ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCES

SCHOOL OF NURSING AND MIDWIFERY

DEPARTMENT OF NURSING

SECOND DOSE MEASLES VACCINE UTILIZATION AND ASSOCIATED FACTORS AMONG CHILDREN AGED 24-36 MONTHS IN WESTERN GURAGAE ZONE, CENTRAL ETHIOPIA, 2024.

BY: FETIHA MUZEMIL (BSc, MSc STUDENT)

A RESEARCH THESIS TO BE SUBMITTED TO ADDIS ABABA UNIVERSITY COLLEGE OF HEALTH SCIENCES, SCHOOL OF NURSING AND MIDWIFERY, DEPARTMENT OF NURSING IN PARTIAL FULFILLMENT FOR THE REQUIRMENT OF THE DEGREE OF MASTERS OF SCIENCE IN PEDIATRICS AND CHILD HEALTH NURSING

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I, the undersigned MSc student, declare that I have submitted my original work on a title with Second Dose Measles Vaccine Utilization and Associated Factors among Children Aged 24-36 Months in Western Guragae Zone, Central Ethiopia, 2024, for the examination.

Submitted by:

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APPROVAL BY THE BOARD OF EXAMINATION

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DECLARATION

By my signature below, I declare and affirm that this thesis is my own work. I have followed all ethical principles of scholarship in the preparation, data collection, data analysis and completion of this thesis. All scholarly matter that is included in the thesis has been given recognition through citation. I affirm that I have cited and referenced all sources used in this document. Every serious effort has been made to avoid any plagiarism in the preparation of this thesis.

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LIST OF ACRONYMS AND ABBREVIATIONS

ANC: Ante-Natal Care

AOR: Adjusted Odds Ratio

BSc: Bachelor of Science

CDC: Communicable Disease Control

CI: Confidence Interval

COR: Cruds Odds Ratio

CSA: Central Statistical Agency

EMDHS: Ethiopian Mini Demographic and Health Survey

EPI: Expanded Program on Immunization

MCV: Measles Containing Vaccine

MSc: Masters of Science

NGO: Non-Governmental Organization

OR: Odds Ratio

SSA: Sub-Saharan Africa

UNICEF: United Nations International Children’s Emergency Fund

WHO: World Health Organization

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ABSTRACT

Background: Measles is a very contagious and terrible disease which causes serious illness in under-five children, but it can be easily prevented and controlled by vaccination. Even if, Ethiopia launched measles second dose vaccine (MCV2) in 2019, only 9.1% of children aged 24–35 months received the second dose of the measles vaccine which is below the target. However little is known about the utilization and associated factors for MCV2 in the study area.

Objective: To assess second dose measles vaccine utilization and associated factors among children aged 24-36 months in Western Guragae Zone, Central Ethiopia, 2024.

Methods: A community-based cross-sectional study was employed on a total of 610 children, from February 19 to March 19, 2024. Data was refined, coded and entered in to Epi info-7 and exported to SPSS-21 for data cleaning and analysis. The associations between independent and dependent variables were analyzed by using bi-variate and multivariate logistic regression and AOR at 95% CI was used to identify factors significantly associated with MCV2 utilization at p value <0.05.

Results: The overall MCV2 utilization was 45.2% (95% CI: 41.2-49.3). Maternal education of secondary and above (AOR, 10.15; 95% CI: 6.18, 16.67) and not return back without getting vaccination (AOR, 2.91; 95% CI; 1.83, 4.64) increased the odds of MCV2 utilization. In contrast, longer distance from vaccination center (AOR, 0.328; 95% CI: 0.198, 0.541) and long waiting time (AOR, 0.387; 95% CI: 0.24, 0.61) reduced the odds of MCV2 utilization.

Conclusion and Recommendation: Second dose measles vaccination utilization in the study area was below the national target of 95%. Maternal education, distance from nearest vaccination center, return back without getting vaccination and waiting time for vaccination were identified as significant factors for MCV2 utilization. Therefore, in order to increase utilization of MCV2 there is a need to strengthen the defaulter tracing system to follow up the children who default after receiving MCV 1 and focusing interventions on the identified factors.

Keywords*:* measles second dose vaccine; utilization; children’s; Western Guragae Zone; Ethiopia

1. INTRODUCTION

1.1 Background

Measles is a highly contagious acute respiratory illness caused by a virus in the family paramyxovirus, which belongs to genus morbillivirus. Measles is manifested by a prodromal of fever (as high as 105°F) and malaise, cough, coryza, and conjunctivitis, followed by a maculopapular rash lasting for 3 days which extends from head to trunk to lower extremities (1, 2). Measles typically takes 11–12 days to incubate, and there is an average 14-day interval with a range of 7–21 days between exposure and the beginning of the rash. Those who have the measles are often considered infectious for four days prior to and four days following the rash's start with the rash onset being considered as day zero (3, 4).

All age groups are susceptible to the measles virus; however children under the age of five are more likely to experience problems from the illness. Diarrhea and ear infections are frequent side effects. However, some children's could experience serious side effects including encephalitis or pneumonia. Measles virus infection also leads to Sub-acute Sclerosing Pan-Encephalitis (SSPE), an uncommon but deadly central nervous system illness (5).

Internationally available measles vaccines are safe, effective and can be used interchangeably in immunization programs to prevent the disease. Measles mortality were expected to decrease from 750 000 to 197 000 between 2000 and 2007, with 82% of the world's population having received the first dose of the vaccine in 2007. Measles, however, continues to be a major cause of mortality and disability in nations with inadequate health infrastructure. In countries where vaccination has substantially reduced the incidence of measles, failure to maintain high coverage of childhood immunization in all districts has resulted in a resurgence of the disease (6).

Despite significant progress made towards the global goal of decreasing and eradicating measles mortality between 2021–2022, the number of estimated measles deaths increased by 43%, from 95,000 to 136,200 cases. Estimated measles cases increased by 18%, from 7,802,000 to 9,232,300, and the number of countries suffering major or disruptive outbreaks increased from 22 to 37 (7).

Although measles is a terrible and highly contagious disease, it is easily prevented with immunization. Nearly 90% of children under the age of 15 were affected with the disease prior to the introduction of measles vaccination program (8). Estimated measles-related deaths declined by 73% and estimated measles cases by 76% from 2000 to 2018 due to the increase in the introduction of a second dose of measles containing vaccine (MCV2) during the expanded program of immunization (EPI) era, but the disease is still regarded as a public health emergency requiring prompt reporting and swift public health response (9).

MCV2 may be added to the routine immunization schedule in countries that have attained greater than 80% coverage of MCV1 at the national level for 3 consecutive years as determined by the most accurate data available through performing population-based survey or based on WHO estimate (10). However, following the April 2017 revision of the MCV2 introduction policy, countries now incorporate MCV2 into their national vaccination schedules, irrespective of the level of MCV1 coverage necessary to safeguard the 15% of children who do not acquire protective immunity after their initial dose (8).To ensure 93-95% population immunity and to stop measles outbreak, the WHO recommends all children to receive two doses of the measles vaccination (11). By vaccinating at least 95% of the population with two doses of the measles vaccine effectively prevents the incidence and transmission of the disease within that community, ensuring herd immunity which enables to protect all individuals, including those who are not vaccinated (12). On February 11, 2019, Ethiopia formally incorporated the measles vaccine second dose (MCV2) into the regular immunization plan for children in their second year of life (13).

1.2 Statement of the Problem

To achieve and maintain high levels of population immunity, providing high vaccination coverage with MCV2 ensures for the elimination of indigenous transmission of measles. Every year, a large number of individuals die from the highly contagious disease measles. Around 207,500 deaths occurred globally in 2019, with 147,900 (more than 70%) taking place in African countries. About 869,770 were infected with measles worldwide and most of them were under five children's (14).

Measles is one of the leading causes of death among children globally, particularly in underdeveloped countries. Global measles mortality were expected to reach 128,000 in 2021, including children under the age of five who have not received the full recommended vaccination rate or who are under vaccinated. Fifty six million fatalities were averted by measles immunization between 2000 and 2021 (15).

Ethiopia still has a high measles incidence rate; from August 12, 2021 to May 1, 2023, there were 182 deaths with a Case Fatality Ratio (CFR) of 1.1% and 16,814 laboratory-confirmed cases of the disease recorded nationally (10). The annual number of confirmed measles cases has dramatically raised from 53 cases in 2021 to 9291 cases (375%) in 2022 and 6933 cases in 2023,. Therefore, the number of confirmed measles cases increased by nearly five times between 2021 and 2022. From this 45% of all cases were under five children's (16).

Despite the tremendous efforts done to decrease measles disease in Ethiopia, measles outbreaks occur repeatedly in various parts of the region (17). In 2022, measles outbreaks were reported in 12 districts in Ethiopia, affecting 650 000 children totally and a total of 2755 cases were suspected, among which 2156 were confirmed measles cases (18).

According to a study conducted in Bangladesh about the economic burden of measles infection, measles costs $159 for hospitalized and $18 for ambulatory case. On average, the government spent $22 per hospitalized case of measles (19). Whereas a study conducted in 2014 about the economic cost of measles outbreaks in Ethiopia (Keffa Zone) found that the economic costs account US$72.29 per case for health sector including immunization campaign, and US$29.18 per case for house hold economic expenditures (20)

Globally measles vaccination coverage has been decreased since the beginning of Covid-19 pandemic with the record 14.7 million children missed their MCV2 vaccine. The majority (90%)

of the unimmunized population are in low- and middle- income countries, with many of them being in South-East Asia and Africa (21). In 2019, Global MCV2 coverage was 67% and the lowest coverage has been recorded in the African Region which accounts 25% (22).

According to 2019 Ethiopian Mini Demographic Health Survey (EMDHS) report states that immunization rates in Ethiopia, including those for MCV2 continued to be below the 95% national target. Only 9.1% of children aged 24–35 months received the second dose of the measles vaccine in 2019 (23). Immunization service is provided in most of the health facilities and as an outreach service for communities residing beyond 5 km from the static health facilities. Currently, almost all the public health facilities and some private hospitals provide immunization services, and all three-tier health care delivery system in Ethiopia.

Even if MCV2 vaccination had started in Ethiopia, the coverage is very low and there is a scarce literature about the utilization and associated factors for MCV2 in Ethiopia, particularly in Guragae Zone. Therefore, this study aims to assess MCV2 utilization and associated factors among Children aged 24-36 months in Western Gurage Zone, Central Ethiopia, 2024.

1.3 Significance of the Study

Measles outbreak is a public health emergency and MCV2 vaccination has an importance for preventing the spread of this highly contagious and potentially deadly diseases. Research carried out in Ethiopia showed that the national vaccination target for MCV2 coverage is not being met, and there is knowledge gap in terms of what factors are affecting its utilization. Addressing this gap in turn helps in the improvement of awareness on MCV2 uptake and findings of this study will provide recommendations on ways of improving its utilization.

By assessing the utilization and identifying the factors associated with MCV2 among children's in this age group, the study can provide valuable insight into barriers and helps to strengthen immunization system. It can help to fill gaps in access to service, parental attitudes and beliefs, and other socio demographic factors that may impact vaccination rate. In addition the finding can be used to develop targeted interventions and strategies to improve MCV2 utilization and ultimately reduce the burden of the diseases. The finding of this study will also serve as an evidence for future researchers.

2. LITERATURE REVIEW

2.1 MCV2 Utilization

According to an explanatory sequential mixed study done in Saskatchewan, Canada on Trends, barriers and enablers to measles immunization coverage showed that there was a progressive increase in MCV2 coverage in the province between 2002–2013 from 56.32% to 73.21% (24).

Vaccination intervention campaign conducted in university of Zurich, Switzerland, from a total of 411 individuals, 8.5% were found to have sufficient measles vaccination; 20.2% of all participants and 22.1% of those vaccinated returned for a second dose vaccination (25).Another cross-sectional study done in Viet Nam, in a total of 207 children only 52% returned for the second scheduled dose at 18 months (26).

A cross–sectional survey done in China from a total of 938 children, the vaccination coverage rate was 98.9% for measles–containing vaccine dose 1 (MCV1), and 95.8% for measles–containing vaccine dose 2 (MCV2) (27). Similar study done in Indonesia in 2012 on determinants of immunization coverage of children aged 12–59 months, 32% of the children were fully immunized (28). A community-based cross-sectional survey conducted in Tanzania showed that overall MCV2 utilization was 44.2% (29).

A systematic review and meta-analysis done in sub-Saharan Africa showed that the overall uptake of the second dose of measles vaccine uptake was 41% (30).

A descriptive study done in Bolgatanga Municipality of Ghana revealed that 95.3% of the children received first dose MRV (MRV1), but only 18.2% received MRV2 (31). Similar cross-sectional end line survey in this country; children aged 18–35 months in Greater Accra Region (GAR), Northern Region (NR), and Volta Region (VR). MCV2 coverage was 67.4%, 82.8%, and 69.8% respectively (32).

A multi-level Secondary data analysis done in Sub-Saharan Africa showed that the pooled prevalence of MCV2 utilization in SSA was 44.77% (33).Another cross-sectional study conducted in Kenya founds that the coverage was 96.6% (518/536) for MCV dose one (MCV 1), and 56.2% (301/536) MCV dose two (MCV 2) (34).

A multilevel secondary data analysis done in Ethiopia showed that the proportion of MCV2 uptake was 9.84% (35). Similarly a community-based cross-sectional study done in Jabitehnan District, Northwest Ethiopia indicates that the overall second dose of measles vaccination

utilization was 48.1% (36). Another community-based cross-sectional study conducted in urban areas of North Shoa Zone, Central Ethiopia revealed that the level of second-dose measles vaccination among children in urban areas of North Shoa Zone was 42.5% (37).

2.2 Factors Associated with MCV2 Utilization

2.2.1 Socio-demographic related factors

Study done in East China on simultaneous administration and risk factors for missed opportunities among children showed that; higher birth order of children, urban residence of children, higher maternal education background and higher socio-economic development were negatively affects missed opportunity for simultaneous administration of MCV2 (38). Similar study conducted in Zhejiang province, China showed that younger mothers, low maternal education background, mothers with a fixed job, and low household income increased odds of delayed vaccination for MCV2 (39).

A cross-sectional study done in Indonesia revealed that coverage was significantly lower among children who had higher birth order, had greater family size, whose mother had no education and from the poorest households (28). A systematic review and meta-analysis done in sub-Saharan Africa showed that educational status of mothers had increased the odds children's MCV2 uptake (30). Another cross sectional study done in Bolgatanga Municipality of Ghana revealed that urban area of residence had a negative impact with MRV2 uptake (31). Similar study conducted in Ghana showed that older, first-born child and those living in rural settlements were high chance for MCV2 utilization (32).

A cross-sectional study conducted in Gambia on determinants of pentavalent and measles vaccination dropouts among children aged 12– 23 months showed that being an urban areas dweller increased the odds of measles dropout (40). Another cross-sectional study done in Kenya showed that family monthly income, caregiver's level of education, and children whose birth order was 5th born increased MCV2 uptake (34).

Multilevel secondary data analysis done in Ethiopia showed that children whose mothers were aged 20–34 years and 35–49 years, being the 4th-5th child and 6th and above child increases odd of MCV2 uptake (35). Another community-based cross-sectional study conducted at

Jabitehnan district, Northwest Ethiopia, mothers with primary school education significantly increases MCV2 utilization (36). Similar study conducted in a hard-to-reach areas of Ethiopia showed that higher level of maternal education increases the odds of MCV2 coverage while having five and more family size reduced the odds of MCV2 uptake (41). Another study conducted in urban areas of North Shoa Zone, Central Ethiopia revealed that maternal age of ≤25 years, 26–30 years, 31–35 years increased MCV2 vaccination (37).

2.2.2 Obstetrics related factors

A cross-sectional study conducted in Zhejiang province, China showed that children delivered at home were associated with delayed vaccination for MCV2 (39). Another study done in Indonesia revealed that the likelihood of being unimmunized was higher among children who didn't receive antenatal care and postnatal care (28). A systematic review and meta-analysis done in Sub-Saharan Africa showed that attending four and above ANC visit increase MCV2 uptake (30). Similar study conducted in Gambia showed that women gave birth in home and other places increased the odds of MCV2 dropout (40).

A community-based cross-sectional study conducted in a hard-to-reach areas of Ethiopia on full immunization coverage and associated factors among children aged 12-23 months showed that having antenatal care visit and being born in health institutions had increased the odds children's MCV2 uptake (41).

2.2.3 Awareness related factors

A systematic review and meta-analysis done in sub-Saharan Africa showed that Caregiver's awareness of the importance of the second dose of measles had increased the odds children's MCV2 uptake (30). A cross sectional study done in Bolgatanga Municipality of Ghana revealed that over 90% knew about the vaccine and had good knowledge of MCV2 were statistically associated with MCV2 uptake (31). A similar cross-sectional end line survey conducted in same area showed that uptake was higher among those with children whose caregivers were aware of the vaccination schedule (32).

A cross-sectional study done in Kenya showed that caregiver's knowledge of the vaccine-preventable diseases, and knowledge of the number of MCV scheduled doses were significantly associated with MCV2 uptake (34).

A community-based cross-sectional study conducted at Jabitehnan district, Northwest Ethiopia, information about MCV2 and knowledge about immunization were significantly associated with MCV2 utilization (36). Similarly, community-based cross-sectional study conducted in a hard-to-reach areas of Ethiopia in children aged 12-23 months showed that mothers' good knowledge on immunization increases odds of measles vaccine coverage (41). Another community-based cross-sectional study conducted in urban areas of North Shoa Zone, Central Ethiopia showed that awareness about vaccine-preventable diseases and awareness on recommended measles doses were identified as factors associated with MCV2 vaccination. The main justifications (48.1%) reported by mothers for not vaccinating MCV2 was being unaware of the need to return for second-dose measles vaccination (37).

2.2.4 Health service related factors

Study done in East China revealed that less frequent vaccination service and shorter vaccination service time were significant risk factors for missed opportunity for simultaneous administration of MCV2 (38).

A Study done in Indonesia revealed that the likelihood of being unimmunized was higher among children without health insurance (28). A community-based cross-sectional survey conducted in Tanzania showed that long waiting times for vaccination services decrease the odds of MCV2 utilization (29).

A systematic review and meta-analysis done in sub-Saharan Africa showed that short distance from vaccination site had significantly increased MCV2 uptake (30). Another cross-sectional study conducted in Kenya showed that child vaccination status for other scheduled vaccines, caregivers not preferring the nearest health facility to their household, long waiting time and vaccine stock out were significantly associated with low MCV2 uptake (34).

A community-based cross-sectional study conducted at Jabitehnan district, Northwest Ethiopia, distance from vaccination site was significantly associated factors with MCV2 utilization (36). Similar community-based cross-sectional study conducted in a hard-to-reach areas of Ethiopia showed that short distance to health facility increases odds of measles vaccine utilization (41). Another cross-sectional study conducted in urban areas of North Shoa Zone, Central Ethiopia

showed that average time mothers had been waiting for vaccination at the health facility had significantly increased MCV2 uptake (37).

Researches showed that multiple factors could contribute for MCV2 vaccination remaining far below the targets in many countries of the world including Sub-Saharan African countries including Ethiopia. Socio-demographic characteristics of families, knowledge about MCV2, health service access, and obstetrics related condition were important factors for MCV2 utilization. Some factors such as parental educational status and occupational status were not well addressed in different literatures that used in this study. This study will incorporate all the aforementioned factors which have effect on MCV2 utilizations in children aged 24-36 months.

2.3 Conceptual Framework

The conceptualized framework from reviewing related literature on the assessment of second dose measles vaccine utilization and identify the associated factors among children aged 24-36 months is summarized schematically as follows (28, 31-41).

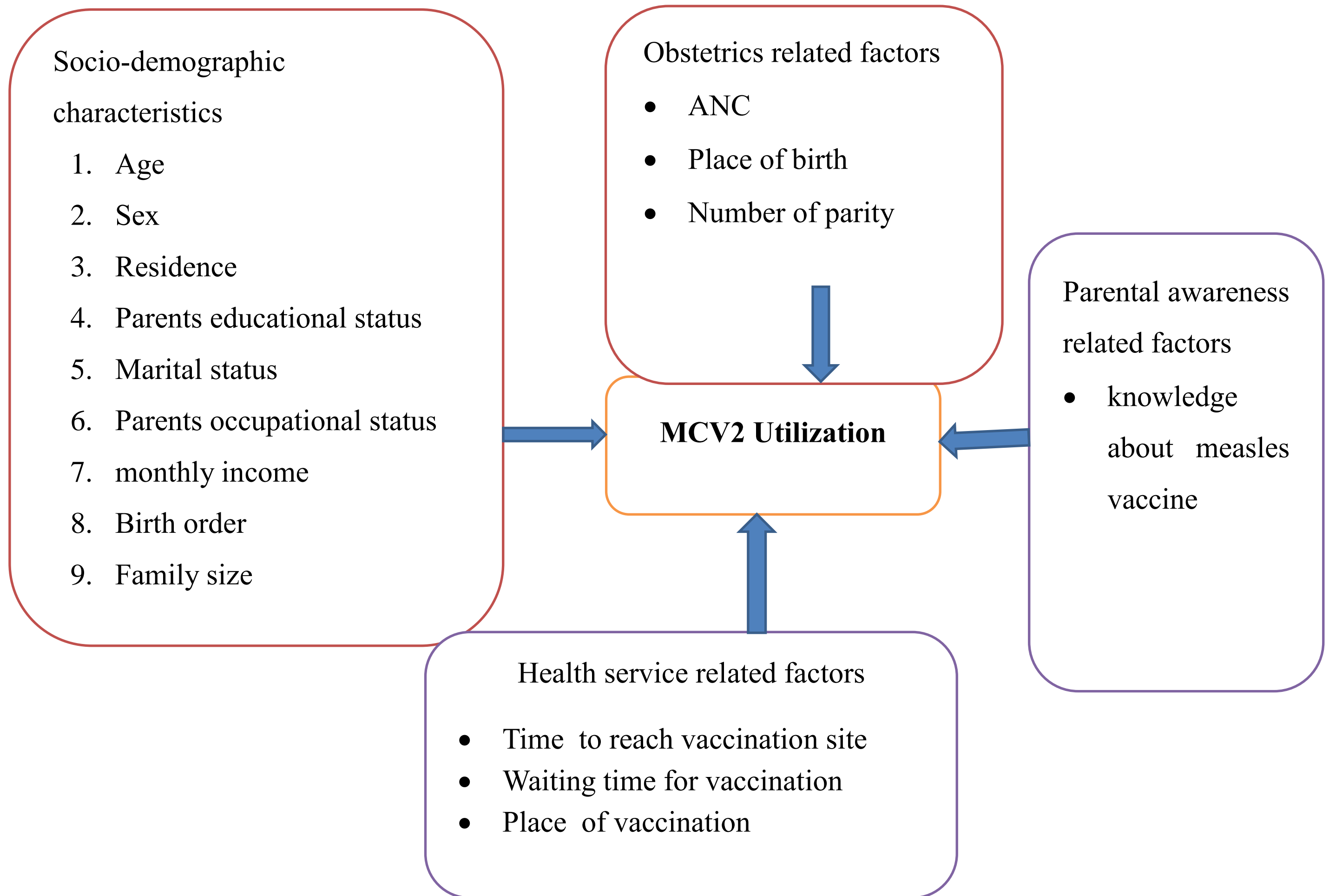

Figure 1: Conceptual framework adopted from different literatures for associated factors for MCV2 utilization

3. OBJECTIVES

3.1 General Objective

- To assess second dose measles vaccine utilization and associated factors among children aged 24-36 months in Western Guragae Zone, Central Ethiopia, 2024.

3.2 Specific Objectives

- To assess the magnitude of second dose measles vaccine utilization among children aged 24-36 months in Western Guragae Zone, Central Ethiopia, 2024.
- To identify factors associated with second dose measles vaccine utilization among children aged 24-36 months in Western Guragae Zone, Central Ethiopia, 2024.

1. METHODS

1.1 Study Area and Period

This study was conducted in Western Gurage Zone. It has 10 districts and two municipalities with a total of 300 rural kebeles' and 10 urban kebeles'. The names of districts are Abeshge, Moher Aklil, Cheha, Mehal amba, Ejja, Enor, Enor Ener, Endegagn, Gummer and Getto district. Westeren Gurage Zone is located 158km away from Addis Ababa, the capital city of Ethiopia. Wolkite city is the administrative center of the zone. According to 2012 population projection by CSA, the total population is 1,767,518 (42). The study was conducted from February 19, 2024 to March 19, 2024.

1.2 Study Design

A community-based cross-sectional study was employed.

1.3 Population

1.3.1 Source population

Children aged 24-36 months who lived at least 6 months in Western Guragae Zone.

1.3.2 Study population

Children aged 24-36 months who lived at least 6 months in the selected households of Western Guragae Zone during the study period.

1.4 Eligibility Criteria

1.4.1 Inclusion criteria

Children aged 24-36 months having vaccination cards with written records of vaccination dates who are living in selected households of Western Guragae Zone were included in the study.

1.4.2 Exclusion criteria

- Ill mothers/caretakers who were unable to respond
- Mothers/Care givers who lived <6 months in selected kebele's were excluded from the study

1.5 Sample Size Determination and Sampling Technique

1.5.1 Sample size determination

The required sample size was calculated using single population proportions formula with a 95% level of confidence, 5% marginal of error, and with 42.5% a proportion of MCV2 utilization, which was taken from a study conducted in North Shoa Zone (37).

$$n = \frac{(z\alpha/2)^2 (\mathrm{p})(1-\mathrm{p})}{\mathrm{d}^2} = \frac{(1.96)^2 (0.425)(1-0.425)}{0.05^2} = 370$$

Where:

$Z\alpha_{/2}$ = Standard normal variate for level of significance (1.96)

P =the proportion of MCV2 utilization at North Shoa Zone

d =the margin of error taken as 5%

By considering a 10% non-response rate and design effect of 1.5 the total final sample size was 610.

The sample size for factors (received penta3, time taken to nearest health facility, and received ≥ 2 doses of vitamin A) was determined by using Epi Info Version 7 Stat Calc by considering having more likely to take MCV2 vaccine compared with those who didn't (43).Therefore, the sample size obtained by the MCV2 vaccine proportion was higher than the sample size obtained by factors; the sample size for this study was 610.

Table 1: Calculated sample size for factors using double populations proportions formula by Open Epi version7 stat calc

<table>
<tr><td rowspan="3">Assumptions</td><td colspan="3">Variables</td></tr>
<tr><td>received pentavalent 3,</td><td>Time taken to nearest health facility</td><td>received ≥ 2 doses of vitamin A</td></tr>
<tr><td>• Two-sided CL=95%
• Power = 80%
• Ratio of Unexposed to Exposed = 1
• % of outcome in unexposed group = 4.88%
• % of outcome in exposed group = 20.04%
• OR = 4.88</td><td>• Two-sided CL=95%
• Power = 80%
• % of outcome in unexposed group = 14.19%
• % of outcome in exposed group = 35.35%
• OR=3.31</td><td>• Two-sided CL=95%
• Power = 80%
• % of outcome in unexposed group = 9.09%
• % of outcome in exposed group = 39.3963%
• OR=4.52</td></tr>
<tr><td>Calculated n</td><td>174</td><td>148</td><td>74</td></tr>
<tr><td>Final n (by considering 10% contingency)</td><td>192</td><td>163</td><td>82</td></tr>
</table>

1.5.2 Sampling technique

A multistage sampling method was used to select study respondents at the community level for interviews. The first stage was the selection of 3 districts from a total of 10 districts in western Guragae Zone through simple random sampling methods. The names of the 3 districts selected and included in the study were Abeshge, Cheha, and Ejja district.

The second stage was the identification of 20 kebeles from the total 67 kebeles found in the selected 3 districts. 6, 7 and 7 kebeles were selected from Abeshge, Cheha and Ejja destricts respectively through simple random sampling techniques after proportional allocation was done. Thirdly, sample was distributed proportionally to each kebeles based on their number of household having children aged 24-36 months. Finally eligible children aged 24-36 months were selected using systematic random sampling techniques with K values of 10 and lottery method was used to select the first household. If there are two or more children on this age group in the same household, the youngest one was included in the study. If there are twins, the one was

selected by lottery method. This was done based on the Demographic and Health Survey (DHS) register records from each districts health office. Therefore, the respondents were mothers or caregivers having children aged 24-36 months.

Finally, data collectors were assigned to each kebele to identify respondents for in-person interviews in the communities.

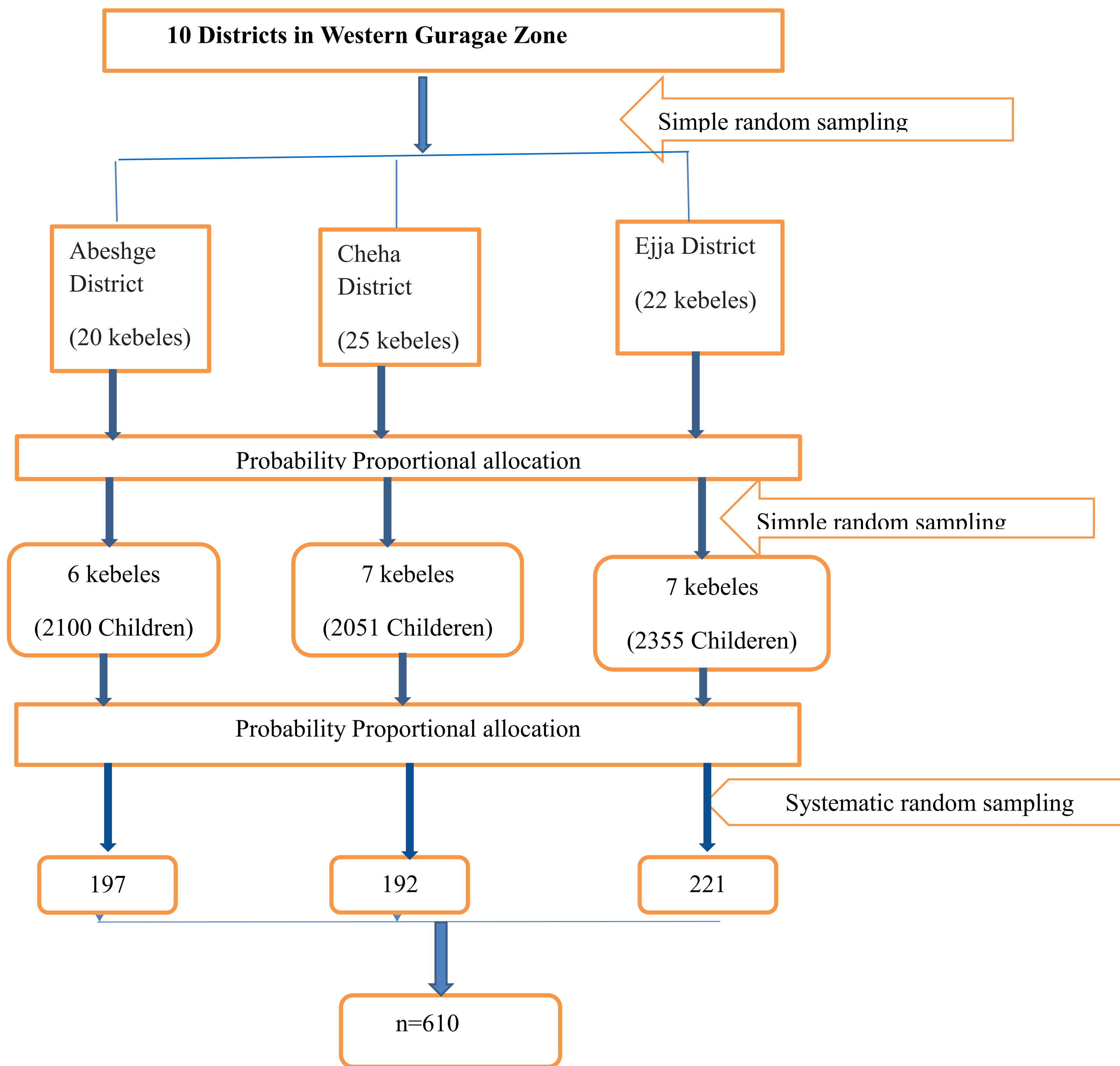

Figure 2: Diagrammatic representation of sampling procedure and technique for the study of MCV2 utilization and associated factors among children aged 24-36 months in Western Guragae Zone from February 19, 2024 to March 19, 2024.

1.6 Study Variables

1.6.1 Dependent variables

- Second dose measles vaccine utilization

1.6.2 Independent variables

- Socio-demographic characteristics (age, sex, residence, educational status, marital status, occupational status ,monthly income, family size, birth order)
- Obstetrics related factors (antenatal care visit, place of birth ,number of parity
- Health service-related factors (place of vaccination, time to reach vaccination site, waiting time for vaccination,)
- Awareness-related factors (knowledge about measles vaccine)

1.7 Operational Definitions

MCV2 utilization: If a child had received the second dose measles vaccine between the ages of 15 and 24 months in addition to a first dose of measles vaccination received before, he/she was considered as having received the second dose measles vaccination (44).

Good knowledge: Respondents who scored greater than 50% of the total knowledge measuring score.

Poor knowledge: Respondents who scored less than 50% of the total knowledge measuring score.

1.8 Data Collection Tool and Procedure

Data was collected by 10 diplomas and supervised by two BSc holder nurses using interviewer administered structured questionnaire. The questionnaire was initially prepared in English. The English version was translated to the Amharic and Guragigna local languages and translated back to English to ensure internal consistency. The questionnaire is adapted from similar studies done in different countries including Ethiopia (29, 37). Data collectors were well adapted with the research protocol and questionnaires while interviewing mothers or care givers. The questionnaires included family status, child characteristics, and health service related factors, and parental awareness related factors, child vaccination status cross checked with card, the reasons

for measles second dose immunization failure. The interview will be held face to face at the community level. The collected information will be reported to the supervisor every day, to enable taking immediate action in case of inconsistencies.

1.9 Data Quality Control

To ensure the quality of data, questionnaires was pre-tested from 5% of the sample size in Mesqan Zuriya district kebeles and necessary amendments was done based on the pretest findings. Data collectors and supervisors were trained for one day on each of items included in the study tools, objective, relevance of study, right of respondents, confidentiality of information obtained. During data collection process, regular supervision and follow up was done. Investigator and supervisor checked data completeness on daily basis and timely correction was done.

1.10 Data Processing and Analysis

After finishing data collection, data was refined, coded and entered in to Epi Info version 7 computer software and was exported to SPSS version 21 statistical package for data cleaning and analysis. Descriptive statistics was used for analysis of socio-demographic and MCV2 utilization variables. The association between independent and dependent variables was analyzed by using bi-variate and multivariate logistic regression. Independent variables with a p-value of less than 0.25 during the bi-variable logistic regression were a candidate for multiple logistic regression analysis. Multicollinearity between each independent variable was checked by calculating variance inflation factor (VIF). VIF less than 10 and tolerance greater than 0.1 was used to declare the absence of multi-collinearity. Model goodness-of-fit for binary variables was also be checked by the Hosmer–Lemeshow statistical test. Adjusted odds ratio (AOR) with a 95% confidence interval at p-value <0.05 was used to identify factors associated with MCV2 utilization.

1.11 Ethical Consideration

Ethical clearance paper and approval was obtained from Addis Ababa University, School of Nursing and Midwifery Research Ethical Committee and permission to collect data was obtained from Western Guragae Zone Health Bureau. Official letter of corporation was distributed for each study district's health office. During data collection process each respondents were asked

for his/her oral consent to participate in the study after brief explanation about the objectives of the study by the data collectors. Respondent's identification was coded and the question paper was kept in proper place by the PI. Participants were informed that their participation was voluntary and they could withdraw from the study at any time. The participants were also informed that the information they provide is kept confidential and anonymous.

1.12 Dissemination Plan

The result of the study will be disseminated by hard copy to Addis Ababa University College of Health Science School of Nursing and Midwifery, Department of Nursing and Western Guragae Zone Health Bureau to recommend MCV2 vaccination utilization and associated factors among children aged 24-36 months. The findings will be also sent to each district's Health Office. The findings will be presented at conferences and will be published in peer-reviewed journals.

5. RESULTS

5.1 Socio-Demographic Characteristics

In this study, 610 mothers/caregivers of children aged 24–36 months were interviewed. Of the total, the mean age of mothers/caregivers was 31.17 (±SD 3.437) and majority of the mothers 515 (84.4%) found in the age between 25 to 34 years. Majority, 422 (69.2%) of the mothers/caregivers were rural dwellers. Around 248(40.7%) mothers and above one third 218 (37.9%) of fathers had no formal education. More than half of mothers/caregivers 340(55.7%) were housewife and 254 (44.2%) of fathers were farmers. More than half (59.8%) of mothers/caregivers had less than 5 household family sizes and around 72.8% of households had an average monthly income between 1000-2500 ETB (Ethiopian Birr) **(Table 2).**

Table 2: Socio-demographic characteristics of mothers/caregivers of children aged 24-36 month in Western Gurage Zone, Central Ethiopia, February 19,2024 to March 19,2024.(N=610).

Characteristics	Category	Frequency	Percentage
Sex of Child	Male	328	53.8
	Female	282	46.2
Age of the mother (in Yrs.)	15-24	8	1.3
	25-34	515	84.4
	≥35	87	14.3
Residence	Urban	188	30.8
	Rural	422	69.2
Respondents	Mother	563	92.3
	Others (Father, Grandmother and Siblings>18 years)	47	7.7
Maternal education	No education	248	40.7
	Primary	139	22.8
	Secondary and above	223	36.5
Father education	No education	218	37.9

	Primary	177	30.8
	Secondary and above	180	31.3
Marital status	Married	575	94.3
	Others	35	5.7
Family size	< 5	365	59.8
	≥ 5	245	40.2
Monthly income	<1000 ETB	57	9.3
	1000-2500 ETB	444	72.8
	>2500 ETB	109	17.9
Maternal occupation	Farmer/Housewife	340	55.7
	Business women	156	25.6
	Government employee	71	11.6
	Casual labourer	43	7.1
Occupation of husband	Farmer	254	44.2
	Business man	102	17.7
	Government employee	102	17.7
	Casual labourer	117	20.4

5.2 Obstetrics and Health Service Related Factors

All mothers had at least one ANC visit during their last pregnancy. Around thirty seven percent of mothers had four and above ANC follow up and delivered at health institutions. Thirty two percent of study participants could take more than 30 minute to arrive at the health facility and more than half 353(57.9%) of mothers have been waiting for more than 30 minute to get vaccination service. Around half 314(51.8%) of mothers/caregivers had been returned without getting vaccination at least one times **(Table 3).**

Table 3: Obstetrics and health service related factors among mothers/caregivers of children aged 24-36 months in Western Gurage Zone, Central Ethiopia, February 19,2024 to March 19, 2024.(N=610)

Variables	Category	Frequency	Percentage
ANC visit	Yes	610	100
	No	0	0
Number of ANC visit	1-3	385	63.1
	≥4	225	36.9
Place of delivery	Health facilities	610	100
	Home	0	0
Place of vaccination	Hospital	112	18.3
	Health center	314	51.5
	Health post	184	30.2
Distance from vaccination center on foot	< 30 minute	415	68.0
	≥ 30 minute	195	32.0

Returned back without getting vaccination	Yes	314	51.5
	No	296	48.5
Waiting time for vaccination	< 30 minute	257	42.1
	≥ 30 minute	353	57.9

5.3 Awareness and Perception Related Factors

Among 610 study participant 593 (97.2%) had information about measles and health professionals were the major source of information 447(73.3%). Nearly half 295 (48.4%) of respondent knew about vaccine-preventable diseases and only one third (34.6%) of mothers/caregivers knew the recommended dose for MCV. Around 303(49.6%) and only 167(27.4%) of mothers/caregivers knew the recommended age for MCV1 and MCV2 respectively. Only 95 (15.6%) of mothers/caregivers were worrying that vaccine can cause child to sick. The majority 379(62%) of the respondents had good knowledge about MCV **(Table 4).**

Table 4: Awareness and perception related factors among mothers/caregivers of children aged 24-36 months in Western Gurage Zone, Central Ethiopia February 19, 2024 to March 19,2024.(N=610)

Variables	Category	Frequency	Percentage
Information about Measles	Yes	593	97.2
	No	17	2.8
Source of information	Health professionals	447	73.3
	Newspaper or Magazine	11	1.8
	Radio or Television	116	19.0

	Others	36	5.9
Measles vaccine can prevent	TB	117	19.2
	Polio	188	30.8
	DPT	10	1.6
	Measles	295	48.4
Measles disease contagious	Yes	554	90.8
	No	20	3.3
	I don't know	36	5.9
Measles vaccine included in routine vaccination	Yes	324	53.1
	No	119	19.5
	I don't know	167	27.4
Measles vaccine important	Yes	585	95.9
	No	25	4.1
Measles vaccine free of charge	Yes	600	98.4
	No	0	0
	I don't know	10	1.6
Doses of MCV	One	399	65.4
	Two	211	34.6
Recommended age for MCV1	9 months	303	49.6
	15-24 months	18	3.0

	I don't know	289	47.4
Recommended age for MCV2	9 months	38	6.2
	15-24 months	167	27.4
	I don't know	405	66.4
Worrying that vaccine can cause child to sick	Yes	95	15.6
	No	515	84.4
Taking for measles vaccination if he/she is sick	Yes	222	36.4
	No	388	63.6
Maternal knowledge about Measles vaccine	Good knowledge	379	62
	Poor knowledge	231	38

5.4 MCV2 Utilization and Reasons for Failure

The overall MCV2 utilization in mothers/caregivers among children aged 24-36 months was 45.2% (95% CI: 41.2-49.3). Around 85.7% children didn't take Vitamin A at 24 months of age **(Fig.3).** Unaware of return for second dose vaccine (43.6%) was the major reasons for MCV2 utilization failure followed by mother too busy (9.9%) and long waiting time (9.6%) **(Fig.4)**.

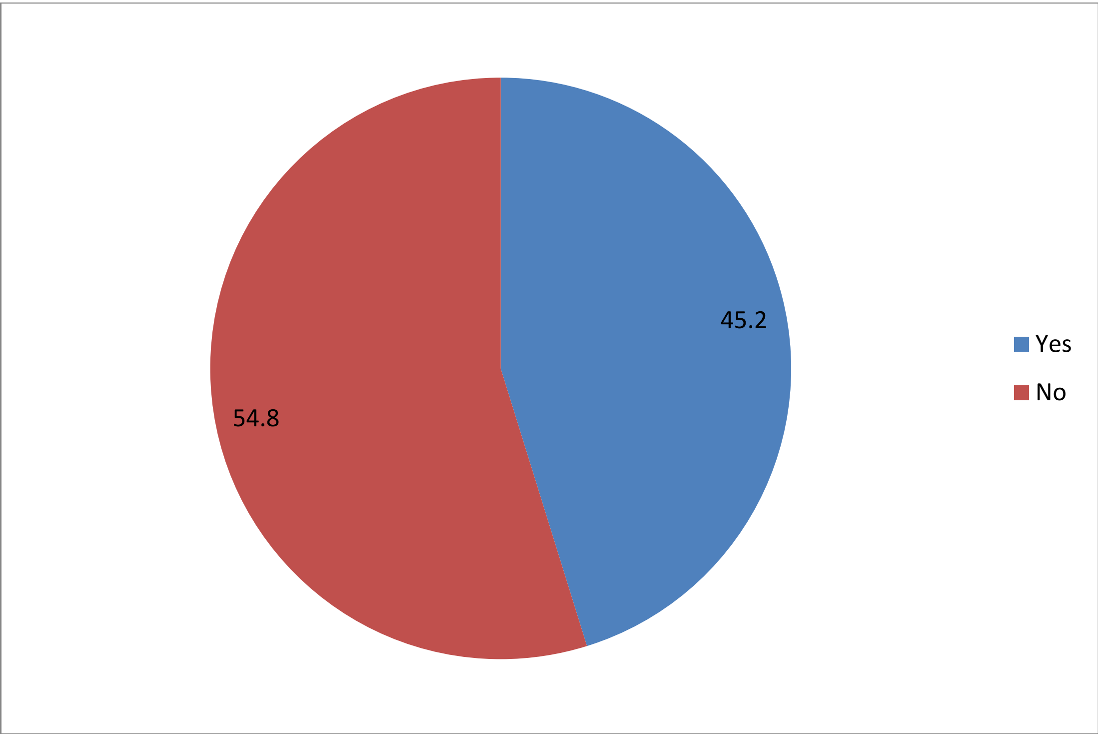

Figure 3: MCV2 utilization among children aged 24-36 months in Western Gurage Zone, Central Ethiopia, February 19, 2024 to March 19, 2024.(N=610)

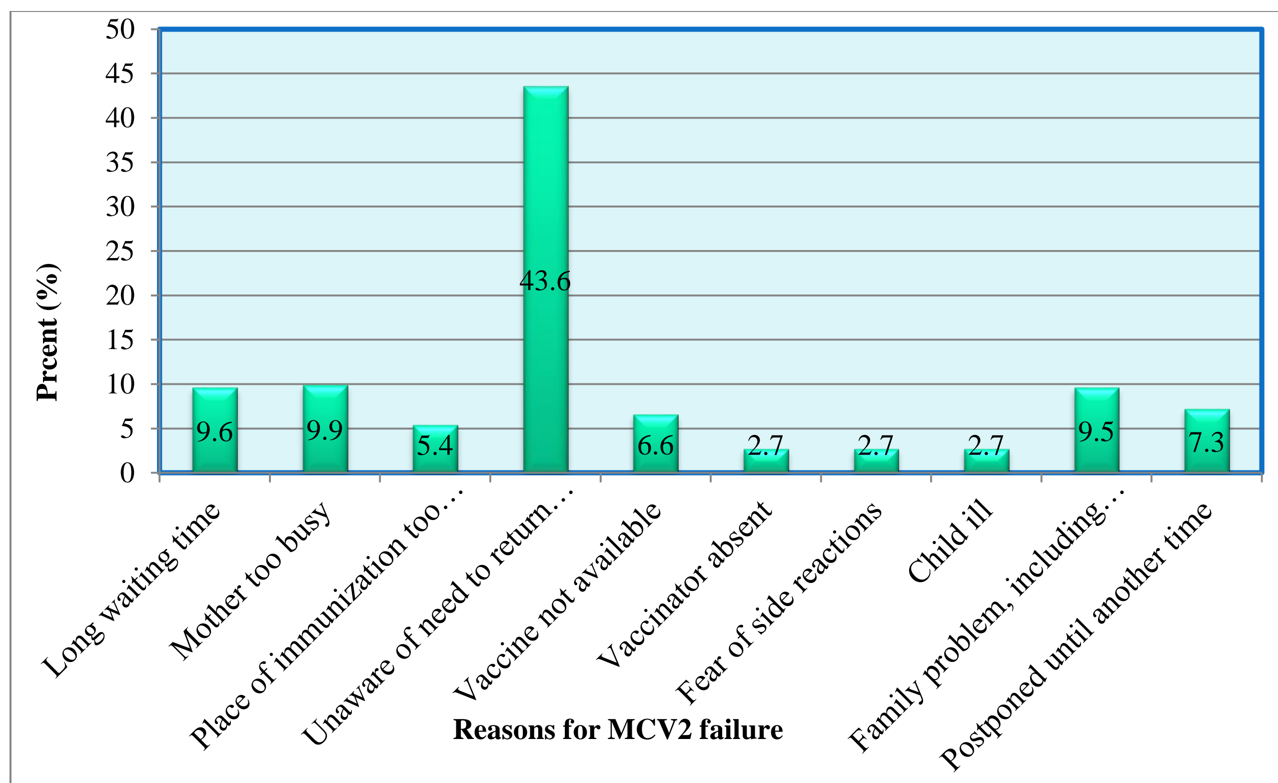

Figure 4: Reasons for MCV2 utilization failure among mothers/caregivers of children aged 24-36 months in Western Gurage Zone, Central Ethiopia, February 19,2024 to March 19 ,2024.(N=610)

5.5 Factors Associated with MCV2 Utilization

In bivariate analysis, maternal education, family size, distance from nearest vaccination center, return back without vaccination and waiting time for vaccination were identified as candidates for multivariable logistic regression with a p-value of less than 0.25.

In multivariate logistic regression, maternal education, , distance from nearest vaccination center, return back without vaccination, waiting time for vaccination were identified as statistically significant factors for MCV2 utilization with a p-value of less than 0.05.

Mothers/caregivers with secondary and above level education were 10 times (AOR, 10.15; 95% CI: 6.18, 16.67, p=0.001) more likely to have taken their child for the second dose measles vaccine than those mothers/caregivers who have no education.

Similarly, mothers/caregivers who live a distance greater than or equal to 30 minute from vaccination site were 67% (AOR, 0.328; 95% CI: 0.198, 0.541, p=0.001) less likely to take their child for second dose measles vaccine than those whose residence less than 30 minute. Additionally, mothers/caregivers who were not returned back without getting vaccination were 3 times (AOR, 2.91; 95% CI; 1.83, 4.65, p=0.001) more likely to take second dose measles vaccine. Moreover, waiting time greater than or equal to 30 minute for vaccination service decrease child to take second dose measles vaccine by 61% (AOR, 0.387; 95% CI: 0.24, 0.61, p=0.001) **(Table 5).**

Table 5: Bivariate and multivariate analysis of factors associated with MCV2 utilization among mothers/ caregivers of children aged 24-36 months in Western Gurage Zone, Central Ethiopia, February 19,2024 to March 19,2024.(N=610)

Variables		MCV2 Utilization		COR (95% CI)	AOR (95% CI)	P value
		Yes	No			
Maternal education	No education	49(19.8)	199(80.2)	1	1	
	Primary	56(40.3)	83(59.7)	2.74 (1.73,4.35)	2.93(1.72,4.99)	0.025*
	Secondary and above	171(76.7)	52(23.3)	13.36(8.6,20.75)	10.15(6.18,16.67)	0.001**
Family size	< 5	205(56.2)	160(43.8)	1	1	
	≥ 5	71(29.0)	174(71.0)	3.14(2.22,4.43)	0.602(0.38,1.31)	0.212
Distance from vaccination center	<30 minute	239(57.6)	176(42.4)	1	1	
	≥ 30 minute	37(19)	158(81)	5.79(3.85,8.71)	0.328(0.198,0.541)	0.001**
Return back without vaccination	Yes	79(25.2)	235(74.8)	1	1	
	No	197(66.6)	99(33.4)	5.91(4.16,8.40)	2.91(1.83,4.64)	0.001**
Waiting time for vaccination	<30 minute	175(68.1)	82(31.9)	1	1	
	≥ 30 minute	101(28.6)	252(71.4)	1.18(1.13,1.26)	0.38(0.24,0.61)	0.001**

6. DISCUSSION

Measles is one of the leading causes of death among children in underdeveloped countries, particularly in Ethiopia. Tremendous efforts were done to decrease measles disease in Ethiopia, but measles outbreaks occur repeatedly in various parts of the region. Two doses of the measles vaccine effectively enable to protect children, including those who are not vaccinated. The aim of this study was to assess second dose measles vaccine utilization and identify associated factors among children aged 24-36 months in Western Guragae Zone.

The current study found that, the overall MCV2 utilization among children aged 24-36 months in Western Guragae Zone was 45.2% (95% CI: 41.2-49.3).This finding is in line with studies conducted in Sub-Saharan Africa (44.7%) (33) and Tanzania (44.2) (29). This result is higher than studies conducted in Bolgatanga Municipality of Ghana (18.2%) (31) and urban areas of North Shoa (42.5%)(37). However, this finding is much lower than both the 95% WHO-recommended coverage goal (12) and studies conducted in Canada (73.2%)(24), Viet Nam (52%)(26), China (95.8% (27),Kenya (56.2%) (34) and Jabithnan district (48.1%)(36). These inconsistencies might be due to uneven distribution of health care facilities, different national immunization policy, socio-demographic characteristics and awareness toward measles vaccination. In this study area second dose measles vaccine utilization is low which around 45.2%. The possible reason for low utilization might be related with being unaware of the return for MCV2. The possible justification might be MCV2 is recently introduced in a routine immunization program; as a result, most mothers might not be aware of MCV2. This study found that maternal education, number of ANC visit, distance from nearest vaccination center, return back without getting vaccination, waiting time for vaccination and knew the recommended number of MCV dose were identified as statistically significant factors for MCV2 utilization.

In the current study, the level of education had a significant influence on the uptake of the MCV2. Mothers/caregivers with secondary and above level educations were increased ten folds for the chances of receiving MCV2 (AOR, 10.15; 95% CI: 6.18, 16.67, p = 0.001) compared with their counterparts. This finding was consistent with studies done in China (27), Indonesia (28), SSA(33) and Kenya (34). The possible justification might be that educated mothers might have had better knowledge about vaccine preventable disease and the recommended dose for MCV. This confirms the argument that maternal education has been highlighted in most

literatures as a predictor of MCV utilization owing to changes in attitudes and awareness brought by education.

In addition, Mothers/caregivers who live a distance greater than or equal to 30 minute from vaccination site were 67% less likely (AOR, 0.328; 95% CI: 0.19, 0.54, p=0.001) to take their child for second dose measles vaccine compared to those who had to travel longer distances to get vaccination service. It is in congruent with studies done in Sub-Saharan Africa (33), hard to reach areas of Ethiopia (41) and Jabitehnan district of North west Amhara region (36). This might be because of the travel cost to reach health facilities for the second dose of measles vaccination. Moreover, issues related to distance from the health facilities such as lack of suitable roads for transportation access and motion sickness could be potential factors for missing MCV2 vaccination. As a result Long distance is considered as a demotivating factor to immunize children.

In this study waiting time greater than or equals to 30 minute significantly affect MCV2 utilization This result was in agreement with other previous studies ((29, 37)).Waiting greater than or equal to 30 minute to get vaccination service in the health facility negatively affect child to take second dose measles vaccine by 61% (AOR, 0.387; 95% CI: 0.16, 0.46, p=0.001). This finding indicates that long waiting at the health facility for vaccination services led to missing vaccination. This might be due to vaccine is provided in schedule manner (i.e. only one working day within a week), limited number of health extension workers in each kebele, having overlapping activities for health extensions and less attention is given from district health unit head.

Finally , in this study mothers/caregivers who returned back without getting vaccination was a significant factor for MCV2 utilization.The odds of Mothers/caregivers who were not returned back without getting vaccination were 3 times (AOR, 2.91; 95% CI; 1.83, 4.64, p=0.001) more likely to take second dose measles vaccine.However, it was not a significant factors in other studies. This might be due to unavailability of measles vaccine, limited service time (only in morning time), health centers/health posts are distant from their area of residence and sudden absence of health professionals/health extension workers from vaccination centers.

7. STRENGTH AND LIMITATIONS

7.1 Strength of the Study

This study was one of the few studies which had been conducted in a community level both in urban and rural areas of our country, Ethiopia.

7.2 Limitation of the Study

Measles vaccination is a basic medical health service which might be affected by multiple factors, thus, healthcare provider-related factors that could have a significant impact on measles second dose vaccination were overlooked. In addition, the finding might be subject to recall bias.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

The overall Second dose measles vaccination utilization was low (45.2%) compared to the national immunization targets (95%). Mothers/caregivers with secondary and above level of educations and not return back without getting vaccination increased the odds of MCV2 utilization. Whereas longer distance from vaccination center and waiting time greater than 30 minutes decreased the odds of MCV2 uptake. The major reason for measles second dose utilization failure was being unaware of the need to return for MCV2.

6.2 Recommendations

For healthcare workers and health institutions

It is better to give special concern to those children whose mothers/caregivers have low level of education to boost measles second dose coverage. Furthermore, incorporate counseling service towards the importance of child full immunization and shortening the average time for vaccination at the health facility to increase measles second dose uptake. In addition, strengthening outreach services and defaulter tracing system for those mothers/caregivers whose child missed second measles vaccine after taking MCV1.

For researchers and/or government officials

MCV2 utilization is very low in the study areas; therefore, government gives special concern for second dose measles vaccine through designing different implementation strategies and establish intensive continuous monitoring and evaluation program. Additionally, future researchers are recommended to explore healthcare provider related factors on MCV2 utilization and draw evidence based decisions.

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ANNEXES

Annex-A: Information Sheet

Good morning/afternoon dear participant! My name is _________________. I am working as a data collector for the study being conducted in Western Guragae Zone to assess second dose measles vaccination and associated factors among children aged 24-36 months in 2024: by Fetiha Muzemil. I kindly request you to lend me your attention to explain the study and how being you selected as the study participant.

Title of the Research Project: Second dose measles vaccination and associated factors among children aged 24-36 months in Western Guragae Zone, 2024

Name of the Sponsor: Addis Ababa University

Purpose of the Research Project: To assess second dose measles vaccine utilization and associated factors among children aged 24-36 months in Western Guragae Zone, 2024

Procedure: For this study selected areas in Western Guragae Zone are included. Structured questioners are provided to data collectors; then, the data will be collected by the assigned data collectors.

Risk and Benefits: The study has no direct benefit/payments for those study participants but they may be indirectly beneficial if the result utilized by planners. Western Guragae Zone Health Bureau, each selected districts Health Office will get the final result of the study. There is no risk due to participating in this study.

Confidentiality: No need of registering your name; therefore, the information you gave will be kept confidential. All information collected will be kept confidential. No other persons besides the research team will see it.

Right to Refusal or Withdraw: To start data collection, approval of the individual participant is required. If you are not willing to participate you can refuse.

Person to Contact: If you have any further questions or would like to receive further information about the research, please contact:

Name: Fetiha Muzemil: - Email: fetimuzemil72@gmail.com (Principal Investigator)

Cell Phone: +251986765098

Thank you for taking the time to give the Information Sheet, and asking any questions that you might have had.

Annex-B: Consent Form (English version)

Hello-Dear Participant!

My name is ____. I am a data collector for a research on second dose measles vaccination and associated factors among children aged 24-36 month January 19, 2024-February 19, 2024 from in Western Guragae Zone.

The information going to be obtained will help the government and other responsible bodies to reduce the incidence of measles which helps to reduce under-five child morbidity and mortality. Your participation is very valuable for the success of this project.

Also be mindful that whatever we will get here is for research purposes only and the information will not be used by any other person apart from this research and therefore, confidentiality will be guaranteed. However, your names will not be mentioned or be attached to anything that you say. If you have anything to ask contact data collectors and supervisors available there.

Do you want to continue yes------------- No---------- (Thank you in advance for your help!)

Name and contact address of investigators

Fetiha Muzemil: - Email: fetimuzemil72@gmail.com (Principal Investigator)
Cell Phone:-+251986765098

Annex- C: Consent Form (Amharic version)

<u>የመጠይቅ ፈቃድ</u>

<u>የተከበራችሁ የጥናቱ ተካፋዮች</u>

ጤና ይስጥልን እኔ___________________እባላለሁ፡፡ ከ24-36 ወራት ዕድሜ ክልል ዉስጥ የሚገኙ ህፃናት ላይ የሁለተኛ ዙር የኩፍኝ ክትባት በሚመለከት የሚሰራ ጥናት መረጃ ሰብሳቢ ነኝ:: ጥናቱ ለእርሶ ምንም አይነት የገንዘብ ጥቅም አያስገኝም ነገርግን የጥናቱ ውጤት በሽታን መከላከል ላይ ያሉትን ችግሮች ለመቅረፍ እና የህፃናት ጤንነት የሚያረጋግጡ ህጎች እንዲስተካከሉ እና ሥራ ላይ እንዲውሉ የበኩሉን አስተዋፅዖ ያበረክታሉ፡፡ ስምዎ በዚህ ጥናት ላይ አይፃፍም፡፡ ስለዚህም የእርሶ ምላሽ ሚስጥራዊነቱ የተጠበቀ ነው::በዚህ መጠይቅ ላይ ለመሳተፍ መስማማትም ሆነ አለመስማማት ይችላሉ፡፡ ባለመስማማቶ ምንም የሚጎዱት ነገር የለም፡፡

ምንም አይነት ጥያቄ ካለዎት ቀጥሎ በተፃፈው አድራሻ ተመራማሪውን ማግኘት ይችላሉ፡፡

ጥያቄዉን ለመቀጠል ፍቃደኛ ኖት? አዎ ____ አይደለሁም________(ስለረዱኝ በድጋሚ አመሰግናለሁ;;)

ፈቲሀ ሙዘሚል (ዋና ተመራማሪ)፡ ስልክ +251-986-76-50-98

የመረጃ ሰብሳቢ ስምና ፊርማ

ስም_____________________ፊርማ_____________________ቀን____________

Annex D: Questionnaire English Version

Family Background

101	Interviewee relationship	1. Mother 2. Father 3. Grandmother 4. Grandfather 5. Siblings > 18 years
102	Mother's Age (in years)	______________________
103	Residence	1. Rural 2. Urban
104	Maternal educational status	1. Illiterate 2. Read and write 3. Primary (1-8) 4. Secondary (9-12) 5. College and above
105	Father's educational status	1. Illiterate 2. Read and write 3. Primary (1-8) 4. Secondary (9-12) 5. College and above
106	Mother's occupation	1. Farmers/Housewife 2. Business women 3. Government employee 4. Casual laborer
107	Father's occupation	1. Farmers 2. Business man 3. Government employee

		4. Casual labourer
108	Marital status of mother?	1. Single 2. Married 3. Divorced 4. Widowed
109	What is the house hold monthly average income in ETB?	______________________________
110	Family size	______________________________
111	Number of parity	_______________________________
112	How many alive children are there?	_______________________________
2. Characteristics of the Child		
201	Age of the child	___________________________
202	Sex of the child	1. Male 2. Female
203	Order of the child	1. 1st child 2. 2nd child 3. 3rd child 4. 4th and later
204	With whom does child live?	1. Both parents 2. Mothers only 3. Fathers only 4. Others(_________)
3. Health Service and Access related factors		

301	On foot how long do you take to reach the nearest immunization center?	_______ Minutes.	
302	Where was the child delivered?	1. Home 2. Health facilities	
303	Place of vaccination	**1.** Hospital **2.** Health center **3.** Health post **4.** Private health facilities	
304	Did the mother attend antenatal care during pregnancy of the current child?	1. Yes 2. No 3. Don't Know	If your answer is "No/Don't know" skip to question number 306
305	If yes for question 304, how many times?	1. One time 2. Two times 3. Three times 4. Four times and above	
306	Waiting time for vaccination?	1. $\leq$ 30 minutes 2. > 30 minutes	
307	Have you ever returned without getting vaccination?	1. Yes 2. No	
308	Have schedules ever been canceled or postponed?	1. Yes 2. No	
309	Have you heard any information about measles?	1. Yes 2. No	If your answer is "No" skip question number 310

310	If yes, from where?	1. Health professionals 2. Newspaper or Magazine 3. Radio or Television 4. Others, Specify _________	
4. Parental Awareness about Measles Vaccine			
401	Do you know where measles vaccine is given?	1. Yes(_______________) 2. No	
402	Which disease measles vaccine can prevent?	1. TB 2. Polio 3. DPT 4. Measles	
403	Does measles contagious disease?	1. Yes 2. No 3. I don't know	
404	Does measles vaccine included in routine vaccination schedule?	1. Yes 2. No 3. I don't know	
405	Do you think measles vaccine is important?	1. Yes 2. No 3. I don't know	
406	Does measles vaccine free of charge?	1. Yes 2. No I don't know	
407	Is there any reason for child not taking measles vaccine?	1. Yes 2. No	If your answer is "No" skip question number 408

408	If yes, list the reasons for not being vaccinated	____________________ ____________________	
409	How many doses are needed for measles vaccination within two years old?	1. One 2. Two 3. I don't know	
410	When does the first measles vaccine should be given?	1. 9 months 2. 15 months 3. I don't know	
411	When does the second measles vaccine should be given?	1. 9 months 2. 15 months 3. I don't know	
412	Does fever common after measles vaccination?	1. Yes 2. No 3. I don't know	
413	Do you worried measles vaccines can cause your child sick?	1. Yes 2. No	
414	Do you take your child for measles vaccination if he/she is sick?	1. Yes 2. No	

Request the interviewee to bring the child vaccination card for the youngest child and ask the following questions

501	**Child Immunization**			
	Antigen	Status	Date given	Remark
	BCG	1. Yes 2. No	___/____/____	
	MCV2	1. Yes 2. No		
	MCV1	1. Yes 2. No		
	Penta3	1. Yes 2. No		
	PCV3	1. Yes 2. No		
	OPV3	1. Yes 2. No		
	Vit. A at 6 months	1. Yes 2. No		
	Vit. A at 12 months	1. Yes 2. No		
	Vit. A at 18 months	1. Yes 2. No		
	Vit. A at 24 months	1. Yes 2. No		
502	Has your child ever suffered from measles?	A. Yes B. No		
503	If yes for question no 502, at what age?	__________		

Reasons for Measles Second Dose Immunization Failure

Note: Ask only one question ‘why the child was not given second dose of measles vaccine and circle appropriately.

Category	**Reason**
Lack of information	Unaware of need for immunization
	Unaware of need to return for second dose
	Place and/or time of immunization unknown
	Fear of side reactions
	Wrong ideas about contraindications
Lack of motivation	Postponed until another time
	No faith in immunization
	Rumors
	Cultural/ religious reasons
Obstacles	Place of immunization too far
	Time of immunization inconvenient
	Vaccinator absent
	Vaccine not available
	Mother too busy
	Family problem, including illness of Mother
	Child ill
	Long waiting time

Others	______________________________

Annex-D: Questionnaire Amharic Version

I. የቤተሰብ ሁኔታ

			Remark
101	የተሳታፊው/የተጠያቂው ዝምድና	1. እናት 2. አባት 3. ሴት አያት 4. ወንድ አያት 5. እድሜው ከ 18 ዓመት በላይ የሆነ ቤተሰብ	
102	የእናት እድሜ		
103	የመኖሪያ ቦታ	1. ከተማ 2. ገጠር	
104	የእናት የትምህርት ሁኔታ	1. ያልትማሩ 2. ማንበብና መጻፍ የሚችሉ 3. የጀመሪያ ደረጃ(1-8) 4. ሁለተኛ ደረጃ(9-12) 5. ኮሌጅና ከዚያ በላይ	
105	የአባት የትምህርት ሁኔታ	1. ያልትማሩ 2. ማንበብና መጻፍ የሚችሉ 3. የመጀመሪያ ደረጃ(1-8)	

		4. ሁለተኛ ደረጃ (9-12) 5. ኮሌጅና ከዚያ በላይ	
106	የእናት የስራ ሁኔታ	1. እርሶአደር/የቤት እመቤት 2. የንግድ ስራ 3. የመንግስት ሰራተኛ 4. የቀን ሰራተኛ	
107	የአባት የስራ ሁኔታ	1. እርሶአደር 2. የንግድ ስራ 3. የመንግስት ሰራተኛ 4. የቀን ሰራተኛ	
108	የእናት የጋብቻ ሁኔታ	1. ያገባች 2. ያላገባች 3. የተፋታች 4. ባሏ የሞተባት	
109	የቤተሰብ ወርሃዊ የገቢ መጠን በብር	______________________	
110	የቤተሰብ ብዛት	______________________	
111	እናት የወለደቻቸው ልጆች ብዛት	______________________	

112	ከተወለዱት ውስጥ በህይወት ያሉ የልጆች ብዛት	______________________	
II. የልጅዎ ሁኔታ			
201	የሕጻኑ ዕድሜ ምን ያክል ነው (በወር):	(የተወለደበት ቀን) __/___/_____	
202	የልጅዎ ጾታ:	1. ወንድ 2. ሴት	
203	ህጻኑ ስንተኛ ልጅዎ ነው:	1. የመጀመሪያ 2. ሁለተኛ 3. ሶስተኛ 4. አራተኛ እና ከዛ በላይ	
204	ልጅዎ ከማን ጋር ነዉ የሚኖረዉ?	1. ከእናትና አባት 2. ከእናት ብቻ 3. ከአባት ብቻ 4. ከሌላ (ይጥቀሱ _________)	

5. የጤና አገልግሎት ተጠቃሚነት ጋር የተያያዙ መጠይቆች

301	ከመኖሪያ ቤትዎ እስከ ከትባት ቦታ በእግር ምን ያክል ይወስዳል?	________ ደቂቃ	
302	ልጅዎ የት ነው የተወለደው?	1. ቤት 2. ጤና ተቀም	

303	የክትባት ቦታ	1. ሆስፒታል 2. ጤና ጣቢያ 3. ጤና ኬላ 4. የግል ጤና ተቋም	
304	የእርግዝና ክትትል አድርገው ነበር?	1. አዎ 2. አልተከታተሉም 3. አላውቅም	**መልስዎ "አልተከታተሉም" ወይም አላውቅም ከሆነ ወደ ጥያቄ 306 ይሻገሩ**
305	ለጥያቄ ቁጥር 304 መልስዎ አወን ከሆነ ምን ያህል ጊዜ ተከታተሉ	1. አንድ ጊዜ 2. ሁለት ጊዜ 3. ሶስት ጊዜ 4. አራት ጊዜና ከዚያ በላይ	
306	ለክትባት የሚቆዩበት ጊዜ	1. ≤ 30 ደቂቃ 2. ≥ 30 ደቂቃ	
307	ልጅዎ ክትባት ሳያገኝ ተመልሰዉ ያዉቃሉን ?	1. አዎ 2. አይደለም	
308	የክትባት ቀን ተሰርዞ ወይንም ተቀይሮ ያውቃል?	1. አዎ 2. አይደለም	
309	ስለልጆች ክትባት ሰምተው ያውቃሉ?	1. አዎ 2. አልሰማሁም	**መልስዎ "አልሰማሁም" ከሆነ ጥያቄ ቁጥር ቁጥር 310 ይለፉት**

310	ለጥያቄ ቁጥር 309 መልስዎ አዎ ከሆነ መረጃውን ከየት ነው የሰሙት?	1. ከጤና ባለሙያ 2. ከጋዜጣ 3. ከራደዮ/ቴሌቪዥን 4. ከሌላ (ይግለጹ_______________________)

4 የወላጆች የኩፍኝ ክትባት አመለካከት በሚመለከት መጠይቅ

401	ክትባት የት እንደሚሰጥ ያዉቃሉ?	1. አዎ (ይጥቀሱ_________) 2. አላውቅም	
402	የኩፍኝ ክትባት የሚከላከላችዉ በሽታዎች የትኞቹ ናቸው	1. ቲቢ/የሳምባ ነቀርሳ 2. ፖሊዮ/የልጅነት ልምሻ 3. ቴታነስ (መንጋጋ ቆልፍ, ዲፍተሪያ(diphtheria) እና ትክትክ (pertussis) 4. ኩፍኝ	
403	የኩፍኝ በሽታ ተላላፊ ነውን?	1. አዎ 2. አይደለም 3. አላውቅም	
404	የኩፍኝ ክትባት በመደበኛ የክትባት መርሃ-ግብር ይካተታል?	1. አዎ 2. አይካተትም 3. አላውቅም	
405	የኩፍኝ ክትባት አስፈላጊ ነው ብለው ያምናሉ?	1. አዎ 2. አይደለም 3. አላውቅም	
406	የኩፍኝ ክትባት አገልግሎት ነጻ ነውን?	1. አዎ 2. አይደለም 3. አላውቅም	
407	ህጻናት የኩፍኝ ክትባት እንዳይወስዱ (እንዳይከተቡ) ሊድረግ ይችላልን ?	1. አዎ 2. አይደለም 3. አላውቅም	መልስዎ "አይደለም/አላውቅም" ከሆነ ወደጥያቄ 409 ይሻገሩ
408	ለጥያቄ ቁጥር 307 መልስዎ አዎ ከሆነ ከሆነ የማይሰጥበትን ሁኔታ ይጥቀሱ	______________________________ ______________________________	

		______________________________	
409	ልጆች የኩፍኝ ክትባት መውሰድ ያለባቸው ስንት ጊዜ ነው?	1. አንድ ጊዜ 2. ሁለት ጊዜ 3. አላውቅም	መልስዎ አዎ አላውቅም ከሆነ ወደ ጥያቄ ቁጥር 412 ይለፉ
410	የመጀመሪያ ዙር ክትባት መቼ ነው መስጠት ያለበት	1.ዘጠነኛ ወር 2. 15ኛ ወር 3. አላውቅም	
411	የሁለተኛ ዙር ክትባት መቼ ነው መስጠት ያለበት	1.ዘጠነኛ ወር 2. 15ኛ ወር 3. አላውቅም	
412	ከኩፍኝ ክትባት በኀላ መጠነኛ ትኩሳት ሊከሰት ይችላል?	1. እውነት 2. ሀሰት 3.አላውቅም	
413	የኩፍኝ ክትባት ልጅዎ ያሳምመዋል ብለዉ ይጨነቃሉን?	1. አዎ 2. አይ	
414	ልጅዎ በታመመ ጊዜ ለኩፍኝ ክትባት ይዘዉ ይመጣሉን?	2. አዎ 3. አይ	

5. **ቃለ-መጠይቅ ለሚደረግላቸዉ እናቶች በእድሜ የትንሹ ልጅ የክትባት ሰርተፊኬት እንዲያመጡ ከተጠየቁ በኋላ የሚደረግ መጠይቅ**

501	የቤተሰብ መምሪያ ደብተር አለዎት	**1.** አዎ **2.** የለም		
502	የህጻናት ክትባት መረጃ			
	የክትባት አይነት	የክትባት ሁኔታ	የተከተቡበት ቀን	Remark
	BCG/ቢሲጂ	1. አዎ 2. አልወሰደም	___/____/____	
	MCV2/ የኩፍኝ ክትባት 2	1. አዎ 2. አልወሰደም		
	MCV1/የኩፍኝ ክትባት 1	1. አዎ 2. አልወሰደም		

	Penta3/ፔንታቫለንት 3	1. አዎ 2. አልወሰደም		
	PCV3/የሳምባ ምች ክትባት	1. አዎ 2. አልወሰደም		
	OPV3/የፖሊዮ(የልጅነት ልምሻ) ክትባት	1. አዎ 2. አልወሰደም		
	Vitamin A (ቫይታሚን ኤ) በ6 ወር	1. አዎ 2. አልወሰደም		
	Vitamin A (ቫይታሚን ኤ) በ12 ወር	1. አዎ 2. አልወሰደም		
	Vitamin A (ቫይታሚን ኤ) በ18 ወር	1. አዎ 2. አልወሰደም		
	Vitamin A (ቫይታሚን ኤ)በ24 ወር	1. አዎ 2. አልወሰደም		
503	ከልጅዎ ውስጥ የኩፍኝ በሽታ ታሞ የሚያውቅ አለ	1. አዎ 2. የለም		
504	ለጥያቄ ቁጥር 503 መልስዎ አወን ከሆነ; መቼ(ዕድሜው)	__________________		

የሚከተሉት ጥያቄዎች ልጆች ሁለተኛ የኩፈኝ ክትባት (MCV-2) ያልዎሰዱበትን ምክንያት የሚዳስሱ ናቸዉ

መደብ/Category/	**ክትባቱን ያልዎሰዱበት ምክንያት**
የመረጃ እጥረት/ክፍተት	ስለክትባቱ አስፈላጊነት ግንዛቤ አለመኖር
	ለሁለተኛ የኩፍኝ ክትባት ድጋኔ መምጣት እነዳለባቸው አለማወቅ
	ክትባቱ የሚሰጥበትን ቦታ ወይም ጊዜ አለማወቅ
	የክትባቱን የጎንዮሽ ጉዳት መፍራት
	ክትባት መውሰድ ስለመከልከል(contraindications) የተሳሳተ ግንዛቤ

ተነሳሽነት አለመኖር	ቀጠሮውን ወደሌላ ቀን ስላለፈ
	በክትባቱ እምነት ማጣት
	አሉባልታዎች
	ባህል/ሃይማኖት ስለማይፈቅድ
መሰናክሎች	የክትባት ቦታ መራቅ
	ክትባቱ የሚሰጥበት ሰአት ምቹ አለመሆን
	ክትባቱን የሚሰጡት ባለሙያዎች አለመኖር
	ክትባት አለመኖር
	እናት ሳራ ስለበዛባት
	ቤተሰባዊ ችግር (የእናት መታመም)
	ልጁ ስለታመመ
	ክትባት ቦታ ለረጅም ሰአት መቆየት
ሌሎች	________________________________

Annex- E: Consent Form (Guragigna Version)

<u>የትሰሰሮት ፍቃድ</u>

<u>የትከበሮኹ የጥናት ወትሸሸድ</u>

አፍያ ያብኒ እያ____________________ዪዉን፡፡ ተኼጽ ዘበር ነሺም ሰስተ ዘበር የኸረኖ ዱንጋ ዷረብሮ ትከ ፎር የኼተነ ወፈር የኩፍነ ክትባት በትምስከተ ዷቾቺ ጥናት ሰታት ዷሰዊ ዘንጋ ሼሰበሰብ ቃንኹ፡፡ ጥናትዌ ያኹ ሰትምኤነት የዋጋ ዷጠቅም ቃር ኤነ ኸም በህሮተታ የጥናትዌ ሰገክሮት ባሸ ያቅሮት ፎር ያነቦ ጅንረ ያፍኮትም የትከኸኖ አፍያ ወኸረኹና የኻሮት ቂጫ በሚና ዷወረዌ የዷረጋኹ ሰገክሮት ቲዎቴ፡፡ ሸማሁ በዝ ጥናት ኤጦፌ በኸሮተጠታ ያኹ ዝፓና የዷናኹ ቃር ያሞፊቴ፡፡ በዝ ወተሰሰር ፎር በትርዷዷት ኸረም ባትርዷዷት ዷኸንሁ፡፡ ባትርዷዷታኹ ሰትም ቃር ጅንረ ኤነብኹ፡፡ ምርየም ኤነት ወተሰሰር በፈፐፈንኹ ተዝ ሰንቄ በጣፌዊ የሰልክ ቁጥር ወንኸም ተችሎ፡፡

ወተሰሰርቄ የትቀፐሮት ፍቃዷኛንኹ? ኦ በኸረ ____ ሰንኸር በኸረ________(የትቅፓፐርኩኔ አሸኩርሁ፡፡)

ፈቲሀ ሡዘሚል (ቡር ተሠርማፈ)፡ ስልክ +251-986-76-50-98

ወረጃ ዷሰበሰብ ሰብ ሸም እና ፊርማታ

ሸም______________________ ፊርማታ______________ ከረ __________

Annex F: Questionnaire Guragnigna Version

I. ያበሩስ ዘንጋ

101	የጀሸሸጀ ሰብ/ ጀትሰሬ ሰብ ጀቡነት	1. ኦጀት 2. ኦባ 3. ሙሽት ሙትየ 4. ሙስ ሙትየ 5. ተ 18 ዘበር በፎር	ጀሙረዉሬ ቃር
102	ያጀት ግዝየ		
103	ጀፈዉርኮ ወጀር	1. ከተማ 2. ገኜ	
104	ያጀት የትሟረችን ኤነት	1. ያንትማረች 2. ያንብቦት ዌሙ ወፃፍ 3. ጀፍት ወፈር የትሙርት ኤነት (1-8) 4. የኼተነ ወፈር የትሙርት ኤነት (9-12) 5. ተኮሌጅ በፎር የትማረች	
105	ኦባ የትሟረን ኤነት	1. ያትማረ 2. ያንብቦት ዌሙ ወፃፍ 3. ጀፍት ወፈር የትሙርት	

		ኤነት(1-8) 4. የኹተነ ወፈር የትምርት ኤነት (9-12) 5. ተኮሌጅ በፎር የትማረ	
106	ያደት የሜና ኤነት	1. በቹቻ/ ሜና ኤነና ምሽት 2. ነጋዴ/ ለቁጠም ደረብር 3. የመንግስት ሜነነ 4. የቀንየ/የዋንየ ሜነነ	
107	ያባ የሜና ኤነት	1. ትተም ደበሬ 2. ለቁጠም ደበሬ 3. የመንግስት ሜነነ 4. የቀንየ ሜነነ	
108	ያደት የጋብቻ ኤነት	1. እመዊየ 2. ዘየ 3. የፈታች 4. ምስ የሞተዋ	
109	ያበፈስ የበነ ዉዛት በብር	______________________	
110	ያበፈስ ሡዝር	______________________	
111	ለደት የጨነችኖ ዴንጋ ሡዝር	______________________	

112	በጪነችኖ ዴንጋ በዝ አፈር ጀረብሮ ሙዝር	________________________	
II.	የዴንጓሁና ኤነት/መርክ		
201	የተከ ዘበር ምር ያህር ጀኸር (በበነ):	(የተጪኖከ ከፈ) __/___/_____	
202	የተከ ኤነት	1. ኧርች 2. ገረድ	
203	ተከዌ ምሩህና ኧርችናሁ	1. ጀፍት ወረር 2. የኼተነ 3. የሶስተነ 4. ያርበተነ ዌም ተኸም በፎር	
204	ተከዌ ተሟን ጀረብር?	5. ታባም ታጀት 6. ታጀት 7. ታብ 8. ተንጎድ ሰብ (ኦጀን __________)	

III. ታፍያ አገክርት ጋመ የጥበበሎ ወትሰሰር

301	ቲፈዉርፕ ቤት ነሽም በግር ምሯኽር ግዝየ ይወስድ/ይጀንር?	________ ደቂቃ	
302	ኧርችዌ/ገፈድዌ ኬቴዉ የትጨነ/ች?	1. በቤት 2. ባኪም ቤት	
303	ይከትፑከ ሠደር	6. ሆስፒታል 7. ጤና ጣቢያ 8. ጤና ኬላ 9. የገግ ያፍያ ሠደር	
304	የርግዝና ሆትኽታተር ባነና ዌ?	1. ኦ/እከ 2. ኦንኽታተረች 3. ኦንኺር	ዝፓና"ኦንኺታተረች" ዌም ኦንኺር በኽረ ጠይቆት 306 ተኬኞ
305	የትሰሰሮት ሡዝር 304 ኽፓነ እከ በኽረ ምር ያኽር ግዝየ ትኽታተረችም	1. ኦት ግዝየ 2. ኼት ግዝየ 3. ሶስት ግዝየ 4. ኦርበት ግዝየ ዌም ተኽም በፎር	
306	በትከተቦት የከሰችወ ግዝየ	1. ተሳሳ ደቂቃ ቦስጥ 2. ተሳሳ ደቂቃ በፎር	

307	ትካኹ ክትባት ቴረኽብ ተዠፐርኹም ትኺሮ ?	1. እከ 2. አንኸረ	
308	የክትባት ከረ አጠፌም ዌም ተሸገረም ዷኺር?	1. እከ 2. አንኸረ	
309	የትካሁ ክትባት ሰማሁም ትኺሮ?	1 እከ 2 አንሰማሁ	ሠሲስዎ “እሲሰማሁም” ከሆነ ጥያቄ ቁጥር ቁጥር 310 ዷሰፋት
310	ወትሰሰሮት ቁጥር 309 ዥጋና እከ በኸረ ኦጀ ቴቴዉ ኸሰማሁ?	1. ተጤና ባለሙያ 2. ተወረቀት 3. ተሬደዮ/ቴሌቪዥን 4. ተንጎድ ሠደር (ኦዶን________________________)	

IV. ያብ ዌም ያዶት የክፋነ ክትባት በትምሰከተ ወትሰሰር

401	ክትባት ሌቴ ዷዊኸማ ትኺሮ?	1. እከ(ዷጥቀሱ__________) 2. አንኸር
402	የኩፋነ ክትባት ባሸ ያጠፌፑ ሌቴሁናኖ	1. የሳንጧ ባሸ 2. ዱንጋ አሸትር 3. ተዛገ ብረት ዷቾን ቃር 4. ክፋነ

403	የኩፍነ ባሽ ይትባስፍ?	1. እከ 2. አይትባስፍ 3. አንኺር	
404	የኩፍነ ክትባት በትኺታተሮት ይኸር ቃሬ?	1. እከ 2. ኤትኺታተር 3. አንኺር	
405	የኩፍነ ክትባት ያስፈልግ ባኹም ታምሮ?	1. እከ 2. አናምር 3. አንኺር	
406	የኩፍኝ ክትባት አገክሮት ቴኮሺም ይወስዷ?	1. እከ 2. አንኸሬ 3. አንኺር	
407	ትከ የኩፍነ ክትባት ኤወስድኸማ ያሟሬ ይችሲ ?	1. እከ 2. አያሞሬ 3. አንኺር	ኸፓና"አያሞሬ/አንኺር" በኸሬ ወደ ወትሰሰሮት 409 ወሮ
408	ወትሰሰር ቁጥር 307ኸፓና እከ በኸሬ ኤይዉፐ ምኽንያት	______________________ ______________________ ______________________	
409	ትከ የኩፍነ ክትባት ምርፉኸር ግዝዮ ወስድ ነሬቦ?	1. አት ግዝዮ 2. ኼት ግዝዮ 3. ሶስት ግዝዮ 4. አንኺር	ኸፓና አንኺር በኸሬ ወደ ጠይቀት ቁጥር 412 ወሮ
410	ይፍት ወሬር ክትባት ሙቾሬ ወስድ ነሬቦ	1.በስድስት በነ 2.በዘጠ በነ 3. አት ኽርም ተሶስት በነ 4. አንኺር	
411	የኼተነ ወሬር ክትባት ሙቾሬ ወስድ ነሬቦ	1.በስድስት በነ 2.በዘጠ በነ 3. አት ኽርም ተሶስት በነ 4. አንኺር	
412	የኩፍነ ክትባት አንቄ ተምሬኽር ግዝዮ የገግ ወሙክር ይትፈጠሬ ይችል?	1. ዉነት 2. ሀሰት 3.አንኺር	
413	የኩፍኝ ክትባት ትከዊ ያቄሡንቴ ባኹም ትጨነቅ?	3. እከ 4. አንጨነቅ	

414	ትከዊ በቁሞን ግዝዮ የኩፍነ ክትባት ባሽ ታታከሠዊዬ ትችኖ?	1. ኸከ 2. ኸንቸን

V. **በአፉ ይዢፑሪ ለማ ያዶት ዘበር የርስየ ትከ ክትባት ያመኖፐ ወረቀት ይዢፐርሜ በትሳሪማ ግዝየ ይሜኔ ወትሰሰር**

501	ያበሩስ መምርያ ደብተር ነረንኹ	1. እከ 2. ኤነንደ		
502	የትካሁ ክትባት መረጃ			
	የክትባት ኤነት	**የክትባት ዘንጋ**	**የተከተቡበት ቀን**	**Remark**
	BCG/ቢሲጂ	1. እከ 2. አቦሰደ	___/_____/_____	
	MCV2/ የኩፍነ ክትባት ኼት ወሰደም	1. እከ 2. አቦሰደ		
	MCV1/የኩፍነ ክትባት አት ወሰደም	1. እከ 2. አቦሰደ		
	Penta3/ፔንታቫለንት 3 ወሰደም	1. እከ 2. አቦሰደ		
	PCV3/የሳምቧ ምች ባሽ ክትባት ወሰደም	1. እከ 2. አቦሰደ		
	OPV3/የፖሊዮ(ዴንጋ አሸትር) ክትባት ወሰደም	1. እከ 2. አቦሰደ		
	Vitamin A (ቫይታሚን ኤ) በ6 በነ	1. እከ 2. አቦሰደ		
	Vitamin A (ቫይታሚን ኤ) በዘጠ በነ	1. እከ 2. አቦሰደ		
	Vitamin A (ቫይታሚን ኤ) በ18 በነ	1. እከ 2. አቦሰደ		

	Vitamin A (ቫይታሚን ኤ)በ24 በነ	1. እከ 2. አቦሰደ		
503	ተዴንጋ ዌ የኩፍነ ባሸ ቈሞኖም ይኽሮ ቃር ነረቦ	1. እከ 2. ኤነቦ		
504	ወትሰሰር ቁጥር 503 ኽፓና አ በኽረ; በምራህር ዘበርሁኖ (ዕድሜሁኖ)	______________________		

VI. ጶትኼተሮ ወትሰሰር ትከ የኼተነ የኩፍነ ክትባት ያንቦሰደዉ ምክንያት ያቴዦ ሰሰኖ

ክፋፋል	**ክትባት ያንቦሰደከ ምክንያት**
መረጃ ያንኸቦት	ክትባት ጠቃሚ የኸረኸማ ያንኻሮት
	የኼተነ የኩፍነ ክትባት መችራ ዮስጂኸማ ያንኻሮት
	ክትባት ይወስጅዎከ መደር ያንኻሮት
	ተትከተበ አንቄ ይቄሙንቴ ባሮስ ወስረፍ
	የክትባት በትምለከተ ያንኸረ አመለካከት የንበሮት
ፍላጎት ያንበሮት	የክትባት ከረ እንጎድ ግዘየ ህሮት
	ክትባትዌ ጠቃሚዉ የኸረኸማ ያንኻሮት
	የሰብ አጀ
	ባህል/ሃይማኖት ኤያዝዝ
ያስናከሎ አአር	የክትባት መደር ሮቄዉ
	ክትባቱ ይወስጀፒ ሰአት ምቹ ያንኸሮት
	ክትባቱን ይቦ ሀኪም ያንብሮት
	ክትባት አነፐሮት

	አዶት ሜና ትደብስፓ
	ያበሩስ ችግር (ያዶት ጦናት)
	ትከ የቄሞኒ
	ክትባት መደር ንቅ ግዝየ የቀሮት
እንጎደኸኖ	________________________________