

LEVEL OF TETANUS TOXOID VACCINE UPTAKE AND ASSOCIATED FACTORS AMONG MOTHERS WHO GAVE BIRTH IN THE LAST 12 MONTH IN KEDIDA GAMELA WOREDA SOUTHERN ETHIOPIA.



MPH THESIS

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LEVEL OF TETANUS TOXOID VACCINE UPTAKE AND ASSOCIATED FACTORS AMONG MOTHERS WHO GAVE BIRTH IN THE LAST 12 MONTH IN KEDIDA GAMELA WOREDA SOUTHERN ETHIOPIA.

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By my signature below, I declare and affirm that this thesis is my own work. I have followed all ethical and technical principles of scholarship in the preparation, data collection, data analysis, and compilation of this thesis. Any scholarly matter that is included in the thesis has been given recognition through citation.

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BIOGRAPHICAL SKETCH

I was born in 1990 G.C in Durame, Kembata Tembaro Zone, Southern Ethiopia. I have completed my elementary school in Durame elementary School. I have attended my Secondary and Preparatory school at Durame secondary and preparatory school at Durame town. After completion of my Preparatory School, I have joined Wolaita Soddo University by the year 2010 G.C. At Wolaita Soddo University, I have studied BSc Nursing. I got my first-degree BSc in Nursing from Wolaita Soddo University in July 2013. I was served in Durame General Hospital for five years.

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ACRONMYS AND ABBREVIATIONS

ANC	Ante natal care
AOR	Adjusted odd Radio
CSA	Central Statical Agency
DC	Data Collectors
EDHS	Ethiopian Demographic Healthy Survey
FMOH	Federal Ministry of Health
HEW	Health Extension Worker
HHS	House Holds
HU	Haramaya University
IHRERC	Institutional Health Research Review Committee
MTN	Maternal and Neonatal tetanus Elimination
NGO	Non-Governmental Organization
PI	Principal Investigator
SES	South East Asian
SNNPR	South Nation Nationality people
SPSS	Statical package of Social Science
SSA	Sub-Saharan Africa
TT	Tetanus Toxoid
TTV	Tetanus Toxoid Vaccine
UNICEF	United Nation International Child Fund
WHO	World Health Organization

ABSTRACT

Background: Tetanus toxoid vaccine is one of the most effective ways to protect mother and newborn from the disease. World health organization at 2017 recognized Ethiopia was on track to eliminate maternal and neonatal by made magnitude of protective dose of TT greater than 80% but different study conducted in Ethiopia show that protective dose of TT vaccine is still low. Therefore, knowing the reliable estimate of protective dose of tetanus toxoid vaccine and associated factors would probably help us to generate supplementary strengthen and accelerate current efforts to eliminate maternal and Neonatal tetanus and important to take corrective action on the intervention of increasing coverage of tetanus toxoid vaccination

Objective: To determine the level of Tetanus Toxoid vaccine uptake and associated factors among mothers who give birth in the last 12 month in Kedida Gamela woreda, Southern Ethiopia from March 8-30/2020.

Method: Community based cross-sectional study was used among 598 mothers. Stratified sampling technique was used, then to select the study participants systematic sampling technique applied. The collected Data was entered into EpiData Version 3.1 and for analysis exported to Statical package of Social Science version 24. Variables having p-value < 0.25 during bi variable analysis was entered into a multivariable logistic regression model to control for all possible confounders. Level of statistical significance was at p-value < 0.05.

Result: The magnitude of protective dose of TT vaccine was found to be 45.8%. Maternal knowledge [(AOR=2.9,95%CI (1.6-5.4)], ANC service users [(AOR=5.8,95%CI (2.3-14.5)], Place of delivery [(AOR=7.1,95%CI (3.7-13.8)], maternal education level [(AOR=4.2, 95% CI (2-8.95)], and mothers home visit by health extension workers [(AOR=3.1,95% CI (1.59-6.04)] were significantly associated with protective dose of Tetanus Toxoid vaccination.

Conclusion: The magnitude of mothers vaccinated for protective dose of TT was found to be low. Maternal knowledge, ANC service users, Place of delivery, Mothers Visited by health extension workers and maternal education were identified as explanatory of the TT vaccination status.

Key words: level, Tetanus Toxoid, vaccination

1. INTRODUCTION

1.1. Background

Tetanus is non-communicable, acute and potentially fatal disease caused by Spore forming bacterium *Clostridium tetani* found in soil. (Amanda E and Tejpratap S. P. Tiwari; 2015). The disease is a marker of economic and social inequity since most cases occur in low income countries with poor access to health services and predominantly clustered in remote communities where there is limited access to immunization with Tetanus Toxoid-containing vaccines (WHO,2015).

Tetanus is an important preventable cause of maternal and neonatal mortality, particularly in low income countries (WHO, 015). Deliveries at home without trained birth attendants, delivery on an unclean surface, with unclean hands and instruments increase the chance of the spread of infection to both mother and newborn during the birth process (UNICEF, 2010) .

Proper implementations of maternal vaccination programs, like the TT vaccination is one of the basic interventional strategies used to prevent maternal and neonatal mortality (Mohammed M, 2008). World Health Organization recommended that the use of tetanus toxoid (TT) vaccine should be replaced with tetanus-diphtheria (Td) vaccine following huge outbreaks of diphtheria in the Soviet Union and other countries despite the high coverage of routine childhood vaccination (UNICEF 2018). Evidences shows that vaccination of pregnant women or women of childbearing age with at least protective dose of TT could have the potential to decrease mortality from maternal and neonatal Tetanus (Blencowe H et al 2010) .Tetanus Toxoid is the vaccines used to prevent Tetanus (WHO,2015;WHO,2010). Tetanus vaccination at any age will prevent tetanus and the duration of protection depend on the number and spacing of doses received (Balmer P et al, 2006). Tetanus toxoid injections are given during pregnancy to prevent neonatal tetanus, a major cause of early infant deaths in many low income countries, due to failure to observe aseptic procedures during delivery (EDHS,2016).

In countries where MNT remains a public health problem, pregnant women for whom reliable information on previous tetanus vaccinations is not available should receive at least two doses of

TTV, with an interval of at least 4 weeks between doses and the second dose at least 2 weeks before the birth. To ensure protection for a minimum of 5 years, a third dose should be given at least 6 months later. A fourth and fifth dose should be given at intervals of at least 1 year, or in subsequent pregnancies, in order to ensure lifelong protection(WHO, 2018).

1.2. Statement of the Problem

Maternal and Neonatal Tetanus is a public concern in low income countries mainly due to low maternal TT vaccination(Demicheli V et al ,2015) but almost all high income countries have achieved maternal and neonatal tetanus (MNT) elimination before 1999 by full coverage of TT vaccination (Thwaites CL et al ,2015. Worldwide, about 36% of mothers were not vaccinated with TT protective dose at birth against Tetanus (WHO,2015). Particularly in low-income countries ,still about 33 million reproductive age women did not vaccinated protective dose of TT vaccination until 2014 (Thwaites CL, 2015). In Ethiopia, about 51% of pregnant women were not received protective dose of TT vaccination(EDHS,2016).

Consequently mothers and newborns contract Tetanus, an extremely deadly and paralyzing especially in resource constrained setting case fatality rate can be close to 100% (WHO, 2013 and Roper,M 2007). Worldwide, about 49,000 neonates and a significant numbers of mothers died of tetanus (WHO, 2015). This problem is much higher in South East Asian (SEA) and Sub-Saharan African (SSA) countries where 90% of maternal and neonatal tetanus (MNT) appeared and almost all cases ended with death(WHO,2015). The true extent of the tetanus death toll is not known, since many newborn infants and mothers die at home and neither the birth nor the death is reported (WHO, 2015).

Evidences shows that a range of influencing factors affects the level of TT vaccination. For instance, women's education and their wealth index can make variations in immunization coverage (CSA,2016;Kidane T,2004;Rosihermatieb et al,2000)). Mothers' immunization status also differs from urban to rural as well as from one part of the country to the other (Tsfahun F,et al,2014;Abdela A,2010). Furthermore, studies indicate that maternal age, marital status ,occupational status, distance from health facilities and number of ANC visits to healthcare

facilities can also considerably determine TT immunization usage (Abdella, A 2010; Abadura SA, 2015).

Immunization of pregnant women or women of child bearing age with protective doses of TT protects the mother and the newborn baby from tetanus (with 94% reduction in mortality from neonatal tetanus) (Khan A, et al, 2013) but in many parts of low-income countries protective doses of TT immunization coverage still remains low. For instance, only 23.6% and 29% of the participant women did receive protective dose of TT vaccination during their most recent pregnancies in Nigeria and Kenya respectively (Awosan K and Hassan M, 2018; Ajuma M, 2016). Similarly Studies conducted in Ethiopia show that protective dose of TT were 39.2%, 49.45 and 39.8% respectively (Anatea M, 2018; Fecha W et al 2018; Kenea A, et al, 2018). Ethiopia Demographic and Health Survey (EDHS) 2016 showed wide variation and predominantly low protective dose coverage rates across the country, 30.2% in the Afar, 50.9% in the SNNPR and 81% in the Addis Ababa; and with a national protective dose rate of 49.1% (EDHS, 2016). Even, magnitudes of protective dose without considering spacing of TT doses often may not depict the actual data.

World health organization at 2017 recognized Ethiopia was on track to eliminate maternal and neonatal by made magnitude of protective dose of TT greater than 80% but different study conducted in Ethiopia show that protective dose of TT vaccine is still low. Therefore, knowing the reliable estimate of level of TT vaccination uptake and associated factors would probably help us to generate supplementary strengthen and accelerate current efforts to eliminate MNT and important to take corrective action on the intervention of increasing magnitude of protective dose of TT vaccination. Therefore, this community based cross sectional study was designed to assess the level of TT vaccination uptake and associated factors among mothers who gave birth in the last 12 month in Kedida Gamela Woreda, Southern, Ethiopia.

1.3. Significance of the Study

The primary beneficiary of the study will be Kedida Gamela Woreda health centers, health office and other NGO work on health and health related activities in the study area. These health

centers, health office and NGO will be use the finding as base line evidence in planning for maternal and neonatal Tetanus elimination intervention program. The health workers may use to create awareness on community, give health education about the importance of TT vaccination and TT supplementary immunization activities to all pregnant and child bearing age women. This will benefit to the mothers and newborns protecting from maternal and neonatal tetanus.

In addition, findings of this study will provide the base line for future studies in assessing and comparing the performance of the intervention.

1.4. Objective of the Study

1.4.1. General objective

- To assess the level of Tetanus Toxoid vaccine uptake and associated factors among mothers who give birth in the last 12 month in Kedida Gamela Woreda, Southern, Ethiopia from March 8-3 0/2020.

1.4.2. Specific objective

- To assess the level of Tetanus Toxoid vaccine uptake
- To identify factors associated with the uptake of Tetanus Toxoid vaccination

2. LITERATURE REVIEW

2.1. Tetanus Toxoid Vaccine Uptake

A community-based cross-sectional study conducted in Pakistan ,Peshawar from June 9 to June 19, Bangladesh from January to June 2009 and in Dakalia governorate, Egypt from march 2013 to April 2014 magnitude of protective dose of TT vaccination was 73.4%,79% and 63.3% respectively(Naeem M *et al.*, 2010; Ahmed MS, et al ,2012; Ahmed A, et al ,2019) . Other study conducted in difficult to reach areas of Lago Metropolis among mothers who gave birth in the 12 month protective dose of TT coverage were TT1(55.6%),TT2(40.8%),TT3(11.2%),TT4(5.15) and TT5(3.6%) (Nwokeukwu et al,2014). Different health surveys were also conducted in Uganda 2016,Pakistan 2013,Kenya 2014 and Zimbabwe 2015, magnitude of protective dose of TT vaccination coverage were 84%,64%,765 and 54% respectively (Uganda, 2016 : Pakistan, 2013 :Kenya, 2014 and Zimbabwe, 2015)). A community based cross-sectional study were conducted in Ambo town from December 2010 to May 2011, from March 1 to May 26 in Duguna Fango district, IIU aba bora zone and dukem town among 680, 845, 462, and 422 respectively women's studied,73.3%,49.4%, 39.8% and 49.4% had received protective dose of Tetanus Toxoid vaccination respectively(Adugna E, 2011; Facha W et al,2018;Kenea A et al,2018;Anatea M et al,2018).

2.2. Factors Associated with the uptake of Tetanus Toxoid Vaccination

2.2.1. Socioeconomic and demographic characteristic

Age: Study conducted at Bangladesh show that women age between 25-29 years were more likely to receive protective dose of TT vaccine (91.0%) while the proportion of women who never received TT vaccine was the highest (29.4%) in the age group of 35-39 years and it was the lowest (9.1%) in the age group between 25-29 years and this variation was statistically significant (2test, $p < 0.05$)(Ahmed MS, et al,2012). The study done at Kenya show that aged between 15 – 19 were twice more likely to receive protective dose of TT vaccination than those who were aged between 35 - 39 year (Ajuma M,et al, 2016).

Studies conducted at Damboya Woreda in 2018 magnitude of protective dose of TT vaccination coverage with age of women between 21-30 and greater than 31 years were 4.6 and 9.6 times more likely than less than 20 years respectively (Mamoro M, et al, 2018).

Marital status: A community based cross-sectional study was conducted at Ambo town show that mothers not in marriage were 0.57 times less likely vaccinated protective dose of TT vaccine than mothers currently in marriage (Adugna E, et al, 2011).

Residence: It was evidenced that protective dose of TT vaccination coverage was still very poor in rural part of the different country. A cross sectional study conducted at Peshawar show that protective dose of TT Immunization rates were high for urban areas in comparison to rural areas (Naeem M, *et al*, 2010) and study done at Kenya revealed that women from urban areas had 25% chance of receiving tetanus toxoid vaccination compared to women from rural areas that had 4% chance (Ajuma M, 2016).

Education: A community-based cross-sectional study conducted at Damboya, Ambo and Dukem town show that education had significant effect on protective dose of TT vaccination. Literate were 1.89 and 1.41 times more vaccinated than illiterate women respectively) (Adugna E, et al, 2011; Anatea M et al, 2018) and similarly study conducted at Ambo town show that the coverage of protective dose of TT and education of husband were significant association literate were 2.62 times more vaccinated than illiterate partner's (Adugna E, et al, 2011). Similarly, those women's educated secondary and above, and elementary educated mothers vaccinated protective dose of TT by 4.13 times and 1.84 more than non-formally educated respectively (Mamoro M, et al, 2018). Community-based cross-sectional study was conducted at Damboya Woreda protective dose of TT vaccination coverage and community based cross-sectional study conducted in Ilu aba bora zone from march 10 to march 20, 2015 those who has 5-8 class educational status were 0.25 times more likely to have history of protective dose of tetanus toxoid vaccine and also mothers who have 10-12 educational status were 0.30 more likely to have TT2 and Regarding their husband education there is significant association of TT2 immunization with husband's educational status that who can read and write were 0.24 times more likely to be vaccinated than respondents who cannot read and write with whereas

mothers having husbands who attended grades 5-8 shows significantly associated protective dose of tetanus toxoid vaccine with their educational status 0.45 times more likely to be vaccinated than who cannot read and write with (Kenea A, et al, 2016).

Mother's occupation: A community-based cross-sectional study conducted at Dukem town show that maternal occupation had significant effect on protective dose of TT vaccination. Those mothers who had occupation were 1.27 times more likely vaccinated protective dose of TT vaccine than those who have no occupation (Anatea M, et al; 2018).

Partner occupation :Community based cross sectional study conducted at Pakistan , Peshawar in 2010 protective dose of TT vaccination was high for women whose husbands had government jobs (75% immunized) than laborers(42.0%immunized) and private jobs (52.4%immunized)($p < 0.05$)(Naeem et al., 2010).

Family income: The income of family and TT immunization status had a very clear relationship. Cross-sectional study was conducted from ninth to 19th of June 2010 to determine the coverage and factors associated TT immunization in Pakistan Peshawar shows that with income below 3,000 PKR per month, nearly half of the females were not immunized. However, with monthly income above PKR10,000, most females were immunized(Naeem M, et al., 2010). A community based cross-sectional study was conducted from Dec. 2010 to May. 2011 in Ambo town show that who have better income /more than 500 ETB per month/ were 1.7times vaccinated than those who earned less monthly income(Adugna E, et al, 2011).

Media exposure: TV/Radio sets in houses significantly determined the status of TT immunization. A cross sectional study at Peshawar showed that Women who had access to television or radio had greater complete immunization rates (58.8%) than females who had no access to television or radio(10.0%), ($p < 0.05$) (Naeem M, et al., 2010) similarly study at Eastern Ethiopia ,Dukem from May to October 2016 showed that those women's had TV 1.8 times more likely vaccinated protective dose of TT than mothers who had no TV(Antea M, et al, 2018).

2.2.2. Obstetric Characteristics of Mothers

A community based cross-sectional study was conducted from Dec. 2010 to May. 2011 at Ambo town show that Planned pregnancy was significantly associated with protective dose of TT

vaccine, those mothers with no planned to have a child for the last pregnancy were 0.1 times less likely vaccinated for protective dose of TT than their counter parts(Adugna E,et al, 2011).

ANC services provide an opportunity to vaccinate pregnant women with the protective doses of TT vaccination. A cross- sectional survey was conducted at El-Dakahlia governorate from March 2013 to April 2014 showed that the odds of receiving the protective doses of TT vaccine in the last pregnancy was 1.5 times higher among women who had at least 4 antenatal follow up visits (2760 women, 73%) compared to women who had less than 4 antenatal follow up visits (252 women, 6.6%)(Ahmed A,et al, 2018) this study also consistent with study done at Ambo and Dukem town mother with no ANC were 0.18 times less likely to be immunized than ANC attendants (Adugna E, 2011) and mothers utilizing ANC service follow ups were 2.56 times more likely to vaccinated protective dose of TT vaccine than those who did not follow ANC services(Anatea M,et al, 2018) respectively. A community-based cross-sectional study conducted at Duguna Fungo district showed that those mothers who received advice on TT vaccination during ANC visit were about 7 times more likely got protective dose of the TT vaccine than mothers who didn't get the advice.

A community based cross-sectional study in Damboya show that Mothers who use modern family planning method were 5.19 times more likely to receive protective doses of TT vaccine as compared with those who do not use modern family planning (Mamoro M,et al, 2018).

Place of delivery can positively influence Tetanus Toxoid vaccination uptake by women of reproductive age. A community-based cross-sectional study conducted at Dukem and Duguna Fungo district showed that those mothers who gave birth at health facilities were 1.19 and 1.22 times more likely vaccinated protective dose of TT vaccine compared to those who gave birth at home respectively [AOR:1.19.95% CI:(1-1.43)] home (Anatea M,et al, 2018 and Fach W,et al,2018).

2.2.3. Health service related factors on Tetanus Toxoid vaccination status

Health extension worker home visit had positive impact on TT vaccination status of a mother. Mother who was visited in her home during last pregnancy time by health extension worker was

-7 times more likely to receive protective dose of TT vaccine than those mothers who did not visit (Mamoro M,et al, 2018). Distance from home to health facility had significant impact on protective dose of TT vaccine. Time taken less than 30 minute from home to health facility was 2.27 times more likely vaccinated protective dose of TT vaccine than time taken more than 30 minute similarly time taken less than one hour from home to health facility was 2.2 times more likely vaccinated protective dose of TT vaccine than time taken more than one hour by the study conducted at Dukem and Ambo respectively (Adugna E, 2011 ;Anatea M,et al,2018). A community based cross-sectional study conducted at Northern Ethiopia show that protective dose of TT immunization was 2.2 times higher among mothers with perceived good quality of TT vaccine service than mothers who perceived poor quality of TT vaccine service(Mihret M et al, 2018).

2.2.4. Knowledge about Tetanus Toxoid on vaccination

A community-based cross-sectional study conducted at Duguna Fungo district show that those mothers with good knowledge status on TT vaccination were 2.45 times more likely vaccinated protective dose of TT vaccine than those mothers with poor knowledge status (Facha W,et al, 2018)

2.3. Conceptual Framework

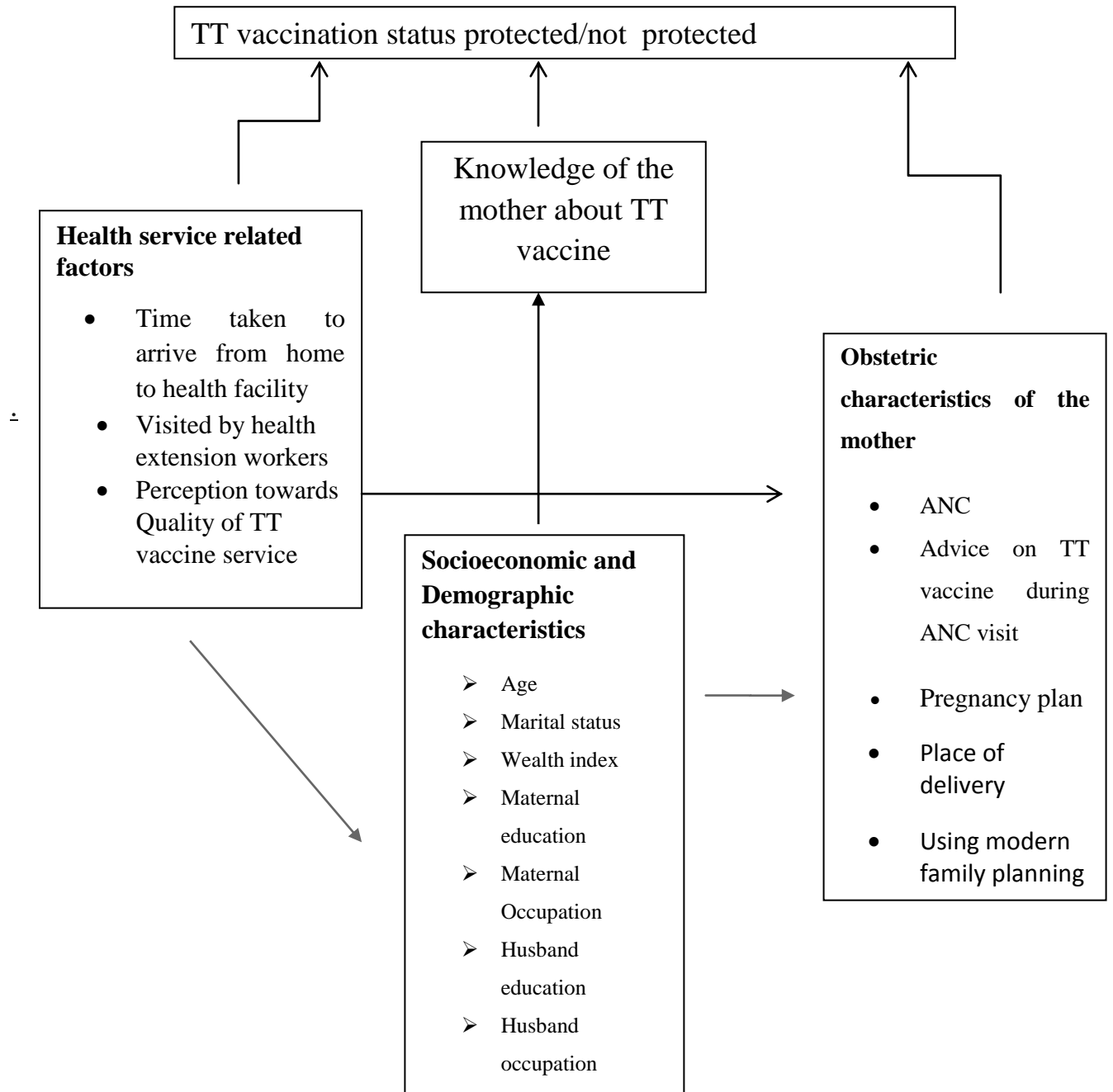


Figure 1 conceptual framework for the level of Tetanus Toxoid uptake and associated factors among mothers who give birth in the last 12 month in kedida gamela woreda, Southern Ethiopia 2020.

Source: Developed by principal investigator from a review of different literatures.

3. METHOD AND MATERIALS

3.1 Study Area and Period

The study was conducted in Kedida Gamela Woreda, which is one of 10 woreda in Kambata Tambaro Zone Southern, Ethiopia. Its administration center is Durame town which is located 346 km far from Addis Ababa capital of Ethiopia and 110 km far from the regional capital of Hawassa. Kedida Gamela Woreda is bordered on the South Kacha Birra Woreda, on the West Damboya Woreda, on the East by Durame city and on the north by Adilo Woreda. The Woreda is administratively structured into 12 kebeles (11 rural and 1 urban). Projecting from 2007 census population of the district is 70948 in 2011, from this, 34765(49%) are males and 36184(51%) are females and an estimated 23788 women are in reproductive age groups . A woman who gave birth in the last 12-month in Kedida Gamela Woreda was 5216. The health infrastructure in the woreda comprised four health centers and 12-health post (Kedida Gamela Woreda health office). The study was conducted from March 8-30/2020.

3.2. Study Design

Quantitative community based cross sectional study was undertaken.

3.3. Source Population

All mothers who gave birth in the last 12 month were the source population in the study area.

3.4. Study Population

All mothers who gave birth in the last 12 months in the selected kebeles during the data collection period were the study population.

3.5. Inclusion and Exclusion criteria

3.5.1. Inclusion criteria

Mothers who have child less than 12 month and residing in the study area for at least six months.

3.5.2. Exclusion criteria

Mothers who had child less than 12 month but cannot talk, listen or mentally ill are excluded from the study.

3.6. Sample size determination

To determine the sample size for this study, outcome variable and various factors significantly associated with the outcome variable was considered. According to the first and the second objective, the sample size was calculated and larger sample size was used for this study.

3.6.1. Sample size determination for first specific objective.

Sample size was calculated using single population proportion formula by considering women received protective dose of TT vaccine in Bangladesh was 33% ,5% margin of error, 95% confidence Interval

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

Where n=the sample size.

$Z_{\alpha/2}$ = the desired level of the confidence interval of 95% (1.96).

P= proportion of mothers who are vaccinated TT₂ during the last pregnancy.

d= margin of error tolerated (0.05).

By all the above assumptions, the sample size (**n**) is 339 considering design effects to be 1.5 and 10% for non-response rate; the final sample size (**n**) for first specific objective is 559.

3.6.2. Sample size determination for second specific objective

The sample size was calculated using EPI-Info version 7 for cross sectional/cohort study statistical software programs for double population proportions formula. It was computed using: 95% CI, 80% power, and ratio of n₂:n₁=1:1.

Table 1 Sample size determination for the second objective different factors associated with that the level of Tetanus Toxoid uptake and associated factors among mothers who give birth in the last 12 month in Kedida Gamela Woreda, Southern Ethiopia 2020.

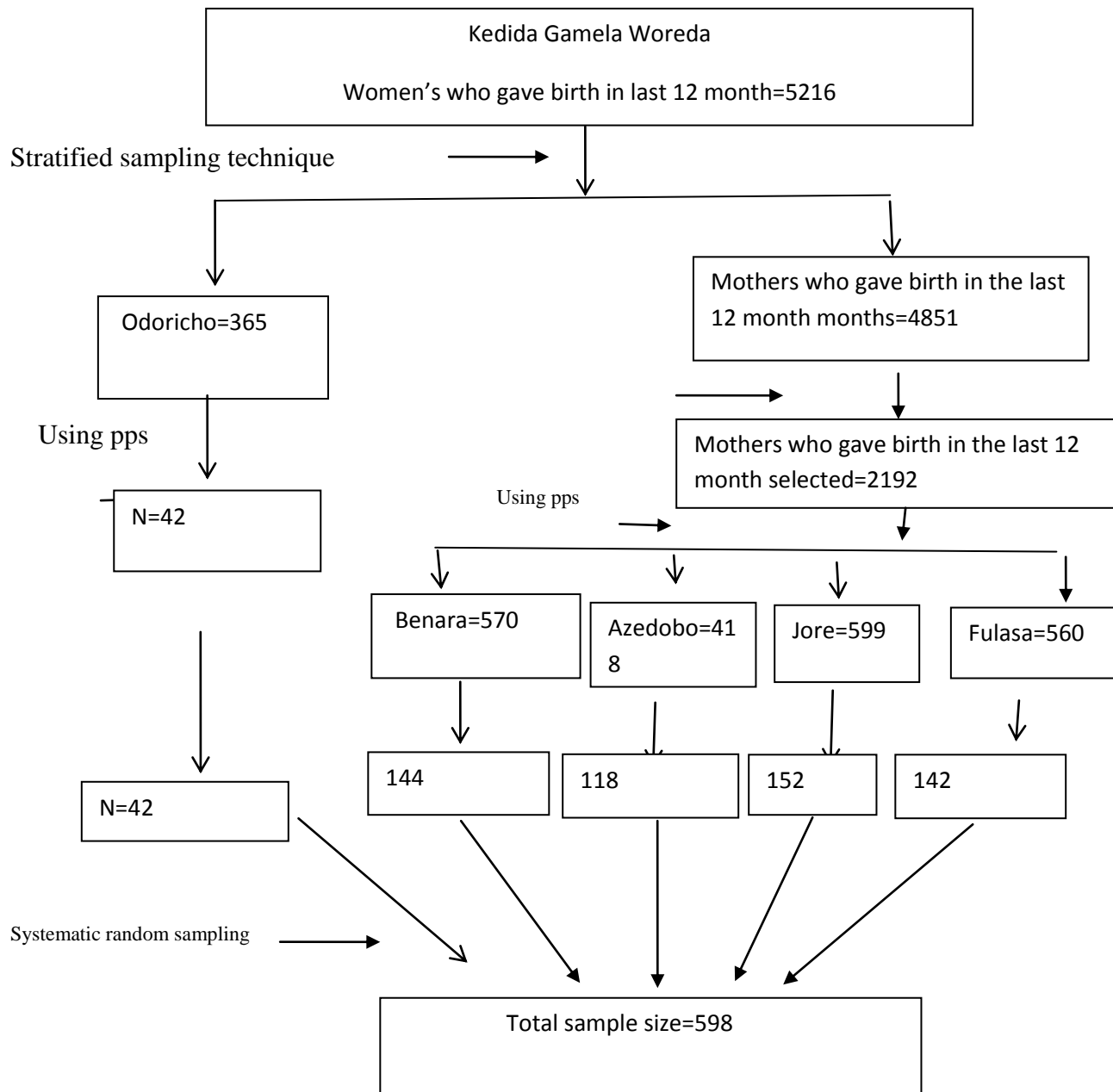
	Exposed outcome variable	Unexposed outcome variable	CI	Power	Total sample size	Design effect	Non response rate	Final total sample size	Reference
Pregnancy	Planned pregnancy 78.1%	Not planned pregnancy 35.5%	95%	80%	50	1.5	10%	83	(Mamoro M and Hanfore L, 2018)
ANC	Have ANC attendance 85%	Have no ANC attendance 55%	95%	80%	84	1.5	10%	139	(Anatea M, 2018)
Maternal occupation	Employed 67%	No employed 52%	95%	80%	362	1.5	10%	598	(Anatea M, 2018)

The sample size calculated for the second objective are 83,139 and 598 the final desired sample for this study was 598.

3.7. Sampling procedure and Sampling technique

The woreda is divided to 12-kebele (11 rural and 1 urban). A stratified sampling technique was used to select study participants. Kebeles were stratified into urban and rural. Then by lottery method, 4 out of 11 rural kebeles (Bezena Benar,ZatoShodera,Fulasa and Aze Dobo) and one urban Kebele (Odoricho) was selected by using random sampling technique from each stratum. Since every family folder have monthly updated with households information including vital events ,their unique households identity number, family folder registration book obtain in health

post from health extension workers was used for identification of eligible households in selected kebeles. The sampling frame was formed based on their household's identity number for each kebeles. Finally ,a women who gave birth in the 12 month in the household were selected by using a systematic random sampling technique to access 598 women's from eligible households to obtain information for the study and the sample size calculated for each kebeles as follows.



PPS; probability proportion to size, SRS; random sampling technique SRST systematic random sampling technique .

Figure 2;Schematic presentation of sampling procedure for the study on level of Tetanus Toxoid uptake and associated factors among mothers who give birth in the last 12 month in Kedida Gamela Woreda, Southern Ethiopia 2020.

3.8. Data Collection methods

3.8.1. Data collection instrument

Data were collected using pre tested structured and semi structured interviewer administrative questionnaire, which was developed from different literature reviews. The questionnaire comprises, Socioeconomic and Demographic items, Obstetric characteristics of the mother, Health service related items , Knowledge of the mother about TT vaccine and Tetanus Toxoid uptake items , then questionnaire initially was prepared in English then translated into Amharic and Kenbatigna/local language/ by language expert. Amharic and Kenbatigna back translated to English then, by another local language expert translate to Amharic and Kematigna to ensure consistency.

3.8.2 .Data collectors and data collection procedure

The data were collected with twelve-diploma health providers who are fluent in the local language in the study area and two BSC nurses supervisors were selected for the data collection. Two-day training was given on how to fill the questionnaire, making interviews, ethical issue, the purpose of the study and practical field exercise to data collectors and supervisors to ensure the quality of the field operation.

House number of women's were selected by data collectors and supervisors assigned for Kebeles. On the first visit data collectors interviewed study participant if women was unavailable then revisit was arranged at least three times during data collection the data collection was conducted on the whole day. The selected participant were informed by data collectors as she was selected to participate in the study. If the selected participant was interested ,consent was obtained and the data was collected. All the women's interviewed were had their last child born with in one year period in selected kebeles interviewed in their home. The supervision was checked the data for completeness, accuracy and consistency throughout the data collection period. In addition, overall supervision was done by principal investigator .

3.9. Study Variable

3.9.1. Dependent variable

- Tetanus Toxoid vaccination uptake

3.9.2. Independent variable

- Socio-demographic variables (Age, marital status, mother's educational level, maternal occupation, Husband education, Husband Occupation, wealth index)
- Obstetric characteristics of the mother (ANC, planned pregnancy, place of delivery and using modern family planning)
- Health facility related factors (time taken to travel from home to health facility, home to home visit by health extension workers and perception towards quality of TT vaccine service)
- Knowledge of the mother about TT vaccine

3.10. Operational Definitions

Protected Dose: if the mother had receive two or more doses during current pregnancy or at least two TT doses prior to the current pregnancy of which the last dose was <3 years before the birth; or three doses within the 5 years before the current pregnancy; or four doses with the last dose <10 years before the pregnancy or receiving five doses or more before the current pregnancy (WHO, 2006).

Protective dose:

- If the mother receive two dose TT1 and TT2 (TT2 with in 4 wks. after TT1)
- If the mother receive three dose TT1,TT2 and TT3(TT2 with in 4 wks. after TT1 and TT3 at least 6 month after TT2)
- If the mother receive four dose TT1,TT2,TT3 and TT4(TT2 with in 4 wks. after TT1, TT3 at least 6 month after TT2 and TT4 at least one year after TT3)

- If the mother receive five dose TT1,TT2,TT3,TT4 and TT5 (TT2 with in 4 wks. after TT1, TT3 at least 6 month after TT2,TT4 at least one year after TT3 AND TT5 at least one year after TT4)(WHO, 2006)

Completely vaccinated: if the mother receive five doses of TT vaccine according to WHO standard.

Partially vaccinated: if the mother take at least one but less than five doses of TT vaccine.

Not vaccinated: if mother not taking any dose of TT vaccine at all.

Knowledgeable about tetanus toxoid vaccination: if the respondents answer greater than or equal to three question correctly about Tetanus Toxoid vaccination they were considered as has good knowledge and less than or equal to two considered as poor knowledge (Facha W, 2018).

3.11. Data Quality Control

To ensure the quality of data pre tested interviewer administrative questionnaire was used. The pretest of questionnaires were employed prior to actual data collection period among 5% of the sample at randomly selected kebeles at Kacha Birra woreda was conducted. This had the clarity of instrument and helps data collector to familiarize the instrument and necessary correction was made accordingly. The supervision was done by principal investigator and supervisor then they were checked the data for completeness, accuracy throughout the data collection period. The overall supervision was done by principal investigator. Finally, double data entry was done by two data clerks and consistency of the entered data was cross-checked by comparing the two separately entered data.

3.12. Data Processing & Analysis

First, data was checked manually by the principal investigator for its completeness and consistency. Each completed questionnaire was assigned a unique code and entered to Epi-data version 3.1.0 Software. Then, data was exported to SPSS version 24 for analysis. The family wealth index was used principal component analysis (PCA) method by considering locally available households assets and the family wealth index was be into three quintiles. The outcome variables was be recorded to dichotomous outcome either they protected or not. women's who had score mean and greater than mean value vaccinated measuring items will be coded as '1'and

that score below means value coded as '0'. Exploratory analysis was conducted to find outliers, missed value, and inconsistencies. Univariate analysis such as simple frequencies, proportions, and summary statistics was used to describe the study population in relation to the relevant variable were presented in tables and figures. Bivariate analysis with 95% confidence interval was carried out to identify variables that are significantly associated with outcome variables by using logistic regression. The multi co-linearity test was carried out to see the correlation between independent variables using standard error and variance inflation factor. Variable with variance inflation factor >10 and standard error of > 2 were dropped from multivariable analysis. Model fitness was checked by using Hosmer Lemeshow goodness of Model fit test. Those Variables in a bivariate analysis whose p-value less than 0.25 ($p<0.25$) were included in multiple logistic regression not to miss associated factors. Then multiple logistic regression analysis was performed for those factors that showed a statistically significant association in bivariate analysis and investigate independent predictors by controlling for possible confounders. Finally, variables whose p-value less than 0.05 ($p<0.05$) with 95% confidence level in logistic regression were considered as statistically significant TT vaccination.

3.13. Ethical Consideration

The study was approved by Haramaya University, College of Health science Institutional Health Research Ethics Review Committee (IHRERC). The permission agreement consent was obtained SNNPR health bureau, Kembata Tembaro zone health department and Kedida Gamela District health office prior to the study. Informed, voluntary and signed written consent was obtained from the office and submitted to the head of the health center and local authorities. Participants were informed clearly about the purpose and benefit of the study and written and signed informed consent were obtained from them. Those who are signed written consent were only participate in the study and the confidentiality of responses was maintained throughout the research process by giving the code for the participant. They were informed well that they have full right to totally refuse to participate and/ or withdraw from the interview at any time if they have any problem

4. RESULTS

4.1. Socio Demographic Characteristics

598 women who delivered within one year before the survey were interviewed making response rate of 100%. Of this 216(36.1%) of the respondents were in the age group between 35-49, 556(92.9%) resided in rural, 585(97.8%) were married, 278(46.4%) attended formal education, 546(91.5%) were protestant by religion, 288(48.1%) were house wife by occupation and 512(85.6%) were Kembata by ethnic group (table 2).

Table 2: Socio Demographic characteristics of mothers who gave birth in the last 12 month in Kedida Gamela Woreda, Southern, Ethiopia, March 2020.

Variable name and category		Frequency	Percentage (%)
Age (n=598)	15-19	113	18.9
	20-34	269	45
	35-49	216	36.1
Ethnicity(n=598)	Kembata	512	85.6
	Tembaro	48	8
	Hadiya	38	6.4
Religion(n=598)	Protestant	546	91.5
	Orthodox	33	5.5
	Muslim	19	3.2
Marital status(n=598)	Married	585	97.8
	Single	1	0.1
	Divorced	6	1
	Widowed	6	1
Residence	Urban	42	7.1
	Rural	556	92.9
Maternal education	Never attended	197	33
	Only read and right	123	20.5
	Elementary school		
	Secondary	52	8
	>12	190	31.7
Maternal occupation(n=598)	Government employ	174	29
	House wife	288	48.1

	Merchant	103	17.2
	Student	33	5.5
Husband educational level (n=585)	Never attended	117	20
	Only read and right	129	21
	Elementary school	96	16.4
	Secondary school	84	14.3
	>12	159	27.1
Husband occupation(n=585)	Government employ	254	43.4
	Farmer	148	25.2
	Merchant	173	29.5
	Student	10	1.7
Access to radio or TV	Yes	335	56
	No	263	44
Wealth index	High	194	32.4
	Medium	173	28.9
	Low	231	38.6

4.2. Obstetric Characteristics

Out of 598 mothers included in the study, Majority 370 (61.9%) mothers use modern family planning before last pregnancy, 286 (47.8%) of mothers deliver last birth at health facility and 368 (61.5%) had ANC follow up during last pregnancy (Table 3).

Table 3: Obstetric characteristics of mother who gave birth in the last 12 month in Kedida Gamela Woreda, Southern, Ethiopia, March 2020.

Variables name and category		Frequency	Percent
Place of delivery(n=598)	Institution	286	47.8
	Home	312	52.2
Future fertility intention (n=598)	Yes	250	41.8
	No	348	58.2
Pregnancy planned (n=598)	Yes	221	37
	No	377	63
Anti-natal care (n=598)	Yes	368	61.5
	No	230	38.5
Advice on TT vaccine during ANC follow up (n=368)	Yes	253	68.7
	No	115	31.2
Modern family planning (n=598)	Yes	370	61.9
	No	228	38.1

4.3. Knowledge of the Mother on TT vaccine

The tools this study used to assess the knowledge of the mothers about TT vaccine were five questions and mothers answered three questions and above out of five questions were considered as good knowledge about TT vaccine and mothers answered two and below considered as poor knowledge about TT vaccine (Table 4).

Table 4: Knowledge of the mothers on TT vaccine of mother who gave birth in the last 12 month in kedida gamela woreda Kembata Tembaro zone, SNNPR, Ethiopia, March 2020.

Variable name and category	Frequency	Percent
What is TT vaccine (n=598)		
A vaccine given to women of child bearing age	298	49.8
Family planning	231	38.6
I Don't know	69	11.5
Who are supposed to receive TT vaccine (n=598)		
All child bearing age women	297	49.7
Only children	5	0.8
Only pregnant women	230	38.5
I don't know	66	11
Total dose of TT vaccine (n=598)		
One	43	7.2
Two	68	11.4
Three	189	31.6
Four	206	34.4
Five	63	10.5
I don't know	29	4.8
Appointment of the second dose of TT vaccine from the first dose		
After 4 week	32	5.4
After 6 week	367	61.4
After 4 month	20	3.3
After one year	113	18.9
I don't know	66	11
Purpose of taking TT vaccine		
To prevent mother and baby from tetanus	109	18.2
To prevent only the baby from tetanus	113	18.95
To prevent only the mother from tetanus	192	32
To prevent pregnancy	118	19.7
I don't know	66	11

Accordingly out of 598 mothers included in the study 332(56%) were poor knowledge about TT vaccine.

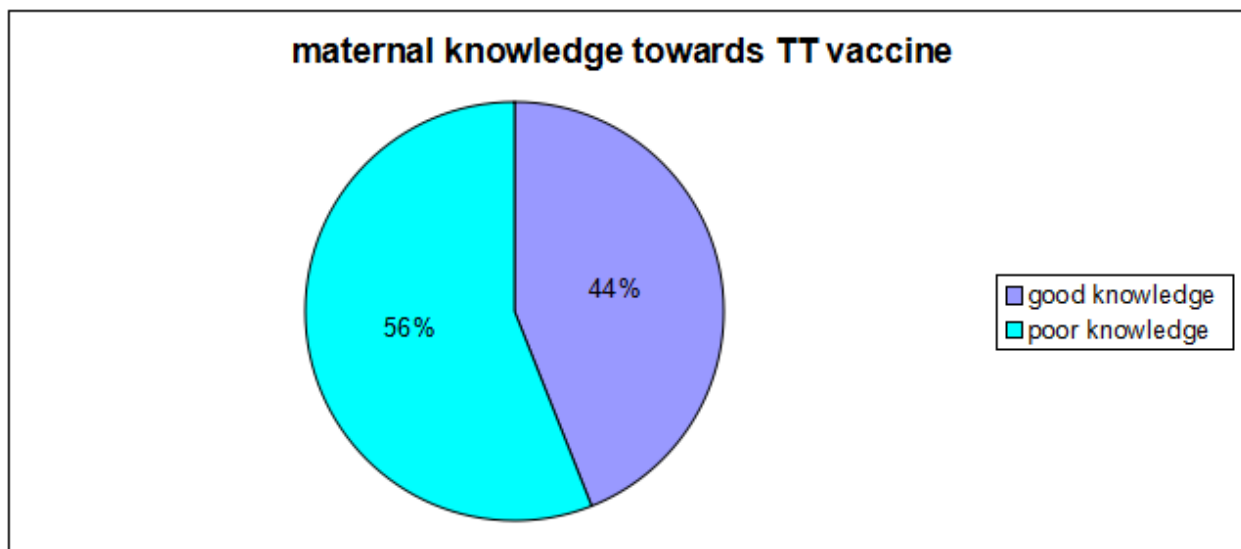


Figure 3 : Knowledge of the mother on TT vaccine among mothers who gave birth in the last 12 month in Kedida Gamela Woreda, Southern, Ethiopia, 2020.

4.4. Health Facility Related Factors

Out of 598 mothers, half of the mothers 280(46.8%) walk for more than one hour from home to the nearby health facility. More than half of mothers, 329(55%) were not visited by health extension workers during last pregnancy. Out of 400 mothers who had vaccinated for TT vaccine, 278 (69.5%) perceived quality of TT vaccine service was good.

4.5. Level of Tetanus Toxoid Vaccination

Out of 598 mothers, 400 (66.8%) had vaccinated for TT vaccine before the last delivery. Out of 400 mothers 113 (28.25%), 111 (27.75%), 78 (19.5%), 52 (13%) and 46 (11.5%) were vaccinated for TT1, TT1 and TT2, TT1, TT2 and TT3, TT1, TT2, TT3 and TT4 and TT1,TT2,TT3,TT4 and TT5 vaccine respectively. Out of 598 mothers, 274 (45.8%) had protected from Tetanus before gave the last birth. Out of 598 mothers, 198 (33.1%) mothers were

not vaccinated for any of TT vaccine and 101 (51%) of them were due to the reason of not having awareness about TT vaccine (Table 5)

Table 5: Level of Tetanus Toxoid Vaccine uptake of mother who gave birth in the last 12 month in Kedida Gamela woreda, Southern, Ethiopia, March 2020.

Variable		Frequency	Percent	
Mother vaccinated for TT vaccine (n=598)	Yes	400	67.2	
	No	198	32.7	
Which dose of TT vaccine	Only TT1	113	28.25	
	TT1 and TT2	111	27.75	
	TT1,TT2 and TT3	78	19.5	
	TT1,TT2,TT3 and TT4	52	13	
	TT1,TT2,TT3,TT4 and TT5	46	11.5	
TT Vaccination status	Not vaccinated	198	33.1	
	Partially vaccinated	354	59.1	
	Fully vaccinated	46	7.6	
When took TT vaccine	Only TT1(n=113)	Yes	100	88.4
		No	13	11.6
	TT1 and TT2 (n=111) with in 4 wks. after TT one	Yes	100	90.08
		No	11	9.9
	TT1, TT2 and TT3 with in 6 month after TT 2	Yes	76	97.4
		No	2	2.56
	TT4(n=52) within one year after TT3	Yes	52	100
		No	0	0
	TT5(n=46) within one year after TT4	Yes	46	100
		No	0	0
	TT vaccination uptake (n=598)	Protected	274	45.8

	Not protected	324	54.2
Reason for not vaccinate(n=198)	Lack of awareness	101	50.5
	Service area to far	66	33
	Fear of side effect	31	16.5

Out of 598 mothers majority of them were 354(59.1%) were partially vaccinated and only 46 (7.6%) of the mothers had fully vaccinated TT vaccine (Figure 4)

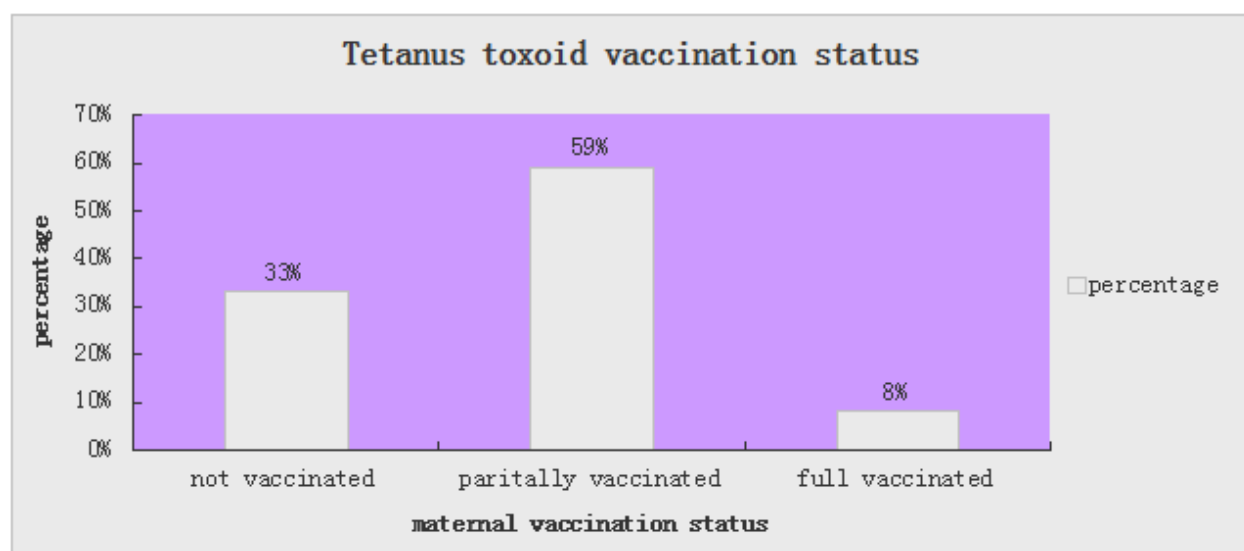


Figure 4: Tetanus Toxoid vaccination status among mothers who gave birth in the last 12 months in Kedida Gamela woreda, Southern, Ethiopia, 2020.

4.6. Factors Associated With the Uptake of Tetanus Toxoid Vaccination

4.6.1 Bivariate analysis

Mothers who had formal education were more likely [(COR=5.88, 95% CI: (4.12-8.39))] to be vaccinated for protective dose of TT than those mothers who had no formal education. Mothers who had occupation were more likely [(COR6.4, 95% CI: (4.2-9.6))] to vaccinate for protective

dose than those mothers who had no occupation. Mothers whose husband attended formal education were more likely [(COR=5.01, 95% CI: (3.5-7.2))] vaccinated for protective dose than those who did not attend formal education. Mothers who had access to TV or radio were more likely [(COR=3.68, 95% CI: (2.64-5.2))] to be vaccinated for protective dose than those mothers who do not have access to TV or radio.

Those mothers who had used modern family planning before last pregnancy were more likely [(COR=2.3, 95% CI: (1.65-3.36))] to be vaccinated for protective dose than those mothers who had not used. Mothers who had ANC follow up during last pregnancy were more likely to be vaccinated for protective dose [(COR=4.51, 95% CI: (3.13-6.51))] than those who had not ANC follow up. Mothers who were counseled about TT vaccine during ANC follow up were more likely [(COR=6.19, 95% CI: (3.7-10.3))] to be vaccinated for protective dose than those mothers who were not counseled.

Mothers who had delivered last pregnancy in health facility were more likely [(COR=1.91, 95% CI: (1.38-2.65))] to be vaccinated for protective dose than those mothers who had delivered last pregnancy at home. Mothers with future fertility intention had more likely [(COR=4.9, 95% CI: (3.46-6.94))] to be vaccinated for protective dose than their counterparts.

Mothers who had good knowledge about TT vaccine were more likely [(COR=3.98, 95% CI: (2.72-5.85))] to be vaccinated for protective dose than mothers who had poor knowledge about TT vaccine.

Table 6: Factors associated with the uptake of Tetanus Toxoid vaccination among mothers who gave birth in the last 12 month in Kedida Gamela woreda ,Southern, Ethiopia, March 2020.

Variables		Tetanus toxoid status		COR	CI	P value
		protected	Not protected			
Age (n=598)	15-19	108(95.5%)	5(4.5%)	1		
	20-34	118(43%)	151(57%)	0.013	0.005-0.34	0.000
	35-49	48(22%)	168(78%)	0.36	0.24-0.54	0.000
Maternal education(n=598)	Formal edu	176(63%)	102(37%)	3.9	2.78-5.59	0.000
	Not formal edu	98(30%)	222(70%)	1		
Maternal occupation(n=598)	Occupation	71(39%)	155(57%)	1.5	1.1-2.16	0.01
	No occupation	203(48%)	107(60.1%)	1		
Marital status(n=598)	Married	268(45.8%)	217(52%)	0.7	0.49-1.01	0.059
	Not under marriage	6(46%)	7(54%)	1		
Residence(n=598)	Urban	23(36.8%)	19(63.2%)	1.47	0.78-2.76	0.23
	Rural	251(30.4%)	305(69.6%)	1		
Husband education(n=585)	Formal edu	195(57.5%)	144(42.5%)	3.47	2.44-4.93	0.000
	Not formal edu	69(28%)	177(72%)	1		
Husband occupation(n=585)	Occupation	126(49.6%)	128(50.4%)	1.36	0.97-1.88	0.048
	No occupation	139(41.9%)	192(58.1%)	1		
Access to TV or radio	Yes	186(57.7%)	136(42.3%)	2.92	2.09-4.08	0.000
	No	88(31.8%)	188(68.2%)	1		
Wealth index(n=598)	High	120(55.5%)	96(44.4%)	1.89	1.22-2.68	0.003
	Medium	80(40.8%)	116(59.2%)	1.04	1.27-2.8	0.002
	Low	74(39.7%)	112(60.3%)	1		
Modern family planning users(n=598)	Yes	184(49%)	186(51%)	1.51	1.08-2.12	0.015
	No	90(39.4%)	138(60.6%)	1		
Planned pregnancy(n=598)	Yes	133(60.1%)	88(39.9%)	2.53	1.79-3.55	0.000
	No	63(37.4%)	141(62.6%)	1		
ANC(n=598)	Yes	218(59.2%)	150(40.8%)	4.5	3.13-6.51	0.000
	No	56(24.3%)	174(75.7%)	1		
Advice on	Yes	159(62.8%)	101(37.2%)	4.96	3.71-10.3	0.000

TT(n=368)	No	26(22.6%)	82(77.4%)	1		
Place of delivery(n=598)	Institution	155(54.1%)	131(45.9%)	1.91	1.38-2.65	0.000
	Home	119(38.1%)	193(61.9%)	1		
Future fertility intention(n=598)	Yes	160(64%)	90(36%)	3.64	2.59-5.13	0.000
	No	114(32.7%)	234(67.3%)	1		
Time taken (n=598)	<30 min	71(25%)	209(75%)	0.19	0.13-0.27	0.000
	>30 min	203(63%)	115(27%)	1		
Visited by health (n=598)extension worker	Yes	186(69.1%)	83(21.9%)	6.13	4.3-8.7	0.000
	No	88(26.7%)	241(73.3%)	1		
Perception towards TT service(n=598)	Good	177(63.3%)	101(36.4%)	2.81	1.81-4.38	0.000
	Poor	46(38.3%)	74(61.7%)	1		
Knowledge about TT vaccine(n=598)	good knowledge	186(69.9%)	80(29.1%)	6.44	4.5-9.22	0.000
	Poor Knowledge	88(26.5%)	244(73.5%)	1		

*=Significant COR with P-Value<0.25, **COR**= Crude odds ratio, **C.I**= Confidence interval
1= reference value

4.6.2. Result of Multivariate Logistic Regression Analysis

Mothers who were delivered last pregnancy in health facility were 7.17 times more likely [(AOR=7.17, 95% CI: (3.71-13.84))] to be vaccinated for protective dose of TT vaccine than those mothers who were delivered last birth at home. Mothers who had good knowledge about TT vaccine were 2.9 times more likely [(AOR=2.9, 95% CI: (1.6-5.4))] to be vaccinated for protective dose of TT vaccine than mothers with poor knowledge. Mothers who attended formal education were 4.23 times more likely [(AOR=4.23, 95% CI: (2-8.95))] to be vaccinated for protective dose of TT vaccine than those mothers not attend formal education. Mothers who had ANC for last birth were 5.8 times more likely [(AOR=5.8, 95% CI: (2.3-14.5))] to be vaccinated for protective dose of TT than those mothers who had not ANC. Mothers who were visited by health extension workers during last pregnancy were 3.1 times more likely [(AOR=3.1, 95% CI: (1.59-6.04))] to be vaccinated for protective dose of TT vaccine than their counter parts.

Table 7: Factors associated with the uptake of Tetanus Toxoid vaccination among mothers who gave birth in the last 12 month in Kedida Gamela woreda , Southern, Ethiopia, March 2020

Variables		Tetanus toxoid status		AOR	CI
		protected	Not protected		
Age	15-19	108(95.5%)	5(4.5%)	1	
	20-34	118(43%)	151(57%)	0.018	0.05-0.64
	35-49	48(22%)	168(78%)	0.198	0.86-0.45
Place of residence	Urban	23(54.7%)	19(45.3%)	0.69	0.21-2.2
	Rural	251(45%)	305(55%)	1	
Marital status	Under marriage	268(45.8%)	317(54.2%)	2.6	0.42-16.17
	Not in marriage	6(46%)	75(4%)	1	
Maternal education(n=598)	Formal education	176(63%)	102(37%)	4.23	2-8.95*
	Not formal education	98(30%)	222(70%)	1	
Maternal occupation	Occupation	71(39%)	107(60.1%)	0.89	0.51-1.54
	No occupation	203(48%)	217(52%)	1	
Access to TV or radio	Yes	186(57.7%)	136(42.3%)	1.1	0.57-2.1
	No	188(31.8%)	188(68.2%)	1	
Husband education(n=585)	Formal education	195(57.5%)	144(42.5%)	0.79	0.4-1.43
	Not formal education	69(28%)	177(72%)	1	
Husband occupation	occupation	126(49.6%)	128(51.4%)	1.18	0.7-1.9
	No occupation	139(41.9%)	192(58.1%)	1	
Wealth index	High	120(55.5%)	96(44.4%)	1.05	0.52-2.09
	Medium	80(40.8%)	116(59.2%)	0.48	0.23-1
	Low	74(39.7%)	112(60.8%)	1	
Modern family planning	Yes	184(49%)	186(51%)	0.88	0.47-1.65
	No	90(39.4%)	138(60.6%)	1	
Planned pregnancy	Yes	133(60.1%)	88(39.9%)	0.57	0.2-1.6
	No	141(37.4%)	236(62.6%)	1	
ANC care	Yes	218(59.2%)	150(40.8%)	5.8	2.3-14.5*
	No	56(24.3%)	174(75.7%)	1.04	1.27-2.8
Advice on TT during ANC	Yes	159(62.8%)	101(37.2%)	1.4	0.65-3.0
	No	26(22.6%)	82(77.4%)	1	

Place of delivery	Institution	155(54.1%)	131(45.9%)	7.17	3.71-13.8*
	Home	119(38.1%)	193(61.9%)	1	
Future fertility intension	Yes	160(64%)	90(36%)	0.51	0.22-1.19
	No	114(32.7%)	234(67.3%)	1	
Perception towards TT vaccine service	Good	177(63.6%)	101(36.4%)	0.62	0.27-1.42
	Poor	46(38.3%)	74(61.7%)	1	
Home Visit by health extension workers	Yes	186(69.1%)	83(21.9%)	3.1	1.59-604*
	No	88(26.7%)	241(73.3%)	1	
Distance	>one hour	71(25%)	209(75%)	0.69	0.32-1.48
	<one hour	203(63%)	115(27.5%)	1	
Knowledge about TT vaccine	Good Knowledge	186(69.9%)	80(29.1%)	2.9	1.6-5.4*
	poor Knowledge	88(26.5%)	244(73.5%)	1	

*=Significant COR with P-Value<0.25, **= Significant AOR with P-Value <0.05. **1**= reference, **AOR**=Adjusted odds ratio, **C.I**= Confidence interval

5. DISCUSSION

In this study, the magnitude of protective dose Tetanus Toxoid vaccine uptake was found to be 45.8 % (CI: 95 % (41.4%-49.5%). Thus not vaccinated were 198(33.1%), only TT1(18.9%), TT1 and TT2 (18.56%), TT1,TT2andTT3(13.04%),TT1,TT2,TT3,TT4(8.69% and TT1,TT2,TT3,TT4 and TT5 (7.69%).

Those mothers who deliver last birth at health facility were 7.1 times, those mothers who had educated formal education were 4.2 times, those mothers who had good knowledge about TT vaccine were 2.9 times, those mothers who had ANC service before last birth were 5.8 times and those mothers who had visited by health extension workers during last pregnancy were 3.1 times more likely to be vaccinated for protective doses of TT vaccination than their counter parts.

In this study, protective dose of TT vaccination status was 45.8% this is comparable to the national 49% reported by the Ethiopian Demographic and Health Survey (EDHS) of 2016 (EDHS, 2016) and magnitude of 49.4% from other parts of the country (Facha W et al, 2018). This similarity might be due to the community might had similar living condition. The magnitude of protective dose of TT vaccination for this study was lower than study done in pakistan, Bangladesh and Egypt respectively (Ajuma M, 2016;Awosa KJ,2018 and Islam MZ,2012) and demographic health survey conducted in Uganda (2011) and Kenya (2014) (Uganda,2016 ;Kenya ,2014). This gap might be due to different cultural and socio-economic factors such as the level of knowledge and information about vaccination low awareness about importance of tetanus toxoid vaccination among reproductive age group of my study area.

In this study, mothers who had ANC follow up during last pregnancy were 5.8 times more likely to be vaccinated for protective dose of TT vaccine than mothers who had no ANC follow-up. This is similar with study done in Ambo and Dukem town (Anatea M,et al ,2018 and Adugna E ,2011). The probable explanation might be that frequent contact with healthcare providers itself upholds and boosts awareness about the benefits of utilizing TT vaccination. The other possible reason might be that, in Ethiopia, TT immunization is one of the ANC service packages.

In this study, mothers who had good knowledge about TT vaccine were 2.9 times more likely to be vaccinated for protective dose of TT vaccine than those mothers who had poor knowledge about TT vaccine. This is similar with the study done in Duguno fungo district (Fech W 2018,et al). This might be due to mothers who had good knowledge about TT vaccine were frequently visit to the health facility for seeking health and had opportunity to vaccinate for TT vaccine during pregnancy and childbearing age than their counter parts.

Health extension worker home visit had positive impact on protective dose of TT vaccination. Mother who had visited in her home during last pregnancy by health extension worker was 3.1 times more likely to be vaccinated protective doses of TT vaccination than a mother who did not visited. This is similar to the study done at Damboya (Mamoro M, Hanfore L, 2018). This might be because of the health education provided by health extension worker regarding the advantage of having TT vaccine during pregnancy and encouraging the mother to follow ANC.

Place of delivery was another determinant factor for the vaccination of protective dose of TT vaccination. In this study, we found that mothers who gave last birth at health facilities were 7.1 times more likely to be vaccinated for protective dose of TT vaccination compared to those who gave birth at home. Other studies also verified this association((Anatea M,et al ,2018 and Fech W 2018,et al,). The possible reason might be the opportunity for health education and advice when women deliver at health facilities.

This study also revealed that mothers who were educated formal education were 4.2 times more likely to be vaccinated for protective dose of TT vaccine. This is similar to the study conducted in Damboya and Dukem (Mamoro M, et al, 2018,Adugna E,et al,2011). This may be due to easy access to information and knowledge of immunization services, and because of the fact that, education is likely to enhance female independence so that women may develop greater confidence and capacity to make decisions about their own health.

Media exposure had significant effect on the study conducted in Peshawar (Naeem *et al.*, 2010) but not significant effect on this study. This might be due nearly half of the mothers in this study area had no radio or TV in their houses.

Strength and Limitations

➤ **Strength**

- ✓ Using community based study design will help to address those mothers who could not be captured in the health facility for such study.

➤ **Limitation**

- ✓ Not supported with qualitative study
- ✓ The study design was a cross sectional that measures the exposure and outcome at the same time rather than a longitudinal design, so it is difficult to determine causal relationships between the proposed predictors and the outcomes of interest.

In addition, in this study, data were collected retrospectively, this might introduce recall bias.

6. CONCLUSION AND RECOMMENDATION

6.1. Conclusion

The study identified that the magnitude of mothers vaccinated for protective dose of TT vaccine found to be low. Maternal knowledge about TT vaccine, ANC service, place of delivery, mothers Visited by health extension workers and maternal education level were identified as explanatory of the TT vaccination status.

6.2. Recommendation

- **Kedida Gamela health office, Health centers (health workers)**
 - Maternal and Neonatal Tetanus elimination is achieved through giving Tetanus toxoid vaccine at least protective dose during pregnancy and complete the dose for all childbearing age women's at regular basis. Therefore, the woreda health office should do to reach protective dose of Tetanus Toxoid vaccination coverage greater than 80% in the district.
 - It is desirable to create awareness about the importance of TT vaccine and the consequence of not being vaccinated
 - It is important to work on health extension workers commitment level improving programmed home visit service and strength mothers facility visit for ANC service and delivery service.
- **Kedida Gamela education office**
 - Improving the educational status of mothers can potentially improve the vaccination coverage. So need to ensure access to maternal educational like adult education.

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7. ANNEX

Annex I; English version Participant information sheet and informed voluntary consent form for mothers whose age \geq 18 year old.

Good morning/afternoon. My name is-----, I am working as a data collector for the study being conducted in Kedida Gamele woreda in five selected kebeles for Fitsum Destahun who is studying master's degree at Haramaya University College of Health and Medical Sciences. I kindly request you to lend me attention to explain you about the study and being selected as a study participant.

Title of the study: level of tetanus toxoid uptake and associated factors among mothers who give birth in the last 12 month in kedida gamela woreda, Southern Ethiopia from march 8-30/2020.

Purpose The purpose of the study is to write a thesis as a partial requirement for the fulfillment of a master's degree in public health in reproductive health for the principal investigator. Eventually, the study results on the improvement of prevalence of tetanus toxoid uptake in Kedida Gamela District

Procedure and Duration ; I will register all women's who gave birth in one year's period and then interview them through a structured questionnaire to provide me with pertinent data that is helpful for the study. The interview and the measurements will take about 20 minutes, so I kindly request you to spare me this time for the interview.

Risk and/or Discomfort and Benefits; By participating in this study you may feel that it has some discomfort but this may not be too much comparing its potential benefits it contributes to the overall health. There is no risk in participating in this study and there would not be direct payment for participating in this study. If you participate in this study, the findings from this study may reveal important information for local as well as other health planners.

Confidentiality; The information that will collect during this study will be kept confidential. Information collected during the study will be stored in a file, which will not have an individual name on it, but a code number assigned to it. Which number belongs to which name will be kept under lock and key, and it will not be revealed to anyone except the principal investigator. The

finding of the study will be general for the study community and will not reflect anything for particular individuals.

Rights:

Participation for this study is on a voluntary basis. You have the full right to permit or not for the study. You have also the full right to terminate at any time if you get something wrong with the study. You do not have to answer any question that you do not want to answer.

Persons to contact

If there is any question about the study, you can contact any of the following addresses.

Principal investigator: Fitsum Destahun: mobile number :-0912414410

Email:fitsumdesta124@gmail.com

Institutional health research ethics review committee: Tel: 0254662011 P.O.Box 235, Harar

Declaration of informed voluntary consent:

I have heard /read the participant information sheet. I have clearly understood the purpose of the research, procedures, the risks, and benefits, issue of confidentiality, the right of the participating and contact address for any queries. I have been given the opportunity to ask a question for things that are unclear. I was informed that I have the right to withdraw from the study at any time or not to answer any question that I do not want. Therefore, I declare my voluntary consent to participate in this study with my signature as indicated below.

Name and Signature of the participants-----

Name and Signature of data collector-----

Annex II: English version Participant information sheet and informed voluntary consent form for those mothers age <18 years old.

My name is----- . I am working as a data collector for the study being conducted in this community Fitsum Destahun, who is studying for his Master's degree at Haramaya University, the College of Health Sciences. I kindly request you to lend me your attention to explain you about the study and being selected as the study participant.

The study title is level of tetanus toxoid uptake and associated factors among mothers who give birth in the last 12 month in kedida gamela woreda, Southern Ethiopia from march 8-30/2020.

Purpose of the study: The Aim of this study can be of a paramount importance for the Hospitals, Health centers, Zonal, and Woreda Health office to plan intervention programs to improve programs to increase tetanus toxoid vaccine uptake. Moreover, the aim of this study is to write a thesis as a partial requirement for the fulfillment of a Master's of Public Health in Reproductive health for the principal investigator.

Procedure and duration: I will be interviewing your daughter using a questionnaire to provide me with pertinent data that is helpful for the study. There are 33 questions to answer where I will fill the questionnaire by interviewing your daughter. The interview will take about 20 minutes, so I kindly request you to spare me this time for the interview.

Risks and benefits:

The risk of being participating for your daughter in this study is very minimal, but only taking few minutes from her time. There will not be any direct payment for participating in this study. But the findings from this research may reveal important information for the local health planners. And health education related to the study, will be given for study participants.

Confidentiality:

The information you will provide us will be confidential. There will be no information that will identify your daughter or yourself in particular. The findings of the study will be general for the study community and will not reflect anything particular of individual persons or housing. The questionnaire will be coded to exclude showing names. No reference will be made in oral or written reports that could link participants to the research.

Rights:

Participation for this study is full voluntary. You have the right to declare to allow your daughter to be involved or not in this study. If you decide to participate, you have the right to withdraw from the study at any time and this will not label you for any loss of benefits, which you otherwise are entitled. Your daughter does not have to answer any question that she do not want to answer.

Contact address:

If there are any questions or enquires any time about the study or the procedures, please contact in this address.

Institutional Research Ethics review Committee: Office phone 0254662011 or
P.O.Box 235, Harar.Ethiopia

Principal investigator: Fitsum Destahun, email: fitsumdesta124@gmail.com or
Mobile phone: 0912414410

Declaration of informed voluntary consent:

I have read/ was read to me the participant information sheet. I have clearly understood the purpose of the research, the procedures, the risks and benefits, issues of confidentiality, the rights of participating and the contact address for any queries. I have been given the opportunity to ask questions for things that may have been unclear. I was informed that I have the right to withdraw my daughter from the study at any time or not to answer any question that she does not want. Therefore, I declare my voluntary consent behalf of my daughter to participate(involved) in this study with my signature as indicated below.

Name and Signature of participant: -----

Name and Signature of data collector -----

Annex III: English Version Questionnaire developed for the prevalence of tetanus toxoid vaccination uptake and associated factors in Kedida Gamela District Kembata Tembaro Zone , southern Ethiopia, 2020.

Date of interview (date/month/year)_____

Name of the kebele_____

Code number of the questionnaire_____

Interview's name and signature_____ Signature_____

Part one :socio demographic characteristics			
S.No	Variable questionnaire	Alternative choice for response	Skip to code
101	Present maternal age?	-----	
102	Where is your place of residence?	1.urban 2.rural	
103	What is the highest level of education you have attended?	1.never attended 2.only read and right 3.elementary school 4.Secondary high school 5.12 ⁺	
104	What ethnic group do you belong?	1.kembata 2.haddiya 3.tembaro 4.other specify-----	
105	What is your occupation?	1.housewife 2.goverment employee 3.merchant 4.student 5.other specify-----	
106	What is your religion?	1.protestant 2.orthodox 3.musilm 4.other specify-----	
107	What is your marital status?	1.single 2.married 3.divorced 4.Widowed	

108	Do you have radio/television in your house	1.yes 2.no	
109	What is your Husband educational status	1.never attended 2.only read and right 3.elementary school 4.secondary school 5.12 ⁺	
110	What is your Husband occupation	1.goverment employee 2.farmer 3.merchant 4.student 5.daily labour 6.other specify-----	

Part two: Questionnaire on obstetric characteristic and TT vaccination coverage			
S.No	Variable questionnaire	Alternative choice for response	Skip to code
201	Do you have future fertility intention?	1.yes 2.no	
202	Was your pregnancy for an infant being present at this time planned?	1.yes 2.no	
203	Had you ANC follow up for this infant?	1.yes 2.no	If no skip to 205
204	Do you receive advice on TT vaccine during ANC visit ?	1.yes 2.no	
205	Place of delivery for present infant assessed?	1.home delivery 2.institution delivery	
206	Do you used modern family planning before this pregnancy?	1.yes 2.no	
207	Did you took TT vaccine before giving this birth ?	1.yes 2.no	If no skip to 212

208	How many dose	1.TT1 2.TT1 and TT2 3.TT1,TT2 and TT3 4.TT1,TT2,TT3 and TT4 5. TT1,TT2,TT3, TT4 and TT5	If 1 skip to part 3 If 2 skip to 209 If 3 skip to 210 If 4 skip to 211 If 5 skip to 212
209	Within 4 wk. afterTT1	1.Yes 2.No	skip to 213
210	Within 6 month after TT2	1.Yes 2.No	skip to 213
211	Within 1 year after TT3	1.Yes 2.No	skip to 213
212	Within 1 year after TT4	1.Yes 2.No	skip to 213
213	Did the mother protected from tetanus? (by seeing the above information)	1.yes 2.no	
214	Why do not vaccinate against tetanus?	1.no awareness 2.service area too far 3.no problem experienced previously	

Part three : knowledge of the mother on TT vaccine			
S.No	Variable questionnaire	Alternative choice for Reponses	Skip to code
301	What is TT vaccine?	1. a vaccine given to women of childbearing age 2.family planning given to women 3.i don't know	
302	Who is supposed to receive TT vaccine	1.all childbearing age women 2.only children 3.only pregnant women 4. I don't know	
303	Total dose of TT vaccine	1.two 2.three 3.four 4.five	

		5 I don't know	
304	Appointment of the second dose of TT vaccine from the first dose	1.after a wk. from the first dose of TT 2.after 4 wk. from the first dose of TT 3.after 6 month from the first dose of TT 4.after one year from the first dose of TT 5 I don't know	
305	What is the purpose of taking TT vaccine	1.to prevent mother and baby from tetanus 2. to prevent only mother from tetanus 3.Toprevent only baby from tetanus 4.i don't know	

Part four : health service related factors			
S.No	Variable questionnaire	Alternative choice for Reponses	Skip to code
401	How long it take from home to reach the health facility?(time)	1.less than 30 minutes 2.30 minutes up to 1 hour 3.gretater than 1 hour	
402	Do Health extension workers visit you during the last pregnancy?	1.yes 2.no	
403	Perception towards quality of TT vaccine service	1.Good 2.Poor	

Part five: household properties		
Asset type	Response	
Domestic animals		
Ox	1. Yes	2.No
Cow	1. Yes	2. No
Calf	1. Yes	2. No
Sheep	1. Yes	2. No
Goat	1. Yes	2. No
Camel	1. Yes	2. No
Donkey	1. Yes	2. No
Hen	1. Yes	2. No
Durable assets		
Television	1. Yes	2. No
Radio	1. Yes	2. No

Electricity	1. Yes	2. No
Refrigerator	1. Yes	2. No
Mobile phone	1. Yes	21. No
Gold ,money	1. Yes	21. No
Own living house	1. Yes	21. No
Own agriculture land	1. Yes	21. No
Productive asset		
Ax	1. Yes	2. No
Shovel	1. Yes	2. No
Housing characteristics	1. Yes	2. No
Water source	1. Yes	2. No
Type of floor	1. Yes	2. No
Toilet facility	1. Yes	2. No
Other house hold materials		
Sofa	1. Yes	2. No
Bed	1. Yes	2. No
Table	1. Yes	2. No
Chair	1. Yes	2. No

Annex IV: Amharic version Participant information sheet and informed voluntary consent form for mothers whose age ≥ 18 year old.

ሐራማያ ዩኒቨርሲቲ የህክምና እና የጤና ሳይንስ ኮሌጅ ዲህረ ምርቃ ትምህርት ክፍል ተሳታፊዎች መረጃ መስጨና ፊቃደኝነት ቅጽ

ስሜ.....ይባላል። በአቶ ፍጹም ደስታሁን በሀሮማያ ዩኒቨርሲቲ በድህረምረቃ ክፍል ለድህረ ምረቃ ማሟያ ለሚሰረዘው ጥናታዊ ጽሁፍ ስብሰብነኝ። ስነጥናታዊ ጽሁፉ ማብራራት ስለምፈልግ ትንሽ ጊዜ ሰጥተዎኝ በጥሞና እንዲሰሙኝ በትህትና እጠቃለሁኝ።

የጥናታዊ ጽሁፍ ርዕስ:- በቀድሞ ጋመላ ወረዳ ውስጥ ባለፈው አንድ ዓመት የወለዱ እናቶች የመንጋጋ ቆልፍ ክትባት ዕንድወሰዱና ዐንዳይወስዱ የምያረጉ ምክናቶችን ማጥናት።

የጥናታዊ ጽሁፍ ዓለማ:- ይህ ጽሁፍ ከወልድ ቦኒላ ባንድ ዓመት ጊዜ ውስጥ በሚደረገው የጤና ክትትል በተመለከተ አጠቃላይ ገጽተው ምን እንደምመስል እና የጤና ክትትሉን የማይጠቀሙበትን ምክንያቶችን ለመረዳት የሚደረግ ጥናት ሲሆን እነዚህን ችግሮች ለይቶ በማወጣት በቀድሞ ጋመላ ወረዳ ጤና ቢሮ እና አጋሮቹ እናቶች ከወልድ ቦኒላ የጤና ክትትል ዙሪያ ለህብረተሰብ የግንዛቤ ማስጨበጫ እና መፍትሄ እና ድጋፍ ለማድረግ ይጠቅማል።

አካሄዱና የጊዜ ቆይታ:- እኔ ለጥናቱ አስፈላጊ የሆኑ 33 የሚሆኑ ጥያቄዎችን እጠይቀዋለሁ። ጥያቄዎቹን ለመመለስ እስከ 35 ደቂቃ ይፈጃል። ስለዚህ ጥያቄዎቹን ለመመለስ እንድትተባበሩኝ በአክብሮት እጠይቃለሁ።

በጥናቱ በመሳተፍ የሚመጠው ጥቅም እና ጉዳት:- በጥናቱ በመሳተፊዎ ትንሽ ጊዜ ለጥያቄ ከማጥፋት ወጪ ሌላ ምንም ጉዳት የለውም። በጥናቱ በመሳተፊዎ በቀጥታ የሚገኝ ጥቅም የለም። ነገር ግን እርስዎ የምሰጡት መረጃ የጥናቱ ወጤት ሲጠቃለል አገልግሎቱ ለሁሉም ሴቶች ነው። ለወደፊት ለሁሉም ሴቶች ና ክትትል ዙሪያ ለመህብረተሰቡ የግንዛቤ ማስጨበጫ አስፈላጊውን መፍትሄና ድጋፍ ለማድረግ ይጠቅማል።

ምስጥር መጠበቅ:- ለጥያቄዎቹ የሚሰጡት መልስ በምስጥር እና በትንቃቄ ይያዛል። በመጠይቁ ላይ ስም አይጻፍም፤ እርስዎ የሰጡት መረጃ ለማንም ተላልፎ አይሰጥም፤ እርሶን የሚያጋልጥ ነገር አይደረግም።

መብት:- በጥናቱ ስትሳተፉ በሙሉ ፍቃደኝነት ነው።

በጥናቱ መሳተፍ ከጀመሩ በኋላ በማንኛውም ሳዓት ካልፈለጉ ማቆራጥ ይቻላል። በዚህም ምንም ዓነት ጉዳት አይደርስብዎትም።

አደራሻ፡-ጥናቱን በሚመለከት ማንኛውም ጥያቄም ሆነ አስታያየት ካሉዎት በሚከተሉት አድራሻዎች መጠቀም ይቻላል።

የጥናቱ ባለቤት ፍጹም ደስታሁን ስልክ ቁጥር 09-12-41-44-10

ሐራመያ ዩኒቨርሲቲ ህክምና እና የጤናሳይንስ ኮሌጅ፡ስልክ ቁጥር 025-4662011

የፈቃደኝነት ማረጋገጫ፡- እኔ ይህንን የጥናታዊ ጽሁፍ አላማውን፣ አካሄዱን፣ ምስጥር ጠባቅነቱን፣ ጥቅምና ጉዳቱን እንዲሁም ከጥናቱ በማንኛውም ሳዓት ማቋርጥ እንደምችል ተነቦልኝ በአግባቡ ተረድቸለሁኝ። ስለዚህ በጥናቱ ለመሳተፍ መሉ ፈቃደኝነቱን በፍርማዬ አረጋግጣለሁ።

ፊርማ.....

የመረጃ ሰብሳቢ ስምፊርማ

መረጃ የተሰጠበት ቀን.....

መለያ ቁጥር.....

Annex V: Amharic version Participant information sheet and informed voluntary consent form for those mothers age <18 years old

ሐራማያ ዩኒቨርሲቲ የህክምና እና የጤና ሳይንስ ኮሌጅ ዲህረ ምርቃ ትምህርት ክፍል ተሳታፊዎች መረጃ መስጨና ፊቃዳኝነት ቅጽ ከ 18 አመት በታች ለሆኑ እናቶች

ስሜ.....ይባላል። በአቶ ፍጹም ደስታሁን በሀሮማያ ዩኒቨርሲቲ በድህረምረቃ ክፍል ለድህረ ምረቃ ማሟያ ለሚሰረወ ጥናታዊ ጽሁፍ ሰብሳብነኝ። ስነጥናታዊ ጽሁፉ ማብራራት ስለምፈልግ ትንሽ ጊዜ ሰጥተዋል። በጥሞና እንዲሰሙኝ በትህትና እጠቃለሁኝ።

የጥናታዊ ጽሁፍ በቀድሞ ጋማላ ወረዳ ውስጥ ባለፈው አንድ ዓመት የወለዱ እናቶች የመንጋጋ ቆልፍ ክትባት ዕንድወሰዱና ዐንዳይወስዱ የምያረጉ ምክናቶችን ማጥናት።

የጥናታዊ ጽሁፍ ዓለማ፡- ይህ ጽሁፍ ከወልድ በኋላ ባንድ ዓመት ጊዜ ውስጥ በሚደረገው የጤና ክትትል በተመለከተ አጠቃላይ ገጽተው ምን እንደምመስል እና የጤና ክትትሉን የማይጠቀሙበትን ምክንያቶችን ለመረዳት የሚደረግ ጥናት ሲሆን እነዚህን ችግሮች ለይቶ በማወጣት ዳምቦ ወረደ ጤና ቢሮ እና አጋሮቹ እናቶች ከወልድ በኋላ የጤና ክትትል ዙሪያ ለሀብረተሰብ የግንዛቤ ማስጨበጫ እና መፍትሄ እና ድጋፍ ለማድረግ ይጠቅማል።

አካሄዱና የጊዜ ቆይታ፡- እኔ ለጥናቱ አስፈላጊ የሆኑ 33 የሚሆኑ ጥያቄዎችን ልጆትን እጠይቃለሁ። ጥያቄዎቹን ለመመለስ እስከ 35 ደቂቃ ይፈጃል። ስለዚህ ጥያቄዎቹን ለመመለስ እንድትተባበሩኝ በአክብሮት እጠይቃዎታለወ።

በጥናቱ በመሳተፍ የሚመጠው ጥቅም እና ጉዳት፡- በጥናቱ በመሳተፍም ትንሽ ጊዜ ለጥያቄ ከማጥፋትም ወጪ ሌላ ምንም ጉዳት የለውም። በጥናቱ በመሳተፍም በቀጥታ የሚገኝ ጥቅም የለም። ነገር ግን እርስዎ ሆና ልጆቸው የምትሰጡት መረጃ የጥናቱ ውጤት ሲጠቃለል አገልግሎቱ ለሁሉም ሴቶች ነው። ለወደፊት ከወለድ በኋላ የጤና ክትትል ዙሪያ ለመሀብረተሰቡ የግንዛቤ ማስጨበጫ አስፈላጊውን መፍትሄና ድጋፍ ለማድረግ ይጠቅማል።

ምስጥር መጠበቅ:- ለጥያቄዎቹ የሚሰጡት መልስ በምስጥር እና በትንቃቄ ይያዛል።በመጠይቁ ላይ ስም አይጻፍም፤ልጆቻዉ የሚሰጥ መረጃ ለማንም ተላልፎ አይሰጥም፤እርሶንና ልጆን የሚያጋልጥ ነገር አይደረግም።

መብት:- በጥናቱ ስትሳተፉ በሙሉ ፍቃደኝነት ነዉ።

በጥናቱ መሳተፍ ከጀመሩ በኋላ በማንኛዉም ሳዓት ልጆት ካልፈለገች ማቆራጥ ትችላለች፤በዚህም ምንም ዓነት ጉዳት አይደርስበትም።

አደራሻ:-ጥናቱን በሚመለከት ማንኛዉም ጥያቄም ሆነ አስታያየት ካሊዎት በሚከተሉት አድራሻዎች መጠቀም ይቻላል።

የጥናቱ ባለቤት ፍጹም ደስታ ስልክ ቁጥር 0912 41 44 10

ሐራመያ ዩኒቨርሲቲ ህክምና እና የጤናሳይንስ ኮሌጅ፡ስልክ ቁጥር 025-4662011

የፈቃደኝነትማረጋገጫ:- እኔ ይህንን የጥናታዊ ጽሁፍ አላማዉን፤አካሄዱን፤ምስጥር ጠባቅነቱን፤ጥቅምና ጉዳቱን እንዲሁም ከጥናቱ በማንኛዉም ሳዓት ልጀማቋርጥ እንደምትችል ተነቦልኝ በአግባቡ ተረድቻለሁኝ።ስለዚህ በጥናቱ ለመሳተፍ መሉ ፈቃደኝነቴን በፍርማዬ አረጋግጣለሁ።

ፊርማ.....

የመረጃ ሰብሳቢ ስምፊርማ

Annex VI: Amharic Version Questionnaire developed for the prevalence of tetanus toxoid vaccine uptake and associated factors among mothers who gave birth in last 12 month in Kedida Gamela Woreda Kembata Tembaro Zone , southern Ethiopia, 2020.

መረጃ የተሰጠበት ቀን

መራጃ ሰብሳብ ስም

መለያ ቁጥር.....

ክፍል አንድ: ስለ ግልና ማህበራዊ ጉዳዮች የሚመለከቱ ጥያቄዎች

መምሪያ ጥያቄዎችን ማንበብ የሚመለከተውን መልስ መጻፍ ወይም ማክበብ መልስ ስጡ

ተ.ቁ	ጥያቄ	አማራጭ መልስ	ወደ ኮድ እለፍ
101	የአሁኑ የእናት ዕድሜ ሙሉ ዓመት ስንት ነው?	_____ _____ _____ ዓመት	
102	የምትኖሪበት ቦታ የት ነው?	1. ከተማ 2. ገጠር	
103	የትምህርት ደረጃ ስንት ነው?	1. ያልተማረች 2. ማንበብና መጻፍ ብቻ የምትችል 3. አንደኛ ደረጃ ትምህርት 4. ሁለተኛ ደረጃ ትምህርት 5. 12ኛ ከዚያ በላይ	
104	ብሔር ስንት ነው?	1. ከንባታ 2. ጠምባሮ 4. ሌላ ካለ ግለ	
105	ሥራ ስንት ነው?	1. የቤት እመቤት 2. የመንግሥት ሥራ ተኛ 3. ነጋዴ 4. ተማሪ 5. ሌላ ካለ ይጠቀስ	
106	ሃይማኖት ስንት ነው?	1. ፕሮቴስታንት 2. ኦርቶዶክስ 3. ካቶሊክ 4. ሙስሊም 5. ሌላ ካለ ይጠቀስ _____	

107	የጋብቻሽ ሁኔታ እንዴት ነው?	1.የገባች 2.የተፋታች 3.ባልየሞተባት 4.ተለያይተው የሚኖሩ	
109	ቲቪ/ሬዲዮ ከቤትዎ አልዎት?	1. አዎን 2. የለም	
110	የባልሽ ሥራ ምንድን ነው?	1.የመንግሥት ሠራተኛ 2.ገበሬ 3.ተንቀሳቃሽ 4.ነጋዴ 5.ተማሪ 6.ሌላ ከሌለው ጠቀስ <hr/> <hr/>	
111	የባልሽ የት/ትደረጃ ስንት ነው?	1.አልተማረም 2.ማንበብና መጻፍ ይችላል 3.የመጀመሪያ ደረጃ 4.ሁለተኛ ደረጃ 5.12ኛና ከዛ በላይ	

ክፍል ሁለት:- የወሊድና ጤና ጉዳዮችን ጥናት በተመለከተ የቀረቡ ጥያቄዎች

ተ.ቁ	ጥያቄ	አማራጭ መልስ	ወደኮድ እለፍ
201	ለወደፊት የማርገዝ ዕቅድ አልዎት?	1.አዎን 2.የለም	
202	የአሁኑ ልጅ እርግዝና በዕቅድ ነበር ያረገዙት?	1.አዎን 2.አይደለም	
203	አሁን በመጨረሻ ልጅዎ እርግዝና የቅድመ ወሊድ ክትትል አድርገው ነበር?	1.አዎን 2.አላደረኩም	
204	ለቅድመ ወሊድ ክትትል ሲመጡ ስለ መንጋጋ ቆልፍ ክትባት የምክር አገልግሎት አግኝተዋል?	1.አዎን 2.አላደረኩም	
205	ያሁኑን የመጨረሻ ልጅሽን የት ነበር የወለድሽው?	1.በጤና ተቋም	

		2.ቤት	
206	የቤተሰብ ምጣኔ አገልግሎት ትጠቀሚያለሽ ወይ ?	1.እጠቀመለሁ 2.አልጠቀምም	
207	የአሁኑን ልጅ ከመወለድሽ በፊት የመንጋጋ ቆልፍ ክትባት ተከትብዋል?	1.አዎ 2.አልተከተብኩም	
208	መልስዎ አዎ ከሆነ ስንት ጊዜ ተከትብዋል?	መጀመሪያ ዙር ክትባት ብቻ 2.ሁለተኛ ዙር ክትባት 3.ሶስተኛ ዙር ክትባት 4.አረተኛ ዙር ክትባት 5.አምስተኛ ዙር ክትባት	-መልስዎ 1 ከሆነ ወደ ክፍል 3 ጥያቄዎች ይህዱ -መልስዎ 2 ከሆነ ወደ ጥያቄ ቁጥር 209 ይህዱ -መልስዎ 3 ከሆነ ወደ ጥያቄ ቁጥር 210 ይህዱ -መልስዎ 4 ከሆነ ወደ ጥያቄ ቁጥር 211 ይህዱ -መልስዎ 5 ከሆነ ወደ ጥያቄ ቁጥር 212 ይህዱ
209	የመጀመሪያውን ክትባት በወሰድኩ በ 4 ሳምንት	አዎ አይደለም	
210	ሁለተኛውን ክትባት በወሰድኩ በ 6 ወር	አዎ አይደለም	
211	ሶስተኛውን ክትባት በወሰድኩ በ ዓመቱ	አዎ አይደለም	
212	አረተኛውን ክትባት በወሰድኩ በ	አዎ	

	ዓመቱ	አይደለም	
213			
213	ለምንድነው መንጋጋ ቁልፍ ክትባት ያልወሰድሽው?	1. አለማወቅ 2. የአገልግሎት መስጫ ርቀት 3. ከዚህ በፊት ችግር አጋጥሞኝ ስለማያቅ	

ክፍል ሦስት፡- እናቶች ስለ መንጋጋ ቁልፍ ያላቸው ዕውቀት

ተ.ቁ	ጥያቄ	ጥያቄዎችን በመጻፍ/በማክበብ መልሱ	ወደ ኮድ እለፍ
301	የመንጋጋ ቁልፍ ክትባት ምን ድነው?	1. በመወለድ የዕድሜ ክልል ላሉት እናቶች የሚሰጥ የመንጋጋ ቁልፍ በሽታ ክትባት ነው 2. ለእናቶች የሚሰጥ የእርግዝና መከላከያ ነው አላውቀውም	
302	የመንጋጋ ቁልፍ ክትባት የሚወስዱት እነማን ናቸው?	1. ለሁሉም በመወለድ የእድሜ ክልል ለሚገኙ እናቶች እና ዕድሜ አቸው ከ15 2. በላይ ለሆኑት ምህርት ለሚገኙ ሴቶች ለሁሉም ይሰጣል 3. ለሕፃናት ብቻ የሚሰጥ ክትባት ነው አላውቀውም	
303	ሁለተኛው የመንጋጋ ቁልፍ ክትባት ከመጀመሪያው ክትባት በስንትኛው ቀን ነው የሚሰጠው?	1. ከሳምንት በኋላ 2. ከአራት ሳምንት በኋላ 3. ከስድስት ወር በኋላ 4. ከዓመት በኋላ 5. አላውቀውም	

304	በሕይወትዘመንዎአንድእና ትመውሰድያለባትጠቅላላየ መንጋጋቁልፍክትባትሰንትነ ው?	<ol style="list-style-type: none"> 1.ሁለት 2.ሶስት 3.አራት 4.አምስት 5.አላውቀውም 	
305	የመንጋጋቁልፍክትባትለምን ድነውየምጠቅመው?	<ol style="list-style-type: none"> 1.ራስሽንብቻከመንጋጋቁልፍበሽታለመከላከል 2.ልጅሽንብቻከመንጋጋቁልፍበሽታለመከላከል 3.ራሴንናልጅንከመንጋጋቁልፍበሽታለመከላከል 4.እርግዝናለመከላከል 5.አላውቀውም 	

ክፍልአራትየጤናተቋምአገልግሎትንበተመለከተው

ተ.ቁ	ጥያቄ	አማራጭመልስ	
401	ከቤት በቅርብ ያለ ጤና ተቋም ድረስ በእግር ምንያህህ ሰዓት ይውሰዳል?	<ol style="list-style-type: none"> 1.h 60 ደቂቃበታቸ 2.h 60 ደቂቃበላይ 	
402	በበለፈዉ እርግዝናዎ ወቅት የጤና ኤክስቴንሽን ሰራተኞች ጎብኝቶዎት ያወቃሉ?	አዎ አይደለም	
403	ስለመንጋጋ ቆልፍ ክትባት አገልግሎት አሰጣጥ ላይ	አዎ አይደለም	

	ያለዎት አመለካከት		
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Domestic animals			
	የቀንድከብት(በሬ፣ ለም፣ ጥጃ)	1.አለ	2.የለም
	በግ	1.አለ	2.የለም
	ፍየል	1.አለ	2.የለም
	ዶሬ	1.አለ	2.የለም
	ፋረስ/በቁሎ/አህያ	1.አለ	2.የለም
ቋምየንብረትዓይነት			
	ሪዶ	1.አለ	2.የለም
	የግድግዳሰዓት	1.አለ	2.የለም
	ሞባይል	1.አለ	2.የለም
	ጋሪ	1.አለ	2.የለም
	ጠረጴዛ	1.አለ	2.የለም
	መቀመጫውንበር	1.አለ	2.የለም
	አልጋ	1.አለ	2.የለም
	መኖሪያቤት	1.አለ	2.የለም
	የእርሻመሬት	1.አለ	2.የለም
	የንብቀፎ	1.አለ	2.ለም
የቤትአሰራር			
	የመጣጥውሃ	1.ከቧንቧ 2.ከሌላ	

	የቤት-ውለል	1.ስምንቶ/እንጫት 2.አፈር 3.ሌላክለይገለጽ_____	
	የቤት-ግርግዳ	1..ሲ.ሚንቶ 2.ጨቃ 3.ሌላክለይገለጽ_____	
	የቤት-ጣርያ	1.ሲ.ሚንቶ 2.የብረት-መነጠፊያ 3.ሌላክለይገለጽ_____	
	ሽንት-ቤት	1.ዘመናዊ 2.ባህላዊ 3.ሌላክለይገለጽ_____	

አመሰግናለሁ :

Annex VII: kambatigna Participant information sheet and informed voluntary consent form for mothers age ≥ 18 years old.

Sumui-----

yamammtesuhujatanyoomikanminadaabiiazeenassamannoserregisawwitta maxi wombe Fitsum DestahuneHarramayitunivrisiteeminaadabiifayyimaqorabamuntalankidigreemaassaihanosereegu asihaat.Hikanitannehatigonbeqaamudandeemagaasereegsiitannesawwittaasuntanneqawujechchut aasitenuntannexa'mmam.

Sereegisiboqoxawa:qadidigameeliworadanhiggotonolamoagainazeenillitoamakachchhabankus samangagaaqollifikitibaataqsassntogaaqaassamukamoosaxawahaa

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Fitsum Destahun (+251) -912 414410 email fitsumdesta124@gmail .com

Haramyiuuniveritteeteleneniimaru(+251) 025 466 07 08 postiiwolutii 235 harara

Agaqanchchiisawitta :seregesiiazeniyyoomaabitaa
,seregchchisdaqammixaawaamonisiihogamiixawaahorankadagiseregontasiisawittaasiimanaqa
memii

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Sawittaqaqanchiisummuu-----

Annex VIII: kambatigna Participant information sheet and informed voluntary consent form for mothers whose age <18 years old.

Su'mmue.....Yamammi. Wombe Fitsumestahun Haromayi universiten Lanki degree gardabi roshan maasa ihano sereegi xuuffi hasisano naqasha qu'mmancho. Sereegis xufi mahommata qawunk cakisanki'ne biki qawuta jaatta asiteenunta'e Xa'mmammi

Sereket xuuf boqo xawa:

Qadidigameeliworadanhiggotonolamoagainazeenillitooamakachchhabankussamangagaaqollifikit ibaataqsassntogaaqaassamukamoosaxawahaa megabiti 8 -20/2020 elani kaxee o jechon

Seregisiboqoxawa:qadidigameeliworadanhiggotonolamoagainazeenillitooamakachchhabankus samangagaaqollifikitibaataqsassntogaaqaassamukamoosaxawahaa

Sereegsimaaranchujechchus : - Ani sereketihans ikka 36 kaxa xa'mmuta xa'mmanki'ne. Xa'mmus fanqashi 20 daqiqa xoofano. Hikan biki xa'mmakas fanqashitenunta Abinin xa'mmanki'nee.

Serekintas aphami walano kalatus genus: - Sereketonkas eku yiti fanqashuta assintant jaata daqintat kalatuti yooba'a wolu amo sereketinkas aphami kes genano xawwu yooba'a. .Xawu ikoda ati atanti fanqashut gollemada horanka amaka ika'aa; illeni ke'emachi Zakin Assamano fayimma kalato tane minadabihanis dagisishataa hassanta hiratuta Assii kala'ano.

Fojuta maaxu: - Xa'mmatohanis atenanta fanqashut maaxanite'ita qorabanite'ita ikaau.Xa'mmos jaata su'mmu xaaffamanoba'a; annu atenta naqashu ayeha higisammi assamanob'a; ki'nnetta higishi assano xawwu he'anoba'a.

Eku yina yii hogi manata : -sereketonkas beqammi hassontich wimma ekutin ike'e ikke woya.

Sereketonkas beqama insitontich Zakin hakan jaan hassumboch aguri danditanti. Agurichik ke'ei mexit genit illitakeba'a.

Daqi Ma'nita/woqa : - Sereketinkintas aphamegin komiti xa'mmuti yooda awani yoo daqi woqen daqi danditenanta.

Sereketanchu Fitsum Destahun tililen wolut 0912414410

Haromaya university fayyima kifili tililen wolut .025-4662011

Ekku yik malata : - **Ani kan sereketi boqo xawa; manas;** fojuta maxu ; genis kalatusi ; ammo serekitichis hashomi jaan aguri fulamiga dagem. Hikkani tane Sereketokas beqami wimma ikuta furimintae winishiyem.

Furima.....

Naqasha qu'ma'anchi su'mma.....

Furima

Annex IX: kembatigna Version Questionnaire developed for the prevalence of tetanus toxoid vaccine uptake and associated factors among mothers who gave birth in last 12 month in Kedida Gamela Woreda Kembata Tembaro Zone , southern Ethiopia, 2020.

Wo'onaaminitta:gagginaminadabbiixammutt			
Woluta	Xammuta	Fanqashuta	
101	Umurukmeo'oti		
102	Hakanenetheanteu	1.ketema 2.gexera	
103	Roshakhabnkatan	1.mexura temarimbe 2.xafuhaka anababuhadegam 3.wono gardabaxofem 4.lanik gardabaxofem 5.tona lemich aba roshem	
104	Zerukmahan	1.kembata 2.hadiyata 3.guragita 4.wolu yodakul-----	
105	Hujikmehan	1.minta amaha 2.mengisti hujenhujetayom 3.negadita 4.rosanchuta 5. woluyodakul-----	

106	Amanatukmehan	1.amanchuta 2.musilimata 3.katolikata 4.wolu yodakul-----	
107	Gelitikmehan	1.gelemita 2.min menchinhirememi 3.menchu reha	
108	Minentene radon televijinuyondo	1.yo 2.yoba	
109	Minkimanjihujitmehan	1.mengsti hujita 2.geberechwa 3.negadita 4.rosanchuwa 5.bere hujetanchwa 6.wolu yodakul-----	
110	Manchukhabankatemare	1.mexura temarimbe 2.xafuhaka anababuhadegam 3.wono gardabaxofem 4.lanik gardabaxofem 5.tona lemich aba	

La'ankiiminitta: feyimmanameqebelomaaxammuta

Woluta	Xammuta	Fanqashuta	
201	Birita lak eliha hasanindo	1.hasam 2.hasamba	
202	Teso cilu hasi elitentendo	1.hashet 2.hasunat	
203	Ka cili hakim minen kititl aatentindo	1.aseam 2.asimba	
204	Atentida mengag qolif kitibat kulemekendo	1.kulema 2.kulenimba	
205	Ka cila hakane elitenty	1.hakim minen 2.mine	
206	Ka cila elitanty biren elu kamameno zebu aqitentindo	1.qasamem 2.qasamimba	
207	Mengag qolify kitibata kasententindo	1.kasamem 2.kasamba	
208	Hakan qasantenti	1.matu zura 2.lamu zura 3.sasu zura 4.sholu zura 5.onitu zura	
209	Won sholo hezetoni	1.garita 2.qophana	
210	Wona leho aganan	1.garita 2.qophana	
211	Wona mato wogan	1.garita 2.qophana	
212	Wona mato wogan	1.garita 2.qophana	
213	Mangag qolify mosich qorebamendo	1.qorebame	

		2.qorabamba	
214	Mangagy qolify kitibata miha qasantimba	1.dagumbu tane 2.asenobu qera ekotane 3 kanchy bire hawu yobaetane	

Sa'akkiiminnitta ;Amakatimengagiqolfikitibatitanehabanikat yo'osasadagikalitaxammuta			degu
Woluta	Xammuta	Fanqashuta	
301	Mengagaqoilifikibatumehan?	1.amaka asenohakitibaya 2.elu kamamiaseniohakitibata 3.daganba	
302	Tetaniskitibataahaseno	1.umurusa wogechaludinyoamahkhat 2.cila xalaasenohakitibata 3.maqe beloamkaasenohakitibata 4.daganba	15
303	Matitamathechesewoganhabanka tetanus kitibataqasamuhasanose	1.lemu 2.sasu 3.sholu 4.ontu 5.dagniba	
304	Lenkijechokitibatwonaanichhabank aegerenqasamuhasano	1.mato hezetchzakin 2.sholo hezetchzakin 3.lewo aganichzekin 4.mato wogechzakin 5.daginba	
305	Mengagaqolifikibatumihattemeno	1.amata	

		mengagaqolifmosichkememi 2.cilata mengagaqolifmosichkememi 3. amataosutamengagaqolifmosichkememi 4.maqe belomatakamami 4.dagniba	
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Sholikiiminnitta :fayimma mini tanedagiikaliittaaxammutta			
Woluta	Xammuutta	Fanqashuta	
401	Kiiminichiifeyimmaminielanqaxeehaban katajechchutaaqanoo	1.30 daqiqa 2.30 daqiqich aba	
402	Minatazeyitaniifeyimataxammitakenumi nikiiwaltandoo	1.walitta 2.walittaba	
403	Mengag qolify kitibatu asenogu hatita xudany	1.denamuwa 2.denamwba	

O'ontikiiminitta: miniigalittetaneedagiikalittaxammutta		
	Fanqashutta	
Miniiaputta		
Boruu	1. yo	1. yo'oaba
Sau'u	1. yo	1. yo'oaba
	1. yo	1. yo'oaba
Felau'u	1. yo	1. yo'oaba
Hamubatii	1. yo	1. yo'oaba
Haritii	1. yo	1. yo'oaba

Farsuu	1. yo	1. yo'oaba
Antabeeu	1. yo	1. yo'oaba
Womashshu		
Televezinuu	1. yo	1. yo'oaba
Radonu	1. yo	1. yo'oaba
Mabratuu	1. yo	1. yo'oaba
Calisanchchu	1. yo	1. yo'oaba
Mobilluu	1. yo	1. yo'oaba
Birru,worquu	1. yo	1. yo'oaba
Gaggiga'alteminnu	1.yo	1. yo'oaba
Gaggihogoula'atii	1. yo	1. yo'oaba
Productive asset		
Boratii	1.yo	1. yo'oaba
Shovel	1. yo	1. yo'oaba
Housing characteristics	1. yo	1. yo'oaba
Woa'ahanochchidagenani	1. yo	1.yo'oaba
Gaxxu	1.yo	1. yo'oaba
Shumaminu	1. yo	1. yo'oaba
Minniazeniiyoodatii		
Sofuyondo	1. Yesyo	1. No
Manatii	1. Yesyo	1. No
Xarabezuu	1. Yo	1. yoba
Barcumuu	1. yo	1. yoba

Gelexaammi

Annex X: Curriculum Vitae

I. Personal Information

Name Fitsum Destahun

Date of Birth January, 1992

Place of Birth kambata Tambaro Zone, Southern Ethiopia

Sex Male

Nationality Ethiopia

Contact Address Mobile number: +251-912-414-410

E-mail: fitsumdesta124@gmail.com

II. Work Experience

- From Nov, 2013 to Nov 2018 as Bsc Nurse and Matron in Durame General Hospital, Kambata Tambaro Zone, and Southern Ethiopia.

III. Language Ability

Language	Speaking	Reading	Writing
Amharic	Excellent	Excellent	Excellent
English	Excellent	Excellent	Excellent
Kambatigna	Excellent	Excellent	Excellent
Tembarigna	V. good	V. good	V. good

IV. Education Qualification

Period	Type of program	Institution/Country	Qualification
2009-2013	Regular	WolitaSodo University	Bachelor degree of nursing

V. Skills

- Computer and software
- Evaluating and monitoring skills
- Managing skills
- Teaching/lecturing

VI. Awards

➤ Distinction in BSc of Nursing (CGPA 3.27)

➤ V. Good thesis result

VII. Interests

➤ Research activities

➤ Clinical activities

➤ preaching kingdom of GOD/Heaven and praying

➤ Creativity

➤ Field work

➤ Consultancy

VIII. Special Trainings

➤ CBTP (Community Based Training Program During Under Graduate Training)

➤ TTP (Team Training Program During Under Graduate Training)

➤ CHP (Community Health Practice During Under Graduate Training)

➤ CMAM(Community Based Management Of Acute Malnutrition organized By save The Children)

➤ Malaria Case Management Organized By IFHP

➤ IMNCI(Integrated management of neonatal and child health illness)

References

➤ Fekadu Elias (BSc, MPH/PHN), lecturer ,WolaitaSodo University, College of Medicine and Health Sciences, School of Public Health

Address: Mobile number +251-913-729-101, e-mail: eliasfekadu16@gmail.com

Finally I, the under signed, assure that the above piece of information are true and correct to the best of my knowledge

Signature Name: Fitsum Destahun Date: 1/30/2020