AMBO UNIVERSITY



COLLEGE OF MEDICINE AND HEALTH SCIENCE

DEPARTMENT OF CLINICAL NURSING

ASSESSEMENT OF KNOELEDGE AND PRACTICE OF TT VACCINE UTILIZATION AMONG CHILD BEARING AGE WOMEN AT ANC ROOM, AMBO UNIVERSITY REFERAL HOSPITAL, WEST SHOA ZONE,AMBO ETHIOPIA

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RESEARCH PROPOSAL SUBMITTED TO AMBO UNIVERSITY FACULTY OF PUBLIC HEALTH AND MEDICAL SCIENCE DEPARTMENT OF CLINICAL NURSING FOR PARTIAL FULFILMENT OF THE REQUIREMENTS FOR BACHELOR OF DEGREE IN NURSING.

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Proposal summary

Introduction: Tetanus is now a rare disease in developed world; however it remains an important cause of death worldwide and is associated with a high case fatality, particularly in the developing world. Tetanus toxoid immunization is one of the component of expanded program on immunization, it protect mother from tetanus infections and their expected infants from neonatal tetanus. Globally it is estimated that neonatal tetanus is responsible for 14% of all neonatal deaths and it is accounting for up to 25% in some African countries. While maternal tetanus is responsible for about 5% of maternal death annually worldwide. Clearly, prevention measures for tetanus are more effective than case management, even if full intensive care were available, and certainly much more cost effective.. The problem with TT immunization are low level access to health facilities, lack of trained man power, lack of information about TT immunization, transportation shortage and missed opportunities are among the major problem. This study will serve as a tool for further knowledge of knowing immunization status of women of child bearing age

Objective: The study will be undertaken to assess knowledge and Tetanus toxoid immunization practice among women of child bearing age attended Anti natal care in **AUR** hospital West shewa central Ethiopia.

Methodology: institutional based cross sectional study will be carried out on 200 women randomly selected from woman attended Anti natal care AUR hospital. The interview will be conducted using a structured questionnaire.

BUDGET: - since there is so many activities that will be carried out during this research the budget that will be required for the overall activity of this research will be around 2500.00 birr.

WORK PLAN:-The general major activities (Topic selection, proposal development, data collection, analysis and the interpretation) will be carried out on starting Feb.-up to my 2022 and we expect that this research will have great value and benefit to the women’s attending ANC room at AUR hospital.

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INTRODUCTION

1.1 Back Ground

Tetanus is a neurologic disorder resulting from infection by the gram-positive, spore-forming anaerobic bacillus Clostridium tetani. The bacterium, in spore form, typically enters the body through a contaminated soft-tissue wound. Ubiquitous in the environment, C.tetani spores are found throughout the world—in soil as well as in animal feces and saliva—and are resistant to temperature extremes and antiseptics. Tetanus is infectious but not contagious (not transmitted person-to-person) [1].

Mortality tends to be very high in the absence of medical treatment case fatality approached 100% with hospital availability of intensive care facilities. In 2017 for example, WHO estimated 30,848 newborns died from neonatal tetanus (NT), which represented 85% reduction form the situation in 2000 [2].

Most of these deaths occur in developing countries, especially in rural communities where homebirth and abortion were practiced with poor hygienic conditions [3].

Clearly, Preventative measures for this disease have long been established with the use of the Tetanus toxoid (TT) vaccine which is one of the most effective and protective against maternal tetanus deaths and has been recommended by WHO in many countries[4]. For this reason, WHO, since 2006, has provided guidelines for the immunization of pregnant women against tetanus [4,5,6].

TT immunization is a vaccine that protects against tetanus it is provide as a liquid in vials and also in prefilled auto disabled injection devices. It also

protects against maternal and neonatal tetanus. The vaccine is an inactivated toxin (toxoid) that was first produced in 1924 [7,9]. It became commercially available in 1938 and was success fully used extensively during Second World War in late 1940s; it was combined with diphtheria and pertussis vaccines to produce the DPT triple vaccine used in many child hood immunization programs, a trial in Papua, New Guinea published in 1965 was the first demonstration that use of two more doses of tetanus toxoid during pregnancy could prevent neonatal tetanus [8].

Concentration of tetanus anti-toxin exceeding 0.1-0.15 IU/ML, measured by standard enzyme linked immune sorbent assay are considered protective. These are achieved 24 weeks after the second dose of tetanus toxoid in 90% of adults [8].

In Ethiopia maternal tetanus toxoid immunization is implemented as part of the routine immunization program or as supplemental activities as other developing countries the Ethiopia demographic and health survey (EDHS) 2011 reported that 32% of child bearing age mothers had received two or more doses of TT. During pregnancy in five years preceding the survey [9].

TT immunization is an immunization that is given to protect against tetanus which can cause 10,000 deaths in year worldwide. It is routinely used for children greater than ten years of age to boost their immunity after completion of primary immunization in child hood. TT immunization is included child bearing age women to protect the mother from tetanus and to prevent neonatal tetanus which account for over 50% of the neonatal mortality [9].

To protect women of child bearing age from the tetanus for the whole life time, at least five dose of TT should be given. An initial dose should be given at first contact with immunization service, the second dose at least four weeks after the first dose, the third dose at least six month after the second dose, the fourth dose should be given at least after 1year of the third dose

and the final (fifth dose) should be given after 1 year of the fourth dose. The level of their protection is 0, 3, 5, 10 years and lifelong for TT1, TT2, TT3, TT4 and TT5 respectively [10].

The aim of TT immunization is to protect women against tetanus infection throughout their child bearing years and this ensures that they are protected against tetanus which account for 10,000 death annually worldwide [11].

1.2 Statement of the problem

Tetanus is the biggest killers among the vaccine preventable disease. It usually occurs trough the introduction via the umbilical cord of tetanus spore during delivery through the use of unclear instrument to the cord or after delivery by dressing the umbilical stump with substances highly contaminated with tetanus spores [12].

Globally, both maternal and neonatal tetanus (MNT) is a public health problem due to low maternal TT immunization [12]. Annually, 3.3 million neonatal deaths occur, of which neonatal tetanus shares a high number particularly in developing countries where home delivery is common [14]. Every year 15,000–30, 000 maternal deaths occurred due to tetanus related to the delivery process [15]. The WHO report showed that 90% of maternal and neonatal tetanus occurred in South East Asian (SEA) and Sub-Saharan African (SSA) countries, and almost all cases ended with death [16].

The main strategies for the prevention of maternal and neonatal tetanus (MNT) at birth were vaccination of the mothers with a protective dose of tetanus toxoid (TT) immunization and clean delivery [16, 17, 18]. Nearly 94% of neonatal mortality related tetanus can be reduced through the immunization of pregnant women or women of childbearing with at least two doses of tetanus toxoid immunization (TT2+) [19]. The World Health Organization (WHO) recommends 5 consecutive doses of tetanus toxoid (TT)

vaccination for childbearing women (CBAW) per schedule to protect the birth against tetanus [20].

In many countries, at least two doses of the TT vaccination can be given to pregnant women during antenatal care (ANC) visits [21]. TT2+ immunization coverage among pregnant mothers ranges from India 27% [16] to Ghana 71% [22].

Immunization of pregnant women or women of childbearing age with at least two doses of tetanus toxoid (TT) is estimated to reduce mortality from neonatal tetanus by 94% [23]. In 2017 for example, WHO estimated 30,848 newborns died from neonatal tetanus (NT), which represented 85% reduction of the situation in 2000 [2].

Despite its importance, immunization programs are suboptimal in many parts of the world, especially in the least developed districts of low-income countries due to different factors such as age of the mothers, educational status, marital and occupational status, joint health decision with husband, distance from health facilities, wealth index, fear of side effects, fear of sterility, ANC follow-up, use of modern family planning, parity, information about TT vaccination, knowledge, attitude and awareness of mothers towards TT vaccination[19,24]. A cross-sectional study conducted in Ibadan, Nigeria revealed that about 81.1% of mothers were taken at least two doses of TT vaccine [25]. Family Health Survey in Indian also reported that protective TT dose coverage among mothers who attend antenatal care was 68%.TT immunization status also differs from urban to rural mothers as well as region to region in different countries [26].

Despite the country's effort of interventional policy to meet the WHO goals towards Maternal and Neonatal Tetanus Elimination (MNTE) through extended immunizations and campaigning of Tetanus Toxoid, Ethiopia continues to have the highest neonatal tetanus mortality and morbidity in the world due to low TT immunization coverage and a higher number of home-deliveries [27]. Although, the country was planned to reach 86% coverage of the national tetanus protective at birth (PAB) by 2015, only 49% of the pregnant mothers received at least two dose of tetanus toxoid vaccination as of the EDHS 2016 report [27]. A community-based cross-

sectional study done on immunization dropout rate in Debrebirhan Town, Amhara Region, Northern Ethiopia was found to be 72.3%. A different study conducted in different segments of Ethiopia such as in Errer District, Somali Regional State, Eastern Ethiopia (51.8%), Tselemti District, Ethiopia (61.8%), Damboya Woreda, Kembata Tembaro Zone, SNNP, Ethiopia (72.5%), DebreTabor town, Ethiopia (56.2%), Dukem Town, Eastern Ethiopia (39.2%) and Hawzen, Eastern Zone of Tigray, Ethiopia (40.2%) showed that none of those studies hits the target standard endorsed by WHO [28]. Drop out is main problem the child or woman who failed from the immunization by the causes of unsure of vaccination dates, long wait at vaccination center, or vaccination centers open at inconvenient hours. The other dropout problems are some health workers do not explain the need of completing vaccination negative attitude of some health workers toward the program, mothers usually busy on other engagements, child develop side effects or was sick on the appointed date [29]. As our study is concerned, there is no study conducted on the study area about a protective dose of tetanus vaccine. So, this study was aimed to assess the coverage and determinants of protective dose of tetanus vaccine among child bearing age delivered at AURH in central part of Ethiopia which serves the population coming from different parts of central and some from western part of Ethiopia.

1.3 Significance of study

This study will serve as a tool for further knowledge of knowing immunization status of women of child bearing age. In Ambo town and around it the outcome of this study will help the public health authority to know prevalence of TT vaccination and become aware of deficiencies in immunization of women of child bearing age. Finally this study can be used as a reference material for researcher or health authorities who want to conduct researchers on the same or related topics of the study in the future.

2. LITERATURE REVIEW

2.1 TT Immunization

Tetanus toxoid immunizations are injections given during pregnancy for the prevention of NT. A pregnant woman should receive at least two doses of TT injections during each pregnancy trealize full tetanus protection. Five doses are considered to provide lifetime protection irrespective of the recommended intervals [30].

Information on TT immunization is used for variety of purposes: to monitor the performance of immunization at local, national and international level, to control and eliminate system performance that may require extra resources and attention and the information can also be used as one consideration when deciding to introduce new immunization [11].

Globally according to UNICEF, in 2018, approximately 72% of reproductive age women were adequately immunized. Such immunity included vaccination of tetanus toxoid (TT) of at least two doses for pregnant or reproductive age women can decrease neonatal mortality by 94% (95% CI: 80-98%) [31]. In many parts of low-income countries, however, despite the efforts made to improve maternal and neonatal protection through TT immunization programs, valid doses of TT (two and more) immunization coverage still remains low [32]. For instance, about 27% of the participant women did not receive any TT vaccination during their most recent pregnancies in India [33].

A report from Pakistan demonstrated that only 55.6% of the participants received the complete TT vaccination [34]. Similarly, the majority of the Sub-Saharan African countries could hardly reach the TT immunization target set to be covered. Because of this, they have not yet fully achieved the complete elimination of MNT. Accordingly, a study from Nigeria showed that only 40.8% of TT2 coverage was achieved while 44.4% of mothers did not receive any TT vaccination [35]. It could be concluded that most African

countries could not reach the WHO Global Immunization target of at least 90% national vaccination coverage and at least 80% vaccination coverage in every district [36].

Ethiopia is one of the countries which have not fully achieved the complete elimination of MN due to the low TT coverage achieved. According to Ethiopian Demographic and Health Survey (EDHS) reports of 2016, only 49% of women received sufficient doses of TT (TT2+) [29]. Evidences show that a range of determinant factors affect the utilization of TT immunization. For instance, women's education and their wealth index can impose variations in immunization coverage [29]. Mothers' immunization status also differs from urban to rural as well as from one part of the country to the other [26]. Furthermore, studies indicate that maternal age, marital and occupational status, distance from health facilities, number of visits to healthcare facilities, and the number of children in the house can also considerably determine TT immunization usage [37].Study conducted in Dukem Town, Eastern Ethiopia in 2018 suggest that the utilization of TT immunization was only 39.2% among participant[30]and two hundred and seven (40.2%) mothers were protected against tetanus at last birth in Hawzen ,Eastern Zone of Tigray Ethiopia, 2019[38].

In Addis Ababa the proportion of pregnant women, receiving TT injection has rise sustainability. For birth occurring between 1992-96, 75 % of mothers received at least one TT vaccine during pregnancy, while by 1995-99, the proportion is increased to 81% [39].

2.2 Reason for failure of TT immunization among women of child bearing age

Tetanus commonly called lockjaw, is a highly Characterized disease caused by a potent neutroxin by clostridium tetanus , a ubiquitous organism, found in the soil through tropical and temperature regions of the

world .It affects the central nervous system and despite being entirely preventable by immunization using toxoid vaccine. NT remains one of the leading causes of death worldwide [39].

In 2007, the study conducted in Pakistan on failure of TT immunization among women of reproductive age in Lahore district, the most common reason (32%) was that the women did not know the importance of the TT vaccination, followed by 18% who did not know the correct place or time to get the vaccination 8%scared of injections and side effects , 6% vaccination team did not visits , 5% had thought TT injections are for family planning , 4% not allowed by husband /mother –in-law/ , 2% of them don't have time, 2% health Centre / hospital far away from them , 2% don't believe in TT [39].

Cross-sectional study conducted in Bangladesh among the non- vaccinated group 50% respondents told of their awareness about need for vaccination against tetanus before the start of their reproductive life, 15.4% told about lack of information regarding of place and time of vaccination and 19.6% complained about inconvenience schedule and place of vaccination [40].

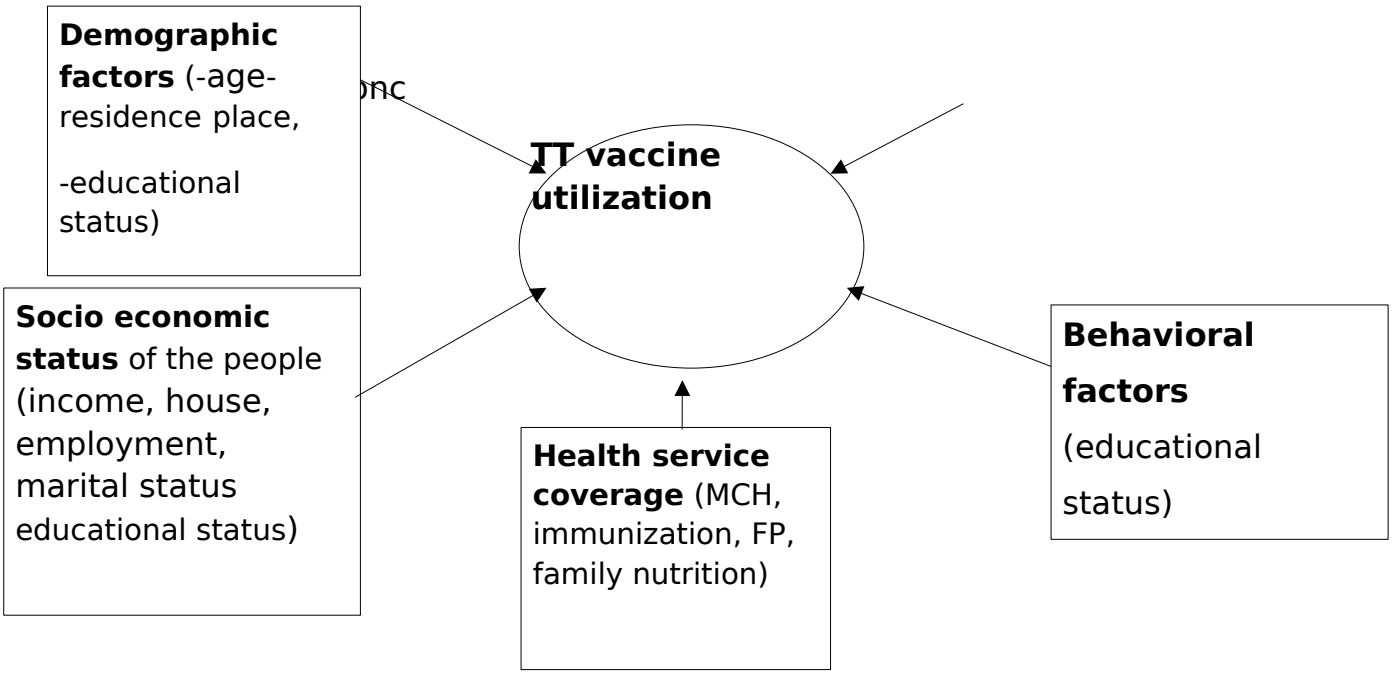
In 2008 in Somaliland, 21% mothers reported that TT vaccine was unavailable at the facilities, whereas 22% were unaware of the need for immunization , 8% reported that the place of immunization was too far , 5% had wrong ideas about contra-indications and the same number were too busy to seek services , 37% were vaccine not available , 3% expressed fear of indication , 4% was that place and / or time of immunization unknown , 3% had unaware of need to return for 2^{nd} and 3^{rd} dose[40].

The pooled estimate of at least two dose of tetanus toxoid immunization coverage was 52.6% (95% CI 41.4%–63.8%). Ante-natal care (ANC) visits [OR = 7.8 (95% CI; 3.2, 19.2)], media exposure [OR = 8.3 (95% CI; 2.1. 33.3), distance from the health facility [OR = 2.635 (95% CI; 1.1, 6.6)], educational status of mothers [OR = 0.225 (95% CI; 0.105, 0.483) and husband educational status [OR = 0.184 (95% CI; 0.104, 0.323)] were signicantly associated factors for tetanus toxoid immunization coverage in Ethiopia[41].

2.3 Conceptual framework ;

Developed by the group;

Socio cultural factors (values, beliefs & religion)



3. OBJECTIVE

3.1 General objective

♦ *To assessment of knowledge and practice of TT vaccine utilization among child bearing age women at ANC room,AURH,West SHoa Zone, Ambo, Oromia, Ethiopia 2022.*

3.2 Specific objective

♦ *To assess knowledge among child bearing age women about TT vaccine at ANC ROOM , AURH 2022.*

♦ *To assess TT vaccine utilization practice among child bearing age women about tt vaccine at ANC ROOM , AURH 2022.*

♦ *To identify factors influencing to TT vaccine utilization practice among reproductive age group in the study area*

4. METHOD AND MATHERIALS

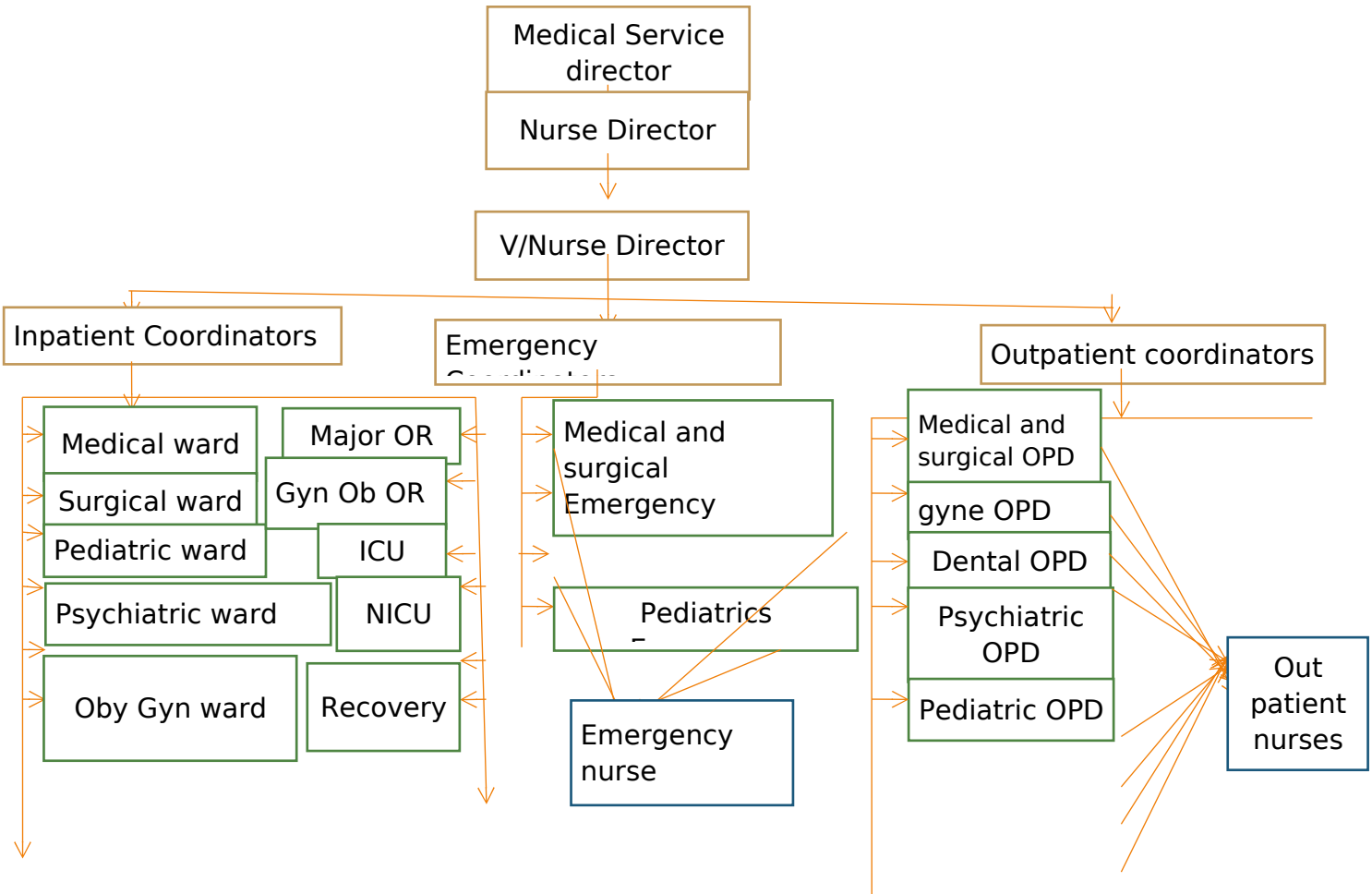
4.1. Study Area and Period

Ambo is the administrative town of West Zone which is located 114km to the west of Addis Ababa. The town has estimated total population 94,342 that live in 6 Kebele The proportion of female accounts 50.03 percent (47199), while male accounts for 49.97 percent (47143).

The study will be conducted in Ambo University Referral hospital (AURH), which found in Oromia region, west Shewa zone Ambo town and 119km from Addis Ababa. AURH is teaching hospital and it was established in 2016. It was also expected to serve for 3.5 million peoples those may come from three zones (west Shewa, southwest Shewa and East wollega). Now AURH is giving different health service for the community under various wards. Of this service, Medical, Surgical, Gynecology and Obstetrics, pediatric, Neonatology, Orthopedics, Psychiatry, Dermatology and ophthalmology services are there. This hospital has around 953 staffs including both academician and hospital workers (180 health professionals, 219 technical staffs, 17 specialists, 45 general practitioners 6 anesthetists and 184 temporary staffs. There are 14 nurse leaders. The study will be conducted from 10/2022 to October 30/2021(source; AURH medical Director.



Organo-gram of Ambo Referral Hospital





4.2 Study Design

The study will utilize institutional based cross-sectional study design.

4.3 Study Population

All women who treated in AURH.

4.3.1 Target Population

The Target Population will be all reproductive age group women who have ANC follow up at ANC room, AURH**.**

4.4. Sample Size Determination

Sample size was determined based on single population proportion formula by considering the following assumption;

P=18% (0.18 is population proportions based on prevalence done within in TT immunization in mizan town=18%) ,95% confidence level and 5% margin of error.

$$n¿ \frac{z\,\alpha/2^2\,p(1-p)}{d\,2}$$

Where: - n= is desired sample size

z =confidence interval at 95%

p= population proportion variable

q=1-p

d=marginal error

Assumption:

$$n = \frac{(z/2)^2 pq}{d^2}$$

$$= \frac{(1.96)^2\ 0.18\ (1-0.18)}{(0.05)^2}$$

$$= 227$$

n = sample size

$(z/2)^2$ =95% confidence interval equal to1.96

d = margin of error, (1- confidence level),

= 1-0.95

= 0.05(5%)

P =prevalence, 18% (0.18) (this is according to the regional coverage)

q =1- prevalence.

The population of child bearing women who have follow up ANC,AURH is 700 per month. Linear correction formula used.

Nf = n/ (1+n/N)

$$\frac{227}{(1+227/700)}$$

$$= \underline{171}$$

Non respondent rate 10%

Total number = 171 x 10/100+171

= + 171

=<u>188</u>

4.5 SAMPLING TECHNIQUE

All pregnant women who will visit AUR Hospital for ANC will be interviewed consecutively (conveniently) until the required sample size is obtained. . Systematic random sampling technique will be used. The sampling interval of the CBAW will be determined by dividing the total number of women who take TT vaccine within one month by sample size. According to the hospital report, the average number of flow for TT vaccine taker is 700 per month. So the K value will be 700/188 equal to3.7≈4 i.e. the first participant will be selected by simple random sampling by picking the numbers singed in one and four. Then every fourth person starting from number picked will be asked.

4.6 INCLUSION CRITERIA AND EXCLUSION CRITERIA

4.6.1 Inclusion Criteria

Women of reproductive age who will be selected by lottery method will be included in the study

4.6.2 Exclusion Criteria

Women who will not be volunteer to participate, who had mental problem, women >45 year will be excluded from the study.

4.7 Data collection instrument and procedures

The instruments we will use are structured questioner by observing vaccination card, pen, pencil, binder, bag, and rubber. The method we will use is a systematic random sampling and the data will be collected by 4rth

year graduating class of nursing students by administering close ended questioner. The structured questionnaires will be administered within 30 days in Feb to April 2022, G.C. (in closed ended questionnaire the respondent has no freedom to express widely his/her concern and they are forced to answer yes or no responses but in structured questionnaire there is a space of freedom with in which the respondent can play it may be in linker scale or in any other form and for the purpose of this research both will be employed).

4.8 Study Variables

4.8.1 Independent Variables

- Religion
- Ethnicity
- Educational status
- Marital status
- Distance
- Effect of hasband
- Fear of side effect

4.8.2 Dependent Variables

- TT vaccine utilization practice
- Knowledge of TT vaccine among women of child bearing age (yes this variable was be investigated theoretically in qualitative manner in the qualitative part.

4.9 Data quality control method

The data that will be collected needs to be valid and reliable .To this end, the survey instrument was been presented to the Ambo university, our advisor for validation of the content prior to its delivery to the participants. The questionnaire will be prepared in English and translated to Afan Oromo, Amharic and it will be derived from each specific objectives. Data will be collected from right people that are women of child bearing age (15-49 years) and the collected data will answer each specific objective and through the course of data gathering the principals of confidentialities will be respected.

4.10 Data processing and analysis

After collection of data, data will be entered, cleansed, processed and analyzed trough using SPSS software on computer and expressing data in number, frequency and percentage. The results will also be presented by statement, pie charts and graphs which will be used for the interpretation and discussion and the result.

4.11 Ethical consideration

Data collection and processing will be done after getting an ethical clearance letter from Nursing Department College of medicine and health Sciences of Ambo University and an official letter of cooperation from AURH administration office. Finally ,oral consent from respondents. We will also explain to the respondents that the target of the study and the information we obtain will be kept confidentially and used for research purpose only. Participants will be informed about their full right not to be participating at all or to stop at any time while the data collection is going on.

4.12 plan for Dissemination of Findings

Findings of the study will be submitted to the Community Based Education (CBE) office of Ambo University, as well as to any other organization that interested in the Assessment of TT immunization coverage.

4.13 Operational Definitions

•**Child Bearing Age Women (CBAW**)- Any women age 15 to 49 years old irrespective of fertility status

• **Immunization**-Protection of susceptible individuals from communicable diseases by administration of a live modified agent (as in yellow fever), a suspension of killed organisms (as in whooping cough) or an inactivated toxin (as in tetanus).

TT vaccine utilization: the proportion of women who had received 2 or more
doses of TT vaccine.

• **Vaccinated by card only**: Only doses documented on immunization card or facility EPI registration book will be considered.

• **Vaccinated by card plus history**: Both documented doses and doses reported by mother to be received will be considered.

Neonatal –Child of age less than 1 month.

5. WORK PLAN

S. N	Activities	Nov	Dec	Jan	Feb	March	April	May	Jun
1	Selecting topic of the thesis project			X					
2	Preparation of proposal and data collection tools				X	X			
3	Securing Ethical clearance					X			
4	Pre-testing					X			
5	Training of data collectors					X			
6	Actual data collection					X			
7	Data entry and clean up					X	X		
8	Data Analysis					X	X		
9	Preparation of the first draft					X	X		
10	Preparation of the second draft					X	X		
11	Preparation of final thesis							X	
12	Thesis defense							X	X

6. BUDGET

S.N	Item	Unit	Qty.	Unit price	Total Price
1	Pen	Each	20	3.50	70.00
2	Marker	Pack	1	70.00	70.00
3	Pencil	"	10	1.00	10.00
4	Clip board	"	3	50.00	150.00
5	Note book	"	11	10.00	110.00
6	Brief case for document	Each	1	250.00	250.00
7	Scientific calculator	"	1	95.00	95.00
8	Stapler	"	1	80.00	80.00
9	Floppy disk	Pack	1	40.00	40.00
10	Binding and photocopy				2500.00

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