INSECTICIDE TREATED NETS UTILIZATION AND ASSOCIATED FACTORS AMONG PREGNANT WOMEN IN EAST BADEWACHO DISTRICT, SOUTHERN ETHIOPIA. ACOMMUNITY BASED CROSS SECTIONAL STUDY.

BY

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INSECTICIDES TREATED NETS UTILIZATION AND ASSOCIATED FACTORS AMONG PREGNANT WOMEN IN EAST BADEWACHO DISTRICT, SOUTHERN ETHIOPIA: ACOMMUNITY BASED CROSS SECTIONAL STUDY

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ABSTRACT

Background: Malaria in pregnancy is a major public health concern, contributing to neonatal and maternal deaths, maternal anemia, low birth weight and it is the single most common cause of spontaneous abortion. Free distribution of Insecticide Treated Nets (ITNs) for households in malarious areas is currently underway in Ethiopia to prevent malaria. However adequate follow-up of its status and utilization is lacking.

Objective: To determine insecticide treated nets utilization and associated factors among pregnant women in East Badewacho District, in 2015.

Methods: A community based cross-sectional study design was employed from March 1 to 30, 2015. The data was collected by using interviewer administered questionnaire from a total of 340 pregnant women in 12 kebeles. Simple random sampling was carried out to select the samples. EPI-DATA version 3.1 was used for entry and then exported to SPSS version 16.0 for further statistical analysis. Descriptive statistics, binary and multiple logistic regressions were employed and the results were discussed. Adjusted odds ratios and their corresponding 95% confidence intervals were used to assess the association between independent and outcome Variables in the multiple logistics regression with P-value of (<0.05).

RESULT: Possession of at least one LLIN was 90%, but only 18.6% of households had sufficient access to LLINs. 71.5% of respondents were slept under LLINs the previous night. The mean scores of: perceived susceptibility, severity, benefits, barriers and self-efficacy were 72.90, 71.88, 79.06, 56.33 and 90.02 respectively and all were positively associated with use of ITNs. Comprehensive knowledge of malaria at [AOR, 95%CI, 1.03(1.02, 1.05)], social support regarding use of ITN at [AOR, 95%CI, 1.02(1.01. 1.04)], household access to LLINs at [AOR, 95%CI, 2.03(1.71, 5.91)], age of ITNs at[AOR, 95%CI, 1.35(1.33, 5.45)] and condition of ITNs at [AOR, 95%CI, .16(.05, .43)] were significantly associated with LLINs utilization (p.v<0.05).

CONCLUSION: Utilization of LLINs was found to be appealing. The factors associated with nonuse were: lack of ITN, household access, low social support, lack of knowledge on malaria prevention and control measures, misconceptions and unfavorable beliefs about ITNs. So it is important to avail ITNs, BCC and increasing awareness on family support to ITNs utilization.

Keywords: LLINs, Utilization of LLINs, Pregnant women

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS/ACRONYMS

ANC Antenatal care

CHW Community health workers

FGD Focus Group Discussion

FMOH Federal Ministry of Health

HBM Health Belief Model

HDA Health Development Army

HP Health Post

IPT Intermittent Preventive Treatment

ITNs Insecticide Treated Nets

LLIN Long Lasting Insecticidal Nets

MIS Malaria Indicator Survey

PMI Presidents Malaria Initiative

SNNPR Southern Nations Nationalities Peoples Region

VHT Voluntary Health Team

WHO World Health Organization.

CHAPTER ONE: INTRODUCTION

1.1 BACKGROUND

Malaria is a disease caused by five species of parasites of the genus *Plasmodium* that affect humans (*P. falciparum*, *P. vivax*, *P. ovale*,*P. malariae* and *P. knowlesi*). Malaria due to *P. falciparum* is the most deadly form and it predominates in Africa; *P. vivax* is less dangerous but more widespread, and the other three species are found much less frequently (1). Malaria parasites are transmitted to humans by the bite of infected female mosquitoes of more than 30 anopheles species. Globally, an estimated 3.3 billion people are at risk of malaria(2), with populations living in sub-Saharan Africa having the highest risk of acquiring malaria: approximately 80% of cases and 90% of deaths are estimated occur in African with children under five years of age and pregnant women most severely affected. Due to the unstable and seasonal pattern of malaria transmission, the protective immunity of the population is generally low, and all age groups are at risk of infection and disease (3, 4).

Malaria among pregnant women contributes to maternal anemia, low birth weight and infant deaths; it is the single most common cause of spontaneous abortion in many African countries. In response to this serious health problem, the Abuja Declaration for the initiative *"Roll Back Malaria"* in Africa was launched with a strategy to ensure pregnant women prevent malaria through the use of intermittent preventive treatment (IPT) with an effective anti-malarial drug and regular use of insecticide-treated bed nets (ITNs) (5). An estimated 278 million people in Africa still live in households without a single insecticide-treated bed net, and about 15 million pregnant women remain without access to preventive treatment for malaria (6).

Malaria in pregnancy is a major public health concern, contributing to roughly 11% of neonatal deaths and to 25% of all maternal deaths in some parts of the world. The World Health Organization recommends priority interventions for malaria during pregnancy, including use of insecticide-treated nets (ITNs) (7). According to FMOH reports, approximately 70,000 people die of malaria each year in Ethiopia. Plasmodium falciparum and P. vivax are the dominant species of the malaria parasite in Ethiopia, in respective order (8).

The diverse ecology of Ethiopia supports a wide range of transmission intensities, ranging from low-hypo-endemic transmission in the highlands and semi-arid regions to high-endemic perennial transmission in the lowland regions and valley floors. The current stratification of malaria is developed using Woreda, or district-level transmission intensity (annual parasite incidence per 1000 population - API). Therefore, based on API and altitude, four broad strata are identified. These strata are: malaria free; low; moderate, and high transmission strata (9).

Based on the current stratification the proportion of the population at risk of malaria is 60%. The reduction is generally expected and can be explained in relation to the scale-up and sustenance of interventions that have been taking place in the country. WHO recommends that distribution of LLINs be free or heavily subsidized to achieve greater equity of coverage, and that a variety of distribution systems be used to achieve universal access, including targeted campaigns to deliver nets to most-at-risk populations which include pregnant women and children less than five years. Ownership of insecticidal mosquito nets has dramatically increased in Ethiopia since 2006, but the proportion of persons with access to such nets who use them is declined. Utilization of insecticides treated nets is affected by unavailability of separate bed rooms, less number of ITN, low perception of ITN as main preventive measure and less HH access. So it is important to understand individual level net use factors in the context of the household to modify programs so as to maximize net use (10, 11).

1.2 STATEMENT OF THE PROBLEM

Approximately 50 million women living in malaria-endemic countries, including 30 million in Africa, become pregnant per year. For these women, malaria is a threat to both themselves and to their babies, with an estimated 10,000 maternal and up to 200,000 newborn deaths each year as a result of malaria in pregnancy (12). Pregnant women, particularly those in their first or second pregnancies, are particularly vulnerable to malaria as pregnancy reduces a woman's immunity to malaria, making them more susceptible to malaria infection and increasing the risk of illness, severe anemia, and death. For the unborn child, maternal malaria increases the risk of miscarriage, stillbirth, premature delivery, and low birth weight - a leading cause of child mortality (13). Most studies from sub- Saharan Africa shows that approximately 25 million pregnant women are at risk of Plasmodium falciparum infection every year, and one in four

women have evidence of placental infection at the time of delivery. One of the main malaria prevention strategies in pregnancy in the country is the regular and timely use of long-lasting, insecticide-treated nets. The evidence for the efficacy of ITNs in preventing malaria infection and its consequences in pregnancy is strong, as reported in a Cochrane review, and in a more recent meta-analysis which examined malaria prevention in pregnancy datasets from different African nations (14).

The Ethiopian national malaria indicator survey 2011 results shows tremendous achievements of Ethiopia‘s malaria control program as households in malarious areas are protected by at least one insecticide treated net. Insecticide treated net use by children under five and pregnant women increased to nearly 50% in malarious areas and to over 60% in households that owned at least one net. (15) In Southern Nations and Nationalities and Peoples Region (SNNPR), about 65% of the population is living in malaria endemic areas.

Malaria vulnerable groups, young children and pregnant women, should be prioritized to use ITNs available in the household. Most nations in Africa have policies for distributing ITNs to pregnant women through various mechanisms; however coverage remains well below the targets Study done in Ethiopia indicates that proportion of pregnant women who sleep under ITNs the night preceding the studies are less than 50% (16)

Despite the activities pertaining to the distribution of ITNs there are questions remain unanswered. The perception and attitudes of pregnant women on the role of ITNs in the prevention of malaria, proper and consistent use of ITNs still is also another issue to be addressed in the local context (17). The perceptions of communities about transmission, prevention, and treatment of malaria are central to understanding how interventions can be effectively introduced to control the disease. Successful control of malaria and scale up of ITN coverage relies on community perceptions and practice (18, 19). The HBM framework was used to explore the back ground factors, perceptions and beliefs of pregnant women (20) and thus the aim of this study is to describe pregnant women perception about malaria, the status of possession, and utilization of ITNs and identify factors associated with utilization among pregnant women in a District.

CHAPTER TWO:-LITERATURE REVIEW

Reviewing literature is important as it establishes a theoretical framework for our research topic or subject area and what other research states. Furthermore it tells us how the research was carried out (methodology) and the gap that our research intends to fill. It also ensures that whether the research hasn't been done before.

There are few researches on Insecticides treated nets utilization and associated factors particularly among pregnant women in Ethiopia. So our study reviewed those studies conducted in sub Saharan Africa regarding pregnant women ITN use and the general malaria prevention and control strategies in Ethiopia.

2.1 Socio demographic factors affecting ITN use

A systematic review from 27 studies shows that the key determinants of ITN use among pregnant women are: age, marital status, education, knowledge about malaria/ITNs, employment status, and receipt of IPT. Women with higher education or greater knowledge of malaria or ITNs are more likely to use ITNs than women with lower education or less knowledge, and women who are employed in a wage-paying job are also more likely to use ITNs during pregnancy than farmers or housewives (21).

The study conducted in Amhara and Oromia regions demonstrates that ITN use is associated with a number of factors related to household background, respondent's knowledge, and ITN characteristics, some of which should be incorporated into program policy. Fewer rural than urban women used ITNs. Higher educational attainment is an important predictor of ITNs use (22-24). Study in Uganda shows among households in which a net is present, women in the poorest households are more likely to use a net during pregnancy than those in households that are less poor (25).

Malaria is greatly associated with poverty. The mortality due to malaria is highest in countries with lower Gross National Income. Also, countries with high percent of their population living with less than US $1.25 per person per day have higher malaria mortality rates (26)

2.2 Knowledge about malaria and its preventive measures

Knowledge about malaria and its consequences during pregnancies is very important determinant factor for women to seek treatment and taking preventive actions. Increase in knowledge is also important for proper use of preventive measures (26, 27). Studies show that improved community knowledge of malaria and its source of transmission promote preventive and personal protection practices amongst the affected community. This is an opportunity any malaria prevention and control intervention can utilize. Pregnant women, through antenatal care services, can be the vehicles of ITN distribution in the communities to maximize overall ITN coverage. A study conducted in Kenya shows that disseminating information in locally relevant terms increases chances of improving understanding. Notably, explaining that nets prevent mosquito biting, which is the sole cause of malaria, may achieve better results than simply stating that bed nets prevent malaria (28-29).

2.3 Household ownership and Access to ITNs

The study conducted in Northern Ethiopia shows that Lack of access to ITNs and the perception that nets could not prevent malaria are the main reasons for non-ownership of nets. Another studies also show that reported barriers to ownership amongst pregnant women are Cost, No belief in ITN as prevention method, Other methods preferred (sprays, window nets), don't know where to get, Want to have own choice in net, don't like ITNs. The Ethiopian National MIS shows that only 35.3% of pregnant women are reported sleeping under a net the previous night. Among households owning at least one net, approximately two-thirds of children U5 (64.5%) and pregnant women (64.2%) slept under a net the night before the survey. (30-32)

One of the overriding challenges to the successful implementation of LLINs to protect people from malaria is increasing the consistent use of LLINs. A number of household-based surveys across Africa show that up to 50% of LLINs are not used every night, failing to protect people from getting malaria. Availability of ITN is an important contributing factor that affects household use. Ownership of nets is currently very high, even in urban areas where there is no free net distribution and nets have to be purchased. This suggests that a segmentation strategy targeting free nets to rural and poorest households combined with support for the commercial sector in urban and better-off areas will optimize coverage. Since nets that are paid for are more

likely to be used, this strategy may also help increase utilization rates. Ownership of insecticidal mosquito nets has dramatically increased in Ethiopia since 2006, but the proportion of persons with access to such nets who use them is declined. It is important to understand individual level net use factors in the context of the home to modify programs so as to maximize net use (33-35).

2.4 Social factors

Social support to pregnant woman is very important for her health and good pregnancy outcome. Since pregnancy is a family matter, both psychological and economic dimensions must be understood in the social organisation of reproduction, and of gender and kinship thought. Lack of social support can be due to various factors, e.g. impoverished households, absent 'relevant others' or poor social pressure for the husband to pay (36).

The bed net is a physical object that takes up a relatively large space. The use or non-use of any object depends on the interest the user, its perceived usefulness and the problem it causes by its physical presence and by its daily removal and redeployment (37).

Cultural factors that may determine ownership and use of LLINs must be taken into consideration to ensure that communication and advocacy activities contribute to effective use of LLINs. Misuse of LLINs as *_shash'*, curtains, fishing nets and not sleeping under LLINs have been reported. Operational research on local perceptions of mosquitoes, malaria, and washing practices is needed to inform the choice of messages, media and advocacy strategies for LLIN use (38)

2.5 Pregnant women perceptions/Beliefs about malaria and ITNs use

The HBM states that the perception of a personal health behavior threat is itself influenced by at least three factors: general health values, which include interest and concern about health; specific health beliefs about vulnerability to a particular health threat; and beliefs about the consequences of the health problem. Once an individual perceives a threat to his/her health and is simultaneously cued to action, and his/her perceived benefits outweighs his/her perceived barriers, then that individual is most likely to undertake the recommended preventive health action. There may be some variables (demographic, socio psychological, and structural) that can influence an individual's decision. (39)

According to study done on determinants of ITN use among pregnant women shows that the HBM constructs which negatively influence ITN use are the low perceived susceptibility to malaria and barriers to ITN use. The motivation and healthy habits are less influenced by the low perceived susceptibility and perceived barriers. The study also indicates that three determinants of ITN use influence net-use behaviors are malaria risk, intervention services, and personal factors (modifying factors and self-efficacy). These factors are not independent, but rather are interlinked. Seasonal variation in the perceived risk of malaria influences utilization of and compliance to malaria interventions and attitudes. Interventions influence the knowledge, attitudes and practices. A lack of resources such as money, time and knowledge occasionally act as a brake, while motivational beliefs sustained intervention and malaria risk. Perceived low mosquito density during the dry season hampers consistent use of ITNs (40). Perceived convenience, the delivery approach, and type of provider are also the key factors. On the perception of the interviewees the bed net don't totally play all the roles that promote its use. It reduces mosquito nuisance, but it is not perceived as removing all causes of malaria. Bed nets must be fixed indoors where the inhabitants sleep and the management of the interior of a house differs between daytime and night-time (41). It is believed that people's perception about seriousness of the problem can initiate people to take preventive measures such as utilization of ITN, early treatment seeking and so on.

A study conducted in Amhara and Oromia Regional states shows that malaria is considered as a serious problem in both urban and rural community across the two regions. However, not all people perceive it as serious disease. There is a perception that there are two kinds of malaria, red and yellow, and people believe that the yellow one is highly transmittable and difficult to cure. According to the participants, the one that attacks the head is called yellow malaria. This is the name given for cerebral malaria. This type of malaria can kill a person within a few days unless the person gets medical care early (42).

Insecticide treated nets benefits pregnant women by reducing low birth weight and maternal anemia. The community's perception about its benefit and effectiveness determine the use of ITN. Both urban and rural residents of the two regions agree that ITN is not only effective against the malaria transmitting insect - mosquito but also against other bugs (43)

A common individual-level barrier to use of ITNs is associated with the inconvenience and discomfort of using an ITN. Pregnant women describe feeling hot and uncomfortable under the net while sleeping and the inconvenience of putting it up and taking it down each night. The belief that the chemicals used to treat the ITNs are harmful to pregnant women and their unborn child is reported as a barrier in studies in Nigeria, Ghana, Kenya, and Uganda, which lead to many women discontinuing use of ITNs (44).

A systematic review in Africa shows that even when malaria in pregnancy is perceived as a serious risk or illness, attitudes towards particular interventions or ideas about malaria prevention in general may influence the uptake of preventive measures. Low bed net usage is attributed to a range of factors: seasonality of use and complaints about nets being uncomfortable or not of a suitable size; perceptions surrounding ITNs' ''chemicals'', which are viewed by some respondents as harmful to pregnant women and unborn children; concerns related to the retreating of ITNs and the effects of the insecticides upon pregnant women and the unborn child; and affordability and availability (45).

Studies reveal that self confidence in performing and cues to recommended health action are essential for health behavior. Based on these all participants recognize the sources of malaria information (cues) such as service delivery points (the dispensary and hospital), health staff, the provincial malaria team, public notice, a community meeting, family meeting, health talk, church activities, school activities and Radio(46).

2.6 CONCEPTUAL FRAME WORK

As a general framework for analysis, the various blocks are representing the links between outcome variable and factors associated with Insecticides Treated Nets utilization for prevention and control of malaria among pregnant women. The general concept is framed in Health Belief Model and thus it is a simultaneous process used to encourage healthy behavior among individuals who put themselves at risk of developing negative health outcomes. A pregnant woman must evaluate her perceptions of susceptibility and severity of developing malaria. Then it is necessary to feel threatened by these perceptions. Modifying factors can contribute as well as cues to action and social support. Lastly the benefits to ITN use must be weighed against the barriers to ITN utilization in order to determine that Utilization of ITNs will be worthwhile.

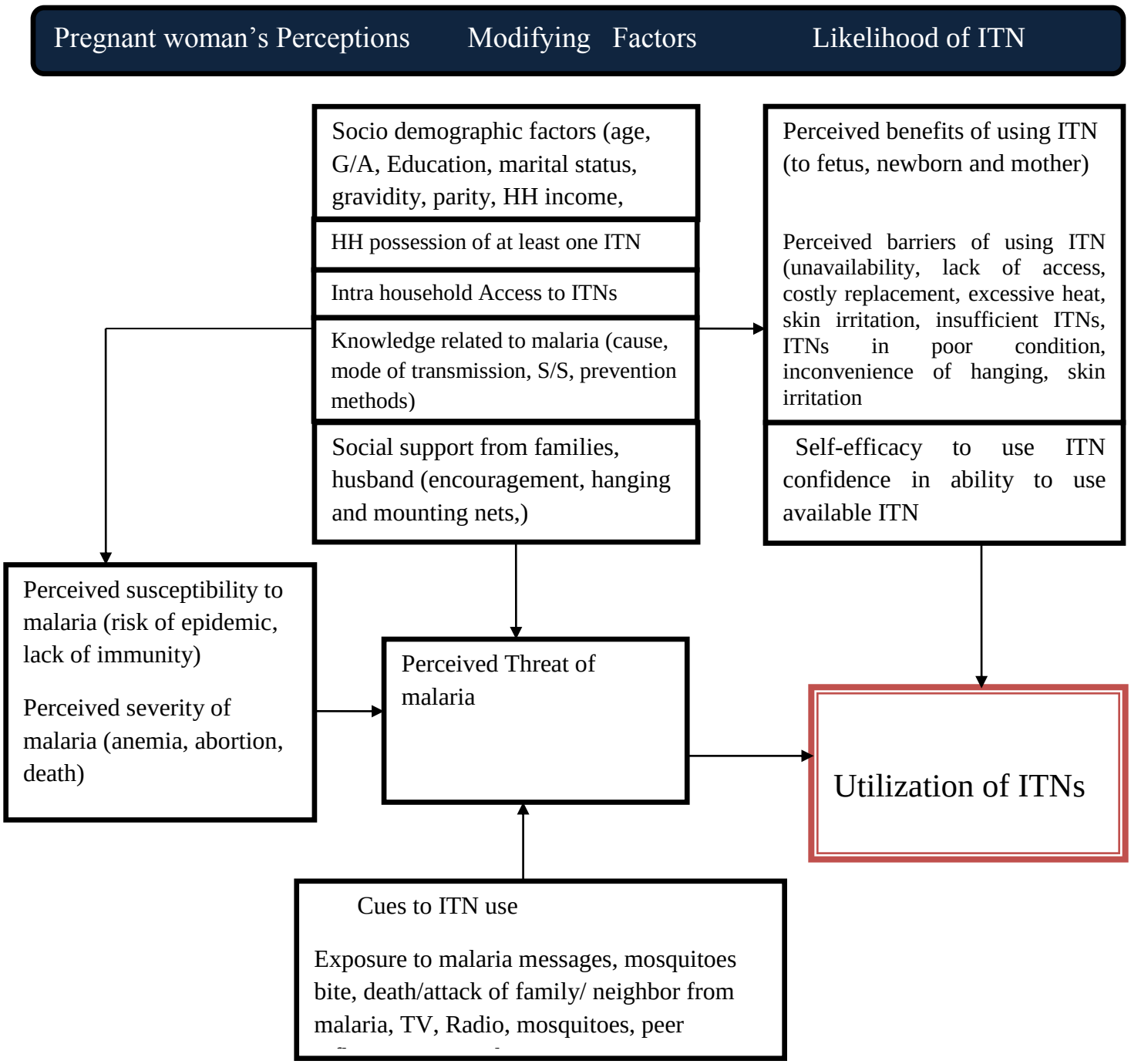

Figure1.Conceptual frame work of ITN utilization and associated factors among pregnant women regarding prevention and control of malaria.

Adapted from HBM: http://currentnursing.com/nursing_theory/health_belief_model.html

2.7 SIGNIFICANCE OF THE STUDY

For prevention of malaria during pregnancy, ITNs are one of the major interventions aimed at reducing maternal and infant mortality rates. Understanding what factors predict household ownership and use of nets among pregnant women is important for improving policies and programs to increase ITN coverage and use. It is also important to understand individual level net use factors in the context of the household level to modify programs so as to maximize net use.

Understanding the factors associated with bed net ownership and use in pregnant women is essential for refining ITNs distribution and for developing effective information, education and behavioral change activities.

However, few studies have been conducted in Ethiopia particularly in SNNPR concerning use of ITNs among pregnant women. The finding of this study will provide valuable information for malaria prevention and control programs, so that corresponding measures can be carried out.

Based on the finding, HEWs and other organizations who are engaged in malaria prevention and control activities will focus on pregnant women as one of the most intervention areas since they are most vulnerable groups.

Furthermore, it is used as scientific information for researchers, program planners, and decision makers.

CHAPTER THREE: OBJECTIVES

3.1 GENERAL OBJECTIVES

To determine insecticide treated nets Utilization and associated factors among pregnant women in East Badewacho District, Southern Ethiopia, March, 2015

3.2 SPECIFIC OBJECTIVES

1. To assess level of knowledge related to malaria and use of ITNs among pregnant women.
2. To assess perception (belief) related to malaria and ITN utilization among pregnant women
3. To determine the proportion of pregnant women using an Insecticide Treated Nets based on the previous night report.
4. To identify factors associated with Utilization of ITNs among pregnant women.

CHAPTER FOUR:-METHODS AND MATERIALS

4.1 Study area and period

The study was conducted in East Badawacho Woreda, from March 1-30, 2015.The Woreda is one of ten administrative Woreda found in Hadiya Zone, SNNPR. It is located approximately at 7^0 north latitude and 37 to 38^0 East longitudes. Its annual rain fall amount ranges from 800 mm to 1300mm. The capital of the Woreda, Shone, which is located at a distance of 345 km in the south-west from Addis Ababa and 123 km from Hawassa (the capital of the region) and 97km from Hosanna. The Woreda has thirty nine kebeles.

Based on population projection 2007 in to 2014/15, the total population is estimated to be 216,714 from which male accounts 107678 while female are109036. The expected number of pregnant women are7498.Concerning the health care services; there are 8 health centers, 39 health posts and 23 private clinics. All kebeles are malarious and malaria stands the first from all causes of morbidity. The curative and preventive actions of malaria are under- going. Among these, Indoor Residual spray, early diagnosis and treatment, ITNs distribution are being carried out by the government. ITNs have been delivered free of charge to all households. Accordingly, 84,500 long-lasting insecticidal nets (LLINs) in 2013–2014, were distributed across the district.

The District Health Office disease prevention and health promotion coordinating core process in general and malaria focal person in particular are responsible for planning and coordinating malaria prevention and control activities; 96 Health Extension workers and 887 health development army team leaders are also supporting community-based malaria control.

4.2 Study Design

Community based cross-sectional study was employed in order to conduct this study.

4.3 Source population: All pregnant women in the district.

4.4 Study population: All pregnant women within the selected kebeles of the district.

4.5 Inclusion criteria: Self-reporting pregnant women who spent the night prior to data collection

4.6 Exclusion criteria: Pregnant women who were seriously ill and those in labor pain/gave birth during data collection.

4.7 Sample size Determination

The district was purposely selected to represent malarious areas of SNNPR Ethiopia. The desired sample size was 367 pregnant women by adding 10% of non-response rate. It was calculated using a formula for a single population proportion, assuming a 5% margin of error at 95% confidence level and that the proportion of the pregnant women slept under an ITN was taken 35% from the study conducted in Arbaminch Zuria district, SNNPR, Ethiopia in 2009(7)

The sample size is calculated as follows:-

$$n = \frac{(Z\ a/2)^2 P\ (1-P)}{D^2} = \frac{(1.96)^2\ 0.35(1-\ 0.65)}{(0.05)^2} = 350$$

Since the source population was less than 10,000, we used finite population correction formula as shown below:-

$$n = n/\ (1+n/N) = 350/\ (1+350/2249) = 334$$ 334 + (10 % non-response) =367

Key informant Interviews was carried out by using purposely selected 08 husbands of Pregnant women, 01 HEW and 01 Woreda health office DPHP malaria focal totally 10 informants were interviewed.

4.8 Sampling technique /Sampling procedures

Twelve kebeles were randomly selected from the list of 39 kebeles. The sample was then distributed in the selected kebeles by proportion to population size and then selected by simple random sampling using lists of pregnant women from family folder of the health post as sampling frame. The name and address of pregnant women was specified. Based on these 340 respondents were responded. Those women who gave birth during data collection and absent in home with three repeated visits were excluded from the study and declared as non-response.

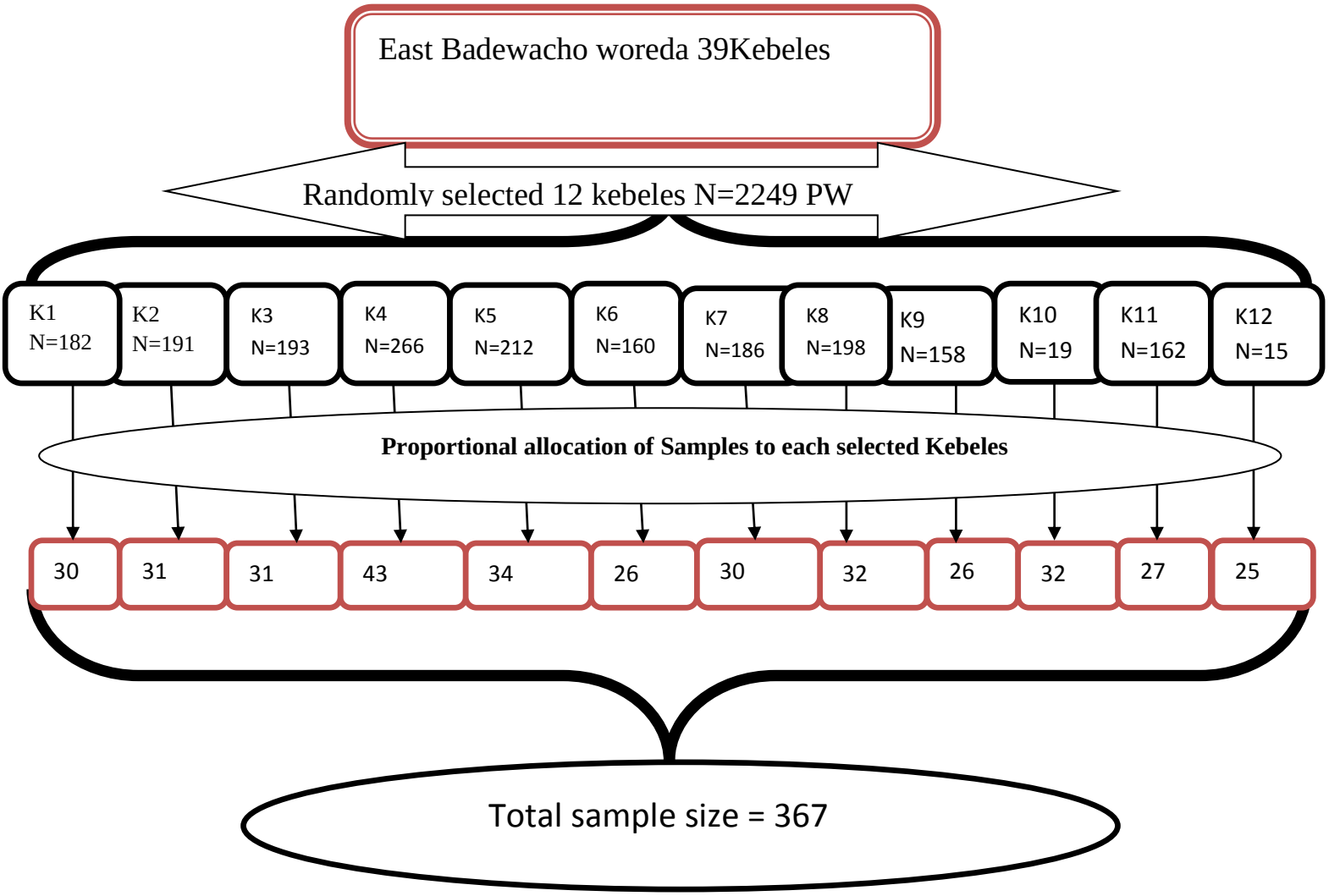

Figure 2.The schematic presentation of sampling procedure for ITNs utilization among pregnant women in East Badewacho district.

Purposive sampling technique was used to identify the members participated in the qualitative data collection. Based on these10 Interviews were conducted in their house hold for HH heads and the organization where they are working for government health workers. The objective of this study was to supplement the findings of quantitative research and to provoke community perceptions about malaria and its preventive measures.

4.9 STUDY VARIABLES

4.9.1 **Dependent variable:** Insecticides Treated Nets utilization.

4.9.2Independent variables

Socio demographic variables

Ownership or possession of ITNs

Household access to ITNs

Knowledge related to malaria

Perceived susceptibility to malaria

Perceived severity of malaria

Perceived benefits of using ITNs

Perceived barriers to ITNs utilization

Perceived self-efficacy to use ITNs

Cues to sleep under ITN

Social support to use ITNs

4.10 Data collection procedures (Instrument, measurement, personnel)

4.10.1 Instrument:

Data was collected by face to face interview using pretested and structured questionnaire which is adapted after reviewing different literatures (4, 14, 41) and modified to the local context. The questionnaire was prepared in English then translated Amharic and back translated to English again to ensure its consistency. Respondents were asked first about socio demographic characteristics with 14 items, followed by ownership, access and use with 17items, Knowledge related to malaria with 05 items with multiple responses, woman's beliefs with 31 items, cues to action 5 items and social support with 10 items.

Guiding questions for health professionals and household heads of pregnant women was used separately for collecting qualitative data used to explore community perception on malaria and its preventive measures and also the challenges related to possession, house hold access and use of ITN among pregnant women.

4.10.2 Measurement (Operational definition):

Proportion of households with at least one ITN (ownership): This indicator measures household ITN ownership. It was obtained from asking the pregnant woman if there is any mosquito net in the house that can be used while sleeping and observed by data collector.

Household LLIN access Indicators:-

a. Proportion of households in the study with at least one LLIN (P_1): numerator consists of all households that own at least one insecticide mosquito net and the denominator is the total of number of sampled households.

b. Proportion of households with at least one LLIN for every two people (P_2): numerator contains all households where the ratio between numbers of LLIN owned and the number of household members is 0.5 or higher and the denominator is the total number of sampled households. This is the indicator of proportion of households having sufficient access to LLIN.

Proportion of households with at least 1 LLIN for every two people among households owning any LLIN (P_5) measuring the saturation with LLIN for households with any LLIN. And the inverse ($1-P_5$) gives the intra-household ownership gap.

Proportion of pregnant women sleeping under an ITN the previous night (utilization): This indicator is used to measure the level of ITN use by pregnant women. It shows the proportion of pregnant women who slept under an ITN the previous night.
Condition of ITNs: Good (no holes), Fair (no holes that fit a torch battery), Poor (1-4 holes that fit a torch battery) and Unsafe (>5 Holes that fit a torch battery)

Knowledge about malaria: This part of questionnaire assesses the understanding of malaria in terms of cause, mode of transmission, signs and symptoms and prevention. It was measured by the total number of correct answers to 10 items on correct answer format. The minimum score is 0 and maximum is 10, and pregnant women with high score have high knowledge.

Perceived susceptibility: This concept was measured using 04 items on three point scale format ranging from disagree to agree. The items were stated in statement form and respondents' were asked to indicate their level of agreement with each statement. The score of each item was

summed up to compute composite score which was used for further analysis. The higher the score to the scale reflects the higher the perceived susceptibility among the respondents.

Perceived severity of malaria: This concept measured using 06 items on three point scale format ranging from disagree to agree. The items were stated in statement form and respondents' were asked to indicate their level of agreement with each statement. The score of each item was summed up to compute composite score which was used for further analysis. The higher the score to the scale reflects the higher the perceived severity of malaria among the respondents.

Perceived benefits of using ITN: This concept was measured using 07 items on three point scale format ranging from disagree to agree. The items were stated in statement form and respondents' were asked to indicate their level of agreement with each statement. The score of each item was summed up to compute composite score which were used for further analysis. The higher the score to the scale reflects the higher the perceived benefits of using ITN among the respondents.

Perceived barriers to use ITN: This concept was measured using 10 items on three point scale format ranging from disagree to agree. The items were stated in statement form and respondents' were asked to indicate their level of agreement with each statement. The score of each item was summed up to compute composite score which were used for further analysis. The higher the score to the scale reflects the higher the perceived barriers to using ITN among the respondents.

Self-efficacy: This concept was measured using 04 items on three point scale format ranging from disagree to agree. The items were stated in statement form and respondents' were asked to indicate their level of agreement with each statement. The score of each item was summed up to compute composite score which was used for further analysis. The higher the score to the scale reflects the higher the perceived self-efficacy of using ITN among the respondents.

Cues to action*:* This concept was assessed by assuming exposure to malaria messages and social support items as triggers to ITNs utilization.

Social support: This concept measures the social and psychological support needed from husband and other family members. It was measured by using 10 items on yes/No format. The minimum score is 0 and maximum is 10 and pregnant women with high score have in high family support to use an ITN.

4.10.3 Data collection methods

Data collectors were 10^{th} complete and above with data collection experience recruited from the study area. They were included in the study after taking three days training on the objectives, purpose of the study, proper administration of questionnaire and filling the check list. 12 data collectors and 4 supervisors were assigned. Pretest of the questionnaire was done on 5% of respondents in kebele having similar socio demographic characteristics with the pregnant women of the study area not selected for main study. During pre-test the interviewers and Supervisors assessed clarity; understandability and completeness of questions and some correction and changes were made on social support items dimensions since it demands more qualitative response besides quantitative interviews. Then data collectors interviewed pregnant women, inspected available bed nets and was filled the checklist with in the household.

4.11 Definition of Terms

Mosquitoes Net- is a material made of nylon, polyester, polyethylene and synthetic with cotton mixture with different size, shape and used to protect people against insect bite.

Insecticide Treated mosquito Nets (ITN): is a factory-treated net that does not require any treatment (LLIN) or a net that has been soaked with insecticide within the past 12 months.

Knowledge related malaria: The pregnant woman's correct understanding of malaria in terms of cause, mode of transmission, signs and symptoms and prevention.

Perceived susceptibility: The subjective perception of the risk the pregnant woman to malaria and its consequences.

Perceived severity: Subjective evaluation of pregnant woman about the seriousness of the consequences associated with malaria.

Perceived benefits: The pregnant woman's subjectively understood positive benefits of using ITN to counteract a perceived threat of malaria.

Perceived barriers: The pregnant woman's perceived negatively valued aspects of using ITN to protect or to prevent malaria.

Self-efficacy: The willingness or confidence in pregnant woman's ability to sleep under an ITN.

Cues to action: Reminders, triggers or prompts of pregnant woman to sleep under an ITN.

4.12 Data analysis procedures

After the data collection, data was checked manually for its completeness and consistency. It was cleaned and rechecked for its completeness and consistency again. It was entered and stored into Epi-Data and then exported to SPSS window versions 16.0 for analysis. Descriptive statistics were done to summarize the independent variables. Binary and multiple logistic regression analysis were applied to see the association of independent and outcome variable. Variables with P-value less than 0.05 in multiple logistics regression were used to declare association between factors and the dependent variables. The result was presented by tables, graphs and discussed with previous study findings and the qualitative data.

Qualitative data were transcribed and the responses were reported and discussed using narratives as well as direct quotation for triangulation with quantitative finding. Finally possible recommendations were made based on the finding of the study.

4.13 Data quality management

Data quality was ensured during instrument development, collection, coding, entry and analysis. The questionnaire first translated to Amharic and back translated to English before data collection and different translator s were used to keep the consistence of the questionnaire.

Then data collectors were trained about the purpose of the study and how to administer the questioner, Role play by trainee was also done to strengthen their skills of administering questionnaire, how to approach with participants in the field and how to fill the check list.

The Instrument was pre tested on 5% (20 pregnant women) in one kebele which was not selected for the main data collection and some modification on social support items were made. During data collection, questionnaire was checked for its completeness on daily basis by immediate supervisors. Incorrectly filled or missed questionnaires were sent back to the respective data collectors for correction, and the supervisors submitted the filled questionnaire to the principal investigator after checking its consistency and completeness. The investigator also rechecked the completed Questionnaires to maintain the quality of data.

The trustworthiness of qualitative data was addressed by using longer periods of hours with Interviewees for information collection, selecting credible sources for interviews, briefing the collected information with respondents, describing the experiences and ideas of respondents and finally discussing the collected information with Woreda health office relevant bodies.

4.14 Ethical consideration

The ethical approval and clearance was obtained from Jimma University Ethical Review Committee. Formal letter was written from the Woreda administrative council and health office. The necessary explanation about the purpose of the study, its procedure, the right not to participate on the study without any consequences was done and a verbal consent was obtained from the respondents. They were not forced to answer the entire question and informed that they can withdraw at any time if they don't want to participate. Confidentiality and anonymity of data was maintained

4.15Dissemination plan

The findings of this study will be disseminated to college of public health and medical science, department of Health education and behavioral sciences, SNNPR Health Bureau, Hadiya zone health department, East Badewacho District Health Office.

The findings will be also disseminated to different stakeholders that have a contribution to improve pregnant women ITNs utilization.

Finally effort will be made to present in various seminars and workshops and for publication in international journals.

CHAPTER FIVE: RESULT

5.1 socio demographic characteristics

Three hundred forty pregnant women were participated in the study giving response rate of 92.6%. Table1 presents socio demographic characteristics of respondents. The mean age of respondents was 28.9 ±5.4 years. In these surveyed households, 2149 people were living with average family size of 6.3.The average monthly household income was 373.27±200.65ETB.

Table1: Socio demographic characteristics of respondents, East Badewacho district, SNNPRS, Ethiopia, March 2015

Variable	Category	Frequency (n)=340	Percentage
Age category of woman	<=30 years	236	69.4
	> 30years	104	30.6
Place of residence	Rural	340	100
	Urban	0	0
Gravidity	Primigravida (1st pregnancy)	13	3.8
	Multigravida (>=2 pregnancies)	327	96.2
Parity	Primipara (<2 live birth)	87	25.6
	Multipara(>=2 live births)	253	74.4
ANC follow up for current pregnancy	Yes	250	73.5
	No	90	26.5
Pregnancy in trimester	1st trimester	10	2.9
	2nd trimester	135	39.7
	3rd trimester	195	57.4
Marital status	Married	328	96.5
	Others*	12	3.5
Religion	Protestant	234	68.8
	Muslim	61	17.9
	Orthodox	45	13.2
Level of Education	Illiterate(can't read and write)	117	34.4
	Primary (grade 1-8)	204	60.0
	Secondary (grade 8-10)	18	5.3
	Higher (college and above)	1	.3
Occupation	Housewife	307	90.3
	Merchant	27	7.9
	Daily laborer	3	.9
	Government employer	3	.9
Estimated monthly income of the household	<=500ETB	204	60.0
	>=501ETB	136	40.0

*=single, widowed, separated

5.2 HOUSEHOLD POSSESSION, ACCESS AND CHARACTERISTICS OF LLINs

Ninety percent of the households included in the study had owned at least one LLIN. 81.4% of respondents were living in households with insufficient access to LLIN. Table 2 presents household possession, access and characteristics of Insecticides Treated Nets.

Table 1.*Possession, access and characteristics of LLINs, in East Badewacho District, Southern Ethiopia, 2015.*

Variables	Frequency	Percentage
Does your household have functional ITN?(n=340)		
Yes	306	90.0
No	34	10.0
Proportion of households with at least one ITN (n=306)		
Households with 1ITN	71	23.3
Households with 2ITNs	140	45.9
Households with 3ITNs	69	22.6
Households with 4ITNs	24	7.9
Households with 5ITNs	1	.3
House hold access to ITN (n=306)		
Proportion of households with insufficient access	249	81.4
Proportion of households with sufficient access	57	18.6
Proportion of households with no access (n=340)	34	10
Status of the net at the time of interview(n=659)		
Kept folded	29	4.4
Hanged	600	91
Others	30	4.5
Net Source (n=659)		
Freely supplied by government	618	93.7
Purchased by HH	41	6.2
Shape of ITN(n=659)		
Conical	45	6.8
Rectangular	614	93.1
Color of ITN (n=659)		
Blue	618	93.7
White	41	6.2
Type of nets(n=659)		
Untreated	4	0.6
LLIN	628	95.2
Don't know	27	4.0
Condition of nets(n=659)		
1 .Good (no holes)	305	46.2
2 .Fair (no holes that fit a torch battery)	313	47.4
3.Poor (1-4 holes that fit a torch battery)	41	6.2

5.3 UTILIZATION OF LLINs

Overall, 64.4% of the respondents (pregnant women) slept under LLINs previous night before the study. But, when the analysis restricted to households with at least one net, previous net use was increased to 71.5%. Furthermore, in households with sufficient access to LLIN 78.9% of respondents were slept under LLIN. Figure 4 presents respondents utilization of LLINs.

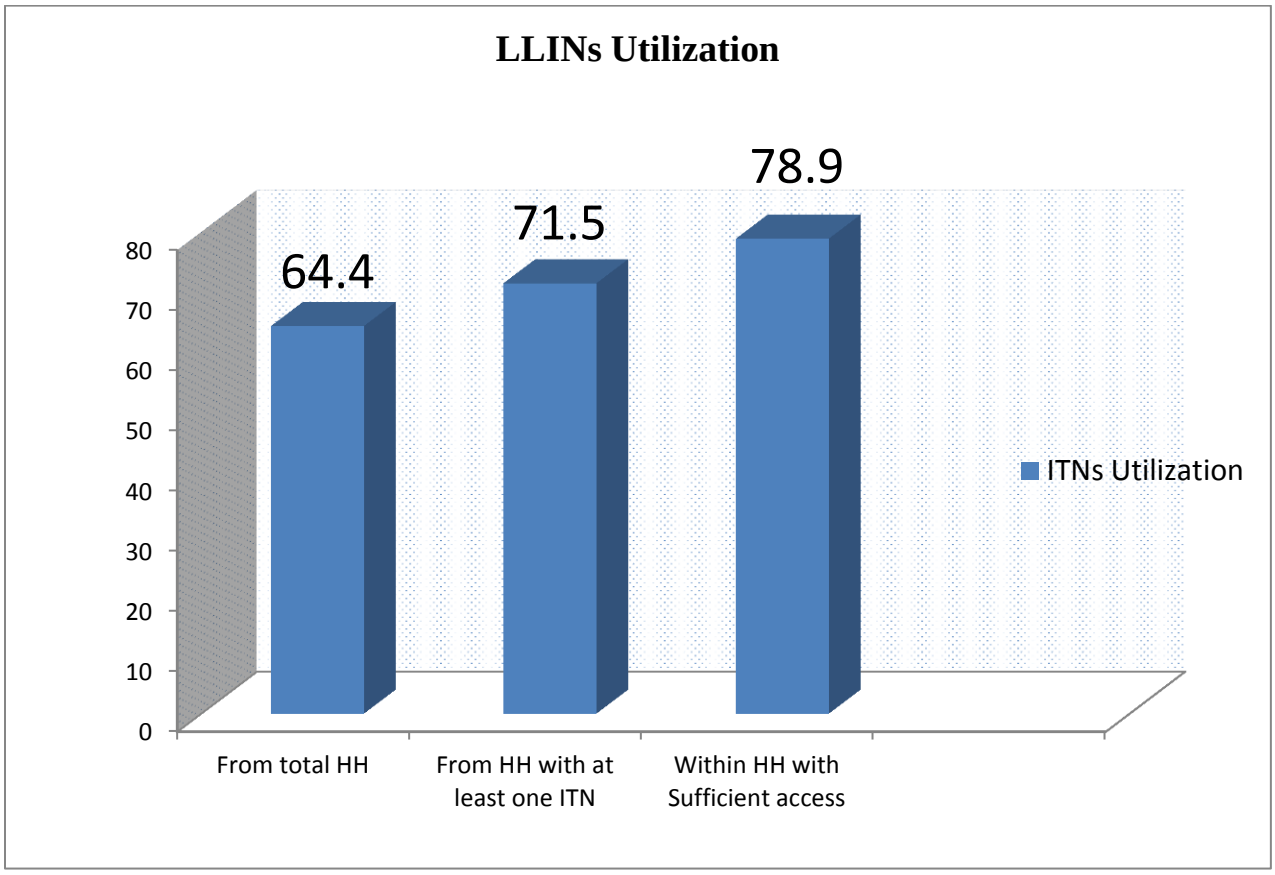

Figure3. *Insecticides Treated Net utilization among respondents, in East Badewacho District, Southern Ethiopia, 2015*

Concerning the reasons why pregnant women were not slept under available LLINs, 66(27.3%) mentioned suffocation or it is too hot to sleep, 43(17.8%) equally mentioned skin irritation when contact with body and no nuisance, 62(25.6%) mentioned other reasons specified by respondents as lack of money to buy and replace aged ITNs, using the nets for other purposes, being too dirty to sleep under it and lack of awareness on mending/sewing holes.

Table2. *Reasons for not using available LLINs among respondents, in East Badewacho District, Southern Ethiopia, 2015.*

Variables	Frequency	Percentage
Reasons for not using ITN the previous night by pregnant woman		
Suffocation / too hot	43	27.3
Absence from home	53	21.9
No nuisance/insects	43	17.8
Irritation	43	17.8
No malaria	15	6.2
Difficult hanging net	9	3.7
No space for net	7	2.9
Shape inconvenience	5	2.1
Others	62	25.6

The reasons why pregnant women were not sleeping under nets was also explained in the qualitative data. There are many problems that hinder people's ownership and utilization of nets in rural areas. As expressed by the health extension worker and Woreda malaria focal person, the distribution and utilization related challenges were explained by the 33 years old male malaria focal as:

"*Mass distributions of nets were carried out in every two to three years, so it is difficult to ensure continuous replacement and new supply to those newly constructed households. The distribution of nets considers only number of nets maximum to three to number families".*

The results from the open ended questions of the survey and the in-depth interviews were also revealed a number of reasons why they did not use ITNs. Majority of the respondents mentioned the following reasons as: poor condition of the mosquito nets, unavailability and shortage of ITN for the household members, undermining the extent of malaria problem, low perception on malaria prevention using mosquito nets, and using the nets for purposes other than the intended purpose such as for covering of household properties, covering seedlings, using net as curtains, shahs and ropes. A 28 years old health extension worker explained the problem as:

"Some people sell the provided ITNs with low costs, use nets for different other purposes as ropes, curtains, covering seedlings than sleeping under it, even not sleeping under the hanged nets saying that it is too hot, irritant to skin, dangerous to pregnant women as it may cause abortion, for other peoples it may cause asthma".

5.4 KNOWLEDGE RELATED TO MALARIA

Table 4 contains details of respondents' understandings on malaria.

Figure 4 *Knowledge related to malaria among respondents, in East Badewacho District, Southern Ethiopia, 2015*

Variables	Frequency	Percentage
Have heard of the disease malaria (n=340)		
Yes	340	100
No	0	0
What do you think is the cause for malaria? (n=340)		
Mosquito*	248	72.9
Stagnant water	198	58.2
Hunger	143	42.1
Cold or changing weather	70	20.5
Eating other dirty food	58	17.1
Drinking dirty water	32	9.5
How is malaria transmitted from person to person? (n=340)		
Through mosquito bite*	239	70.2
Through flies	99	29.1
Through Breathing	64	18.8
Through bodily contact with patients	30	8.8
Main signs or symptoms of malaria (n=340)		
Feeling cold*	270	79.5
Fever*	253	74.4
Headache*	251	73.8
Back ache and generalized ache	182	53.5
Loss of consciousness	132	38.8
Convulsion	89	26.1
How can someone protect themselves against malaria? (n=340)		
Sleep under a mosquito net*	244	71.8
Clean the environment*	115	33.6
Spray house with insecticide*	111	32.6
Take preventive medication	100	29.4
Use mosquito repellant	38	11.2
Don't drink dirty water	35	10.3
Who is more vulnerable to "malaria"? (n=340)		
Under five children*	156	45.9
Pregnant women*	145	42.6
Old people	111	32.6
Other older children	41	12.1
NPW and adult men	23	6.8

Note: Percentages do not add up to 100 because of multiple responses.

****=10 Comprehensive knowledge items.***

The majority 248(72.9%) of respondents mentioned that the cause of malaria is mosquito while 198(58.2%) associated malaria to stagnant water. Regarding misconceptions about cause of malaria, respondents were believed that hunger; cold/changing weather, drinking dirty water and eating dirty food can cause malaria. The qualitative data also support the misconceptions related to cause of malaria as being tiredness, drinking dirty water, eating sugarcane and eating dirty food. A30 year old male respondent was expressed his opinion about cause of malaria:

"To my understanding, malaria can be caused by hunger, stagnant water, some insects like flies and working laborious work all the day and become tired, the existing malaria becomes raised up".

Majority 239(70.2%) of respondents mentioned that malaria is transmitted from person to person through mosquito bite. There were also misconceptions related to mode of transmission mentioned by respondents as: malaria is transmitted by bite of flies, through breathing and bodily contact with malaria patient. The misunderstanding related to mode of transmission explained by in-depth interviews of husbands were flies, contact with someone who has fever, touching bile vomited from malaria patient. Some respondents both in qualitative and quantitative interviews had difficulty in differentiating the cause and mode of transmission of malaria.

Concerning knowledge of respondents on symptoms of malaria, majority 270(79.5%), 253(74.4%) and 251(73.8%) associated manifestations of malaria to feeling cold, fever and headache respectively. Similar ideas were emanated from husbands of pregnant women in qualitative interview concerning manifestations of malaria. Accordingly a 35 years old male described his opinion as:

"*When someone is attacked by malaria, the illness is manifested by headache, fever, shivering, swelling of abdomen "Tafia" and joint pain. When it becomes yellow malaria/ cerebral malaria it may cause loss of consciousness and stiff neck. This may kill the person soon".*

Concerning ways of prevention, majority 244(71.8%) of respondents stated that sleeping under ITN prevents malaria. Additionally, significant proportion of the respondents mentioned that cleaning the Environment, household chemical spray and taking preventive medication prevents malaria. Respondents in qualitative study were also engaged in malaria preventive activities as sleeping under ITNs, environmental management, spraying houses with chemicals and smoking houses in evening to prevent entrance of mosquitoes. A 32 years male respondent supported this idea as:

"Malaria prevention methods practiced in our house are hanging and sleeping under mosquito nets, spraying house with chemicals once in a year, not plastering walls after spray, cleaning the living environment by disposing wastes, breaking old and nonfunctional house hold materials".

Regarding identification of susceptible groups, 156(45.9%) and 145(42.6%) of respondents were mentioned under five children and pregnant women respectively were highly vulnerable groups to malaria infection. One of the respondents in qualitative interview also claimed that children and old people are seriously affected by malaria due to lack of immunity. This might indicate that peoples have difficulty and low awareness in identification of most seriously affected groups by malaria. This idea was supported by a 30 year male as:

"Malaria is big problem in our kebele. Most of the time the disease become serious in children and old people, they are weak and they may die soon".

The comprehensive knowledge of respondents was assessed by summing up ten correct answers to items shown on table 4 by (*) sign each scoring one and the score was computed in to percentages. Based on these, the mean score of comprehensive knowledge was 72.5± 1.6 with expected range of value 0 to 100 and observed range of 20 to 100.

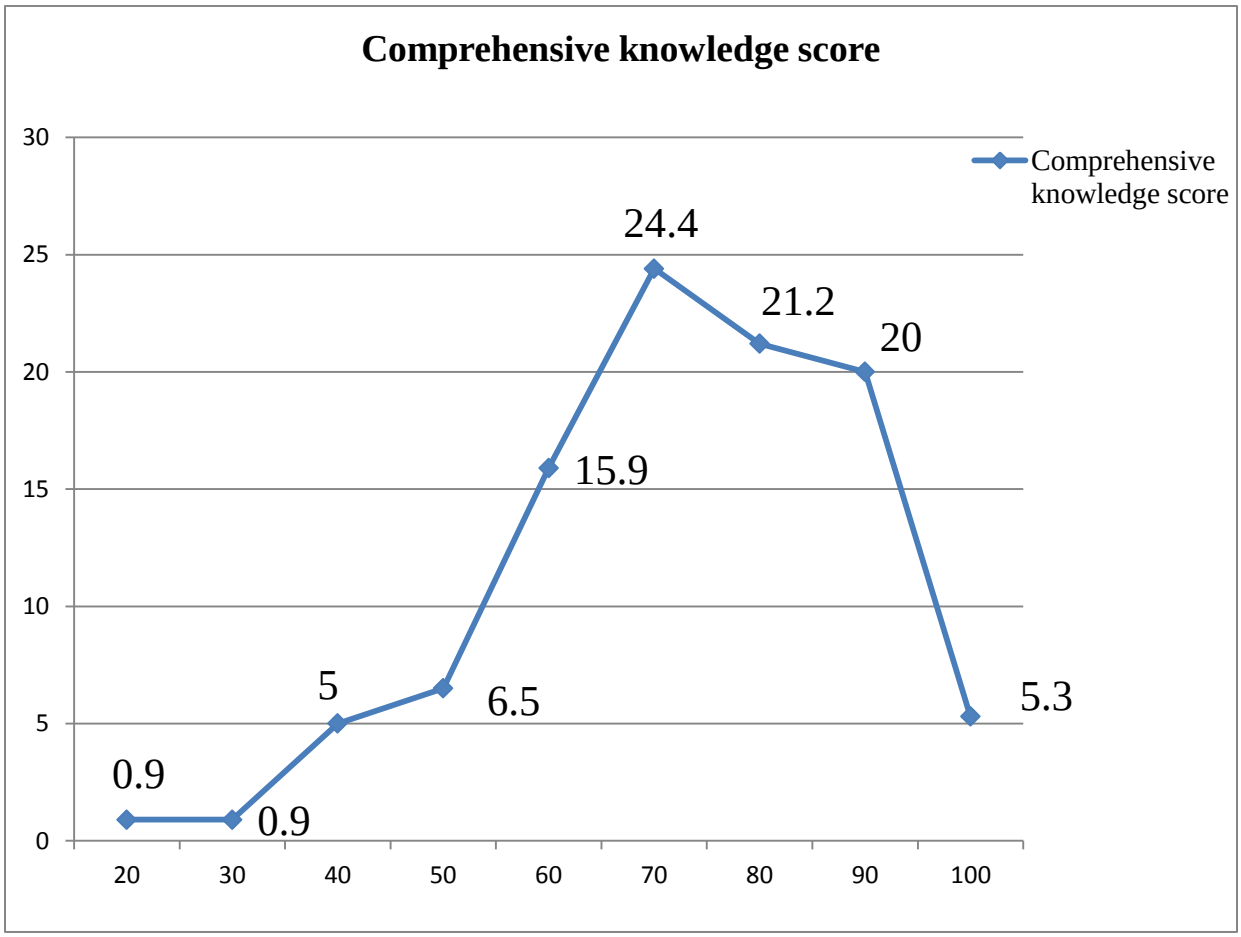

Figure 5.*Distribution of respondents' comprehensive knowledge related to malaria in East Badewacho District, Southern Ethiopia, 2015.*

5.5 EXPOSURE TO AND RETENTION OF MALARIA MESSAGE

One hundred forty two (41.8%) and one hundred fifty two (44.7%) of respondents and their family member respectively had malaria attack with in the last six months. Majority 278(81.8%) of respondents were heard or seen different types of messages related to malaria from different sources. Table 5 contains details of exposure to malaria messages and their sources

Table3. Exposure to and retention of malaria message among respondents, in East Badewacho District, Southern Ethiopia, 2015

Variables	Frequency	Percentages
Within the last six months, have you got malaria? n=340		
Yes	142	41.8
No	198	58.2
Within the last six months, have your family member ever got malaria? n=340		
Yes	152	44.7
No	188	55.3
Have you heard or seen message about malaria and ITNs within the last six months? n=340		
Yes	278	81.8
No	62	17.9
Types of malaria messages heard or seen, n=278		
Sleeping under ITN	199	71.6
Environmental sanitation activities	122	43.8
Seek treatment for fever	114	41.0
Importance of spraying house with chemicals	69	24.8
Not plastering walls after spraying	40	14.4
Sources of malaria messages, n=278		
Health development army team leader	215	77.3
Health extension worker	171	61.5
Friends/family	159	57.2
TV/Radio/Poster/billboard/ Peer educators	128	46.1
Health center/hospital	51	18.3

5.6 WOMEN BELIEFS RELATED TO MALARIA AND ITNs USE

The mean scores and other related statistics of respondents' perception/beliefs regarding malaria and ITNs utilization are indicated in table 6.

Table4 *Distribution of respondents' perceptions/Beliefs scores related to malaria, in East Badewacho District, Southern Ethiopia, 2015*

Statistics	Perceived susceptibility to malaria	Perceived severity malaria	Perceived of benefits using ITNs	Perceived of barriers to use ITNs	Perceived self-efficacy to use ITNs
Mean	72.96	71.87	79.06	56.33	90.02
Median	75.00	72.22	80.95	56.66	100.00
Std. Deviation	21.03	15.76	16.85	11.86	13.20
Range	66.67	66.67	66.67	46.67	66.67
Minimum	33.33	33.33	33.33	33.33	33.33
Maximum	100.00	100.00	100.00	80.00	100.00

As we see from on table 7 below, respondents' perceptions/beliefs on each constructs were relatively inclined to agreement and these might indicate there is a favorable belief towards malaria prevention and control among pregnant women particularly sleeping under ITNs. However there was also significant proportion of respondents who showed disagreement on favorable items. It is believed that people's perception about seriousness of the problem can initiate people to take preventive measures such as utilization of ITN, early treatment seeking.

Respondents in the qualitative interview claimed that there was previous wrong perception attached to ITNs use that it was dangerous to fetus and brings about infertility in women. This idea was supported by a 32 years old male respondent as:

"Previously people say that ITNs are dangerous to humans especially to females by preventing fertility, but this belief is currently declined and most of the people even pregnant women are also using ITNs in our kebele".

Table5.Shows details of Perceptions/beliefs items and their frequencies related to malaria and ITNs use among respondents in East Badewacho District, Southern Ethiopia, 2015

Perceived susceptibility to malaria	DA. N (%)	UD. N (%)	A.N (%)
I am afraid of I might contract malaria	122(35.9)	80(23.5)	138(40.6)
I feel my chance of getting malaria is high.	120(35.3)	27(7.9)	193(56.8)
I think that my pregnancy is at risk of malaria infection.	107(31.5)	45(13.2)	188(55.3)
I am not confident that I might have not get malaria still.	93(27.4)	67(19.7)	180(52.9)
Perceived severity of malaria			
If I get malaria it will be very serious and life-threatening	91(26.8)	70(20.6)	179(52.6)
If I get malaria I will give birth of low birth weight baby	92(27.1)	84(24.7)	164(48.2)
If I get malaria I may lose my fetus	129(37.9)	85(25.0)	126(37.1)
If I get malaria I may lose my life	145(42.6)	61(17.9)	134(39.4)
If I get malaria I may lose consciousness	109(32.1)	52(15.3)	179(52.6)
I believe that cerebral malaria can kill me soon	102(30.0)	33(9.7)	205(60.3)
Perceived benefits of using Nets			
In my opinion, sleeping under ITNs prevents malaria	71(20.9)	20(5.9)	249(73.2)
I perceive ITNs protects mosquitoes bites	68(20.0)	14(4.1)	258(75.9)
I perceive ITNs protects mosquitoes and other pests	71(20.9)	30(8.8)	239(7.03)
I feel better health after I sleep under bed net	81(23.8)	52(15.3)	207(60.9)
I will give birth of alive and healthy neonate if I use ITN	90(26.5)	67(19.7)	183(53.8)
Sleeping under bed net save money on malaria treatment	91(26.8)	62(18.2)	187(55.0)
Sleeping under bed net helps me to perform daily activities.	114(33.5)	78(22.9)	148(43.5)
Perceived barriers of ITNs utilization			
The chemical in ITN is dangerous to my pregnancy	142(41.8)	67(19.7)	131(38.5)
It is too hot to sleep under the net.	133(39.1)	71(20.9)	136(40.0)
ITN is irritant to my body	151(44.4)	55(16.2)	134(39.4)
Insecticide treated net is expensive to buy and replace	203(59.7)	46(13.5)	91(26.8)
I forget to mount a net when sleeping during night	227(66.8)	26(13.5)	67(19.7)
In my opinion hanging ITNs is inconvenient	240(70.6)	34(10.0)	66(19.4)
There is no enough sleeping space to hang a net	240(70.6)	27(7.9)	73(21.5)
In my opinion sleeping under ITN causes suffocation	235(69.1)	31(9.1)	74(21.8)
I believe that I am resistant to malaria,	238(70.0)	23(6.8)	79(23.2)
I don't have ITN in my house	206(60.6)	24(7.1)	110(32.4)
Self-efficacy to use nets			
I believe I can sleep under ITN every night	66(19.4)	13(3.8)	261(76.8)
I believe can wash the net when dirty	60(17.6)	15(4.4)	265(77.9)
I believe I can mend and use nets when being torn	43(12.6)	9(2.6)	288(84.7)
I believe that can replace the Net when its age is >3 years	12(3.5)	8(2.4)	320(94.1)

DA=Disagree, UN=Undecided, A=Agree

5.5 SOCIAL SUPPORT TO USE ITNS AMONG PREGNANT WOMEN

The table below shows social support during pregnancy; with emphasize to physical as well as psychological support to sleep under LLIN.

Table6.*Respondents' Social support to sleep under ITNs, in East Badewacho District, Southern Ethiopia, 2015*

Variable N=340	Frequency	Percentage
Does anyone discuss ways for you to be healthy during pregnancy?	226	66.5
Does anyone do or say things to show they care about your health?	280	82.4
Does anyone talk with you about your feelings about sleeping under the ITN?	203	59.7
Does anyone encourage you to sleep under an ITN?	164	48.2
Does anyone hang and mount the net under the bed when you are sleeping?	121	35.6
Does anyone remind you to sleep under the ITN?	110	32.4
Does anyone encourage you to talk with a health worker if you have problems related to ITNs?	114	33.5
Does anyone say it is good that you are sleeping under the ITN every night?	133	39.1
Does anyone hang or mount ITN over sleeping area to help you to sleep under it?	125	36.8
Do most people who are important to you and know that you are sleeping under the net?	125	36.8

The above ten items each scoring one was summed up for carrying out further analysis. Based on this, the mean score of social/family support was 54.97±2.0 with possible range of 0 to 100% and observed range of 100%. The qualitative data from husbands of pregnant women also clarifies the benefits of social/family support to pregnant women to sleep under LLIN. The respondents were clearly stated the physical as well as psychological support is an important aspect of woman's day to day life to have healthy birth outcome. Encouraging the woman to sleep under ITNs, hanging and mounting the edge of nets during sleeping are also required supports from family members. A 38 years respondent expressed his opinion as:

"My wife is currently pregnant and sleeping under ITNs. I encourage and support her to sleep under ITN during night since hanging and mounting net is inconvenient for her. If pregnant women are attacked by malaria the disease may be dangerous to them and their fetus".

5.9 Logistics regression analysis for factors associated with LLINs utilization.

1. Socio demographic factors

As we see from table below, from socio demographic variables: age of current pregnancy, educational level and household income were candidates for multiple logistics regression analysis with p value <.25

Table7.*Association of socio demographic variables with LLINs use among respondents in East Badewacho District, SNNPR Ethiopia, 2015*

Variables		Previous night use		COR, 95%CI	P value
		Yes n (%)	No n (%)		
Age category	<=30 years	155(72.8)	58(27.2)	1.21(.71, 2.06)	.481
	>= 31years	64(68.8)	29(31.2)	1.00	
Gravidity	Multi(>1pregnancies)	210(70.7)	87(29.3)	6.69(.000,)	.999
	Primi (1st pregnancy)	9(100)	0(0%)	1.00	
Parity	Primipara (1Livebirth)	28(90.3)	3(9.7)	1.00	
	Multipara (>1 Live births)	191(69.5)	84(30.5)	2.10(.95, 4.82)	.523
Age of pregnancy	<=5 months	38(62.3)	23(37.2)	.56(.31,1.02)	.064
	>=6 months	181(74.5)	62(25.5)	1.00	
ANC follow up	Yes	159(70.4)	67(29.6)	1.00	
	No	60(75)	20(25)	.79(.44, 1.41)	.429
Pregnancy in Trimester	First Trimester	6(60)	4(40)	1.00	
	Second Trimester	87(71.3%)	35(28.7)	1.14(.02, 1.22)	.873
	Third Trimester	126(72.4)	48(27.6%)	.94(.56, 1.58)	.835
Educational level	Cannot read and write	70(67.9%)	33(32.0)	1.00	
	Primary(1-8)	134(71.6)	53(31)	6.60(.83, 9.33)	.076*
	>=Secondary(>=9)	15(93.7%)	1(6.3%)	1.06(.63, 1.78)	.102*
HH income	<=500ETB	133(73.5)	48(26.5)	1.00	
	>=501ETB	86(68.8)	39(31.2)	1.81(.87,3.76)	.111*

*= Candidate variables with p value<0.25

2. Household access and LLINs characteristics related factors

From the table below, we can see that the bivariate analysis was done for variables in household access and characteristics of LLINs section separately and all of them were candidates for multiple logistics regression analysis with p value <.25.

Table8.*Association of HH access and LLINs characteristics with its use among respondents in East Badewacho District, SNNPR Ethiopia, 2015*

Variables		Previous night use		COR, 95%CI	P value
		Yes n (%)	No n (%)		
Household access to ITN	Low access	174(69.8%)	75(30.2%)	1.00	
	Sufficient access	45(78.9%)	12(21.1%)	2.01(.74, 5.47)	.168*
ITNs age category	One year	57(80.2%)	14(19.8%)	3.39(1.22,9.45)	.019*
	Two years	149(70.6%)	62(29.4%)	1.97(.81, 4.79)	.135*
	>=3 years	13(56.5%)	10(43.5%)	1.00	
Shape of nets	Conical	22(88%)	3(12%)	1.00	
	Rectangular	197(70.1%)	84(29.9%)	3.24(.95.11.11)	.061*
Color of net	Blue	199(70.3%)	84(29.7%)	1.00	
	White	20(76.9%)	6(23.1%)	.24(.05,1.03)	.056*
Sources of Nets	Government	197(70.2%)	84 (29.8%)	1.00	
	Purchased	22(88.0%)	3(12.0%)	2.82(.81,9.77)	.100*
Condition of ITN(1)	Good	106(73.6%)	38(26.4%)	1.00	
	Fair	106(76.2%)	33(23.8%)	.16(.06,.41)	.000*
	Poor	7(30.2%)	16(69.8%)	.14(.05,.36)	.000*

**= Candidate variables with p value<0.25*

3. KNOWLEDGE AND BELIEF RELATED FACTORS

From the table below: respondents perceived susceptibility to malaria, perceived severity of malaria, perceived benefits of using LLINs, perceived barriers to sleep under ITNs, self-efficacy to use LLINs, comprehensive knowledge related to malaria and social support to sleep under LLINs were analyzed independently with the outcome variable. However only comprehensive knowledge related to malaria and social/family support to sleep under LLINs were candidates for multivariate logistics regression analysis with p value <.25

Table9.*Association of knowledge/belief with LLINs use among respondents in East Badewacho District, SNNPR Ethiopia, 2015*

Variables	COR, 95%CI	P value
Comprehensive knowledge**	1.04(1.02, 1.06)*	.000
Perceived susceptibility to malaria**	1.01(.98, 1.09)	.287
Perceived severity of malaria**	1.01(.99, 1.02)	.595
Perceived benefits of ITN use**	1.01(.98, 1.02)	.602
Perceived barriers to ITN use**	.99(.98, 1.03)	.749
Perceived self-efficacy to use ITN**	1.01(.98, 1.02)	.948
Social/family support to sleep under ITN**	1.03(1.02,1.05)*	.000

**= Continuous variable *= Candidate variables with p value<0.25

Although respondents' perceived susceptibility, perceived severity, perceived benefits and perceived self-efficacy were not candidates for multiple logistics regression analysis, the crude Odds ratio shows the increase in their score was associated with increase in the likelihood of LLINs utilization. Respondents perceived barriers to LLINs use also indicates that a unit increase in perceived barriers showed 1% decrease in ITNs utilization.

FACTORS ASSOCIATED WITH ITNs UTILIZATION

Bivariate and multivariate logistic regression analyses were performed to calculate odds ratios and corresponding 95% confidence intervals for the predictors of ITNs utilization.

In the first step, bivariate analysis were done to select candidate variable for multivariable analysis at $P \leq 0.25$ then the candidate variable analyzed in multivariable analysis at $P \leq 0.05$ considered as significant. Variables from socio demographic factors, household access to ITNs, its characteristics and perception/ knowledge related factors which were candidates for multiple logistics regression and analyzed using the final model.

Table10.*Multiple Logistics regression analysis for independent predictors of LLINs utilization among pregnant women in East Badewacho District, SNNPR Ethiopia, 2015*

Variables	Category	COR, 95%CI	AOR, 95%CI	P value
Pregnancy age category	<=5 months	.56(.31,1.02)	.49(.24, 1.02)	.057
	>=6 months	1.00		
Educational level	Illiterate(can't read& write	1.00	1.00	
	Primary(grade1-6)	6.60(.83, 52.33)	4.58(.53, 8.02)	.131
	Secondary and above	1.06(.63, 1.78)	1.03(.36, 1.35)	.192
HH income category	<=500ETB	1.00	1.00	
	>=501ETB	1.81(.87,3.76)	2.04(.70, 5.91)	.190
Household access to ITN	Low access	1.00	1.00	
	Sufficient access	2.01(.74, 5.47)	2.03(1.71, 5.91)	.045*
ITNs age category	One year	3.39(1.22,9.45)	1.35(1.33,5.45)	.019*
	Two years	1.97(.81, 4.79)	1.77(.54,5.75)	.135
	>=3 years	1.00	1.00	
Shape of nets	Conical	1.00	1.00	
	Rectangular	3.24(.95, 11.11)	1.44(.15, 8.77)	.060
Color of net	Blue	1.00	1.00	
	White	.24(.05,1.03)	.12(.01, 2.29)	.052
Sources of Nets	Government	1.00	1.00	
	Purchased	2.82(.81,9.77)	2.95(.36,10.69)	.105
Condition of ITN(1)	Good	1.00	1.00	
	Fair	.16(.06,.41)	.22(.07, .61)	.000*
	Poor	.14(.05,.36)	.16(.05, .43)	.000*
Comprehensive knowledge**		1.04(1.02, 1.06)	1.03(1.02, 1.05)	.000*
Social/family support to sleep under ITN**		1.03(1.02,1.05)	1.02(1.01. 1.04)	.001*

**= Continuous variable *= statistically significant at p value<0.05

In multivariate logistic regression analysis after adjusted for potential confounders by using **step-wise backward LR method** in the final model: household access to LLINs, age of LLINs, condition of LLINs, comprehensive Knowledge and social/family support to sleep under ITNs were found to be significantly associated and independent predictors of LLINs utilization with p value <0.05.

Respondents living in households with sufficient access to LLINs were 2 times more likely to sleep under LLINs as compared to those living in households with insufficient access. Household access to LLINs was significantly associated with ITNs use at [AOR, 95%CI, 2.03(1.71, 5.91)] and independent predictor of LLINs utilization.

The characteristics of LLINs were assessed whether they are associated with utilization or not. Based on these, age and condition of LLINs were significantly associated with use of LLINs. ITNs of age one year and below were 1.35 times more likely to be utilized as compared to age three years and above. So age of LINs was statistically significant at [AOR, 95%CI, 1.35(1.33, 5.45)] and independent predictor of LLINs utilization. .

LLINs in poor condition (having more than four holes) were 84% less likely utilized as compared to those in good condition. Similarly ITNs in fair condition (having less than four holes) were 78% less likely used as compared to those in good condition. So condition of ITNs was significantly associated with sleeping under ITNs at [AOR, 95%CI, .16(.05, .43)] and independent predictor of ITNs utilization.

A unit increase in comprehensive knowledge score was associated to increase the likelihood of LLINs utilization by 1.03, it was statistically significant at [AOR, 95%CI, 1.03(1.02, 1.05)] and an independent predictor of LLINs utilization.

A unit increase in social/family support to sleep under LLINs was associated to increase the likelihood of ITNs utilization by 1.02 and it was significantly associated with utilization of ITNs at [AOR, 95%CI, 1.02(1.01. 1.04)]

CHAPTER SIX: DISCUSSION

Insecticide treated net utilization among pregnant women living at malaria risk area is recommended method in malaria control program. Insecticide treated nets have been shown to have multi-level benefits in pregnancy; through protection of the pregnant woman, her growing fetus and promotion of her general health (43). Currently scaling up the ITN coverage is undergoing at a large. Clearly, just increasing coverage will not be enough unless people use the nets.

This study assessed Insecticides Treated Nets utilization and associated factors among pregnant women in the prevention and control of malaria. The coverage of the surveyed households with at least one ITN was 90%. This result is higher than the Ethiopian National MIS 2011 result which shows 57.2% and 55.2% in SNNPR and National respectively (2, 4). But it is below the national target with 100% coverage of LLINs in malaria risk areas (17, 33).This finding was also supported by a qualitative finding that most of respondents acknowledged the free supply of nets by government that motivated them and their household members to have ITNs in their houses.

The proportion of pregnant women slept under/used ITNs from those owning households were 71.5%. This shows that the proportion of pregnant women using ITN is lower than SNNPR (75.2%) and higher than the national Ethiopian MIS of 2011(64.2%) but lower than national target of 2015 which is at least 80%. The finding is also higher than the study conducted in Arbaminch Zuria District in 2009 which was 35%. This increment might be due to the national planned implementation of malaria prevention and control activities especially sustained mass distribution of ITNs in rural settings of Ethiopia that promoted peoples to use available nets.

Insecticides treated nets utilization by pregnant women was encouraging, although significant proportion (28.5%) of women was not slept under it. The reasons why pregnant women not slept under available ITNs were suffocation, too hot to sleep, skin irritation, absence of nuisance during data collection and other reasons specified by respondents as lack of money to buy and replace aged ITNs, inconvenient housing condition to hang, shortage of sleeping space, used for other purposes, being too dirty, lack of awareness on mending tear. This finding is supported by a qualitative data from most of respondents explained that women in their households were refusing to sleep under the nets due to absence of nuisance, heat felt during sleeping, feeling of skin irritation during contact with nets and shortness of breath/suffocation at night. This might be

due to the additional burden of heat, since data was collected by dry and hot season; reduced air movement during sleeping under the net, some unfavorable beliefs that peoples attach to ITNs as "it is dangerous to fetus". This finding is similar with many studies conducted in Japan, Nigeria and Ethiopia (41-43). These might be due to the low socioeconomic status, dry/hot season during data collection, poor housing conditions of most rural setting and lack of awareness on malaria preventive measures particularly ITNs.

From those households possessing at least one ITN, only 57(18.6%) of respondents were living in households with sufficient access to the net but majority 249(81.4%) of respondents in the study area were in households with insufficient intra household access to ITN. 78.9% of respondents were slept under ITNs from those households with sufficient access to ITNs. Respondents living in households with sufficient access were more likely to use ITN as compared to those living in households with insufficient access and it was significantly associated with use of LLIN. This finding is consistent with WMR 2010 and the studies conducted in Nigeria and Kenya (2, 29, 31) states that household access to ITN has strong correlation with use. This correlation between access and use of nets could be because households with enough nets to cover all members were motivated to acquire sufficient nets and are therefore more likely to use them. Some households were sharing more than one net for two people. In this study there was also significant proportion of population with access but not using the net. This may indicate individual behavioral failure to sleep under ITNs that needs strategic communication to overcome the challenge.

Concerning attributes of nets, age and conditions of nets were significantly associated with utilization. ITNs of age one year and below were more likely to be utilized as compared to age three years and above. Nets in poor condition were less likely to be used by individuals as compared to nets in good condition. It is true that ITNs provide services for maximum of three years provided that they are in good condition. These might indicate the need to provide appropriate care (proper hanging, washing with water when dirty and sewing the tear) for available nets in the households.

Comprehensive knowledge related to malaria was positively associated with ITNs utilization and a unit increase in comprehensive knowledge increases the likelihood of ITNs utilization. This finding is in line with the studies conducted in Nigeria and Uganda (11, 13) approved that

improved community knowledge of malaria and its source of transmission promote preventive and personal protection practices amongst the affected community and this is an opportunity any malaria prevention and control intervention can utilize. Regarding knowledge related to malaria prevention and control, majority of respondents associated the cause as well as transmission of malaria to mosquito bite. Most of the respondents mentioned the cardinal symptoms of malaria as fever, feeling cold/chills and headache. However, there were also misconceptions related to both cause and transmission. Respondents mentioned hunger, drinking dirty water and eating dirty food as cause of malaria, Modes of transmission by flies, through breathing and bodily contact with malaria patient. There was also significant proportion of women who had not identified the vulnerable groups of malaria as less than five years children and pregnant women. This finding is similar with different studies conducted in many African countries (11-14, 20).This was reflected by showing a gap between knowledge about malaria control strategies and operational coverage of ITNs. This gap might be due to free of charge distribution of ITNs especially at grass-root level which may reduce attention about utilization.

In these study respondents` mean score of perceived susceptibility to malaria, perceived severity of malaria, perceived benefits of using ITNs, perceived barriers to use ITNs and perceived self-efficacy to sleep under ITNs were relatively higher. On the other hand the mean score of perceived benefits greater than barriers. This might indicate individuals had relatively favorable beliefs regarding malaria prevention and control particularly sleeping under ITNs. The Health Belief Model [39] helps to understand how beliefs about malaria may lead to alternative uses of malaria interventions like ITNs. First, a person must feel susceptible to malaria and threatened with perceived serious consequences. Secondly, the person must believe that the benefits of interventions like ITNs outweigh the perceived barriers to consumption of that intervention.

At bivariate analysis, ITNs users' perceived susceptibility, benefits and self-efficacy were showed an average increase in their odds ratio as compared to nonusers although they were not significantly associated. On the other hand ITNs users' perceived barriers showed lower odds as compared to non-users. Similarly respondents heard malaria messages as cues to action were more likely to sleep under ITN as compared to those not exposed to the message. Although the study showed relatively favorable belief/perception regarding ITNs use, significant proportion of respondents had unfavorable perception towards ITNs use. This was also supported by qualitative interview that peoples are using nets for unintended purposes and that ITNs may be

harmful to their fetus. This finding is also similar with the studies conducted in (38-40) and other study which states that there must be sufficient concern for health on the individual's part to make health issues relevant (37). Accordingly there were also some gaps in the study community to bring behavioral change at large, unless community internalize the benefit of the available malaria control strategies, it is difficult to practice those interventions .

In this study malaria message was positively associated with ITN utilization. Those women who heard malaria message were more likely use ITN than who didn't heard. The major sources of information were health development armies followed by Health Extension Workers. This finding was also supported by qualitative response that the health extension workers health development army's team leaders and one to five networks are working together on malaria prevention control activities during malaria transmission season. This finding is in line with the PMI; Ethiopian malaria operational plan of 2015FY that explains Ethiopian Health Extension Program provides malaria prevention and control information and conducts SBCC activities in nearly all malaria-endemic communities (9, 14). The Health Development Army supports HEWs to increase contact with each household through networking with between one to five households to deliver malaria messages.

Since pregnancy is a family matter, family support to pregnant women to sleep under ITN in prevention of malaria is crucial. When the age of pregnancy increases, women need support in many aspects, so physical as well as psychological support by encouraging to use ITN as: hanging and mounting the net, discussing the benefits of using ITN and its challenges make them more likely to use it. The multivariate analysis showed that it was independent predictor of ITN use. As the social /family support score increases, respondents were more likely to use ITNs. This finding is supported by a qualitative interview respondent that the psychological supports by encouraging/motivating and physical supports by hanging, mounting during sleeping and sewing when the net is torn, are important since these activities are inconvenient for pregnant women. On the other hand encouraging sleeping under the net are also equally necessary since if they are attacked by the illness, it will be more serious and endanger the life of woman as well as the fetus. In general supporting women to sleep under ITNs, equipping them with appropriate knowledge and dissemination of message regarding the seriousness of malaria during pregnancy and effectiveness of ITNs in prevention of malaria save the lives of woman and fetus.

LIMITATION

Utilization of Insecticide treated Nets the night prior to data collection depends on self-report of the respondent and was not verified by data collector. So evaluation of real use need further study by observation of respondents during sleeping time.

As the study was performed during the dry season, the results for belief/perception items may have differed during the wet season when mosquitoes are abundant.

CHAPTER SEVEN: CONCLUSION AND RECOMMENDATIONS

7.1 CONCLUSION

In this study, possession and utilization of Insecticides Treated Nets among pregnant women was found to be appealing. However significant proportion of women was not slept under LLIN. The factors associated with non-use were: lack/shortage of LLIN, insufficient intra household access to LLINs, use of ITNs for other purposes than protection from malaria, low social/significant others support, lack of knowledge and misconception on cause, mode of transmission, symptoms, preventive and control measures and identification of vulnerable groups of malaria. Some unfavorable beliefs and high perceived barriers of using LLINs were also other factors that prevent use of LLINs.

Household access to ITNs, Age of ITNs, Condition of ITNs, Comprehensive Knowledge and Social/family support to sleep under ITNs were significantly associated and independent predictors of ITNs utilization.

7.2 RECOMMENDATIONS

The use of ITNs has been widely accepted as an essential element in the fight against malaria among pregnant women. So the following recommendations were forwarded for responsible bodies:

RHB/ Zonal health Department

The RHB/ZHD in collaboration with other stakeholders and international agencies make ITNs available to insure universal access to all people in the household particularly considering vulnerable groups.

Woreda Health offices/HCs/HPs

1. Responsible bodies should provide targeted behavioral change communication on the cause, mode of transmission, ways of prevention, local beliefs and misconceptions related to malaria prevention and control.
2. They should also provide clear messages of malaria prevention appropriate care provided to available nets during ITNs and mass distribution campaigns.
3. Continuous follow up and creation of awareness on the need of family support to pregnant women in sleeping under ITNs after distribution is also another important issue to be addressed.
4. Building the capacity of husbands/significant others for provision of physical as well as psychological support to pregnant women in utilization of ITNs has paramount importance.
5. Building the capacity of existing community networks (health development armies and one to five networks), school students and teachers, religious leaders and local entertainment media and providing tailored message focusing on clear facts and basics, about cause, mode of transmission, giving priority to susceptible groups for malaria infection and ways of prevention and correct and consistent use of ITNs are important aspects of malaria prevention and control activities.

Researchers

Additional qualitative study is needed to assess the socio cultural factors associated pregnant woman's Insecticides treated nets utilization

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ANNEX

Jimma University College of Public health and medical sciences, Department of Health Education and Behavioral sciences

Insecticides Treated Nets Utilization and associated factors among pregnant women in East Badewacho District, Hadiya Zone, SNNPR

Informed Consent

Greetings, Introduction:

My name is _____. I am working as a data collector in a survey conducted by the collaboration of Jimma University College of public health and Medical sciences, and Department of health Education and behavioral sciences so as to assess your Insecticides Treated Nets utilization and associated factors. I expect the interview may take about 20-30 minutes. Your name will not be written on this form and will never be used with any information you tell me. You don't have to answer any questions that you don't want to answer and you may end this interview at any time you want to.

However, your honest answers to these questions will help us better understand what people think and do about Insecticides Treated Nets utilization during pregnancy. We would greatly appreciate your help in responding to this survey.

Would you be willing to participate? Yes, --- continue No----------, thank you!

Name of the data collector_____ Sign _____Date _____

Name of supervisor————————Sig————————Date————

ANNEX. ENGLISH QUESTIONNAIRES Date: _____

Household ID: _____

Name of kebele _____

1. SOCIO DEMOGRAPHIC INFORMATION

S.N	QUESTIONS	CODING	SKIP
101	Age of the woman	(In completed years)	
102	Place of residence	1. Rural 2. Urban	
103	Are you currently pregnant?	1.Yes 2.No	*<2, stop*
104	How many months pregnant are you?	Months———— Don't know	
105	How many times are you pregnant including the current pregnancy? (gravidity)	Insert number	
106	How many times have you given birth to alive baby?(parity)	Insert number	
107	Have you had ANC follow up for current pregnancy?	1Yes 2. No	
108	Religion	1.Orthodox 2. Muslim 3. Protestant Others(specify) ————	
109	Marital status	1.Married 2.Single 3.Divorced 4.Separated 5.Widowed	
110	Level of education	1. Can't read and write 2.Attended basic/informal education 3.Attended primary school 4.Attended secondary school 5.Attended higher education [institute/ college/university	
111	Occupation	1. Housewife 2. Merchant	

		3.Daily laborer 4.Government employee Other (Specify)_____	
112	How many people usually live in your house within the last six months?	1. Total _____ 2. Male_____, Female_____ 3. <5 years children———— 4. 5-14years age ——— 5. >=15years M——— F————	
113	How many people spent in your home last night?	1. Total _____ 2. Male_____, Female_____ 3. <5 years children———— 4. 5-14years age ——— 5. >=15years M——— F————	
114	Estimated monthly income of the household(Birr)	ETB—————————	

2. ITNs ownership, access, characteristics and Use

S.N	QUESTIONS	CODING						SKIP
201	Does your household have functional ITN?	1.Yes 2.No						<2, 217
202	If yes to 301, how many mosquito nets does your household have?	Insert number						
203	Ask respondent to show you the net(s) in the household.	Coding categories	Net# 1	Net #2	Net#3	Net#4	Net#5	
			OB----1 NOB--2	OB---1 NOB-2	OB-1 NOB-2	OB--- 1 NOB—2	OB---1 NOB-2	
204	Status of the net at the time of interview (observation)	1.Kept folded						
		2.Hanged over sleeping area						
		3.Used as other purpose						

205	Type(observation)	1 Untreated Net						
		2.LocallyTreatedNet						
		3 LLIN						
		4. Don't Know						
206	Condition (observation)	1 .Good (no holes)						
		2 .Fair (no holes that fit a torch battery)						
		3.Poor (1-4 holes that fit a torch battery)						
		4 .Unsafe (>5 Holes that fit a torch battery)						
		5 .Unused (still in package)						
		3.Others(specify)						
207	Age of ITNs in months	Insert month/years						
208	Net Source	1 Government						
		2 Self-Purchased						
		3.Other (Specify)_____						
209	If purchased, how much did you pay for the net?	Insert ETB						
210	Shape of ITN (observation)	1.Conical						
		2.Rectangular						
211	Color of ITN (observation)	1.Blue/Green						
		2.White						
212	When your bed net is torn or gets a hole, how likely are you to mend it?	Very likely, I mend all holes in my net ----------1 Somewhat likely. I sometimes mend holes in my net---- -2 Somewhat unlikely, I rarely mend on holes in my net--- --3 Very unlikely, I never mend holes in my net---------- 4						

213	How often do you wash your net(s)?	When it gets dirty --------1 1 time a year---------- 2 2 – 3 times a year------- --3 4 – 5 times a year--------- 4 6 or more times a year ----5	
214	Did you sleep under the net the previous night?	1.Yes 2. No	
215	How many people other than you slept under ITN last night	1. Total _____ 2. Male_____, Female_____ 3. <5 years children——— 4. 5-14years age ——— 5. >=15years M——— F———	
216	If no, why did you not sleep under this mosquito net last night?	1.No malaria 2.No nuisance/insects 3.No space for net 4.Irritation 5.Suffocation / too hot 6.Difficult hanging net 7.Shape 8.Absence from home 9.Other____ 10.Don‘t know	
217	What other practices do you do to prevent malaria other than ITN?	1.Indoor residual spray 2.Early treatment 3.Environmental management 4.others (specify)———————	

OB= observed NOB= Not observed

3. Malaria related knowledge

S.N	QUESTIONS	CODING	SKIP
301	Have heard of the disease malaria	1. Yes 2. No	If 2, to part 6
302	What do you think is the cause of malaria? Don't read options MULTIPLE RESPONSES PROBE ONCE(anything else)	1.Mosquito bites 2.Stagnant water 3.Hunger (empty stomach) 4.Eating other dirty food 5.Drinking dirty water 6.Cold or changing weather 7.Other (specify)_____	
303	How is malaria transmitted from one person to another? PROBE ONCE(anything else)	1. Through mosquito bite 2. Through breathing 3.Through bodily contact with infected person 4. By flies 5.Other (Specify)___	
304	Can you tell me the main signs and symptoms of malaria? Don't read options MULTIPLE RESPONSES PROBE ONCE(anything else)	1. Fever 2. Chills(feeling cold) 3.Headache 4. Backache and generalized aching 5. Loss of consciousness (coma) 6. Convulsion 7.Other (specify)_____	
305	How can someone protect themselves from malaria? Don't read options PROBE ONCE(anything else)	1.Sleeping under mosquito net 2. Use of mosquito repellants 3. Take preventive medicine 4. Spray house with insecticide 5.Do not drinking dirty water 6.Environmental sanitation activities 7.Other(specify)——————	
306	Who do you think is more likely to get (at risk of) malaria or affected by malaria? Don't read options Two correct answers only	1.Children whose age is less than five years 2.Other older children 3.Pregnant women 4.Non pregnant women and adult men 5.Old people 6. I don't know (Not sure)	

4. Pregnant women's perception on malaria and ITN use

	Perceived susceptibility to malaria	Disagree	Undecided	Agree
401	I am afraid of I might contract malaria			
402	I feel my chance of getting malaria is high.			
403	I think that my pregnancy is at risk of malaria infection.			
404	I am not confident that I might have not get malaria still.			
	Perceived severity of malaria			
405	If I get malaria it will be very serious and life-threatening			
406	If I get malaria I will give birth of low birth weight baby			
407	If I get malaria I may lose my fetus			
408	If I get malaria I may lose my life			
409	If I get malaria I may lose consciousness			
410	I believe that cerebral malaria can kill me soon			
	Perceived benefits of using Nets			
411	In my opinion, sleeping under ITNs prevents malaria			
412	I perceive ITNs protects mosquitoes bites			
413	I perceive ITNs protects mosquitoes and other pests			
414	I feel better health after I sleep under bed net			
415	I expect to give birth of alive and healthy neonate if I use ITN			
416	Sleeping under bed net save money on malaria treatment expenses			
417	Sleeping under bed net helps me to perform daily activities.			
	Perceived barriers of ITNs utilization			
418	The chemical in ITN is dangerous to my pregnancy			
419	It is too hot to sleep under the net.			
420	ITN is irritant to my body			
421	Insecticide treated net is expensive to buy and replace			
422	I forget to mount a net when sleeping during night			
423	In my opinion hanging ITNs is inconvenient			
424	There is no enough sleeping space to hang a net			

425	In my opinion sleeping under ITN causes suffocation			
426	I believe that I am resistant to malaria, so will not bother by mosquito			
427	I don't have ITN in my house			
	Self-efficacy to use nets			
428	I believe I can sleep under ITN every night			
429	I believe can wash the net when dirty			
430	I believe I can mend and use nets when being torn			
431	I believe that can replace the Net when its age is >3 years			

5. Exposure to malaria message and retention

S.N	QUESTIONS	CODING	*SKIP*
501	Within the last six months, have you got malaria?	1.Yes 2.No	
502	Within the last six months, have your family member ever got malaria?	1.Yes 2.No	
503	Have you got message about malaria and ITNs within the last six months?	1.Yes 2. No 3.Don't remember	
504	If yes, what type of malaria messages/information did you see or hear? Don't read options Multiple responses Probe once(anything else)	1.Sleeping under ITN 2.Seek treatment for fever 3.Importance of spraying house with chemicals 4.Not plastering walls after spraying 5.Environmental sanitation activities 6.Other(specify)————	
505	Main source of information Don't read options Multiple responses Probe once(anything else)	1.Health center/hospital 2.Health extension worker 3.Healthdevelopment army team leader 4.Friends/family 5.TV/Radio/Poster/billboard/ Peer educators 6.others(specify)————	

6. Social support to use ITN

No.	Question	Coding category	Skip
601	Does anyone discuss ways for you to be healthy during pregnancy? For example, your husband, family members, or health workers.	1.Yes 2.No	
602	Does anyone do or say things to show they care about your health and the health of your baby? For example, your husband, family members, or neighbors.	1.Yes 2.No	
603	Does anyone talk with you about your feelings about sleeping under the ITN?	1.Yes 2.No	
604	Does anyone encourage you to sleep under an ITN?	1.Yes 2.No	
605	Does anyone hang and mount the net under the bed when you are sleeping?	1.Yes 2.No	
606	Does anyone remind you to sleep under the ITN?	1.Yes 2.No	
607	Does anyone encourage you to talk with a health worker if you have problems with sleeping under the Net?	1.Yes 2.No	
608	Does anyone say it is good that you are sleeping under the ITN every night?	1.Yes 2.No	
609	Does anyone hang or mount ITN over sleeping area to help you to sleep under it?	1.Yes 2.No	
610	Do most people who are important to you and know that you are sleeping under ITN agree that you should sleep Under it? For example, your husband, family members, or neighbors.	1.Yes 2.No	

Anything more to add please: _____

Thank you for participation in deed!!! The END!!!

GUIDING QUESTIONS FOR QUALITATIVE (IN-DEPTH) INTERVIEWS

Hello my name is _____. I am here to collect information for the research conducted on utilization of ITNs among pregnant women in East Badewacho Woreda. The purpose of this study is to understand the experience in using ITNs and associated factors among pregnant women towards malaria prevention and control and establish evidence, and support the activities carried out to prevent and control malaria in the country.

Participation is based on your willingness besides; you can withdraw from the study anytime. However your kin participation would mean a lot. In addition, no personal identification will be written and we assure you that whatever information you are providing will only be used for the research purpose and the data will be handled only by the research team.

While we are collecting the data, it is difficult to jot down everything thus we will tape record our discussion. If you need any further information about the study please contact the following person: Mr. Paulos Samuel Tel. +251-911 73 12 86

Are you willing to participate in the study?

Agreed _____ Not Agreed _____

Thank you

Name Data collector _____ signature _____

A. In-depth interviews of husbands/HH heads of pregnant women

Sex----------

Age----------

Educational level-------

1. Could you tell me please what do you know about malaria?

- ✓ What is the cause of malaria?
- ✓ How does a person get malaria? (Ways of transmission)
- ✓ How do you know when a person has malaria? (Symptoms of malaria)
- ✓ Who is vulnerable to malaria? (Children and pregnant women)
- ✓ Do you think malaria as serious problem in your locality? How serious? Why? Probe if it is not considered as serious and why?
- ✓ Ways of preventing malaria?

2. Could you tell me please what practices exist in your household which prevent or promote the use of ITN?

- ✓ Do you use ITN in your house?
- ✓ What motivates you to use ITN in your house?
- ✓ Why do you not use ITN? Any beliefs which prevent use of ITN
- ✓ Do you think a person who doesn't use bed net at risk of getting malaria? Why?
- ✓ How do you use ITN commonly? for what purpose, any other practices related to ITN
- ✓ Do you think pregnant women need support from family members to sleep under the net? Why?
- ✓ What is the commonly used ITN brand in your house? List, do you know any other brands? Which brand do you prefer to use? Why?
- ✓ Do you have any preference for the shape and color of ITN? Probe which one do you most prefer, and why?

B. In-depth interviews of health professionals (Woreda malaria focal and HEW)

Sex----------

Age----------

Responsibility------

1. Is malaria a major problem in your locality? Why?
2. What are the measures to prevent malaria?
3. Which malaria prevention measures are practiced in the area?
4. Which of the measures are preferred? Why?
5. Are bed nets being used to prevent malaria?
6. How was the distribution of bed nets in the area?
7. Who in the family gets priority during distribution? Why?
8. Are there any benefits of sleeping under a net? What are they?
9. Are there problems that arise as a result of sleeping a net? What are they?
10. Are there barriers to the use of bed nets? (Financial, housing condition etc)
11. Are there any perceptions and practices in relation to ITN utilization among P.W?
12. Do you think pregnant women should sleep under an ITN regularly? Why?
13. Do pregnant women need support from family members to sleep under the net? Why?
14. How do you describe the condition of the nets already exist in the households of your community? Are they in good condition?
15. Where does the community get information about malaria? Why?
16. Do you think nets should be used in the future to prevent malaria in your locality?

AMHARIC VERSION QUESTIONNAIRE

ጅማ ዩንቨርሲቲ

የህብረተሰብ እና ህክምና ሳይንስ ኮሌጅ፣ የጤና አጠባበቅ ትምህርትና ሥነ ባህሪይ ሳይንሶች ትምህርት ክፍል

በ2007 ዓ.ም በሀዲያ ዞን ምስራቅ ባደዋቾ ወረዳ በሚገኙ የነፍሰ ጡር ሴቶች ወባን ለመከላከል አጎበር ተጠቃሚነትን በተመለከተ ለመዳሰስ የተዘጋጀ መጠይቅ

<u>የቃል ስምምነት መግለጫ</u>

ይህ የስምምነት መመሪያ የተዘጋጀው የጥናቱን አላማ ለነፍሰ ጡርሴቶች ለማስረዳትና ነፍሰ ጡርሴቶችም በጥናቱ እንዲሳተፉ ለመጋበዝ ነው፡፡

ጤና ይስጥልኝ፤ ሥሜ---------- እባላለሁ፡፡ በጅማ ዩንቨርሲቲ የድህረ ምረቃ ተማሪ አቶ ጳዉሎስ ሳሙኤል በነፍሰጡር ሴቶች ወባን ለመከላከል የአጎበር ተጠቃምነትን በተመለከተ በምስራቅ ባደዋቾ ወረዳ በሚካሄደው ጥናት በመረጃ ሰብሳቢነት እሰራለሁ ፡፡

የዚህ ጥናት ዋና አላማ እርስዎ ወባን ለመከላከል የአጎበር ተጠቃምነትን በተመለከተ በተዘጋጀው መጠይቅ መሰረት መረጃዎችን በማሰባሰብ ነፍሰጡር ሴቶችን ከወባ ለመታደግና የአጎበር ተጠቃምነትን ለመጨመር የተሻለ የአሠራር ሂደት ለመፍጠር ነው፡፡ ስምዎን መናገር አይጠበቅብዎትም፡፡በመጠይቁ መሰረት ከጥናቱ አዘጋጅ በቀር ለሌላ ሰው ስለማስይጥ እና ለሌላ ሰራ ስለማይዉል ሚስጥራዊነቱ የተጠበቀ ነው፡፡በማንኛውም ጊዜ በጥናቱ ሂደት ውስጥ ማቋረጥ ወይም የማይፈልጉትን ጥያቄ አለመመለስ ይችላሉ፡፡ነገር ግን እርስዎ በጥናቱ ተሳትፈዉ የሚሰጡን መረጃ የጥናቱን ዓላማ ለማሳካትና የአጎበር ተጠቃምነትን ለማሻሻል ከፍተኛ ጠቀሜታ አለዉ ።

በጥናቱ ለመሳተፍ ፈቃደኛ ነዎት? 1.አዎን 2.አይደለም

ለትብብርዎ በቅድሚያ እናመሰግናለን !!!

የቀበሌ ስም————————————የቀበሌ ኮድ ————————————————

የቤት ቁጥር ————————————————የተጠየቀበት ቀን ————————————

የመረጃ ሰብሳቢው ስም ————————————ፊርማ ————————————

የሱፐርቫዘር ስም ————————————————ፊርማ ————————————

ቀን_____

የቤተሰብ መለያ----------

ቀበሌ_____

1. አጠቃላይ ማህበራዊና ቤተሰባዊ መረጃን በተመለከተ የተዘጋጀ መጠይቅ፡ከዚህ በታች ለተዘረዘሩት ጥያቄዎች ከተሰጡት አማራጮች ዉስጥ በመላሾች ምርጫ መሰረት አንዱን ያክቡ።

ተ/ቁጥር	ጥያቄዎች	መለያ	ዝለል
101	እድሜዎ ስንት ይሆናል?	በተጠናቀቀ ዓመት_____	
102	የመኖሪያ አድራሻዎ የት ነዉ?	1.ከተማ 2. ገጠር	
103	አሁን ነፍሰ-ጡር ነዎት?	1.አዎን 2.አይደለሁም	<2 መጠየቅዎን ያቁሙ
104	ለ ጥያቄ 203 አዎን ከሆነ፣እርግዝናዎ ስንት ወር ይሆናል?	በተጠናቀቀ ወር_____	
105	የአሁኑን እርግዝናን ጨምሮ እስካሁን ስንት ጊዜ አርግዘዋል?	በቁጥር_____	
106	እስካሁን በህይወት የወለዱዋቸዉ ልጆች ስንት ናቸዉ?	በቁጥር_____	
107	ለአሁኑ እርግዝና የእርግዝና ክትትል አድርገዋልን?	1.አዎን 2.አይደለም	
108	የሚከተሉት ሀይማኖት ምንድነዉ?	1.ኦርቶዶክስ 2.እስልምና 3.ፕሮቴስታንት 4.ሌላ ካለ ቢገለጽ----	
109	የጋብቻ ሁኔታ	1.ያገባች 2.ያላገባች 3.የተፋታች 4.የተለያየች 5.ባል የሞተባት	
110	የትምህርት ደረጃ	1.ያልተማረች 2.መሠረተ ትምህርት 3.1ኛ ደረጃ 4.2ኛ ደረጃ ት 5.የከፍተኛ ትምህርት(ቢገለጽ)	
111	የሥራ ሁኔታ	1.የቤት እመቤት 2.ነጋዴ 3.የጉልበት ሠራተኛ 4.የመንግስት ሠራተኛ 5.ሌላ ካለ ይገለጽ	
112	ከስድስት ወራት ወዲህ እዚህ ቤት ያሉ ነዋሪዎች ብዛት	1. ጠቅላላ --- 2. ወንድ---ሴት--- 3. <5 ዓመት--- 4. ከ5-14 ዓመት --- 5. >=15ዓመት ወ------ሴ--------	
113	ትላንት ማታ እዚህ ቤት ያደሩ ሰዎች ብዛት	1. ጠቅላላ --- 2. ወንድ---ሴት--- 3. <5 ዓመት--- 4. ከ5-14 ዓመት --- 5. >=15ዓመት ወ------ሴ--------	
114	የወር ገቢ በግምት ስንት ይሆናል	ብር በኢት/_____	

2. የአጎበር በቤት ዉስጥ መኖር፣አጠቃቀምንና የተለያዩ የአጎበር ባህሪያትን የሚመለከቱ ጥያቄዎችመጠይቅ፡ከዚህ በታች ለተዘረዘሩት ጥያቄዎች ከተሰጡት አማራጮች ዉስጥ በመላሾች ምርጫ መሰረት አንዱን ያክቡ።

ተ/ቁ	ጥያቄዎች	መለያ						ዝለል
201	እዚህ ቤት አገልግሎት ሊሰጥ የሚችል አጎበር አለወይ?	1.አዎን 2.የለም						<2, ወደ 217
202	ለጥያቄ ቁጥር 301 መልሱ አዎን ከሆነ በቁጥር ስንት ይሆናል?	በቁጥር———						
203	እባክዎትን በቤት ያሉ አጎበሮችን ቢያሳዩኝ	መለያዎች	አጎበር 1	አጎበር 2	አጎበር 3	አጎበር 4	አጎበር 5	
			1.ታ 2.አል	1.ታ 2.አል	1.ታ 2.አል	1.ታ 2.አል	1.ታ 2.አል	
204	በመጠይቁ ወቅት የነበረዉ የአጎበሩ የአቀማመጥ ሁኔታ	1.ሳይከፈትእንደታጠፈነዉ						
		2. በመኝታ ቦታ ላይ ተሰቅሎ ነዉ						
		3.በሌላ አገልግሎት ላይ ነዉ						
205	የአጎበሩ ዓይነት(በማየት)	1.በኬሚካል ያልተነከረ						
		2.በአከባቢ የሚነከር						
		3.በፋብሪካ የተነከረ						
		4.አላዉቀዉም						
206	የአጎበሩ ዓይነት(በማየት)	1.ምንም ቀዳዳ የለለዉ						
		2.የባትሪብርሃን የሚያስተላልፍ ቀዳዳ የለለዉ						
		3.ከ1-4ቀዳዳ ያለዉ						
		4.ከ5ቀዳዳ በላይ ያለዉ						
		5.እንደታሸገ (ሳይጠቀሙት) ያለ						
207	አጎበሩን ካገኙት ምን ያህል ጊዜ ይሆናል?	ወራት/ዓመት ይጻፉ						
208	አጎበሩ የተገኘበት ምንጭ	1.ነጻበመንግስት በኩል የተሰጠ						
		2.በግዢ የተገኘ						
		3.ሌላ ምንጭ ካለ ቢገለጽ						
209	የተገኘዉ በግዢ ከሆነ ዋጋዉ ቢገልጽ	ብር በኢት/						
210	የአጎበር ቅርጽ	1.ክብ						
		2.አራት ማዕዘን						
211	የአጎበር መልክ/ቀለም	1.ሰማያዊ/አረንጉዴ						
		2.ነጭ						
212	አጎበር ሲያረጅ ወይም ሲቀደድ ለመጠገን ምን ያህል ይጥራሉ ?	1.ሁሉንም ቀዳዳዎችን እጠግናለሁ 2.አንዳንዴ ጠግኜ እጠቀማለሁ 3.ጠግኖ ለመጠቀም ያለኝ ተነሳሽነት አናሳ ነዉ 4.በምንም ተአምር ቀዳዳን ሰፍቼ አልጠቀምም						
213	መቼመቼ አጎበርዎን ያጥባሉ ?	1.ሲቆሸሽ ጊዜ 2.በአመት አንድ ጊዜ 3.በአመት ከ2-3 ጊዜ 4.በአመት ከ4-5 ጊዜ 5.በአመት 6 ጊዜና ከዛ በላይ						
214	ትላንት ማታ በአጎበር ዉስጥ ተኝተዋልን?	1.አዎን 2. አልተኛሁም						
215	ከእርስዎ ዉጪ ትላንት ማታ አጎበር ዉስጥ ያደሩ ሰዎች	1.ጠቅላላ——— 2.ወንድ--------ሴት--------- 3.ከ5ዓመት በታች---------- 4.ከ5-14 ዓመት---------- 5.15ዓመትና ከዚያም በላይ ወንድ-----ሴት-------						
216	መልሱ አልተኛሁም ከሆነ ምክንያቱን	1.በአከባቢ ወባ ስለለለ 2.ትንኞች ስለለሉ 3.አጎበር ለመወጠር በቂ ቦታ ስለለለ 4.አጎበሩ ቆዳን ስለምያቃጥል 5.ዉስጡ በጣም ስለሚሞቅ 6.አጎበር ለመወጠር አዳጋች ስለሆነ						

	ልነግሩኝ ይችላሉ ?	7.የአጎበሩ ቅርፅ ምቹ ስላልሆነ 8.እቤት ዉስጥ ስላልነበርኩ 9.ሌላ ካለ ቢገለጽ	
217	ከአጎበር ዉጪ ወባን ለመከላከል ምን ይጠቀማሉ?	ነ.የኬሚካል ርጭት 2.ወቅቱን የጠበቀ ህክምና 3.የአከባቢ ጽዳት 4. ሌላ ካለ ቢገለጽ	

3. ጠቅላላ ወባ ነክ የእዉቀት ጥያቄዎች መጠይቅ፡ከዚህ በታች ለተዘረዘሩት ጥያቄዎች ከተሰጡት አማራጮች ዉስጥ በመላሾች ምርጫ መሰረት አንዱን ያክቡ።

ተ/ቁጥር	ጥያቄዎች	መለያ	ዝለል
301	ስለ ወባ በሽታ ሰምተዉ ያዉቃሉ?	ነ.አዎን 2.አይደለም	2 ከሆነ ወደ ጥያቄ ቁ.301
301	የወባ በሽታ መንስኤ ምን ብለዉ ያስባሉ?	ነ.በትንኝ 2.የቋጠረ ወኃ 3.ረሀብ ወይም ባዶ ሆድ 4.ንጽህና የጎደለ ምግብ በመመገብ 5.ንጽህና የጎደለ ወኃ በመጠጣት 6.ቅዝቃዜ ወይም የአየር መለዋወጥ 7.ሌላ ካለ ቢገለጽ----------	
302	ወባ ከሰዉ ወደ ሰዉ የሚተላለፈዉ እንዴት ነዉ?	ነ.በትንኝ ንክሻ 2.በትንፋሽ አማከኝነት 3.በገላ ንኪኪ 4.በዝንቦች አማከኝነት 5.ሌላ ካለ ቢገለጽ	
303	እባክዎን የወባ ምልክቶችን ልነግሩኝ ይችላሉ?	ነ.ትኩሳት 2.ብርድብርድ ማለት 3.የራስ ምታት 4.የመገጣጠምዎች ህመም 5.ራስን መሳት 6.መንዘፍዘፍ 7.ሌላ ካለ ቢገለጽ	
304	አንድ ሰዉ ከወባ ራስን መከላከል የሚችለዉ እንዴት ነዉ?	ነ.በአጎበር ዉስጥ በመተኛት 2.የትንኝ መከላከያዎችን በመጠቀም 3.የወባ መከላከያ መድኃኒቶችን በመጠቀም 4.ቤትን በኬሚካል በማስረጨት 5.ንጽህና የጎደለ ወኃ ባለመጠጣት 6.የአከባቢ ንጽህናን በመጠበቅ 7.ሌላ ካለ ቢገለጽ	
305	ከበተሰብ አባላት ለወባ በቀላሉ ተጋላጭ የ ሆኑት እነማን ናቸዉ ብለዉ ያስባሉ?	ነ.ከ5ዓመት በታች የሆኑ ህጻናት 2. ከ5ዓመት በላይ የሆኑ ህጻናት 3.ነፍሰጡር ሴቶች 4.ነፍሰጡር ያልሆኑ ሴቶችና አዋቂ ወንዶች 5.አዛዉንቶች 6.እርግጠኛ አይደለሁም	

4. የነፍሰጡር ሴቶች ለወባና አጎበር አጠቃቀም ያላቸዉን እምነት/ዝንባሌን የተመለከቱ ጥያቄዎች

ተ/ቁጥር	ተጋላጭነትን የተመለከቱ	አልስማማም	አልወሰንኩም/እርግጠኛ አይደለሁም	እስማማለሁ
401	ወባ አደገኛ በሽታ በመሆኑ እኔንም ሳይዘኝ አይቀርም			
402	በወባ የመያዝ እድሌ ከፍተኛ ነዉ			
403	እርግዝናዬ በወባ ምክንያት አደጋ ላይ ነዉ			
404	በወባ ላለመያዜ እርግጠኛ አይደለሁም			
	ወባ የሚያስከትላቸዉን የጤና ጠንቆችን የተመለከቱ ጥያቄዎች			
405	በወባ ከተያዝኩ ከፍተኛ የጤና ቀዉስና ለህይወቴም ያሰጋል			
406	በወባ ቢያዝ ዝቅተኛ ክብደት ያለዉን ልጅ ልወልድ እችላለሁ			
407	በወባ ቢያዝ ቅርቴን ላጣ እችላለሁ			
408	በወባ ቢያዝ ህይወቴን ላጣ እችላለሁ			
409	በወባ ቢያዝ ራሴን ልስት እችላለሁ			
410	የጭንቅላት ወባ ከያዘኝ ወድያወኑ ልገለኝ ይችላል			
	አጎበርን መጠቀም የሚሰጠዉን ፋይዳ የተመለከቱ ጥያቄዎች			
411	በአጎበር ዉስጥ መተኛት ወባን ይከላከላል			
412	በእኔ እምነት አጎበር ከትንኝ ንክሻ ይከላከላል			
413	አጎበርን መጠቀም ከሌሎች ነፍሳት ንክሻም የከላከላል			
414	አጎበር ዉስጥ ስተኛ ሙሉ ጤንነት ይሰማኛል			
415	አጎበር ዉስጥ ከተኛሁ ጠነኛና በህይወት ያለ ልጅ እወልዳለሁ			
416	አጎበርን መጠቀም በወባ ህክምና ምክንያት የሚወጣዉን ወጪ ይቀንሳል			
417	አጎበርን መጠቀም የዕለት ዕለት ተግባሬን እንዳከናዉን ይረዳኛል			
	የአጎበር አጠቃቀም ተግዳሮቶችን የተመለከቱ ጥያቄዎች			
418	በአጎበሩ ላይ ያለዉ ኬሚካል ለእርግዝናዬ ጠንቅ ነዉ			
419	አጎበር ዉስጥመተኛት ከፍተኛ ሙቀትን ያስከትላል			
420	አጎበር ቆዳን የማቃጠል ባህሪይ አለዉ			
421	አጎበር ዋጋዉ ዉድ ስለሆነ ገዝቶ መጠቀምና ሲያረጅ መተካት ከባድ ነዉ			
422	ማታ ማታ ሲተኛ የአጎበር ጫፎቹን መኝታ ሥር መክተትን እረሳለሁ			
423	በእኔ እምነት አጎበርን መወጠር/ሰቅሎ መጠቀም ምቹ አይደለም			
424	አጎበርን ሰቅሎ ለመጠቀም በቂ ሥፍራ የለም			
425	አጎበር ዉስጥ መሆን መታፈን/የትንፋሽ መቆራረጥን ያስከትላል			
426	በተፈጥሮ ወባ እኔን ስለማይዘኝ አጎበር ዉስጥ አልተኛም			
427	ቤቴ ዉስጥ አጎበር ስለለለ መጠቀም አልቻልኩም			
	በራስ የመተማመንን ችሎታን የተመለከቱ ጥያቄዎች			
428	ማታ ማታ ሁሌ አጎበር ዉስጥ መተኛት እችላለሁ			
429	አጎበር ሲቆሸሽ ማጠብ እንደሚችል በራሴ እተማመናለሁ			
430	አጎበር ሲቀደድ ጠግኜ/ሰፍቼ መጠቀም እችላለሁ			
431	አጎበር ከጥቅም ዉጪ ሲሆን ገዝቼ መተካት እችላለሁ			

5. አጎበርን ለመጠቀም የሚያነቃቁ /የሚያነሳሱ ሁኔታዎችን የተመለከቱ ጥያቄዎችመጠይቅ፡ከዚህ በታች ለተዘረዘሩት ጥያቄዎች ከተሰጡት አማራጮች ዉስጥ በመላሾች ምርጫ መሰረት አንዱን ያክቡ።

ተ/ቁጥር	ጥያቄቆች	መለያ	ዝለል
501	ባለፉት ስድስት ወራት በወባ በሽታ ተይዘዉ ያዉቃሉ	1.አዎን 2. አይደለም	
502	ባለፉት ስድስት ወራት ከቤተሰብዎ አባላት ወባን የታመመ	1.አዎን 2.አይደለም	

	ሰዉ ነበር		
503	ባለፉት ስድስት ወራት ስለወባ መረጃ ሰምተዉ/አይተዉ ያዉቃሉ	1.አዎን 2.አይደለም 3.አላስታዉስም	2 ከሆነ መጠየቅዎን ያቁሙ
504	ለጥያቄ ቁጥር 603 መልስዎ አዎን ከሆነ የሰሙት መረጃ ምንድነዉ	1.ስለ አጎበር ዉስጥ መተኛት 2.ስለ ትኩሳት ህክምና 3.ስለ ቤት ዉስጥ ኬሚካል ርጭት 4. ስለ አከባቢ ጽዳት 5.ሌላ ካለ ቢገለጽ	
505	የሰሙት መረጃ ምንጩ ከወዴት ነዉ	1.ከጤና ጣቢያ/ሆስፒታል 2.ከጤና ኤክስቴንሽን ሠራተኞች 3.ከጤና ልማት ሠራዊት 4.ከቤተሰብ/ጉወደኛ 5.ቲቪ፣ረዲዮ፣አቻ አስተማሪዎች፣ፖስተሮች፣...	

6. አጎበር ለመጠቀም የሚረዱ የማህበረሰብ/የቤተሰብ ድጋፍን የሚመለከቱ ጥያቄዎች፡ከዚህ በታች ለተዘረዘሩት ጥያቄዎች ከተሰጡት አማራጮች ዉስጥ በመላሾች ምርጫ መሰረት አንዱን ያክቡ።

ተራ.ቁ	ጥያቄዎች	መለያ	ዝለል
601	ከቤተሰብዎ አባላት በእርግዝናዎ ወቅት እርስዎ ጤነኛ እንዲሆኑ ዉይይት ይካሄዳል? ለምሳሌ የትዳር አጋርዎ፣ የቤተሰብ አባላት፣ የጤና ባለሙያዎ	1.አዎን 2. አይደለም	
602	ስለእርስዎና እርግዝናዎ ጤንነት ጥንቃቄ የሚያደርጉ ሰዎች አሉ? ለምሳሌ ባለቤትዎ፣ ሌሎችየቤተሰብ አባላት፣የጤና ባለሙያዎች	1.አዎን 2. አይደለም	
603	ሰዎች እርስዎ አጎበር ዉስጥ እንዲተኙና ምን እንደሚሰማዎት ያነጋግራሉ ?	1.አዎን 2. አይደለም	
604	ሰዎች እርስዎ አጎበር ዉስጥ እንዲተኙ ያበረታትዎታል ?	1.አዎን 2. አይደለም	
605	ሰዎች እርስዎ ከመተኛትዎ በፊት አጎበር የመወጠርና መኝታ ስር የማስገባት እገዛ ያደርጋሉ?	1.አዎን 2. አይደለም	
606	ሰዎች እርስዎ አጎበር ዉስጥ እንዲተኙ ያስታዉሳሉ?	1.አዎን 2. አይደለም	
607	ከአጎበር አጠቃቀም ጋር በተያያዘ ችግር ስገጥምዎ የጤና ባለሙያን እንዲያማክሩ ሰዎች ይገፋፍዎታል	1.አዎን 2. አይደለም	
608	ሁል ጊዜ አጎበር ዉስጥ መተኛት ጥሩ እንደሁነ ሰዎች ይናገራሉ?	1.አዎን 2. አይደለም	
609	ሰዎች በመኝታዎ ላይ አጎበር የመወጠርና የማስተካከል ተግባራትን ያከናዉናሉ?	1.አዎን 2. አይደለም	
610	ለእርስዎ ቅርብ የሆኑ ሰዎች እርስዎ አጎበር ዉስጥ መተኛት እንዳለብዎ ያምናሉ?	1.አዎን 2. አይደለም	

እባክዎን ተጨማሪ ሀሳብ ካለዎት ቢነግሩን ----------

ስለተሳትፎዎ ከልብ እናመሰግናለን፡፡

የመረጃ ሰብሳቢዉ ስም_____ ፊርማ_____ ቀን----------

የሱፐርቫይዘር ስም_____ፊርማ_____ቀን----------

የአጎበር አጠቃቀምን በሚመለከት ለወንድ የቤት አባወራዎች የተዘጋጀ ጥልቅ ጥያቄዎች

ጾታ_____

ዕድሜ_____

የትምህርት ደረጃ_____

ሀ. እባክዎን ስለወባ በሽታ የሚያዉቁትን ልነግሩኝ ይችላሉ ? ማለትም

መንስኤዉን፣ መተላለፍያ መንገዶች፣ መለያ ምልክቶች፣

*መ*ከላከያ *መ*ንገዶች፣ ይበልጥ ተጋላጭየሆኑ የህብረተሰብ ክፍሎች፣

በእርስዎ አስተሳሰብ በአከባብዎ ወባ ከባድ ችግር ሆኖ ያዉቃል

ከሆነስ እንዴት ካልሆነም ምክንያቱን ያዉቁታል

ለ. እባክዎን በቤታችሁ አጎበርን በሚመለከት ያላችሁን ልምድ ልነግሩኝ ይችላሉ ?ማለትም፤

በቤትዎ አጎበርን ይጠቀማሉ፣ እንዲጠቀሙ የገፋፉአችሁ ምንድነዉ ?

ማይጠቀሙስ ከሆነ ምክንያቱን ልነግሩኝ ይችላሉ ?

አጎበርን በሚመለከት እንዳይጠቀሙ የሚከለክል ባህል ወይም እምነት አለ?

በቤታችሁ አጎበር በምን በምን አገልግሎት ላይ ይዉላል?

በእርስዎ አስተሳሰብ ነፍሰጡር ሴቶች አጎበር ዉስጥ እንዲተኙ የቤተሰብ ድጋፍ ያስፈልጋቸዋል ብለዉ ያምናሉ?

በተለምዶ ቤታችሁ የምትጠቀሙት አጎበር ምን ዓይነት ነዉ ?ማለትም ፤

በኬሚካል የተነከረ፣ በፋብሪካ የተነከረና ለረዥም ጊዜ የምያገለግል የቱን ይመርጡታል ? ለምን

ቅርጹን በሚመለከት ክብ ፣ አራት ማዕዘን የቱን ይመርጡታል? ለምን?

*መ*ልኩን በሚመለከት ነጭ፣ሠማያዊ የቱን ይመርጡታል ? ለምን ?

እባክዎን ተጨማሪ ሀሳብ ካለዎት ቢነግሩን ----------

ስለተሳትፎዎ ከልብ እናመሰግናለን

የጠያቂዉ ስም---------- ፊርማ----------

መረጃዉ የተሰበሰበበት ቀን----------

የአጎበር አጠቃቀምን በሚመለከት ለጤና ባለሙያዎችና የጤና ኤክስቴንሽን ሠራተኞች የተዘጋጁ ጥልቅ ጥያቄዎች

ጾታ_____

ዕድሜ_____

የሥራ ድርሻ_____

1. ወባ በአከባብዎ ምን ያህል አሳሳቢ ነዉ?

2. የወባ መከላከያ መንገዶችን ልነግሩኝ ይችላሉ ?

3 . ከላይ ከተጠቀሱት በአከባቢያችሁ ህብረተሰቡ የምትጠቀማቸዉ የትኞቹ ናቸዉ?

4. ህብረተሰቡ ከሚጠቀማቸዉ መንገዶች ተመራጩ የትናዉ ነዉ?

5. ወባን ለመከላከል ህብረተሰቡ አጎበርን ይጠቀማልን?

6. የአጎበር ስርጭት በአከባቢያችሁ ምን ይመስላል?

7. በስርጭቱ ወቅት በቤተሰብ ዉስጥ ቅድሚያ የሚሰጣቸዉ እነማን ናቸዉ? ለምን ይመስሎታል?

8. አጎበርን መጠቀም ፈይዳ/ጥቀረም አለዉ? ካለዉስ ምን ምን እንደሆኑ ቢገልጹልኝ

9. አጎበርን ከመተቀም ጋር ተያይዞ የሚመጡ ችግሮች አሉ? ካሉስ ምንምን ናቸዉ?

10. አጎበርን እንዳይጠቀሙ የሚከለክሉ ተግዳሮቶች አሉን ? ማለትም የገንዘብ፣ የቤት ዉስጥ ሁኔታና ሌሎችም

11. ከነፍሰጡር ሴቶች አጎበር አጠቃቀም ጋር በተያያዘ በማህበረሰቡ ዉስጥ የሚዘወተር ባህል ወይም እምነት አለ? ካለስ ቢገልጹልኝ

12. በእርስዎ አስተሳሰብ ነፍሰጡር ሴቶች አጎበር ዉስጥ መተኛት እንዳለባቸዉ ያምናሉ?

13. በእርስዎ አስተሳሰብ ነፍሰጡር ሴቶች አጎበር ዉስጥ ለመተኛት ከሁሉም የቤተሰብ አባላት ድጋፍ እንደሚያስፈልጋቸዉ ያምናሉ ?

14 የአከባቢዉ ማህበረሰብ ስለወባና አጎበር አጠቃቀም መረጃን ከየት ያገኛሉ?

15. ወደፊት በአከባቢያችሁ አጎበር ለወባ መከላከል አገልግሎት እንዲዉል ይመክራሉን?

እባክዎን ተጨማሪ ሀሳብ ካለዎት ቢነግሩን ----------

ስለተሳትፎዎ ከልብ እናመሰግናለን

የጠያቂዉ ስም---------- ፊርማ----------

መረጃዉ የተሰበሰበበት ቀን----------

DECLARATION

DECLARATION

I, the undersigned, declare that this thesis is my original work, has not been presented for a degree in this or any other university and that all sources of materials used for the project have been fully acknowledged.

Name: **PAULOS SAMUEL BALLA**

Name of institute: **JIMMA UNIVERSITY**

Date of submission: ———————————

Signature:———————————————

This thesis will be submitted with my approval as university advisor

Name and signature of first advisor

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Name and signature of second advisor

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