስትነጻጸር፣ እንዴት መመገብ አለባት (ከአንድ መልስ በላይ ይቻላል)	1. የበለጠ ምግብ ትመገብ (የበለጠ ሐይል ሰጪ ምግብ) ✓ 1.1 በእያንዳንዱ መመገቢያ ሰአት፣ የበለጠ ምግብ ትመገብ ወይም ✓ 1.2 በየቀኑ ብዙ ጊዜ ምግብ ትመገብ 2. በገንቢ ምግብ የበለጸገ ምግብ የበለጠ ትመገብ 3. በአይረን ንጥረነገር የበለጸገ ምግብ የበለጠ ትመገብ 4. ምግብ ሲዘጋጅ አዮዲን ጨው ትጠቀም 5. ሌላ 6. አላውቅም
27	በእርግዝና ጊዜ ክብደት የመጨመር ሁኔታ ትክክል ነው ብለሽ ታስቢያለሽ?	1. አዎ 0. አይ 2. አላውቅም
28	አብዛኛው ሴቶች በእርግዝና ወቅት ተጨማሪ ንጥረ-ነገር/ክንን በመውሰድ ጥቅም ያገኛሉ እነዚህ ተጨማሪ ንጥረ-ነገር/ክንን እነማናቸው (ከአንድ መልስ በላይ ይቻላል)	1. ተጨማሪ የአይረን ክንን 2. ተጨማሪ የፎሊክ አሲድ ክንን 3. ሌላ 4. አላውቅም

29	አይረን ንጥረ-ነገር እጥረት አማካኝነት የሚመጣ የደም ማነስ በሽታ ስምተሽ ታውቁያለሽ	1. አዎ 0. አይ 2. አላውቅም
30	ለጥያቄ ቁ.29፣ መልሱ አዎ ከሆነ፣ የደም ማነስ በሽታ መሆኑን እንዴት እንደምታወቁ ልትነግሯች ትችላለሽ (ከአንድ መልስ በላይ ይቻላል)	1. የአቅም ማነስ/መድከም 2. የገረጣ የነጣ ፊት 3. ማንኪያ የሚመስል/የተጣመመ ጥፍር 4. ለበሽታ በቀላሉ የመጋለጥ ባህሪ/በሽታ የመከላከል አቅም ማነስ 5. ሌላ 6. አላውቅም
31	ነፍሱ-ጡር እናት የምትመገበው ምግብ የአይረን እጥረት ካለበት ምን አይነት የጤና ችግር ያጋጥማታል? (ከአንድ መልስ በላይ ይቻላል)	1. በእርግዝና ጊዜና በኋላ የመሞት ስጋት 2. አስቸጋሪ ወሊድ 3. ሌላ 4. አላውቅም
32	የደም ማነስ በሽታ የሚያመጣው ምንድን ነው? (ከአንድ መልስ በላይ ይቻላል)	1. በአይረን የበለጸጉ ምግቦች እጥረት/ማነስና ያለመመገብ 2. ህመም/በበሽታ መያዝ(ወባ፣ የአንጀት ትላትል፣ ኤች አይ ቪ ኤድስና ሌሎች) 3. በወር አበባ ጊዜ ከፍተኛ የደም መፍሰስ 4. ሌላ _____ 5. አላውቅም
33	የደም ማነስ በሽታ እንዴት መከላከል ይችላል? (ከአንድ መልስ በላይ ይቻላል)	1. በአይረን ንጥረ- ነገር የበለጸጉ ምግቦች በመመገብ 2. ምግብ ስንበላና ከምግብ በኋላ በቫይታሚን ሲ የበለጸጉ ምግቦች በመመገብ 3. ተጨማሪ አይረን እንክብል በመውሰድ 4. ሌሎች የደም ማነስ በሽታ የሚያመጡ ነገሮች ማከም(ወባ፣ የአንጀት ትላትልና ኤድስ ወዘተ...) 5. ሌላ 6. አላውቅም
34	በአይረን ንጥረ- ነገር የበለጸጉ ምግቦች ምሳሌዎች መጥቀስ ትችላለሽ?(ጥቀሽ) (ከአንድ መልስ በላይ ይቻላል)	1. ጉበት 2. ኩላሊት 3. ልብ 4. ስጋ 5. አሳና የባህር ምግብ 6. ሌላ(ጥቀስ) _____
35	አንዳንድ ምግቦች ከምግብ ጋር ስንወስዳቸው የአይረን ንጥረ- ነገር በሰውነታችን ቶሎ እንዲዋሃድ የሚያረጉ ናቸው፤ እነማናቸው ?	1. ቫይታሚን ሲ የበለጸጉ ምግቦች፣ እንደ ፍሬሽ ሲትረስ ፍራፍሬ (ብርቱካን፣ ሎሚ፣ ወዘተ...) 2. ሌላ 3. አላውቅም
36	አንዳንድ መጠጦች ከምግብ ጋር ስንወስዳቸው የአይረን ንጥረ- ነገር በሰውነታችን ቶሎ እንዲዋሃድ የሚያረጉ ናቸው፤ እነማናቸው? (ከአንድ መልስ በላይ ይቻላል)	1. ቡና 2. ሻይ 3. ሌላ 4. አላውቅም
37	ስለ ቫይታሚን ኤ እጥረት/ማጣት ስምተሽ ታውቁያለሽ ?	1. አዎ 0. አይ 2. አላውቅም
38	ለጥያቄ ቁ.37፣ መልሱ አዎ ከሆነ፣ የቫይታሚን ኤ እጥረት/ማጣት መሆኑን እንዴት እንደምታወቁ ልትነግሯች ትችላለሽ ? (ከአንድ መልስ በላይ ይቻላል)	1. የድካም ስሜት 2. በሽታ የመከላከል አቅም ማነስ/ በቀላሉ ለበሽታ መጋለጥ 3. የዓይን ችግር፣ መሽት ሲል ማየት ያለመቻል ፣ የዓይን መድረቅ፣ ነጭ የዓይን ክፍል መነዳትና የዓይን-ስውርነት 4. ሌላ 5. አላውቅም
39	የቫይታሚን ኤ እጥረትን/ማጣትን የሚያስከስተው ምንድነው? (ከአንድ መልስ በላይ ይቻላል)	1. የተለያዩ ምግቦች ያለመመገብ 2. ጥቂት ምግብ መመገብ

		<ul style="list-style-type: none"> 3. የቫይታሚን ኤ ምንጭ የሆኑ ምግቦች ያለመውሰድ 4. ሌላ 5. አላውቅም
40	በሰውነታችን ውስጥ የቫይታሚን ኤ እጥረት/ማጣት እንዴት መከላከል እንችላለን? (ከአንድ መልስ በላይ ይቻላል)	<ul style="list-style-type: none"> 1 የቫይታሚን ኤ ምንጭ የሆኑ ምግቦች መመገብ 2. ቫይታሚን ኤ የተጨመረባቸው ምግቦች መመገብ 3. የቫይታሚን ኤ ተጨማሪ ምግብ(ካፕሱል) መውሰድ 4. ሌላ 5. አላውቅም
41	የቫይታሚን ኤ ምንጭ የሆኑ ምግቦች መጥቀስ ትችላለህ? አዎ ከሆነ አስፈላጊ ከሆነ አበራራ: የቫይታሚን ኤ ምንጭ የሆኑ ምግቦች፤ የእንስሳ ተዋጽኦ፤ አትክልቶች ወይም ፍራፍሬ ታውቁዋል? (ከአንድ መልስ በላይ ይቻላል)	<ul style="list-style-type: none"> 1. ጉበት 2. ኩላሊት 3. ልብ 4. እንቁላል 5. ወተት፣ አይብ፣ እርጎ ወይም ሌሎች የወተት ውጤቶች 6. ብረቱካናማ አትክልት 7. ከብርቱካን የተዳቀለ ስኳር ድንች 8. ካሮት 9. ዱባ 10. አረንጓዴ አትክልት 11. ጎመን፣ የካዛቫ ቅጠል፣ የአበሻ ጎመንና ሌሎች አረንጓዴ ቅጠላማ አትክልት 12. ፍራፍሬዎች (ብርቱካን - ወይም ቢጫ ከለር ያላቸው ሲትረስ ያልሆኑ ፍራፍሬዎች) 13. ማንጎ 14. ፓፓዬ 15. ቀይ ፓልም ዘይት 16. ሌላ 15. አላውቅም
42	ስለ አዮዲን እጥረት/ማጣት በሽታ ስምተሽ ታውቁዋል? ?	<ul style="list-style-type: none"> 1. አዎ 0. አይ 2. አላውቅም
43	ለጥያቄ ቁ.42፣ መልሱ አዎ ከሆነ፣ ምልክቱ ምን እንደሆነ ልትነግሯች ትችላለህ? አስፈላጊ ከሆነ አበራራ: በሰውነት ውስጥ የአዮዲን እጥረት/ማጣት በሽታ ምልክቶች ማብራራት ትችላለህ? (ከአንድ መልስ በላይ ይቻላል)	<ul style="list-style-type: none"> 1. ያለመነቃቀት 2. መስራት ወይም ማንበብ ያለመቻል 3. እንቅርት 4. ሌላ 5. አላውቅም
44	በነፍሱ-ጡር ሴት የምግብ እጥረት ሲገጥማት፣ ዝቅተኛ ክብደት ያለው ህጻን የመውለድ ስጋት ይገጥማል፤ ይህ በህጻኑ ላይ ምን አይነት የጤና ችግር ያመጣል? (ከአንድ መልስ በላይ ይቻላል)	<ul style="list-style-type: none"> 1. የሰውነት እድገት መቀነስ 2. ለበሽታ መጋለጥ 3. ለሞት መጋለጥ 4. የምግብ እጥረት በሽታ ስጋት 5. በጉርምስና ወቅት የረጅም ጊዜ በሽታዎች ስጋት (የልብ በሽታ፣ ከፍተኛ የደም ግፊት፣ ውፍረትና የስኳር በሽታ) 6. ሌላ 7. አላውቅም
45	በነፍሱ-ጡር ሴት ምግብ ውስጥ የአዮዲን እጥረት ካለ፣ በህጻኑ ላይ ምን አይነት የጤና ችግር ያመጣል? (ከአንድ መልስ በላይ ይቻላል)	<ul style="list-style-type: none"> 1. ያልተስተካከለ የዓለም ላይ እድገት 2. ያልተስተካከለ የሰውነት እድገት 3. ሌላ 4. አላውቅም
46	የአዮዲን እጥረት/ማጣት እንዴት መከላከል እንችላለን? (ከአንድ መልስ በላይ ይቻላል)	<ul style="list-style-type: none"> 1. በአዮዲን ጨው የተሰራ ምግብ መመገብ 2. ተጨማሪ የአዮዲን ምግብ (ካፕሱል) መውሰድ

		3. ሌላ(ጥቀስ) _____ 4. አላውቅም
47	አንዲት ነፍሱ-ጡር ሴት የሰውነት ትኩሳት ቢገጥማት በምን መደረግ አለበት ?	1. በጤና ተቋም መታከም ይኖርባታል 2. የወባ በሽታ መከላከያ መውሰድ ይኖርባታል 3. በራሱ ጊዜ ስለሚሻላት ምንም ማድረግ የለባትም 4. አላውቅም
48	ምግብ ካዘጋጀሽ በሒላ የኩሽና ወለል፣ ድስት፣ መጥበቅ፣ ሳሃንና ሌሎች እቃዎች ይቆሽሻሉ፤ አብዛኛውን ጊዜ እንዴት እንደምታጥቢ (እንደምታጻጅ) መግለጽ ትችላለሽ? (ከአንድ መልስ በላይ ይቻላል)	1. ትርፍራሬ ምግብ መፋቅና ቆሻሻ መሰብሰቢያ ውስጥ መጨመር 2. ለብ ባለ ውሃ ማጠብ 3. በሳሙና በደንብ ማጠብ 4. ለብ ባለ ውሃ ማለቅለቅ 5. በንጹ ቦታ ማድረቅ 6. አላውቅም
49	ያልበሰሉ አትክልትና ፍራፍሬ ከመብላትሽ በፊት ምን ማረግ አለብሽ?	1. በንጹህ ውሐ ብደንብ ማጠብ 2. ሌላ(ጥቀስ) _____ 3. አላውቅም
50	ጀርምቶ ምግብ ላይ እንዳይደርሱ እጅን መታጠብ ያሉብን ወሳኝ ጊዜያት አሉ፤ እነዚህ ወሳኝ ጊዜያት መቸናቸው?	1. ከሽንት ቤት መልስ 2. የሕጻን ልጅ የሽንት ልብስ ከተቀየረ በኋላ 3. ምግብ ከማዘጋጀት ብፊት 4. ሕጻን ልጅ ከመመገብ በፊት 5. ያልበሰለ ምግብ ከነካን በኋላ 6. ቆሻሻ ከሰበሰብን በኋላ 7. ሌላ 8. አላውቅም
	ክፍል IV: አመለካከትን የተመለከቱ ጥያቄዎች	
51	አነስተኛ ክብደት ያለው ህጻን ልወልድ እችላለሁ ብለሽ ምን ያክል ታምኛለሽ?	1. ሊሆን አይችልም 2. እርግጠኛ አይደለሁም 3. ሊሆን ይችላል
52	ለጥያቄ ቁ.51፣ መልሱ ሊሆን አይችልም ከሆነ፣ ሊሆን አይችልም ያልሸበት ምክንያት ትነግሪኛለሽ?	ምክንያት _____
53	የምትወልጅው ህጻን ክብደት አነስተኛ መሆን ምን ያክል አደገኛ ነው ብለሽ ታምኛለሽ?	1. አደገኛ አይደለም 2. እርግጠኛ አይደለሁም 3. አደገኛ
54	ለጥያቄ ቁ.53፣ መልሱ አደገኛ አይደለም ከሆነ፣ አደገኛ አይደለም ያልሸበት ምክንያት ትነግሪኛለሽ?	ምክንያት _____
55	በእርግዝና ወቅት በደንብ መመገብ እንዴት ጥሩ ነው ብለሽ ታምኛለሽ?	1. ጥሩ አይደለም 2. እርግጠኛ አይደለሁም 3. ጥሩ ነው
56	ለጥያቄ ቁ.55፣ መልሱ፣ ጥሩ አይደለም ከሆነ፣ ጥሩ አይደለም ያልሸበት ምክንያት ትነግሪኛለሽ?	ምክንያት _____
57	በእርግዝና ወቅት በፊት ከምትመገቡ ቢያንስ አንድ ተጨማሪ ምግብ መመገብ ምን ያክል አስቸጋሪ ነው ብለሽ ታምኛለሽ?	1. አያስቸግርም 2. መካከለኛ 3. ያስቸገራል
58	ለጥያቄ ቁ.57፣ መልሱ፣ ያስቸገራል ከሆነ፣ ያስቸገራል ያልሸበት ምክንያት ትነግሪኛለሽ?	ምክንያት _____
59	የደም ማነስ በሽታ ሊከሰትብኝ ይችላል ብለሽ ምን ያክል ታምኛለሽ?	1. ሊሆን አይችልም 2. እርግጠኛ አይደለሁም 3. ሊሆን ይችላል
60	ለጥያቄ ቁ.59፣ መልሱ፣ ሊሆን አይችልም ከሆነ፣ ሊሆን አይችልም ያልሸበት ምክንያት ትነግሪኛለሽ?	ምክንያት _____
61	የደም ማነስ በሽታ ምን ያክል አደገኛ ነው ብለሽ ታምኛለሽ?	1. አደገኛ አይደለም 2. እርግጠኛ አይደለሁም 3. አደገኛ ነው

62	የአይረን ንጥረ-ነገር ከያዙ መግቦች እንደ ስጋ፣ ዶሮና ጉብት ጋር ምግብ ማዘጋጀት ምን ያክል ጥሩ ነው ብለሽ ታምኛለሽ?	1. ጥሩ አይደለም 2. እርግጠኛ አይደለሁም 3. ጥሩ ነው
63	የአይረን ንጥረ-ነገር የያዙ መግቦች ጋር ምግብ ማዘጋጀት ምን ያክል ያስቸገራል ብለሽ ታምኛለሽ?	1. አያስቸግርም 2. መካከለኛ 3. ያስቸገራል
64	የአይረን ንጥረ-ነገር የያዙ መግቦች ጋር ምግብ ለማዘጋጀት በራሰሽ ምን ያክል ትተማመኛለሽ?	1. በራሴ አልተማመንም 2. መካከለኛ ነኝ 3. በራሴ እተማመናለሁ
65	የቫይታሚን ኤ ማነስ ሊከሰት ይችላል ብለሽ ምን ያክል ታምኛለሽ?	1. ሊሆን አይችልም 2. እርግጠኛ አይደለሁም 3. ሊሆን ይችላል
66	የቫይታሚን ኤ ማነስ ምን ያክል አደገኛ ነው ብለሽ ታምኛለሽ?	1. አደገና አይደለም 2. እርግጠኛ አይደለሁም 3. አደገኛ ነው
67	የሚከተሉት ምግቦች ጣህም ምን ያክል ትወጃለሽ [ጉብት፣ኩላሊት፣ልብ፣እንቁላል፣ወተት፣አይብእርጎና ሌሎች የወተት ውጤቶች፣ብርቱካናማ አትክልት፣ ከብርቱካን የተዳቀለ ስኳር ድንች፣ ካሮት፣ ዱባ፣ እና አረንጓዴ አትክልት] (ክብብ)	ጉብት 1. አልወድም 2. አልወድምም/አልጠላምም 3. እወዳለው ኩላሊት 1. አልወድም 2. አልወድምም/አልጠላምም 3. እወዳለው ልብ 1. አልወድም 2. አልወድምም/አልጠላምም 3. እወዳለው እንቁላል 1. አልወድም 2. አልወድምም/አልጠላምም 3. እወዳለው ወተት 1. አልወድም 2. አልወድምም/አልጠላምም 3. እወዳለው አይብ 1. አልወድም 2. አልወድምም/አልጠላምም 3. እወዳለው እርጎ 1. አልወድም 2. አልወድምም/አልጠላምም 3. እወዳለው ብርቱካናማ አትክልት 1. አልወድም 2. አልወድምም/አልጠላምም 3. እወዳለው ከብርቱካን የተዳቀለ ስኳር ድንች 1. አልወድም 2. አልወድምም/አልጠላምም 3. እወዳለው ካሮት 1. አልወድም 2. አልወድምም/አልጠላምም 3. እወዳለው ዱባ 1. አልወድም 2. አልወድምም/አልጠላምም 3. እወዳለው አረንጓዴ አትክልት 1. አልወድም 2. አልወድምም/አልጠላምም 3. እወዳለው
68	በሰውነት ውስጥ የአዮዲን ማነስ ምን ያክል አደገኛ ነው ብለሽ ታምኛለሽ?	1. አደገና አይደለም 2. እርግጠኛ አይደለሁም 3. አደገኛ ነው
69	ምግብ በአዮዲን ጨው (ጋር) ማዘጋጀት እንዴት ጥሩ ነው ትያለሽ?	1. ጥሩ አይደለም 2. እርግጠኛ አይደለሁም 3. ጥሩ ነው
70	የአዮዲን ጨው መግዛትና መጠቀም ምን ያክል ያስቸገራል ብለሽ ታምኛለሽ?	1. አያስቸግርም 2. መካከለኛ 3. ያስቸገራል
ክፍል V: የገፍሰ-ጡር እናቶች በቂ ምግብና ጤናና ተዛማጅ ነገሮች በተመለከተ ጥያቄዎች		
71	በዋነኛነት በተጠናጥል ወይም ከምግብ ጋር የተመገብሻቸውን ምግቦች ልጠይቅሽ እወዳለው ትላንት፣ ከጠዋት እስከ ማታ፣ የሚከተሉትን ምግቦች ተመግብሻል? የአይረን ምንጭ የሆኑትን ምግብ ዝርዝር አንብቢና በአዎ ወይም አይ መልስ ላይ ለእያንዳንዱ ምግብ አክብቢ.	Organ meat ጉብት 1.አዎ 0. አይ ኩላሊት 1.አዎ 0. አይ ልብ 1.አዎ 0. አይ ስጋ የበግ ስጋ 1.አዎ 0. አይ የጥጃ ስጋ 1.አዎ 0. አይ የፍየል ስጋ 1.አዎ 0. አይ የበግ ስጋ 1.አዎ 0. አይ ዓሳና የባህር ምግብ 1.አዎ 0. አይ
72	አብዛኛውን ጊዜ የሲትረስ ፍራፍሬ(ብርቱካን፣ ሎሚ፣ ወዘተ...) ወይም ከነዚህ የተሰራ ጃስ ትጠቀሚያለሽ?	1. አዎ 0. አይ 2. አላውቅም

73	ለጥያቄ ቁ.72፣ መልሱ አዎ ከሆነ፣ በየቀኑ ነው?	1. አዎ 0. አይ 2. አላውቅም
74	አብዛኛውን ጊዜ መቼነው ሲትረስ ፍራፍሬ የምትበደው? (ለተጠያቂዋ የሚከተሉትን አማራጮች ይቅረብላት)	1. ከምግብ በፊት 2. ከምግብ ጋር 3. ከምግብ በኋላ 4. ሌላ(ጥቀስ) _____ 5. አላውቅም
75	አብዛኛውን ጊዜ ቡና ወይም ሻይ ትጠጫለሽ?	1. አዎ 0. አይ 2. አላውቅም
76	ለጥያቄ ቁ.75፣ መልሱ አዎ ከሆነ፣ በየቀኑ ነው?	1. አዎ 0. አይ 2. አላውቅም
77	ለጥያቄ ቁ.76፣ መልሱ አዎ ከሆነ፣ በቀን ስንት	1. አንድ ብርጭቆ/ስኒ 2. ሁለት ብርችቆ/ስኒ 3. ሶስትና ከሶስት ብርጭቆ/ስኒ በላይ
78	መቼ ነው አብዛኛውን ጊዜ ቡና ወይም ሻይ የምትጠጩው? (የሚከተሉትን ምርጫዎች ለተጠያቂዋ አንብብ)	1. ሁለትና በላይ ሰዓት ከምግብ በፊት 2. ልክ ምግብ ልመገብ ስል 3. ከምግብ ጋር 4. ልክ ከምግብ በኋላ 5. ሁለትና በላይ ሰዓት ከምግብ በኋላ 6. ሌላ(ጥቀስ) _____ 7. አላውቅም
79	አብዛኛው ጊዜ የአልካል መጠጥ ትጠጫለሽ?	1. አዎ 0. አይ 2. አላውቅም
80	ለጥያቄ ቁ.79፣ መልሱ አዎ ከሆነ፣ በቀን ስንት ጠርሙስ/መለኪያ/ብርጭቆ?	_____ ጠርሙስ/መለኪያ/ብርጭቆ
81	ትላንት፣ ከጠዋት እስከ ማታ፣ የሚከተሉትን ምግቦች ተመግብሻል የቫይታሚን ኤ ምንጭ የሆኑትን ምግብ ዝርዝር እንብቢና በአዎ ወይም አይ መልስ ላይ ለእያንዳንዱ ምግብ አክብቢ	እንቁላል 1.አዎ 0. አይ ወተት፣ አይብ፣ እርጎ ወይም ሌሎች የወተት ውጤቶች 1.አዎ 0. አይ ብረቱኳናማ አትክልት ከብርቱኳን የተዳቀለ ስኳር ድንች 1.አዎ 0. አይ ካሮት 1.አዎ 0. አይ ዱባ 1.አዎ 0. አይ አረንጓዴ-ቅጠላማ አትክልት 1.አዎ 0. አይ ፍራፍሬዎች (orange or yellow colored non-citrus fruits) የበሰለ ማንጎ 1.አዎ 0. አይ የበሰለ ፓፓያ 1.አዎ 0. አይ ቀይ የፓልም ዘይት 1.አዎ 0. አይ
82	በእርግዝና ወቅት የአይረን/ፎሌት እንክብል ወስደሻል?	1. አዎ 0. አይ 2. አላውቅም
83	ለጥያቄ ቁ.82፣ መልሱ አዎ ከሆነ፣ ለስንት ጊዜ ወስደሻል?	_____ ቀን
84	ለጥያቄ ቁ.82፣ መልሱ አይ ከሆነ፣ ምክንያቱ ምንድነው?	1. የአይረን/ፎሌት እንክብል አቅርቦት የለም 2. ውድ ነው 3. ጨጓራ የማቃጠል ባህሪ አለው 4. ሌላ

85	ባለፈው ምሽት ቤተሰቡ የሚበላው ምግብ ስትሰሪ ጨው ተጠቅመሻል?	1. አዎ 0. አይ 2. አላውቅም
86	ለጥያቄ ቁ.85፣ መልሱ አዎ ከሆነ፣ ምን አይነት ጨው ነው የተጠቀመሽው? (ከተቻለ ተጠያቂዋ ጨውን እንድታሳይህ አድርግ.)	1. አዮዲን ያለበት 2. አዮዲን የሌለበት 3. ቤት ውስጥ ጨው የለም 4. መልስ የለም
87	የተጠቀመሽው ጨው አዮዲን ጨው ከሆነ፣ የምታስቀምጧቸው እንዴት ነው?	1. ተከድኖ 2. በኩሽና ውስጥ የትም ቦታ 3. እርጥብና ክፍት ቦታ 4. በእሳት አጠገብ 5. ሌላ
88	የምትጠቀሟቸው ጨው አዮዲን ጨው ካልሆነ ምክንያቱ ምንድነው?	1. ገበያ ላይ የለም 2. ውድ ነው 3. ሌላ
89	በእርግዝና ወቅት መብላት (መመገብ) የተውሻቸው ምግቦች አሉ?	1. አዎ 0. አይ 2. አላውቅም
90	ለጥያቄ ቁ.89፣ መልሱ አዎ ከሆነ፣ የተውሻቸው ምግቦች እነማናቸው?	ጥቀሺ_____
91	ለጥያቄ ቁ.89፣ መልሱ አዎ ከሆነ፣ ምክንያቱ ምንድነው?	1. የተከለከለ ምግብ 2. ምግብ መጥላት፣ መውደድና ምግብ ያለው ነገሮች መመገብ 3. ሐይማኖት 4. ባህል 5. ሌላ (ጥቀስ)_____
92	የሚከተሉትን የምክር አገልግሎት አግኝተሻል? ስለ፤	1. ድሮ ከምትመገቡ ተጨማሪ ምግብ እንድትመገቡ 1. አዎ 0. አይደለም 2. የተለያዩ የምግብ አይነት እንድትመገቡ 1. አዎ 0. አይደለም 3. መ ቅስስ እንድትመገቡ 1. አዎ 0. አይደለም 4. የተመጣጠነ ምግብ እንድትመገቡ 1. አዎ 0. አይደለም
93	ለጥያቄ ቁ.92፣ መልሱ አይ ከሆነ፣ ምክንያቱ ምንድነው (ከአንድ መልስ በላይ ይቻላል)	1-ጤና ተቋም አልከታተልም 2-የጤና ባለሙያዎች ቤት ድረስ ስለመይመጡ 3-የጤና ባለሙያዎች ፈቃደኛ ያለመሆን 4- የጤና ባለሙያዎች ስራ ስለሚበዛባቸው (ጊዜ ስለሌላቸው) 5- ሌላ (ጥቀስ)_____
94	በእርግዝና ወቅት ከበፊቱ ከምትመገቡ ምግብ በላይ ትመገቡ ያለሽ?	1. አዎ 0. አይደለም 2. አላውቅም
95	ለጥያቄ ቁ.94፣ መልሱ አይ ከሆነ፣ ምክንያቱን ጥቀሺ (ከአንድ መልስ በላይ ይቻላል)	1-መጨመር አያስፈልግም 2-የኢኮኖሚ አቅማ አይፈቅድልኝም 3- የእዳት መጠን ይጨምርና በወሊድ ጊዜ ያስቸግረኛል 4- መልስ የለም 5- ሌላ (ጥቀስ)_____
96	ለጥያቄ ቁ.94፣ መልሱ አዎ ከሆነ፣ እንዴት ነው የምትጨምረው?	1-በዙጊዜ (ወዲያው ወዲያው) በመመገብ 2-የምግብ መጠን በመጨመር

	ያለብኝ ወሳኝ ጊዜያት መቼ ናቸው?	2. የሕጻን ልጅ ልብስ ከተቀየረ በኋላ 3. ምግብ ከማዘጋጀት ብሬት 4. ሕጻን ልጅ ከመመገብ በፊት 5. ያለበሰለ ምግብ ከነካው በኋላ 6. ቆሻሻ ከሰበሰቡበኩ በኋላ 7. ሌላ 8. አላውቅም
109	የቅድመ-ወሊድ ክትትል ታደረገዎታል?	1. አዎ 0. አይ
110	ለጥያቄ ቁ.109፣ መልሱ አዎ ከሆነ፣ ስንት የቅድመወሊድ ክትትል አርገሻል?	_____ ቁጥር
111	ለጥያቄ ቁ.109፣ መልሱ አዎ ከሆነ፣ የመጀመሪያው የቅድመወሊድ ክትትል ስታረጊ፣ የጽንሱ እድሜ ስንት ነበር?	_____ ወር
112	ለጥያቄ ቁ.109፣ መልሱ አዎ ከሆነ፣ በቅድመወሊድ ክትትል ከሊኒክ(ክፍል) ምን ዓይነት አገልግሎት ተሰጠሽ?	1. የወባ በሽታ ቁጥጥር(ህክምና) 2. የአንጀት ትላትል ህክምና 3. በመድሀኒት መልክ ምግብ መውሰድ(አይረገ/ፎሌት) 4. ዋና ዋና ምልክቶች መለካት(የሙቀት መጠን፣ የደም ግፊት፣ የልብ ምት፣ የአተነፋፊስ ስርአት ወዘተ) 5. ከብደት መለካት 6. የመሀል የእጅ ጡንቻ ዙሪያ (MUAC) ልኬት 7. ሌላ(ጥቀስ)_____
113	በእርግዝና ወቅት ማንኛውም ዓይነት የህመም ስሜት ነበረሽ?	1. አዎ 0. አይ
114	ለጥያቄ ቁ.113፣ መልሱ አዎ ከሆነ፣ በጤና ተቋም የህክምና አገልግሎት አግኝተሻል?	1. አዎ 0. አይ
115	ለጥያቄ ቁ.114፣ መልሱ አዎ ከሆነ፣ የሚሰጠው አገልግሎት ጥራት እንዴት ደረጃ ትሰጭዋለሽ? (የጤና ባለሙያው፣ የጤና መሳሪያዎች፣ ሚስጥር ጠባቂነትን በተመለከተ፣ ወዘተ...)	1. ጥሩ 2. መካከለኛ 3. ዝቅተኛ
116	ለጥያቄ ቁ.114፣ መልሱ አይ ከሆነ፣ ለምን?	1. ሩቅ ስለሆነ 2. የመጓጓዣ እጥረት 3. ጤና ተቋም ለመሄድ አልወሰንኩም 4. ስራ ስለሚበዛብኝ 5. ሌላ(ጥቀስ)_____
117	የሚቀርብሽ የጤና ተቋም ከመኖሪያ ቤት በግምት ስንት ሜትር ይርቃል?	_____ ሜትር
118	ጤና ተቋሙ ለመድረስ በግምት ስንት ደቂቃ ይጨርሳል?	_____ ደቂቃ

አመሰግናለሁ!!

Annex V: Oromic language varssion

Formii waligaltee hirmaatotaa mirkanessuu

Kanan armaan gaditti mallettessu malummaa fi faayyoo qayyabannoo mata duree “dubbii karaa rayyaa fayyaatiin sirna nyaataa gahaa argachuu fi kunuunsa fayyaa hawaan ulfaa irratti dhufuu dandahu” jedhu kanaa kanan hubadhe tahuu koo nan mirkanessa. Kanan hubadhe kessaa gaffii nagaafatan kanan beeku akkan deebisuu dandahu fi ragaan ani kennuu qayyabannoo kana qofaaf akka oolu hubadheen jira. Itti dabalaanis hirmachuu dhiisuuf mirga akkan qabuu ykn deebii kenuu diduu akkan dandahu hubadheera, jalqabees addan kutuu akkan dandahau bareera. Yaada dabalaataa yoo barbaddan talafoona 0916752526 fi e mailii: ashebirend@gmail.com gaafachuun ni dandahama.

Odefannoo armaan olitti argadhe irratti hundahee qayyabannoon kun bu’aa akka buusu baree fedhi koo guutuun irratti hirmachuuf walii daleera.

Mallattoo hirmaataa _____ guyyaaa _____

Maqaa gafataa _____ Mallattoo _____

Guyyaa ilaalame _____ Dhuma isaa _____ kan guutame _____ kan hinguutamin _____

Annex VI: Oromic language varssion questionnaire
Kutaa -1-ffaa socio-demographic data

Lakk.	Gaaffilee	Deebii	
1	Naannoo jireenyaa	1. Magaala 0. Baadiyaa	
2	Umurii	_____ (waggaadhan gguuti)	
3	Yeroo sirna gaa'elaa raawwatte umuriin kee meeqaa	_____ (waggaadhan gguuti)	
4	Amntiin kee maalii	1. Pirotestaantii 2. Oortoodooksii 3. Kaatolikii 4. Musiliima 5. Kan biraa (maqaa dhahi)	
5	Sadarkaa barnootaa	_____ (tuqi)	
6	Sabni kee maali	1. Oromoo 2. Amaaraa 3. Tigiree 3. Guraagee 4. Kan biraa (maqaa dhahi)	
7	Haala gaa'elaa	1. Kan heerumte 2. Kan hin heerumne 3. Kan dhirsi jalaa du'e 4. Kan hiikte 5. Kaadhima kan qabdu 6. Deebii hin qabu	
8	Hojii	1. Qacaramteetti 2. Haadha manaa 3. Hojjeettuu guyyaa 4. Daldaltuu 5. Kan biraa (maqaa dhahi) _____	
9	Abbaan manaa kee maal hojjetaa	1. Qacarameetu 2. Daldalaa 3. qonnaan bulaa 4. hojjetaa guyyaa 5. kan biraa (maqaa dhahi) _____	
10	Sadarkaan barnootaa abbaa manaa	_____ (maqaa dhahi)	
11	Baay'inni maatii kee meeqaa	_____ (Lakk.)	
12	QABEENYA MAATII Amma kanatti fufee gaaffiiwwan qabeenya dhaabbataa mana keessaa qabdan ilaallatun sigaafadha		
	Maatiin kee qabeenyawwan kanatti aananii jiran kamiyyuu qabaa (itti marsi)	Eeyyee	Lakki
1	Kan hojjetu raadiyo/teeppii kan waraabu/CD kan taphatu	1	0
2	TV kan hojjetu	1	0
3	Midijjaa(sunsumman) gaazii	1	0
4	Buttaa gaazii	1	0
5	Midijjaa (sunsumman) electrika	1	0
6	Saa'aatii(kan harkaa/keenyanii)	1	0

7	Telefoona moobayilii	1	0
8	Maarashaa	1	0
9	Soofaa	1	0
10	Firaashii summuugawaa(springii)	1	0
11	Firaashii spoonjii	1	0
12	Firaashii jirbiirraa hojjetame	1	0
13	Firaashii margaarraa hojjetame	1	0
14	Teessuma/barcuma	1	0
15	Jenereetara	1	0
16	Baabura midhaan daaku	1	0
17	Bishaan tuubboo	1	0
Mana keessan keessa binoonsonni armaan gadii jiruu /qabduu?		Eeyyee	Lakki
18	Sangaa	1	0
19	Sa'a	1	0
20	Farad/gaangee	1	0
21	Re'ee/ hoolaa	1	0
22	Handaaqqolii	1	0
23	Harree	1	0

KUTAA -2- HAALA HAAWASUMMAA HAADHAA

Lakk.	Gaaffiiwwan	Deebi'ii
13	Yeroo meeqa deesseettaa	_____ lakkofsa
14	Yeroo meeqa ulfoofteettaa	_____ lakkofsa
15	Ulfikee ji'a meeqafaa keessa jira?	_____ ji'aan
16	Edda deessee booda waggaa meeqa turtee ulfooftaa?	_____ waggaa
17	Eenyu kan maatii bulchu(hoogganu)?	1. Abbaa manaa 2. Ana 3. Kan biraa (maqaa dhahi)
18	Daa'imman dabalataa akka qabaattuuf dhiibbaan maatiirraa sirra ga'u jira?	1. Eeyyee 0. Lakki
19	Sirna nyaataa fi fayyaa ilaalchisee odeeffannoo ni argattaa?	1.Eeyyee 0. Lakki
20	Yoo deebi'ii kee gaaffii 19 ^{ffaa} eeyyee dha ta'e maddi odeeffannoo kee maalii?	1. Ogeessota fayyaa 2. Maatii 3. Hiriyoota 4. Maas-miidiyaa 5. Kan biraa (maqaa dhahi)
21	Yoo deebi'ii kee gaaffii 19 ^{ffaa} eeyyee dha ta'e torbanitti yeroo meeqa argattaa	1 Guyyaa guyyaan 2 Yoo xinnaate torbanitti al-tokko 3 Darbee darbeetu 4 Kan biraa(Caqasii) 5 Deebii hin qabuu
22	Yoo baadiyaa kan jiraattu ta'e hojii qonnaa keessatti ni hirmaattaa?(dura bakka jireenyaa ilaali)	1. Eeyyee 0. Lakki
23	Yoo deebi'ii kee gaaffii 22 ^{ffaa} eeyyee dha ta'e faayidaa maaliif fayyadamtaa?	1. Mana keessatti fayyadamuuf 2. Gurguraaf 3. Lachanuufuu

24	Yoo qonnaan bultuudha ta'e lafa qonnaa keerraa waggaatti yeroo meeqa omishtaa?	1. Yeroo tokko 2. Yearoo lamaaf isaa ol
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Kutaa -3- gaaffiiwwan beekumsa (hubannaan wal qabatan)

Lakk.	Gaaffiilee	Gareewwan
25	Haati garaatti baattu tokko sooratni isheen nyaachuu qabdu kan utuu ulfa hin ta'in soorachaa turte waliin yeroo madaalamu hagam ta'uu qaba?	1. Kan kanaan duraa gadi 2. Kan kanaan duraan wal-qixa 3. Kan Kanaan duraa ol
26	Mucaan isheen garaatti baattu soorata ga'aa akka argatuufi akka guddatuuf, haati garaatti baattu tokko dubartii ulfa hin taane waliin yeroo madaalamtu akkamiin nyaachuu qabdi?(Tokkoo ol deebisuun ni danda'ama)	1. Caalaa nyaachuu qabdi (kan caalaatti humina kennu). 1.1. Yeroo soorattu kamiyyuu baayiftee haa nyaattu. Yookaan immoo: 1.2. Guyyaa guyyaatti si'a baayyee midhaan haa nyaattu. 2. Soorata qaama ijaaru baayiftee haa nyaattu. 3. Soorata Aayirani baayyee qabu haa nyaattu. 4. Nyaata yeroo qopheeffattu soogidda Ayoodiinii qabu haa fayyadamtu. 5. Kan biro(ibsi)_____
27	Yeroo ulfaa ulfaatinni dabaluu sirriidha jettee yaaddaa?	1. Eeyyee 0. Lakki 2. Hin beeku
28	Dubartoonni baayyeen yeroo ulfaa bifa kiniiniitiin wantoota dabalataa fudhachuun ni fayyadamu. Wantoonni dabalataan akka kiniiniitti kennaman kun maal fa'i? (Tokkoo ol deebisuun ni danda'ama)	1. Kiniinii Aayirani dabalataa 2. Kiniinii Foolik Asiidii dabalataa 3. Kan biraa(ibsi)_____
29	Waa'ee Hir'ina Dhiigaa sababa hanqina Aayiraniitiin dhufuu dhageessee beektaa?	1. Eeyyee 0. Lakki 2. Hin beeku
30	Gaaffii 29ffaaf deebiin kee "Eeyyee" yoo ta'e; nama dukkuba hir'ina dhiiqaa qabu akkamiin akka adda baafu natti himuu ni dandeessaa? (Tokkoo ol deebisuun ni danda'ama).	1. Humna dhabuu/Dadhabuu 2. Addaachuu Fuulaa 3. Qeensa golboo fallaana fakkaatu 4. Dukkubootaaf salphaatti saaxilamuu/ofirraa dandamachuu dadhabuu. 5. Kan biraa(ibsi)_____ 6. Hin beeku.
31	Haati garaatti baattu tokko sooratni isheen nyaattu hanqina Aayirani qaba yoo ta'e, rakkoo fayyaa akkamiitu ishee mudata? (Tokkoo ol deebisuun ni danda'ama).	1. Yeroo ulfaa yookaan ulfa booda du'uu dandeessi. 2. Da'umsa dadhabdi 3. Kan biraa (ibsi)_____
32	Hanqina Dhiigaa maaltu fidaa? (Tokkoo ol deebisuun ni danda'ama).	1. Aayiraniin nyaata keessaa dhabuu/xiqqoo soorachuu, baayyee ta'uu dhiisuu. 2. Dhukkuboota kanneen akka Busaa, Raammoo hokkoo, HIV/AIDS.

		<p>3. Yeroo Marsaa dhiigaa ji'aa/laguu dhiigni akka malee dhangala'uu.</p> <p>4. Kan biraa (ibsi)_____</p> <p>5. Hin beeku.</p>
33	Hanqina Dhiigaa akkamiin ittisuun danda'ama? (Tokkoo ol deebisuun ni danda'ama).	<p>1. Soorata Aayiraniin badhaadhe soorachuu</p> <p>2. Soorata Viitaaminii-C tiin badhaadhe yeroo soorataatti yookaan soorata booda nyaachuu.</p> <p>3. Yoo Ogeessi fayyaa Kiniinii Aayirani ajaje fudhachuu.</p> <p>4. Dhukkuboota Hir'ina dhiigaa fidaniif yaala argachuu.</p> <p>5. Kan biraa (ibsi)_____</p> <p>6. Hin beeku.</p>
34	Gosoota Soorataa Aayiraniin badhaadhan natti himi. (Tokkoo ol deebisuun ni danda'ama).	<p>1. Tiruu</p> <p>2. Kalee</p> <p>3. Onnee</p> <p>4. Foon</p> <p>5. Qurxummii</p> <p>6. Kan biraa (ibsi)_____</p> <p>7. Hin beeku.</p>
35	Gosni soorataa yeroo nyaata keenya waliin nyaannu akka qaamni keenya Aayirani sirriitti ol fudhatuu fi itti fayyadamu gargaaru maali?	<p>1. Soorata Viitaaminii-C tiin badhaadhan kan akka Burtukaanaa, Loomii, kkf)</p> <p>2. Kan biraa (ibsi)_____</p> <p>3. Hin beeku.</p>
36	Gosni dhugaatii ho'aa fi lallaafaa yeroo nyaata keenya waliin dhugnu akka qaamni keenya Aayirani sirriitti ol hin fudhanne dhiibbaa geggeessu maali? (Tokkoo ol deebisuun ni danda'ama).	<p>1. Buna</p> <p>2. Shaayii</p> <p>3. Peepsii, Kookaa kollaa, kkf...</p> <p>4. Kan biraa (ibsi)_____</p> <p>5. Hin beeku.</p>
37	Waa'ee hanqina Viitaaminii-A dhageessee beektaa?	<p>1. Eeyyee</p> <p>0. Lakki</p> <p>2. Hin beeku</p>
38	Gaaffii 37ffaaf deebiin kee "Eeyyee" yoo ta'e, nama hanqina viitaaminii-A qabu akkamiin beekuu akka dandeessu natti himi. (Tokkoo ol deebisuun ni danda'ama).	<p>1. Dadhabiitu itti dhaga'ama/humina dhabuu</p> <p>2. Salphaatti dhukkubootaan qabamuu/dandamachuu dhadhabuu</p> <p>3. Dhukkuba ijaa: sursura/dimimmisa keessa arguu dhabuu, Goguu ijaa, jaamummaa, kkf.</p> <p>4. Kan biraa (ibsi)_____</p> <p>5. Hin beeku.</p>
39	Gaaffii 37ffaaf deebiin kee "Eeyyee" yoo ta'e Wanti hanqina viitaaminii-A fidu maali? (Tokkoo ol deebisuun ni danda'ama).	<p>1. Soorata garaagaraa soorachuu dhiisuu</p> <p>2. Soorata xiqqoo nyaachuu</p> <p>3. Kan biraa (ibsi)_____</p> <p>4. Hin beeku.</p>

40	Gaaffii 37ffaaf deebiin kee “Eeyyee” yoo ta’e Hanqina viitaaminii-A akkamiin ittisuun danda’ama? (Tokkoo ol deebisuun ni danda’ama).	<ol style="list-style-type: none"> 1. Soorata viitaaminii-A tiin badhaadhan nyaachuu/kennuutiin. 2. Soorata viitaaminii-A warshaatti itti dabalame nyaata manaa waliin makanii soorachuu. 3. Viitaaminii-A mana yaalaatii fudhachuun 4. Kan biraa (ibsi)_____ 5. Hin beeku.
41	<p>Gaaffii 37ffaaf deebiin kee “Eeyyee” yoo ta’e Gosoota soorataa madda viitaaminii-A ta’an tarreessi. Barbaachisaa taanaan ibsiif: Gosoota nyaataa hunda keessaa kuduraa fi muduraa dabalatee akka tarreessitu. (Tokkoo ol deebisuun ni danda’ama).</p>	<ol style="list-style-type: none"> 1. Tiruu 2. Kalee 3. Onnee 4. Hanqaaquu/Killee/buphaa 5. Aannan, baaduu, itittuu fi kkf. 6. Camcamee burtukaanaan 7. Mixaaxisa/ 8. Kaarotii 9. Buqqee/Dabaaqula 10. Kuduraalee magariisa ta’an 11. Raafuu baalaa fi maraa, baala kaasaavaa, kuduraalee baalaa magariisa ta’an kan biiroo. 12. Muduraalee (Burtukaana yookaan muduraalee bifa keelloo kan siitirasii of keessaa hin qabne. 13. Maangoo 14. Paappayyaa 15. Zayita palmii diimaa 16. Kan biraa (ibsi)_____ 17. Hin beeku.

42	Wa’ee hirinna hayoodini dhaagessee beektaa?	<ol style="list-style-type: none"> 1. Eyyee 0. Lakkii 2. Hin beekuu/deebi isa hin beeku
43	<p>Deebiin kee gaaffii 42 irratti eyyee yoo ta’e hanqinnii hayoodinii maal jechuu akka ta’ee nati himuu dandeessaa? yoo barbaachisee akka isheen sitii himtuu yadaa ladhuuf: Milikitoota hanqinaa hayoodini qaama irrattii mul’ataan ibsuu dandeessaa? (deebii tokkoo ol ni danda’ama)</p>	<ol style="list-style-type: none"> 1. Kakka’umsa fi gammachuu dhabuu 2. Hojii hajachu dadhabuu/qayyabachuu dadhabuu 3. Quufaa mormaa 4. Kan biro_____ 5. Hin beekuu
44	<p>Yeroo dubartiin ulfaa hanqinaa nyaata qabattuu, carraa muccaa madalii isaa xiqqoo ta’ee da’u/ykn qabaachuu dandesi kana jechuun muccaan kun hangi isa xiqqoo ykn madala xiqqoo tatii jechuudha. Carraan muccaan kun rakkinna fayyaatiif saxilamuu danda’uu maal fa’ii? (deebii tokkoo ol ni danda’ama)</p>	<ol style="list-style-type: none"> 1. Suuta guddaachuu fi dagaguu/Guddinii qaama hirrisuu 2. Carraa dhukubsachuu qaba/dhukubaaf saxilamuu 3. Carraa du’uu 4. Carraa jiraatee garuu hanqinoota nyaata madalama/hirrinaa albuudota qabachuu danda’a 5. Waqtii dargagummaa/ga’eessuumma dhukuuboota yeroo dheera sodachuu(dhukuubaa onnee, dhiibbaa

		dhiigaa,furdinaa garmalee fi dhukuba sukaraa? 6.Kan biro_____
		7.Hin beekuu
45	Deebiin kee gaaffii 42 irratti eyyee yoo ta'e , Nyaata dubartii ulfaa keessaa hanqinni hayoodini yoo jiraate; da'immaa irratti rakkina fayyaa akkam fiduu danda'aa? (deebii tokkoo ol ni danda'ama)	1. Guddinaa sammuu irraati rakkoo qabaa/sammun sirriti akka hin guddanee godhaa 2. Qaamni sirriti akka hin guddanee godhaa 3. Kan biro_____
		4. Hin beekuu
46	Deebiin kee gaaffii 42 irratti eyyee yoo ta'e , Hanqinaa/dhaabu Hayoodini akkamitti ittisuun danda'ama? (Deebii tokkoo oli ni danda'ama)	1. Ashaboo hayoodini waajjiin hojjatamee nyaachu 2. Kan biro(maaqa dha'ii)_____
		3. Hin beeku
47	Duubartii ulfaa tokkoo ho'ii qaama yoo qunnamee maal goochuu qabdi? Deebii tokkoo oli ni danda'ama	1. Dhabbataa fayyaati yalamuutu irra jira 2. Kan dhukkubaa buusaa ittisuu fudhachutuu irra jira 3. Ofiin waan fayyuuf waan tokkoo iyyuu fudhachuu hin qabduu 4. Hin beekuu
48	Nyaataa erga qopheesitee booda lafa koshinaa ,xuwwee/disti ,meesha itti wa a waddan fi sanoota fi qoddaan kan biro ni xura'uu; yeroo baayyee akka itti qulqullesituu ibsuu dandeessaa? (Deebii tokkoo oli ni danda'ama)	1. Haftee nyaata fi bakka itti balfaan waalitti qabamuu keessaa buusu 2. Bishaan xiqqoo ishee ho'een miccuu 3. Saamunadhaan akka gaaritti miccuu 4. Hin beekuu
49	Kuduralee hin bilchannefi firafiroota otuu hin nyaatin maal gochuu qabda?	1. Bishaan qulqulluun akka gaaritti miccuu 2. Kan biro(maaqa dha'ii)_____
		3. Hin beekuu
50	Jarmooni nyaata irra akka hin genyeef harkaa miccachuun yeroon murteessoon ni jira; yeroo murteessoon kun yoomidhaa?	1. Yeroo mana fincaanitti deebi'an 2. Uffanni fincaani kan da'imaan erga itti jijjirame booda 3. Nyaata otuu hin qopheesiin dura 4. Da'ima utuu hin nyaachisin dura 5. Nyaata hin bilchatne erga tuqnee booda 6. Balfaa erga waliti qabnee booda 7. Kan biro 8. Hin beekuu
	Kutaa 4: Gaaffiwaan ilalchaan waal qabataan	
51	Da'ima ulfatinnaa isaa xiqqaa da'u danda'a jete hamam amantaa?	1.Ta'u hin danda'u 2. Amansisaa nat hin fakkatuu 3.Ta'u danda'a

52	Gaaffii lakkoofsa“51” deebiin isa ta’u hin danda’uu yoo ta’ee;ta’u hin danda’u sababi jettef dubachuu dandeessaa?	Sababii isa _____
53	Da’imii atii deessuu ulfaatini isaa xiqqaa yoo ta’e hamam rakkina qaba jettee amantaa?	1.Rakkina hin qabu 2. Amansisaa nat hin fakkatuu 3. Rakkina qaba
54	Gaaffii lakkoofsa“53” deebichi rakkina hin qabu yoo ta’ee rakkina hin qabu sababii jetteef nati himuu ni dandeessaa?	Sababii isa _____
55	Yeroo ulfaa haala gaariin nyaata dabalata nyaachuun akkamiti gaariidhaa jettee amantaa?	1. Gaarii miti 2. Amansiisaa miti 3. Gaariidhaa
56	Gaaffii lakkoofsa“55” deebichii gaarii miti yoo ta’e sababii isaa nati himu ni dandeessaa?	Sababii isa _____
57	Otoo hin ulfa’in dura nyaata nyaatu irraa yoo xiqqaatee nyaata dabalata tokkoo yeroo ulfa nyaachun hamami rakkisadhaa jettee amantaa?	1. Hin rakkisuu 2. Gidduu galleessaa 3. Rakkisaa dha
58	Gaaffii lakkoofsa“57”deebiin isa rakkisaa dha yoo ta’e sababii isa himu ni dandeessaa?	Sababii isa _____
59	Dhukubni hirina dhigaa narra ga’uu danda’a jette hamam amantaa?	1. Ta’u hin danda’u 2. Amansisaa miti 3. Ta’u danda’a
60	Gaaffii lakkoofsa“59” deebiin isa ta’u hin danda’u yoo ta’e sababii isa himu ni dandeessaa?	Sababii isa _____
61	Dhukubni hirina dhigaa hamam rakkisaadha jette amantaa?	1.Rakkina hin qabu 2. Amansisaa nat hin fakkatuu 3. Rakkina qaba
62	Nyaata albuuda ayireen of keessaa qaban kannen akka foon, lukkuu fi tiruu nyaata waajjiin qopheessuun hama gaariidha jettee amantaa?	1. Gaarii miti 2. Amansiisaa miti 3. Gaariidhaa
63	Nyaata albuuda ayireen of keessaa qaban waajjiin nyaata qopheessuun hama rakkisaa jettee amantaa?	1. Hin rakkisuu 2. Gidduu galleessaa 3. Rakkisaa dha
64	Nyaata albuuda ayireen of keessaa qaban waajjiin nyaata qopheessuuf hamam ofi keti amantaa?	1. Ofkoti hin amanu 2. Gidduu gaalleessaa 3. Rakkina hin qabu
65	Hirina Vitaamin”A” hamam rakkinaa nati fidaa(nati dhufu danda'aa) jette amantaa?	1. Ta’u hin danda’u 2. Amansisaa nat hin fakkatuu 3. Ta’u danda’a
66	Hirina Vitaamin”A” umamuu danda’a hamam jette ni amantaa?	1. Rakkina hin qabu 2. Amansisaa nat hin fakkatuu 3. Rakkina qaba
67	Dhandhama/miyawaa nyaatota armaan gadii hamam jallataa(Tiru, Kalee, Onnee, Buupha/Killee, ananaani, Baaduu/urgoo fi bu’a anaani, kudura burtukaanawa ta’e, mixaxishaa burtukan irra argame , karooti,buuqee,fi	Tiruu 1.Hin jalladhu 2.Hin jalladhus/hin jibbus 3. Nan jalladha Kalee 1.Hin jalladhu 2.Hin jalladhu/hin jibbu 3. Nan jalladha

	kuduraloota magarisaa)	Onnee 1.Hin jalladhu 2.Hin jalladhu/hin jibbu 3. Nan jalladha Buupha 1.Hin jalladhu 2.Hin jalladhu/hin jibbu 3. Nan jalladha Baaduu 1.Hin jalladhu 2.Hin jalladhu/hin jibbu 3. Nan jalladha Anaani 1.Hin jalladhu 2.Hin jalladhu/hin jibbu 3. Nan jalladha Urgoo 1.Hin jalladhu 2.Hin jalladhu/hin jibbu 3. Nan jalladha kudura burtukaanawa 1.Hin jalladhu 2.Hin jalladhu/hin jibbu 3. Nan jalladha Mixaxishaa burtukan irra argame 1.Hin jalladhu 2.Hin jalladhu/hin jibbu 3. Nan jalladha karooti 1.Hin jalladhu 2.Hin jalladhu/hin jibbu 3. Nan jalladha Buuqee 1.Hin jalladhu 2.Hin jalladhu/hin jibbu 3. Nan jalladha Kuduraloota magarisaa 1.Hin jalladhu 2.Hin jalladhu/hin jibbu 3. Nan jalladha
68	Hirinni hayoodini qaama keessaa yoo jiratee hamam rakkina qaba jettee amantaa?	1.Rakkina hin qabu 2. Amansisaa nat hin fakkatuu 3. Rakkina qaba
69	Nyaata ashaboo Hayoodini waajjiin qopheessuun gaariidha ni jettaa?	1. Gaarii miti 2. Amansiisaa miti 3.Gaariidhaa
70	Ashaboo hayoodawaa bittaani itti fayyadamuun hamam nama rakkisaa jettee amantaa?	1 . Rakkina hin qabuu 2. Gidduu galleessaa 3. Rakkisaadha
Kutaa 5. Dubartootni ulfaa nyaata gahaa fi wantoota fayyaan wal qabataan ilalchisee gaffilee gafataman		
71	Dursaa irratti qophaa ykn nyaatoota wajjiin nyaatoota ati nyaatee irratti gaaffii si gafachuu nan jalladha. (kalleessa); ganama hanga galgaalati nyaatoota kana gadiiti argaman nyaatetaa? Nyaatota kanaa gaddi caqafaman dubbisitii deebii isa eeyyee ykn Lakkii jechuudhan tokkoon tokkoo isatii mari	Tiruu 1. Eyyee 0. Lakkii Kale 1. Eyyee 0. Lakkii Onnee 1. Eyyee 0. Lakkii Foon hoola 1. Eyyee 0. Lakkii Foon jabbii . 1. Eyyee 0. Lakkii Foon reetii 1. Eyyee 0. Lakkii Qurxummii fi nyaata galanaa keessaa 1. Eyyee 0. Lakkii
72	Yeroo baayyee firafiroota sitirikii of keessaa qaban(Burtukana, loomii fi kan kan fakkatan) ykn cuunfaa isaan irra hojjatame ni fayyadamtaa?	1. Eyyee 0. Lakkii 2. Hin beekuu
73	Gaaffii lakkoofsa“72”deebiin isa eeyyee yoo ta’e guyyumani?	1. Eyyee 0. Lakkii 2. Hin beekuu
74	Yeroo baayyee firafiroota sitirikii of keessaa qaban yoom nyaataa?	1. Nyaata dura 2. Nyaata waajjiin 3. Nyaata booda 4. Kan biro_____ 5. Hin beekuu

75	Yeroo baayyee buna ykn shayee ni dhugdaa?	1. Eyyee 0. Lakkii 2. Hin beekuu
76	Gaaffii lakkoofsa“75”deebiin isa eeyyee yoo ta’e guyyumani?	1. Eyyee 0. Lakkii 2. Hin beekuu
77	Gaaffii lakkoofsa“76”deebiin isa eeyyee yoo ta’e guyyaati naqa meeqa?	1. Sini/ burcuqoo tokkoo 2. Sinii/ burcuqoo lama 3. Sini / burcuqoo sadiif isa oli
78	Yeroo baayyee buna ykn shayee yoom dhugdaa?(filannoowaan kana gaditii dubbisiif)	1. Nyaata dura satii lamaf isa oli 2. Nyaata yeroon nyaachuf jedhuu 3. Nyaata wajjiin 4. Akkuman nyaataa nyaadheen 5. Nyaata booda satii lamaf isa oli 6. Kan biro(maqa dhahi)_____ 7. Hin beekuu
79	Yeroo baayyee dhugaatii alkoooli ni dhugdaa?	1. Eyyee 0. Lakkii 2. Hin beekuu
80	Gaaffii lakkoofsa“79”deebiin isa eeyyee yoo ta’e guyyaati xarmusi/ Malakee /burcuqqoo meeqa?	_____Xaarmusii/Malakee/burcuqqoo
81	Kalleessaa guyyaafi halkaan nyaatoota armaan gaditii tareefaman nyaatetta? (filannoowaan nyaata kana gaditii dubbisiif)	1. Buphaa 1. Eyyee 0. Lakkii 2. Anaani,Baaddu,urgoo ykn bu’a ananii 1. Eyyee 0. Lakkii 3.Nyaata bifaa burtukaani qaban Mixxatishaa bifaa burtukanaa 1. Eyyee 0. Lakkii 4. Karoota 2. Eyyee 0. Lakkii
82	Yeroo ulfa turte qoricha ireenii/fooleetii fudhatteetta ?	1. Eeyyee 0. Hin fudhanne 2. hinbeeku
83	Gaaffii 82, kanaan oliif debii yoo eeyyee ta’e yeroo hangamiif fudhate	Ji’a-----
84	Gaaffii 82, kanaan oliif debii yoo Hin fudhanne yoo ta’e , sababi isaa maal ture	1. Dhiyootti hinarganne 2. Gatii isaati mi’aa dha 3. Garaacha nama dhukkubsa 4. Sababa biroo
85	Nyaata matiif yeroo hojjetta kaleessa ashaboo iiti dabaltaniitu ?	1. Eeyyee 0. Lakki
86	Gaaffii lak.85 deebiin eyyee yoo ta’e, gosa ashaboo kam fayyadamte? (yoo danda’ame, ashaboo akka argisiisaniif gaafdhu)	1. Iyoodinii kan qabu 2. Iyoodinii kan hin qabne 3. Ashaboon mana hin jiru 4. Hin beeku (deebii hin qabu)
87	Ashaboon fayyadamte iyoodinii kan qabu yoo ta’e, mana keessa akkamitti keessa?	1. Aguugamee (cufamee) 2. Mana nyaata itti bilcheeffamu eessayyuu 3. Naannoo ibiddaa 4. Kan biroo
88	Ashaboon fayyadamte iyoodinii kan hin qabne yoo ta’e, sababiin isaa maalii?	1. Hin argamu 2. Gatiinsaa mi’aadha 3. Kan biraa(Ibsi) _____
89	Nyaati ati yeroo ulfaa hin nyaanne jiraa?	1. Eyyee 0. Lakki

90	Gaaffii 89 ffaaf deebiinkee eyyee yoo ta'e, nyaata yeroo ulfaa lagattu (hin nyaanne) maalfayi?	Ibsi _____
91	Gaaffii 89 ffaaf deebiinkee Eyyee yoo ta'e, sababiinsaa maal?	Ibsi _____
92	Wantoota armaa gadiirratti gorsi siif kennamee beekaa?	Nyaata dabalataa yeroo kaanirraa adda ta'e 1. Eyyee 0. Lakki Nyaata gosa adda addaa walitti makanii nyaachuu 1. Eyyee 0. Lakki Nyaata tursituu 1. Eyyee 0. Lakki Nyaata madaalawaa 1. Eyyee 0. Lakki
93	Deebiinkee gaaffii 92 ffaaf Lakki yoo ta'e, sababiinsaa maali; deebiin tokkoo ol ni danda'ame	1. Dhaabbilee fayya dhaqee hin beeku 2. Oggeeyyin fayyaa manakoo dhufanii hin beekan 3. Fedhii dhabuu ogeeyyii 4. Oggeeyyin fayyaa yeroo hin qban 5. Kanbiroo (ibsi) _____
94	Yeroo ulfaa nyaata isa hanga dur amaleeffatte caalaa nyaattee beektaa?	1. Eyyee 0. Lakki 2. Deebii hin laanne
95	Deebiinkee gaaffii lak. 94 Lakki yoo ta'e, sababiinsaa maali? (deebiin tokkoo ol ni danda'ama)	1. Dabaluun hin barbaachisu 2. Galiinkoo naaf hin eeyyamu 3. Qaamni mucaa guddatee da'umsa irratti nama rakkisa 4. Deebii hin laanne 5. Kan biroo (ibsi) _____
96	Deebiinkee gaaffii lak. 94 eyyee yoo ta'e, nyaatakee akkamiin dabalte?	1. Guyyaatti yeroo baay'ee nyaachuun 2. Hanga nyaataa dabaluun 3. Yeroo baay'ee fi hanga nyaataa dabaluun
97	Nyaatakee eenyuu wajjin nyaatta?	1. Miseensa maatii hundaa wajjin 2. Ijoolleekoo wajjin 3. Abbaa manaakoo wajjin 4. Kophaakoo
98	Namni biraa siin alatti kan nyaata maatiin nyaatuufi bilcheessuussaa irratti murteessuu jiraa?	1. Eyyee 0. Lakki
99	Deebiinkee gaaffii lak. 98 eeyyee yoo ta'e, abbaan sun eenyu?	1. Abbaa warraa 2. Haadholii 3. Amaatii (haadha abbaa warraakoo) 4. Kan biroo (ibsi) _____
100	Erga mucaakee deessee gargaarsa maatiikeefi hawaasa biraa argatteettaa?	1. Eyyee 0. Lakki 2- Deebii hin laanne
101	Deebiinkee gaaffii lak. 100 Lakki yoo ta'e, sababisaa maali?	1. Maatii hin qabu 2. Na gargaaruuf fedhii hin qaban 3. Hojii baay'ee hin qabu 4. Deebii hin laanne
102	Boqonnaa ga'aa ni fudhattaa?	1. Eyyee 0. Lakki

103	Deebiinkee gaaffii lak. 102 waawuu yoo ta'e, sababiinsaa maali?	1. Nama na gargaaru hin qabu 2. Hojii baay'een mana keessaa qaba 3. Ani hojjetaa mootummaati 4. Kan biroo (ibsi) _____
104	Maatiikee keessatti maddi bishaanii dhugaatii, nyaata bilcheessuuf, dhiqannaaf eessa?	1. Bishaan ujummoo 2. Bishaan boollaa ✓ 1. Kan daangeffame ✓ 0. Kan hin daangeffamne 3- Bishaan burqituu ✓ 1. Kan daangeffame ✓ 0. Kan hin daangeffamne 4- Bishaan bakkee (laga guddaa, laga xiqqaa, haroo, bishaan jal'isii, bishaan qaruuraatti cuqqaalame) 5. Bishaan highlandii 6. Kan biroo (ibsi) _____
105	Deebiinkee gaaffii lak. 104 maddisaa yoo bishaan ujummoo ala ta'e, bishaan sun miidhaa akka hin fidneef utuu hin fayyadamin yaalii ni gootaa ?	1. Eyyee 0. Lakki 2- Hin beeku (Deebii hin laanne)
106	Nyaatiikee jarmiidhaan akka hin faalamneef yeroo akkamii harkakee dhiqachuu akka qabdu beektaa?	1. Eyyee 0. Lakki 2- Hin beeku (Deebii hin laanne)
107	Deebiinkee gaaffii lak. 106 eyyee yoo ta'e, yeroo ati itti dhiqachuu qabdu yoom fa'i?	1. Mana fincaanii fayyadamtee booda 2. Mucaa dhiqxee wayyaa erga jijjiirteefi booda 3. Nyaata qopheessuu dura 4. Mucaa nyaata nyaachisuu dura 5. Nyaata hin bilchaatin erga harkaan qabdee booda 6. Kosii erga xuqxee booda 7. Kan biraa _____ 8. Hin beeku
108	Yeroo baay'ee bishaanni miidhaa akka namatti hin fidneef maal gootaa?	1. Ni danfisa 2. Bishaan gaariin fayyadama 3. Erbee qulqulluun calaluu 4. Turee akka calalu (ciisu) gochuu 5. Kan biroo (ibsi) _____ 6. Hin beeku/Deebii hin laanne
109	Hordoffii da'umsa fuul-duraa gootee beektaa?	1. Eyyee 0. Lakki
110	Deebiinkee gaaffii lak. 109 eyyee yoo ta'e, yeroo meeqa?	Yeroo _____
111	Deebiinkee gaaffii lak. 109 eyyee yoo ta'e, ji'a meeqaafaatti?	Ji'a _____
112	Deebiinkee gaaffii lak. 109 eyyee yoo ta'e, tajaajila maal maalfaa argatte?	0. Yaalii busaa 1. Yaalii raammoo garaa keessaa 2. Nyaata bifa qorichaatiin (supplementation) 3. Qorannoo fayyaa (vital sign measurement) 4. Ulfaatina safaruu 5. Kan biroo (ibsi)
113	Deebiinkee gaaffii lak. 109 eyyee yoo ta'e, qulqullina	1. Gaarii

	tajaajila siif laatamee akkamitti ilaalta? (Haala dandeettii ogeessotaa, argamtii meeshaafi iccitii eeguutiin)	2. Giddu-galeessa 3. Gad-aanaa
114	Deebiinkee gaaffii lak. 109 waawuu yoo ta'e, maaliifi?	1. Fagoo waan ta'eef 2. Geejiba dhabuu 3. Waanan dhaquu hin murteessineef 4. Hojiin waan natty baay'atuuf 5. Kan biroo (ibsi) _____
115	Yeroo ulfaa si dhukkubee beekaa?	1. Eyyee 0. Lakki
116	Deebiinkee gaaffii lak. 115 Eyyee yoo ta'e, bufata fayaa dhaqxee yaalamteettaa?	1. Eyyee 0. Lakki
117	Dhaabbileen fayya mana kerraa tilmaamaan hagam fagaata?	Kiiloo meetira _____
118	Dhaabbilee fayyaa ga'uuf tilmaamaan yeroo hagam sitti fudhata?	Daqiiqaa _____