

UTILIZATION OF PREGNANT WOMEN WAITING AREA AND
ASSOCIATED FACTORS AMONG MOTHERS AT DAMBOYA DISTRICT
KEMBATA TEMBARO ZONE, SOUTH ETHIOPIA



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A RESEARCH THESIS SUBMITTED TO INSTITUTE OF HEALTH,
FACULTY OF PUBLIC HEALTH, DEPARTMENT OF EPIDEMIOLOGY,
JIMMA UNIVERSITY; IN PARTIAL FULFILLMENT FOR THE
REQUIREMENT OF MASTERS OF PUBLIC HEALTH IN GENERAL
PUBLIC HEALTH

AUGUST, 2020
JIMMA, ETHIOPIA

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ABSTRACT

Background: - Pregnant women waiting areas are residential facilities where women who live remotely can wait before giving birth at a hospital or health center. It helps to tackle the first and second delays in accessing emergency obstetric care. Thus, plays a great role to intervene in those delays. About 80% of people live in a developing country live in rural areas, where poor access to maternity services accounts for many maternal and perinatal deaths. Although, pregnant women waiting areas are recommended to reduce maternal and infant deaths data on the utilization of pregnant women waiting areas limited in Ethiopia and study area.

Objective: This study aimed to assess the utilization of pregnant mothers waiting area and associated factors among pregnant mothers at Damboya district Kembata Tembaro Zone south, Ethiopia in 2020 G.C.

Methods: - Community-based cross-sectional study was conducted from March 16 to April 15/ 2020 G.C at Damboya district Kembata Tembaro Zone south Ethiopia. Five hundred one mothers were selected by using a systematic random sampling technique from the seven kebele and the sample size was allocated proportionally for each kebele. Data were collected using a structured interviewer-administered questionnaire. The utilization was assessed by measuring self-report of mothers. Data were coded, edited, and cleaned then double entered into epi data version 3.1 and exported to SPSS version 20 for analysis. Descriptive, Bivariate, and Multivariable logistic regression analysis were done. Finally, variables with p -value $<$, 0.05 by multivariate logistic regression analysis were reported as independently associated factors for utilization status of mothers.

Result: A total of 495 women participated. The mean age of the respondents was 28.25 years with ± 4.558 standard deviation. Pregnant women waiting area utilization was 139(28.1%). In the multivariate logistic regression; Distance greater than 30 minutes AOR(95%CI) 2.29(1.38, 3.62), wealth fourth quintile AOR(95%CI) 3.66(1.73,7.73), awareness for PWWAs AOR(95%CI) 2.30(1.12,4.74), Good attitude AOR(95%CI) 3(1.8,5), Favorable subjective norm AOR(95%CI) 2.4(1.5, 4) and low perceived barrier AOR(95%CI) 2.1 (1.3, 3.3) were factors associated with utilization of Pregnant women waiting areas.

Conclusion: The utilization of pregnant women waiting areas was, 28.1% in the study area. Distance, wealth, awareness of pregnant women waiting areas, subjective norm, attitude, and perceived barriers were predictors of utilization.

To increase their utilization, we need to give focus on; improving the economic status of mothers, awareness creation and work on attitude, subjective norm, and the barriers to utilize Pregnant women waiting areas.

Keywords:- Maternity waiting homes, mothers, factors, utilization, Kembata tembaro, Ethiopia.

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ABBREVIATION AND ACRONYMS

ANC	Antenatal Care
AOR	Adjusted Odds Ratio
EDHS	Ethiopian Demographic Health Survey
EMDHS	Ethiopian Mini Demographic Health Survey
EmONC	Emergency Obstetric and New Born Care
ETB	Ethiopian Birr
FP	Family Planning
HEW	Health Extension Workers
K/Gamela	Kedida Gamela
KTZ	Kembata Tembaro Zone
MMR	Maternal Mortality Ratio
MWH	Maternity Waiting Homes
OR	Odds Ratio
PB	Perceived Barrier
PNC	Postnatal Care
PWH	Pregnant Women Waiting Home
PWWA	Pregnant Women Waiting Area
RH	Reproductive Health
SDG	Sustainable Development Goal
SMGL	save Mother Give Life
SNNPR	South Nation Nationalities People Region
SPSS	Statistical Package for Social Science
SRS	Systematic Random Sampling
WHO	World Health Organization
UNFPA	United Nation Population Fund

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CHAPTER 1 INTRODUCTION

1.1 Background

Pregnant women waiting areas (PWWAs) are residential facilities where women who live remotely can wait before giving birth at a hospital or health center. The purpose of this home was to provide a setting for women thus can be accommodated during the final weeks of their pregnancy near a hospital with the essential obstetric facility. PWWA provides an opportunity for pregnant women who experience geographical barriers to be near a health facility a few weeks before birth(1). When access to care is difficult, women with high-risk pregnancies should be admitted to a maternity waiting home (MWH) at 36 weeks of pregnancy(2). Some PWWAs have expanded their purpose to include not only decreased maternal mortality but also improved maternal and neonatal health. In these homes, additional emphasis is put on education and counseling regarding pregnancy, delivery, and care of the newborn infant and family(3). Gradually the concept has been enlarged to include high-risk women including those expecting their first delivery, women with many previous births, very young women, older women, and those identified as having problems such as high blood pressure during pregnancy(3).

Pregnant women waiting homes (PWH) helps to tackle the first and second delays in accessing emergency obstetric care. Thus, it plays a great role to intervene in those delays. So, the aim of implementing a PWH strategy is to advance access to skilled birth attendance and emergency obstetric care which eventually results in the reduction of maternal and perinatal mortality, particularly for women in rural and remote areas(4).

Pregnant women could benefit by staying at a PWH and being closer to a facility that can handle emergency obstetric complications that might otherwise not have access to skilled care due to the constraints posed by distance(1). Since the start of the 20th-century PWHs have been implemented in more than 18 countries around the world, including Canada, India, Cuba, United States, and sub-Saharan Africa (Ethiopia, Zimbabwe, Malawi, Nigeria and Uganda(1). Attat Hospital in SNNPR is former to start the initiative of the pregnant women waiting area in 1985(1). Direct causes of maternal death were considered to be more likely to be promptly diagnosed and treated due to the monitoring of pregnant women in a PWH(5). In Ethiopia studies from different settings have examined limited use of PWWA services, and have underlined the need to take local customs (6, 7).

1.2 Problem Statement

The maternal mortality ratio is improperly high internationally and an estimated 42% of maternal death is the intrapartum period(8). Eight hundred women die from pregnancy or childbirth-related complications around the world every day(9). In 2015 developing countries report for around 99% of the global maternal deaths, with sub-Saharan Africa alone reporting for nearly 66%(200,000), followed by southern Asia 22%(10). In most developing countries about 80% of people live in rural areas, where poor access to maternity services accounts for many maternal and perinatal deaths(3). In low-income countries, one woman in 41 dies from maternal causes(11).

One of the major causes of maternal mortality is the distance and consequent delay in the treatment of childbirth complications. Different strategies designed and employed to reduce those delays(10). WHO has recommended skilled care at every birth, which also includes access to facilities with the capacity for emergency obstetric care(12). Some developing countries are attempting to reduce delays in treatment by moving women at risk into PWWAs, located near the hospital, a few days before the date of confinement(10). As the report of EDHS 2016 reveals, Ethiopia has high maternal mortality with an estimated ratio of 412 per 100,000 live births and low skilled birth attendance which is 26%(13) and 48% EMDHS 2019(14). PWWA plays an important role in reducing maternal and prenatal mortality by increasing institutional delivery(15). Making motherhood safer is a main concern for the Ethiopian government and diverse efforts, such as establishing the health extension program(HEP)(16). Also among these has been the scale-up of PWWAs(17) which were initially concentrated at the hospital level(1) but have more recently been implemented at the lower-level health center(16). One of the tested and proven strategies to reduce maternal mortality is the establishment of PWWA practice for pregnant mothers as a component of ANC service, which has been in existence for more than 100 years(18). PWWA endorsed by WHO as one of the components of a comprehensive package to reduce maternal morbidity and mortality(3). Ethiopian MoH recommended the health extension workers to refer the mothers to the waiting houses at due date/38 weeks of gestation(19).

Although Ethiopia is scaling up PWHs to reduce maternal and perinatal mortality, women's use of PWHs varies markedly between facilities. Utilization levels of PWHs globally have generally been reported to be low with their conditions often regarded as unsatisfactory(20). A study conducted in southern Ethiopia, Eastern Gurage reported 15.5% utilization (21)

which implies that institutional delivery is low. According to a study done in Mettu district, half of the pregnant women intended to use maternity homes (22).

Factors associated with the use of PWHs included longer distances to the nearest health center, higher number of antenatal care visits, higher proportions of complications during ANC, and women's perception of benefits gained from staying in a PWH while waiting for delivery at the health center(23). Good attitude 55% times, Favorable subjective norm 2.8 times, perceived behavioral control 1.9 times and giving childbirth in health institutions 1.151 times higher intention to use PWWA(22). According to studies done in different regions of Ethiopia like Jimma and Mettu district factors like occupational status of women, women with a companion to facility visit wealthier households, those living distant to the health facility, age of women, days stayed less than 15 days, favorable subjective norm and favorable perceived behavior, the suffering complication in previous childbirth were associated factors(6, 7, 22). Sustainable development goals by 2030 which is to reduce maternal mortality ratio (MMR) from 420 to 70 per 100,000 live births(24). Although 100% of health centers have pregnant mothers waiting area according to 2011 EFY Damboya district health office report institutional delivery service was 69.8% which is low, and also literature showed there is no study conducted on PWWA utilization and factors associated. This study aims to assess factors associated with the utilization of PWWAs and to know the magnitude of PWWA utilization. The finding from this study will help to narrow controversial result and enables to work on the factors and have the potential to guide policy-makers to develop a plan for PWWAs in Damboya and beyond also contribute to increasing institutional delivery, reduction in maternal and neonatal mortality.

CHAPTER 2 LITERATURE REVIEW

2.1. Pregnant women waiting Area (PWWA) utilization

Systematic review and meta-analysis on a significant association between pregnant women waiting area utilization and perinatal mortality in Africa revealed that utilizing PWWAs has a significant effect in reducing PNM by 82.5% (25). A cross-sectional study done among reproductive age to identify personal and environmental factors associated with the utilization of PWWAs in rural Zambia found that 70.6% did not stay in a PWWAs before delivery(23). Maternity waiting homes as part of a comprehensive approach to maternal and newborn care: a cross-sectional survey indicated 31.5% using MWH for their most recent pregnancy(26). A study conducted in 2018 in Kenya to assess utilization of maternity waiting homes indicated that 79% of PWH service provision was unsatisfactory(20). A cross-sectional study done in 2016 in Ethiopia on women waiting at the pregnant women waiting homes during the time of the survey to assess the situation, women's experiences and challenges found that, generally, 70% health centers-79% in SNNPR, 73% in Amhara, 67% in Oromia and 55% in Tigray- had PWHs at the time of the survey mainly to house prenatal mothers and found that 83% did not want to stay at PWHs in their postnatal period(27).

A cross-sectional study conducted in Jimma district on 387 pregnant women to assess intention to use the pregnant women waiting area revealed that 57.3% of the pregnant women were intended to use PWWA(28). According to a study conducted in the mettu district intention of pregnant women to use the pregnant women waiting area was 48.8%(22). A community-based cross-sectional study done in Butajira on 428 recently delivered and pregnant women showed that 55.1% of women were intended to use PWWAs(7).

2.2. Factors associated with utilization of pregnant women waiting home

2.2.1. Sociodemographic factors

In Nepal, Twenty-one articles were examined in-depth found that the low status of women tended to impact negatively on maternity service uptake(29). Studies done on determinants of utilization of maternal health care services among pregnant women in Ghana Kwaku south district showed age, education, occupation, partner's occupation, means of transport, income level was significantly associated with utilization(30). A study done in Zambia on women's of reproductive age(n=176) to identify psychosocial and environmental factors contributing to low utilization of maternal healthcare services revealed that age and quality of services influenced their decisions to use maternal healthcare services(31). Findings from a baseline cross-sectional household survey among SMGL-supported districts in Zambia women who lived 15–24 km from a health care facility were more likely to use MWH(32). The research done in rural Zambia on women of reproductive age to assess women's experiences and beliefs concerning the utilization of PWHs found that gender inequalities prevent them from utilizing it(33). A research conducted in Zambia on Men aged 18-50 years whose wife was of reproductive age on the decision-making process showed that most of them mentioned (70%) the final decision whether the woman should use the PWH or not was made by the husband. Women's mother and mothers-in-law were also involved in the decision-making process (34). A cross-sectional study was done in Kenya on 134 healthcare workers and 327 pregnant women on reasons for low utilization of a maternity waiting home revealed that 95% indicated they would need their husband's permission to use it(35). A cross-sectional study was done in Ethiopia on women staying at the waiting areas to assess the situation, women's experiences, and challenges revealed that the commonest factors for not using PWWAs were husband/family did not allow admission (53%). Women stayed at the PWWAs reported that the decision to come to the MWHs was made mainly by a joint discussion with family/husband (46%)(17).

According to a study done in Mettu district age, occupation, a reason to use MWH, educational status, were factors associated with intention to use PWWAs(22). A cross-sectional study conducted in Jimma on 387 pregnant women to assess intention to use maternity waiting home found 38.7% of respondents had past experiences on MWH(28). A multilevel cross-sectional study in Jimma Zone Oromo region Ethiopia on Factors associated with maternity waiting home use among women showed women with companions, housewives, travel time>30 minutes and wealthier households had 2.15, 1.74,

2.37 and 3.20 times higher odds of PWWA utilization but education, decision-making power and site of birth were not associated (6).

Studies done at SNNPR Ethiopia showed that factors associated with intended MWH were a secondary school or higher education 6.3 times her husband's secondary school or higher education 3.46 times and complications in previous childbirths 4 times and no user is higher among women who could not afford transport(7).

2.2.2. Obstetric factors

A study done on determinants of utilization of maternal health care services among pregnant women in Ghana kwahu south district showed parity was significantly associated with utilization (30).

Findings from a baseline cross-sectional household survey among SMGL-supported districts in Zambia women who were married had 59% higher odds of utilizing PWWA and women who lived 15–24 km from a health care facility were likely to use PWWA(32). A study done in Zambia on 176 women of reproductive age to identify psychosocial and environmental factors contributing to low utilization of maternal healthcare services revealed that having many children influenced their decisions to use maternal healthcare services(31). A cross-sectional survey was done in Zambia to assess the association of ANC, PNC, FP and immunization service with PWWA use in 2019 showed attending four or more antenatal care visit 1.45 times, attending all postnatal care 2 times and taking measures to avoid pregnancy 1.31 times higher when compared to participants who did not use PWWA(26).

According to a study done in Mettu district reason to use MWH, place of birth, the number of days stayed, giving birth before, previous experience, and the number of ANC visits were factors associated with intention to use(22).

2.2.3 Attitude and subjective norm related factors

A thematic analysis was carried out using 29 studies across 17 countries to find out the evidence of the effectiveness of MWHs on key maternal health outcome and analyze the conditions and factors that affect the implementation of MWHs in low and middle-income countries found that poor utilization was due to not accepting MWH among communities and culturally inappropriate care and activities that raise acceptance by community members were facilitators(33).

A literature review done on why women do not utilize maternity services in Nepal reviewed the factors that hinder women from utilizing maternity services and those that encourage

such use depth found that traditional beliefs and low status of women tended to impact negatively on maternity service uptake(29).

A study conducted in Zambia on 340 women of reproductive age to test the association between the presence of MWHs and personal and environmental factors revealed that attitude showed moderate positive associations with intention(23). A study done in Zambia on 176 women of reproductive age to identify psychosocial and environmental factors contributing to low utilization of maternal health care services revealed that others' attitudes towards midwives, influenced their decisions to use maternal health care services(31).

According to a study done in Mettu district, subjective norm and perceived behavioral control were factors associated with intention to use pregnant women waiting home (22).

A cross-sectional study conducted in Jimma on 387 pregnant women to assess intention to use maternity waiting area found that about 52.9% of respondents strongly agreed that HEWs think pregnant women should use PWWAs and 79.1% agreed that their neighbors think pregnant women should stay in PWWAs (28).

2.2.4 Perceived barriers

The study conducted in a rural community in north-central Liberia in 2013 on Promoting access: the use of maternity waiting homes to achieve safe motherhood reported Food insecurity while staying at MWH was identified as a potential barrier by participants(36).

A study done in 2013 barriers to the use of maternity waiting homes in indigenous regions of Guatemala lack of sustainable funding, knowledge about the existence of the homes, and inadequate provision of culturally appropriate care were the most important problems identified(37).

A study done on Characteristics of maternity waiting homes and the women who use them among SMGL-supported districts in Zambia shown over half of the mothers using MWH before delivery reported problems at the MWH related to boredom, management oversight, safety and quality(32). Another study in 2018 on 340 women of reproductive age to test the association between the presence of MWHs and personal and environmental factors revealed that social norms and personal norms showed associations with intention (23).

UNFPA in 2018 reported food, household caregiver, during women's stay and transportation to take mothers back home after delivery were major challenges at maternity waiting homes (38). Ethiopian EmONC Assessment 2016 final report in September 2017 indicated 73%,57%, and 75 % of facilities with MWHs had electricity, water, and a latrine

respectively(4). A survey was done in Ethiopia on MWH attendants to describe the current status of maternity waiting home services showed that disparity in food supplies among differing levels of family and social support were the major challenges that women faced in MWH(1). Barriers to utilization included being away from the household 18 times and having children in the household cared for by the community during a woman's absence 9.3 times (7). According to a study done at Attat hospital Ethiopia from March 2014 to January 2018 absence of cooking utensils at the MWH (81%) attendant being away from work (78%) barriers to utilization(21). A multilevel cross-sectional study done in 2019 at Jimma Zone Oromo region Ethiopia on factors associated with maternity waiting home use among women showed receive a meal, latrine, bath, clean water, electric city, and midwife check were factors associated(6).

The conceptual framework developed by using three delay model(13, 22, 28)

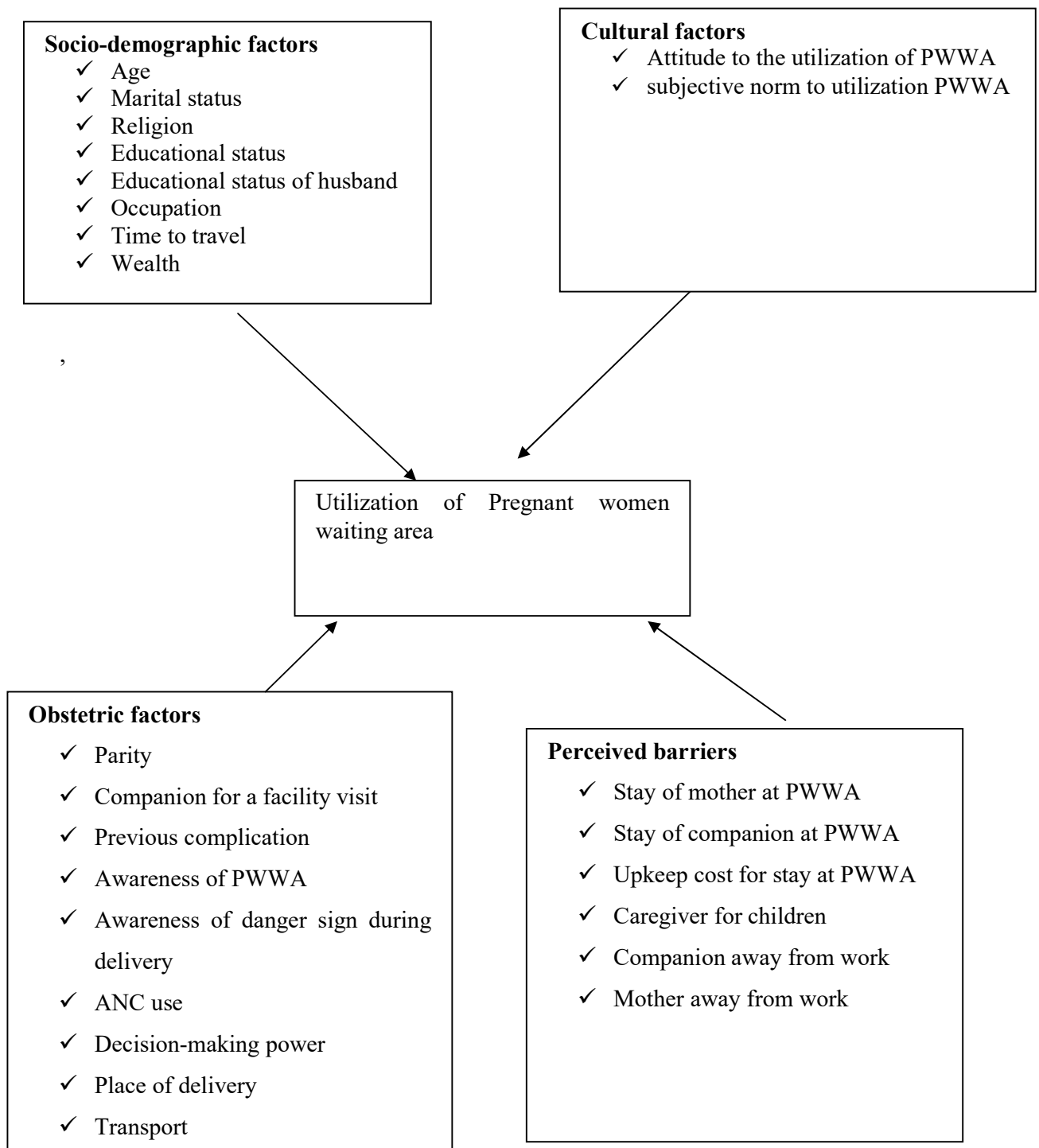


Figure 1 Conceptual framework developed by using three delay model, Damboya KT Zone, South Ethiopia, 2020

2.3. Significance of the study

Proper monitoring and evaluation of targeted projects and programs by the government and development partners require a wide range of data to track progress. First, the result of the study will be helpful to Damboya district health office, KT Zone health department, SNNPR regional health and the ministry of health in designing and implementing interventions that could increase PWWAs utilization like work on the factors that can contribute to facilitate institutional delivery service and reduction in maternal and neonatal mortality. Additionally, the result of the study will be helpful to SNNPR regional health and ministry of health in reviewing guidelines regarding the utilization of PWWA. Moreover, it will help the Ministry of health in reviewing policy related to PWWA. Further, it will be used as a reference for researchers.

CHAPTER 3 OBJECTIVES

3.1 General objective

- ❖ To assess the magnitude of utilization and factors associated with pregnant mothers waiting area among mothers who gave birth 12 months before the study at Damboya district Kembata Tembaro Zone SNNPR, Ethiopia in 2020.

3.2 Specific objectives

- ❖ To determine the magnitude of the pregnant mothers waiting area utilization among mothers who gave birth 12 months before the study at Damboya district, Kembata Tembaro Zone, SNNPR, Ethiopia in 2020.
- ❖ To determine associated factors with the utilization of pregnant mothers waiting area among mothers who gave birth 12 months before study at Damboya district, Kembata Tembaro Zone, SNNPR, Ethiopia in 2020.

CHAPTER 4 METHOD AND MATERIALS

4.1 Study area and period

The study was conducted in the Damboya district Kembata Tembaro Zone, SNNPR, Ethiopia in 2019/20 G.C. Damboya district is found in Kembata Tembaro Zone, south Ethiopia. It has 20 kebele and it far 350 km's from Addis Ababa and 110 km from Hawassa. It is bounded by East Halaba special District, South Kedida Gamela district, North Shashogo district, and West Angacha district. The total population of the district was 113469, total pregnancy 3926, and total birth 3926. More than 95% of population is Kambatigna language speakers and majority of permanent dwellers were kembata in ethnicity. The district has four health centers, 20 health posts, and one district hospital. The hospital is on construction. Each health center has a pregnant mother waiting area. The study was done from March 16 to April 15/2020.

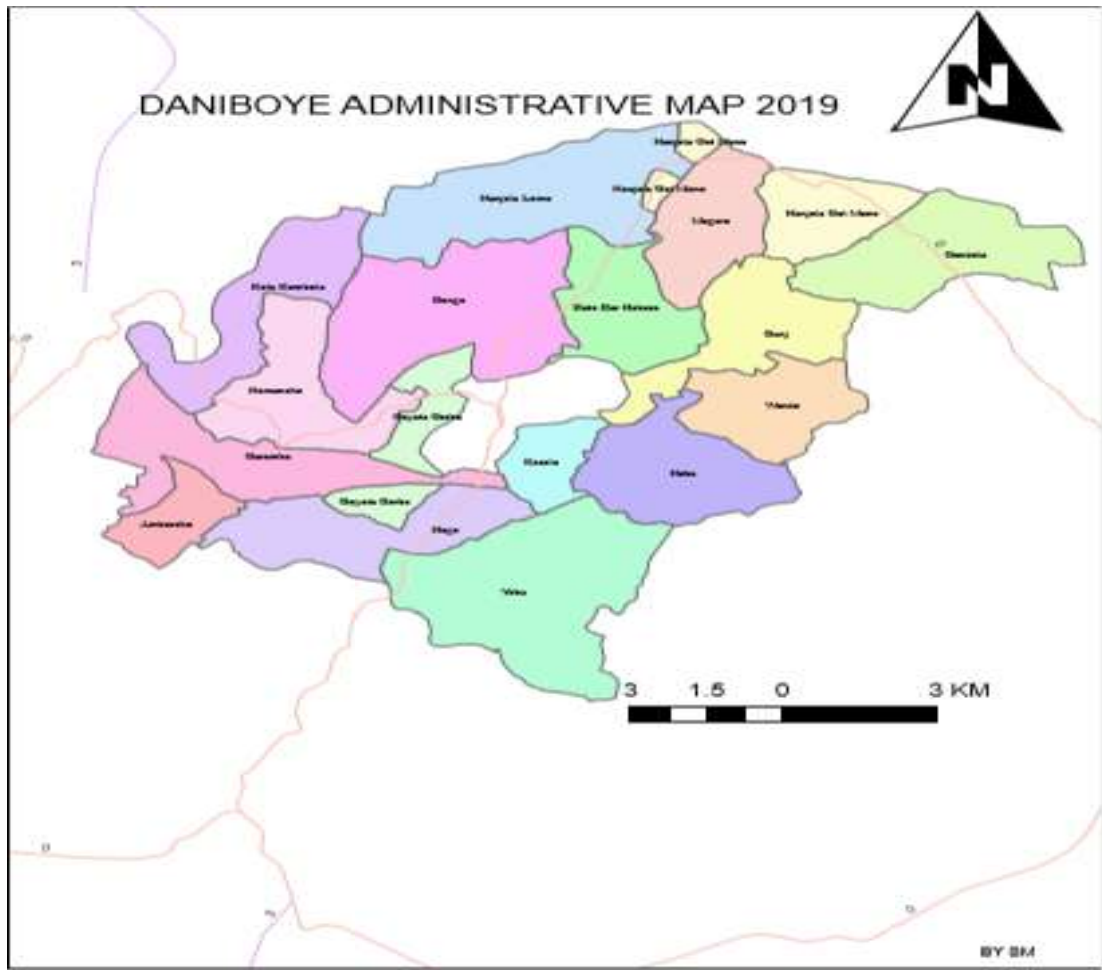


Figure 2 Map of Damboya district KT Zone SNNPR, Ethiopia, 2020

4.2 Study design: - A Community based cross-sectional study design was used.

4.3 Populations

4.3.1 Source population: - All mothers who gave birth in the last 12 months before the study period.

4.3.2 Study population: All randomly selected mothers who gave birth 12 months before the study and living in selected kebele during the study period.

4.3.3 Study unit: The individual sampled delivered mother from selected kebele during the study period.

Inclusion criteria:-

All delivered mothers who lived at least six months in selected kebele were included.

Exclusion criteria: - All mothers with severe illness and unable to communicate with the interviewer (who were critically ill i.e. couldn't talk or listen) were excluded.

4.4 Sample size and sampling procedure

4.4.1 Sample size calculation The sample size was calculated by using epi info version 7 stat calc for both objectives under different assumptions and the largest sample size was taken as the final sample size.

- For the first objective, the sample size was calculated using single population proportion formula based on the following assumptions; 5% margin of error, 95% confidence interval, using the number of birth in the Damboya district and, the proportion of 31.3%(39) was used to calculate the sample size.

$$n = \frac{\left(\frac{Z\alpha}{2}\right)^2 p(1-p)}{(d)^2} = n = \frac{(1.96)^2 * 0.313(1-0.313)}{(0.05)^2} = 330$$

Where; n= the desirable calculated sample size

Z ($\alpha/2$) = 1.96 (95% confidence level for two side)

P = 31.3%

d = degree of accuracy desired (5%)

Since the total delivery of the Damboya district is less than 10,000 that is 3926; I used correction formula to get the actual sample size.

$$n = \frac{n}{1+n/N} = \frac{330}{1+330/3926} = 304$$
 This is the maximum sample size. Considering 1.5 design

effect and adding 10% none response rate the actual sample size is 501

- Sample size calculation for the second objective using epi info software for the associated factors with PWWA utilization from different kinds of literature place of delivery, transport, and history of complication

Table 1 Sample size calculation for different factors associated with utilization of PWWA among mothers in KT Zone Damboya district 2020

Independent variable		% of outcomes in the unexposed group	AOR	Sample Size required	Sample size with none response rate (10%)	Reference
Place of delivery	Home	67.2	1	154	169	(23)
	HF		3.36			
Transport to and from the MWH	Not affordable	10.2	1	158	174	
	Affordable		3.61			
History of complication	No	80.6	1	210	231	(7)
	Yes		4			

4.4.2 Sampling procedure: - Damboya district has 20 kebele, by using simple random sampling 7 kebele was selected. The sample size was proportionally allocated to each kebele based on the number of delivery. To get individual mother from each kebele first sampling interval (k) was calculated by dividing number of mothers in the in the kebele to allocated sample. The calculated k value was 4. The first mother was identified by randomly selecting from 1-4 and then based on the random start at each kebele individual mother to be involved were selected by using systematic sampling method starting from random start at each kebele. A woman in that household had given birth in one year before the study period. Whenever more than one eligible woman was found in the same household, one was randomly selected and included in the study..

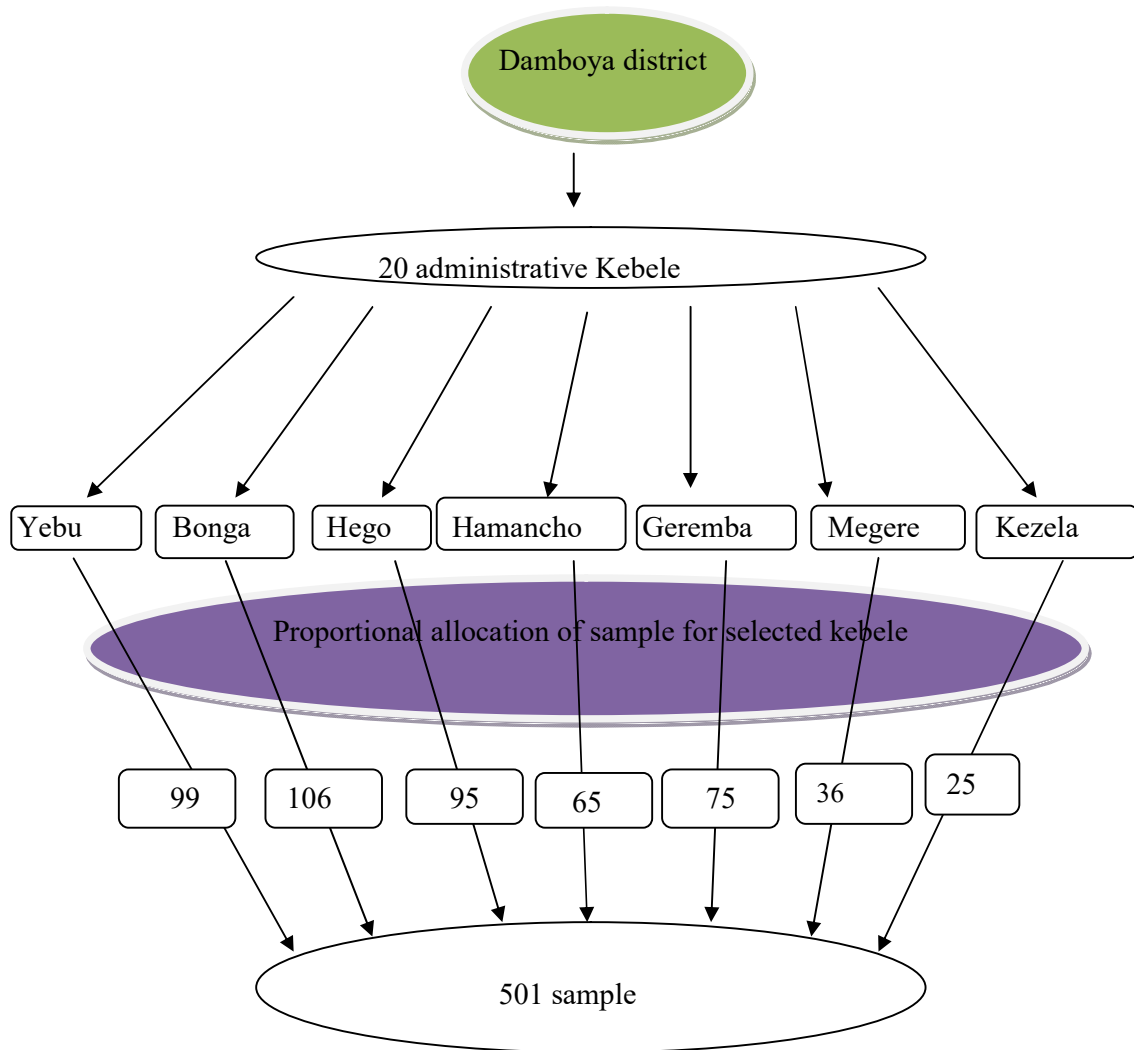


Figure 3 Diagrammatic representation of the sampling procedure, Damboya District, KT Zone, South Ethiopia, 2020

Table 2 Showing sampling frame of PWWA at Damboya district KT Zone South Ethiopia, 2020

Kebele	Yebu	Bonga	Hego	Hamancho	Geremba	Megere	Kezela	Total
Delivered	350	373	334	227	264	127	88	1763
Sample	99	106	95	65	75	36	25	501

4.5 Data collection procedure

The interview questionnaire consists of four parts Sociodemographic characteristics, cultural, obstetric, and perceived barrier measurement PWWA utilization. The socio-demographic characteristic is the first part of the tool and contains wealth index questions and other six items for socio demography. Part II is obstetric and contained eleven items for the obstetric history part which is composed of multiple-choice and blank space items. Part III contains eight multiple-choice questions used to assess attitude and subjective norm measurement. Part IV contains six questions for perceived barrier assessment.

Before actual data collection pre-test was conducted at K/Gamela woreda. Data were collected through face-to-face interviews with a pre-tested structured questionnaire, which was adapted by reviewing different kinds of literature(13, 22, 28). Seven data collectors, who completed grade ten, can speak kambatigna and female in sex and one supervisor with a diploma in midwifery was deployed for data collection. They were trained for two days by the principal investigator on the study instrument, consent form, and data collection procedure.

4.6 Study Variables

Dependent variable: - Utilization of pregnant women waiting area.

Independent variables:-

Socio-demographic variables:

Age, marital status, religion, educational status, occupation, travel time, wealth.

Obstetric factors:- Parity, Companion for facility use, Previous complication, Awareness of danger sign, Decision-making power, Awareness on PWWA, ANC visit, Place of delivery, Transport.

Cultural factors: -Attitude and subjective norm toward PWWA utilization.

Perceived barrier: - Stay the mother, Stay of companion, upkeep cost, Caregiver for family, the mother being away from work, and companion being away from work.

4.7 Operational Definitions

Pregnant women waiting area Utilization: - Pregnant mothers who were admitted and waited in PWWA during their last pregnancy are considered to be utilizers and were coded as 1 and those who never been admitted are not utilizers and were coded as 0.

Decision-making power: - Women who generally made decisions independently or jointly with anyone else regarding maternal and child health were considered as having decision making power. Responses for the question was collapsed into two categories: involved and not involved

Awareness of mothers towards PWWA: - This was coded 1 if the mother reported she knew the term, and presence of PWWA in the nearby health center otherwise it was coded 0.

Distance: - This was measured from the report of mother on walk minutes to a health facility. It was categorized as acceptable \leq 30 minutes and not acceptable for more than 30 minutes.

Attitude: -The degree to which the person had a favorable or unfavorable evaluation of using PWWA. It was measured by four questions containing five points Likert scale and they classified into two by using mean as they had good that were greater than or equal to mean score and poor attitude that was less than mean.

Subjective norm: - An individual's perception of using PWWA, which was influenced by the judgment of significant others. It was measured by four questions containing five points Likert scale and they classified into two by using mean as they had favorable who were greater than or equal mean score and unfavorable subjective norm that were less than mean.

Perceived barrier (PB): The individual's estimation of the level of challenge to use PWWA. It was measured by six questions containing a five-point Likert scale and they classified into two by using mean as they have high who were above mean score and low that were less than or equal to mean score of perceived barriers.

Upkeep cost: - Monetary value expended and opportunity forgone by expectant mother and their families to stay in the pregnant women waiting area.

Household wealth:- An asset-based wealth index created using the information on asset ownership (radio, television, mobile phone, motorbike, car/truck), number of animals owned (cows, sheep, poultry), electricity supply to the home, drinking water source, type of toilet and type materials used for the construction of floors in the home. Items were coded into relative wealth index using principal component analysis and calibrated into quintiles with each representing 20% of the score from 1(poorest) to 5(richest) quintiles. Mothers were ranked by wealth quintiles by using this index.

4.8 Data Analysis Procedure

The data were double entered using Epi data version 3.1 statistical software and exported to SPSS version 20 for analysis. Data cleaning was performed to check for frequencies, accuracy, and consistencies and missed values and variables. The descriptive analysis such as proportions, percentages, means, and measures of dispersion, tables, and graphs were used to describe the data. Bivariate logistic regression performed to identify candidate variables for multivariate logistic regression. Independent variables at p-value <0.25 in bivariate logistic regression were a candidate for multivariate regression analysis. Multivariate logistic regression analysis was performed by using a backward stepwise method to assess the factors associated. Multicollinearity was checked by using the variance inflation factor (VIF) less than 10 as a cutoff to identify the association between independent variables and VIF was less than 2. The model fitness assessed by the Hosmer–Lemeshow goodness-of-fit statistic test and the result was 0.477. Adjusted odds ratios (AORs) were used to measure the magnitude and strength of associations. Significant associated independent variables in multivariate logistic regression were reported at a 95% confidence interval and P-value of less than 0.05 as a cutoff.

4.9. Data quality management

To keep data quality the questionnaire (English version) was translated into kambatigna and translated back to English by two different language experts with the help of a health professional. Two days of training were given to the data collectors and supervisors on the objective, the relevance of the study, and confidentiality of information, respondent's right, about pretest, informed consent, and techniques of the interview. A week before actual data collection, the questionnaire was pre-tested on delivered mothers of K/Gamela district on 5 % (25) of the final sample by the principal investigator. The purpose of the pre-testing was to ensure that whether respondents were able to understand the questions or not and to check the wording, logic, and skip patterns of the questions in a rational way to the respondents. After pre-testing, amendments were made accordingly. After analyzing data from the pre-test, questions that were not clear were rephrased and corrected. The supervisor and the principal investigator were made frequent checks on the data collection process to ensure the completeness and consistency of the gathered information and errors found during the process were corrected and double-entry verification was done to ensure data quality.

4.10 Ethical Considerations

Ethical approval was obtained from the Epidemiology Department of Jimma University. Official letter of cooperation was written to the Damboya district health office from the Epidemiology department. Then letter of cooperation was also written to each health post from the Damboya district health office. Following an explanation of the purpose of the study, consent was obtained from participants. Also, an affirmation that they were free to withdraw consent and discontinue participation without any form of prejudices was made. Confidentiality of information and privacy of participants was assured for all the information provided, to preserve the confidentiality the data were not exposed to the third party except the principal investigator and advisors.

4.11 Dissemination of Plan

The study findings will be disseminated to the appropriate organizations and stakeholders. The plan of diffusion of the research result includes: - presentation at Jimma University; the report paper also will be disseminated to Damboya district health office; District administrative body, ZHD, Publication in a scientific journal, and online dissemination will be considered.

CHAPTER 5: RESULTS

5.1 Socio-demographic Characteristics of the Respondents

Four hundred ninety-five mothers participated in the study with a response rate of 98.8%. The mean age of the respondents was 28.25 years with ± 4.558 SD (standard deviation). Greater part (50%) of the respondents was found in the age between 20-29 years. Three hundred fifty-five (71.7%) were protestant religious followers. Two hundred eighty-eight (45.5%) of respondents attended primary education. Four hundred eighty-five (98%) were married. Two hundred sixty-five (53.6%) were housewives and ninety-three (20%) of the participants were at the richest quintile (Table 3).

Table 3 Socio-demographic characteristics of mothers in Damboya district, Kembata Tembaro Zone, South Ethiopia, 2020 (n=495)

Sociodemographic variables	Category	Frequency	Percent
Age group (in Years)	15-19	13	2.6
	20-24	98	19.8
	25-29	184	37.2
	30-34	163	32.9
	35 and above	37	7.5
	Total	495	100
Marital Status	Married	485	98
	Other*	10	2
	Total	495	100
Education of mother	No formal education	114	23
	Formal education	381	77
	Total	495	100
Educational status husband	No formal education	43	8.8
	Formal education	445	91.2
	Total	488	100
Religion	Protestant	355	71.7
	Muslim	80	16.2
	Orthodox	53	10.7
	Catholic	7	1.4
	Total	495	100

Occupation	Housewife	419	84.6
	Merchant	62	12.5
	Other**	14	2.8
	Total	495	100
Time to travel	Acceptable(= \leq 30')	155	38.8
	Not acceptable($>$ 30')	340	61.2
	Total	495	100
Wealth index	Poorest	100	20.2
	Poor	92	18.6
	Medium	107	21.6
	Wealthy	97	19.6
	Wealthiest	99	20.0
	Total	495	100

Note (*=single, widowed and divorced **= Student, Government employee and daily laborers)

5.2 Obstetric Factors

Regarding the obstetric factors, 473 (95.6%) had ANC visits and 465 (94%) told complications during pregnancy. Among mothers who were told for complications 370(79.6%) were told abnormal vaginal bleeding, 228(49%) told for swelling of hand and foot, 149(32%) for convulsion. Among all participants 432(87.3%) had two or more children; among mothers who had given birth before only 96(19%) had experienced a pregnancy-related complication; ninety-five percent had given birth at the health institution. (Table 4)

Table 4 Obstetric factors in Damboya district, Kembata Tembaro Zone, Southern Ethiopia, 2020 (n=495)

Obstetric Related Variables	Variable category	N (%)
ANC	No	22(4.4)
	Yes	473(95.6)
Parity	One child	63(12.7)
	Two or more	432(87.3)
Companion during Delivery	No	35(7.1)
	Yes	460(92.9)
Awareness of danger sign during pregnancy	No	30(6.1)
	Yes	465(93.9)
Experienced complication during a recent delivery	No	369(74.5)
	Yes	96(19.4)
Place of recent delivery	Health facility	477(96)
	Home	18(4)
Transportation problem to reach the health facility	No	470(94.6)
	Yes	25(5.1)
Decision-making maternal and child health at the household level	Not involved	163(32.9)
	Involved	332(67.1)

5.3. Cultural and perceived barrier factors

Regarding attitude towards PWWA use, 297(60%) respondents reported that they had a good attitude towards the utilization of PWWA. Two hundred eighty-three (57.2%) respondents agreed that they had favorable subjective norms. On the other hand, among total respondents who were assessed for perceived barriers two hundred fifteen (43.4%) of respondents had a low perceived barrier.

Table 5 Attitude toward PWWA utilization, subjective norm, and perceived barriers of mothers in Damboya district, Kembata Tembaro Zone, southern Ethiopia, 2020 (n=495).

Attitude subjective norm, and perceived barriers		N (%)
Attitude to PWWA utilization	Poor	198(40.0)
	Good	297(60.0)
	Total	495(100)
Status of subjective norm	Unfavorable	211(42.6)
	Favorable	284(57.4)
	Total	495(100)
Perceived Barriers	High	280(56.6)
	Low	215(43.4)
	Total	495(100)

5.5 Service utilization status

The overall pregnant women waiting area utilization in the study area was 139 (28.1%) at 95%CI (24-32) (figure 5). Among all the mothers who used PWWAs 22(15.8%) stayed for more than fifteen days. Among mothers who used PWWA, 79.9% used because of good health outcomes, 71.9% referred from health posts by HEWs, 11.5% because they used previously, and 10.1% were recommended, other family members.

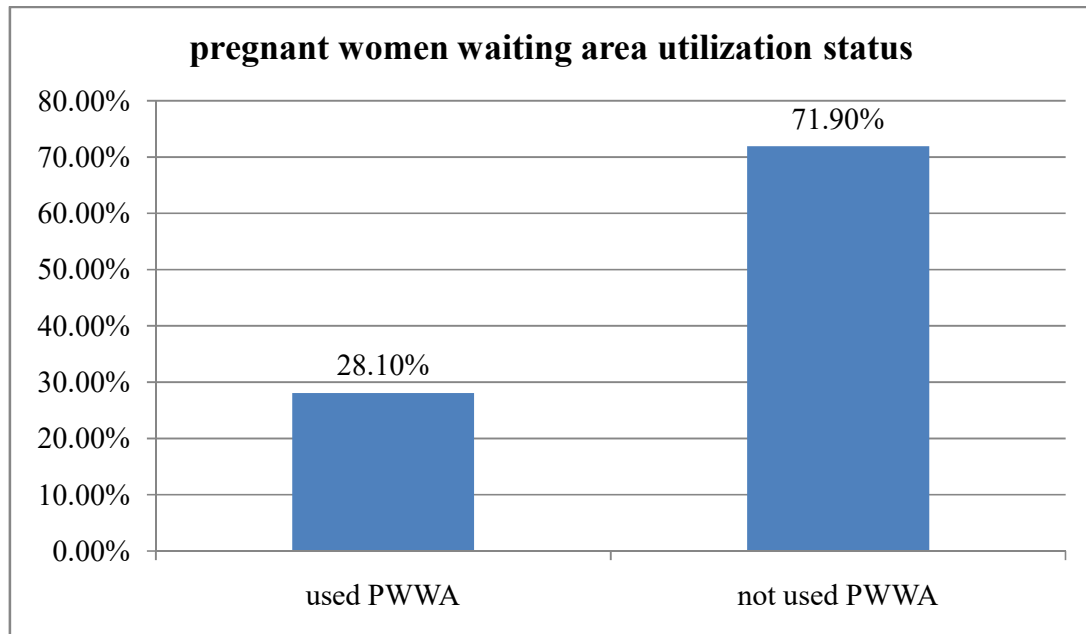


Figure 4 Utilization of PWWAs among mothers in Damboya district, KT Zone, Southern Ethiopia, 2020 (n=495)

Service received at pregnant mothers waiting area

Among mothers who received the service 98 (70.6%) were satisfied with the service provided at PWWA. More than three fourth of mothers received food, kitchen utensils, and drinking water at pregnant women waiting area in the study area. (Table 6)

Table 6 Frequency distribution of service received at pregnant women waiting home among mothers at Damboya district KT Zone southern Ethiopia 2020 (n=139)

Variable		Frequency	Percent
Food	No	20	14.4
	Yes	119	85.6
Kitchen utensils	No	15	10.8
	Yes	124	89.2
The place for the stay of companion	No	90	64.7
	Yes	49	35.3
Electric light	No	60	43.2
	Yes	79	56.8
Drinking water	No	34	24.6
	Yes	105	75.4

5.6. Factors associated with PWWA utilization

In the bivariable regression

In the bivariable logistic regression: age of the respondents, mother occupation, time to reach HF, household wealth, place of birth, awareness of danger sign, transportation to HF, having companion, decision making power, awareness of PWWA, attitude, subjective norm, and the perceived barrier were candidate variables for multivariate logistic regression.

Table 7 Bivariate analysis result of PWWA among mothers in Damboya district, KT Zone, Southern Ethiopia, 2020(n=495)

Variables	Category	Utilization		COR(95% C.I)	p-value
		Yes	No		
Age (year)	15-19	6(46.2%)	7(53.8%)		.312
	20-24	29(29.6%)	69(70.4%)	.490(.15, 1.59)	.234
	25-29	44(23.9 %)	140(76.1%)	.37(.12, 1.15)	.085
	30-34	51(31.3%)	112(68.7%)	.53(.17, 1.66)	.277
	35 and above	9(24.3%)	28(75.7%)	.38(.10, 1.41)	.147
Educational status of a mother	No formal	32(28.1%)	82(71.9%)	1	1
	Formal	107(28. %)	274(71.9%)	1.001(.63,1.59)	.99
Educational status of husband	No formal	9(20.9%)	34(79.1%)	1	1
	Formal	129(29%)	316(71%)	1.542(.72,3.31)	0.27
Occupation	Housewife	121(28.9)	298(71. %)		0.31
	Merchant	13(21%)	49(79%)	0.65(.34, 1.25)	0.19
	Other	5(35.7%)	9(64.3%)	1.54(.49,4.79)	0.46
Time to reach HF	Acceptable(= \leq 30')	31(20%)	124(80%)	1	1
	Not acceptable(>30')	108(31.8%)	232(68.2%)	1.86(1.18, 2.94)	.007
Wealth index	Poorest	17(17%)	83(83%)		.01
	Poor	21(22.8%)	71(72.2%)	1.444(.71, 2.95)	.313
	Medium	32(29.9%)	75(70.1%)	2.08(1.070,4.05)	.031
	Wealthy	38(39.2%)	59(60.8%)	3.145(1.62,6.09)	.001
	Wealthiest	31(31.3%)	68(68.7%)	2.23(1.14,4.36)	.020
ANC visit	No	8(36.4%)	14(63.6%)	1	1
	Yes	131(27.7%)	342(72.3%)	0.670(.28, 1.64)	0.38
Parity	One child	20(31.7%)	43(68.3%)	1	1
	Two or more	119(27.5%)	313(72.5%)	0.82(.46, 1.447)	0.49

Told complication	No	5(16.7%)	25(83.3%)		
	Yes	134(28.8%)	331(71.2%)	2.02(0.76,5.39)	0.16
Experience complication	No	102(27.6%)	267(72.4%)		
	Yes	32(33.3%)	64(66.7%)	1.31(0.81, 2.12)	0.27
Place of delivery	Health facility	132(27.7%)	345(72.3%)		
	Home	7(38.9%)	11(61.1%)	1.65(0.73, 3.72)	0.23
Transportation problem	No	134(28.8%)	332(71.2%)		
	Yes	5(17.2%)	24(81.8%)	0.52(0.19, 1.38)	0.19
Companion to visit HF	No	6(17.1%)	29(82.9%)		1
	Yes	133(28.9%)	327(71.1%)	1.97(.79, 4.84)	.142
Awareness on PWWA	Poor	11(11.2%)	87(88.8%)	1	1
	Good	128(32.2%)	269(67.8%)	3.76(1.94,7.29)	.000
Attitude	Unfavorable	25(12.6%)	173(87.4%)	1	1
	Favorable	114(38.4%)	183(61.6%)	4.31(2.67,6.97)	.000
Subjective norm	Unfavorable	32(15.2%)	179(84.8%)	1	1
	Favorable	107(37.7%)	177(62.8%)	3.38(2.16,5.28)	.000
Perceived barrier	High	56(20%)	224(80%)	1	1
	Low	83(38.6%)	132(61.4%)	2.52(1.68,3.76)	.000
Decision making	Not Involved	37(22.7%)	126(77.3%)	1	1
	Involved	102(30.7%)	230(69.3%)	1.51(0.98,2.33)	0.06

In multivariate logistic regression

In multivariate logistic regression living at a distance greater than 30 minutes on the walk is two times more likely to utilize PWWAs AOR=2.29, 95%CI 1.38, 3.6. Wealthy families were 3.6 times more likely to utilize PWWAs when compared with the poorest wealth index (first quintile) of the family AOR =3.66, (95%CI)= (1.73, 7.73). Women who have a good awareness of PWWAs were greater than two times more likely to utilize PWWAs (AOR =2.3, (95%CI) = (1.12, 4.74)). Those who had a good attitude were three times more likely to utilize PWWAs AOR =3.11, 95%CI: 1.842, 5.26. The mother who had favorable subjective norm greater than two times more likely to utilize PWWAs (AOR =2.4, (95%CI) (1.5, 4)) and mothers with low perceived barriers 2.1 times more likely to utilize pregnant women waiting area (AOR = 2.1, (95%CI) (1.30, 3.30)) were factors associated significantly at p-value less than 0.05

Table 8 Multivariate analysis result of PWWA among mothers in Damboya district, KT Zone, Southern Ethiopia, 2020(n=495)

Variables	Category	Utilization		AOR(95% C.I)	p-value
		Yes	No		
Time to reach HF	Acceptable(= \leq 30')	31(20%)	124(80%)	1	1
	Not acceptable(>30')	108(31.8%)	232(68.2%)	2.29(1.38,3.62)	.002
Wealth index	Poorest	17(17%)	83(83%)	1	1
	Poor	21(22.8%)	71(72.2%)	1.4(.66, 3)	.42
	Medium	32(29.9%)	75(70.1%)	2.25(1.1,4.7)	.029
	Wealthy	38(39.2%)	59(60.8%)	3.66(1.73,7.73)	.001
	Wealthiest	31(31.3%)	68(68.7%)	2.25(1.06, 4.76)	.035
Awareness on PWWA	Poor	11(11.2%)	87(88.8%)	1	1
	Good	128(32.2%)	269(67.8%)	2.30(1.12,4.74)	.024
Attitude	Unfavorable	25(12.6%)	173(87.4%)	1	1
	Favorable	114(38.4%)	183(61.6%)	3(1.8,5)	.000
Subjective norm	Unfavorable	32(15.2%)	179(84.8%)	1	1
	Favorable	107(37.7%)	177(62.8%)	2.4(1.5, 4)	.001
Perceived barrier	High	56(20%)	224(80%)	1	1
	Low	83(38.6%)	132(61.4%)	2.1(1.3, 3.3)	.001

CHAPTER 6 DISCUSSION

Different studies were conducted on PWWAs services availability and intention to use. This study mainly focused on the utilization and factors associated with it. Wealth index, time to travel, attitude, subjective norm, perceived barrier, and awareness of PWWAs were identified as predictors of utilization.

In this study, 28.1% of respondents had used PWWAs in 12 months before the study period. This result was comparable with the study in Tanzania and Zambia which were 31.3% and 31.5% respectively (32, 39). Also, this study was comparable with a study conducted in Zambia which reported 29.4% of mothers to stay at PWWA(23); but this study was lower when compared to study conducted at Gomma Woreda of Jimma Zone in 2016 which is 38.7% respondents had past MWH experience(28). This difference could be due to the study was facility-based and the objective of study and the study population was different from this study. This study finding was higher when compared with the study conducted from 2014-2018 facilitators for maternity waiting home (MWH) utilization which reported among mothers attended birth 15.5% used MWH(21). This difference could be due to the variation in the study period and sampling method which consecutive.

In this study, we found that the majority of women in our study were aware of the existence of PWWAs but a very small proportion reported having used the service. A cross-sectional study conducted in Jimma Zone, Ethiopia, reported just 71% of women interviewed being aware of PWWA services compared with 80.2% in this study (6). Most women accessed PWWAs through referrals from health extension workers during antenatal care and generally stayed at PWWAs for less than 15 days before delivering their babies. The relatively short duration of stay suggests that many users are women who may be presented with false labor and are accommodated temporarily at the PWWAs; this may be because they are not being referred to PWWAs 2 weeks before delivery as recommended(19). This may partially explain why community norms around facility deliveries were not significantly associated with PWWA use. Therefore, referral practices around, and promotion of, PWWA use employed by HEWs and health workers in the area require investigation to ensure that the women who would benefit the most from this service are being reached.

According to this study, those who are in wealthy quintile are around 4 times more likely to utilize PWWAs compared with the poorest one; Despite PWWA services being free, there may be financial and social costs associated with lodging there. Women from wealthier

households are probably more likely to be able to afford to pay for transport, purchase food, and accommodate accompanying relatives. This finding is also similar to study finding from Nepal that reported women from wealthier families are more likely to utilize(29). Also, another study done on determinants of utilization of maternal health care services among pregnant women in Ghana Kwaku south district reported household income was significantly associated predictor of utilization(30). Some studies have reported an inverse relationship between MWH use and household wealth (40, 41) and after adjusting for confounders (39).

Time to travel greater than 30 minutes to a health facility is another predictor of utilization of pregnant women waiting area with around 2 times more likely to utilize PWWAs compared to living within 30 minutes AOR(2.29); this is comparable with a study conducted in 2016 at Jimma Zone Ethiopia which was living ≥ 30 min from a health facility (AOR: 2.37)(6) and study report of Tigray region in 2015 living within ≥ 30 min is 47% times less likely to utilize skilled delivery service(42). It is therefore not surprising to find that women who report living within 30 min of a health facility are less inclined to use PWWA services. Large distances between homes and health facilities are often part of PWWA admission criteria(19, 35). Studies in Africa have reported distance from health facilities affecting women's decisions to use PWWA services (33, 39).

According to this study respondents with good attitudes were 3 times more likely to use PWWAs; this is comparable with the study report conducted in the 2014 Kalomo district, Zambia (AOR 8.63) (23). A study was done in Zambia also revealed that attitudes influenced the use of maternal health care services(31).

Subjective norm is one of a predictor of utilization of the pregnant women waiting area. In this study, women with favorable Subjective norm were more than two times more likely to use PWWAs; AOR (2.40). This is comparable with a study done in the Mettu district, the subjective norm as a predictor of intention to use PWWA (AOR=2.81). This is lower when compared with the study report conducted in the 2014 Kalomo district, Zambia (AOR 27.09); this difference could be due to the socio-economic difference of the country (23).

Forty-three percent of respondents have a low perceived barrier which significantly associated with PWWAs utilization with AOR(2.1); this finding is comparable with the EMONC survey report in 2015 which 45% of respondents had not reported a barrier to utilize MWA(4). Also, this finding is similar to a study done in 2014 in SNNPR eastern Gurage which reported envisioning relatively few barriers was associated with utilization of

PWWAs(7). According to a study done in Mettu district perceived barrier was also a predictor of intention to use PWWA (AOR=1.99).

One of the strengths of this study was the use of models that accounted for clustering in the data, which if ignored underestimates variance while overestimating significance. Moreover, a random selection of almost 501 women from a representative community list should reduce the probability of selection bias.

6.1. Limitation of the study

The cross-sectional nature of the analysis does not support causal inference limiting this to an exploratory exercise to identify factors that may influence PWWA use. Also, the primary outcome relied on women's self-reported PWWAs' use which may be subject to recall bias. On the other hand, this risk is likely low because staying at a PWWA before delivery is expected to be a remarkable experience. Women's self-reported travel times estimates may not exactly reflect the physical accessibility of PWWAs; calculation of distances is recommended for future studies to assess the distance threshold for PWWAs utilization.

CHAPTER 7 CONCLUSION AND RECOMMENDATION

7.1 CONCLUSION

The magnitude of the utilization of pregnant women waiting area among mothers at Damboya district was 28.1%. Time to travel, wealth, awareness of PWWAs, attitude, subjective norm, and perceived barriers were factors associated with utilization.

7.2 RECOMMENDATION

KT Zone health department and Damboya Woreda health office

- ✓ Regular and Close supervision and monitoring activities should be done to ensure PWWA services provided as per the standards and registering and reporting mechanism.
- ✓ Integration with health extension workers, community, and HDA leaders should be strengthened to reduce the influences of important other barriers of utilization.
- ✓ Regular health information should be given for pregnant women during ANC visit and at pregnant women conference on the presence and importance of utilizing PWWAs to improve awareness, attitude towards PWWA utilization.
- ✓ Advocating of kebele leaders and HDA leaders should be done to mobilize resources.
- ✓ Experience sharing of women that were used PWWAs with that of none used should be done to increase utilization.
- ✓ Promoting partner involvement to support utilization and health education to the community on PWWAs

Woreda administrative body

- ✓ Should allocate budget from an annual capital budget to ensure free service provision and sustain utilization.
- ✓ Advocating of kebele leaders, HDA leaders and community should be done to mobilize resources.
- ✓ Regular and Close supervision should be done to ensure PWWA services provided as per the standard.

Researchers

- ✓ Further research should be done to prove the cause-effect relationship of factors.

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Annex I

English version Questionnaire

Jimma University

Institute of Health Sciences

Department of Epidemiology

The questionnaire developed to assess pregnant women waiting area utilization and associated factors among mothers in Damboya woreda KT Zone SNNPR Ethiopia.

I. Participant information sheet

Hello: Good morning/good afternoon?

I would like to start by extending my sincere well come my name is _____. I am here today to collect data on the study conducted to assess pregnant women waiting home utilization and associated factors among mothers at study setting. I would like to ask a few questions which may take around 20 minutes. Therefore honest and guanine response is crucial for the success of this study since this study will help to improve maternal health care and to decrease maternal mortality rate at large. You are kindly requested to participate and you have a full right not to participate, ask any unclear question before you agree to participate and withdraw in the meantime. The privacy of your information also granted and it is only used for the study purpose. You are selected randomly to participate in this study if you give me consent after you have understood the following information sheet.

The objective of the study: To assess pregnant women waiting home utilization and associated factors among mothers in Damboya woreda.

The benefit of the study: Participants will not gain any direct benefit for being participated, however, the result can be used as a baseline for further studies and to identify factors of the utilization of PWWA in Damboya woreda so that for planning in our country.

Risk of the study: The study has no risk for participants and interviews will be private to make participants safe from fear.

Rights of participants: Participation is with full right and you can stop participation in the study at any time. You can also skip any question which they want to respond to. You can ask any question which is not.

Confidentiality: Any information forwarded will be kept private and their name will not be specified.

II. The informed consent

I have read this form or it has been read for me in the language I comprehend and understand all conditions stated above. Are you willing to participate in this study?

1. No (say thank you and stop)
2. Yes (continue your interview)

Name of the principal investigator:-*YONAS PETROS HANDEBO*

Address cell phone +251916747450 email yonaspertos27@gmail.com

Name institution:- Jimma institute of health science research ethics committee

Address: Jimma Ethiopia

POBOX: 378

Signature of interviewer certifying that the informed consent has been accepted by the date of interview (Ethiopian calendar) _____/_____/_____

If you agree participate please give me your signature on the attendance sheet

Result of interview 1 completed, 2 respondent not available, 3 refused, 4 partially completed

Checked by supervisor name _____signature_____date_____

S.no	Questions	Response category	Response	Remark
100	Socio-demographic questionnaire			
101	Kebele	_____		
102	Age in year	_____		
103	What is your marital status	1) Married		
		2) Single		
		3) Widowed		
		4) Divorced		
		5) Other		
104	What is your Religion?	1) Orthodox		
		2) Muslim		
		3) Protestant		
		4) Catholic		
		5) Others_____		
105	What is your educational status?	1) Unable to read and write		
		2) Only read and write		
		3) Primary education (grade 1-8)		
		4) Secondary education (grade 9-10)		
		5) Preparatory education (grade 11-12)		
		6) Higher education		
106	What is your husband's educational status?	1) Unable to read and write		
		2) Only read and write		
		3) Primary education (grade 1-8)		
		4) Secondary education (grade 9-10)		
		5) Preparatory education (grade 11-12)		
		6) Higher education		
107	What is your occupation?	1) Housewife		
		2) Merchant		
		3) Students		

		4) Gov't employee		
		5) Farmer		
		6) Others (Specify) _____		
108	How long did it take for you to get from your home to a health facility?	1 > 30 minutes 2 =< 30 minutes		Convert to minutes if given in hours
	Wealth index questions			
109	Does your household have the following properties?	Functioning radio/tape	0. No 1. Yes	
		Functioning TV	0. No 1. Yes	
		Stove (kerosene, electric)	1. No 1 Yes	
		Refrigerator	0 No 1 Yes	
		Bicycle	0. No 1. Yes	
		Motorecycle	0. No 1. Yes	
		Watch(hand/wall)	0. No 1. Yes	
		Mobile phone	0. No 1. Yes	
		Sleeping bed with mattress	0. No 1. Yes	
110	What is the main source of drinking water?	1. Pipe 2. Well 3. Surface 4. Other _____		

111	Do you have a toilet facility?	0. No 1. Yes		If no go to 113
112	What kind of toilet facility do you and your household members usually use?	1. Bush/field 2. Pit latrine 3. VIP 4. Other _____		
113	What type of fuel does your household mainly use for cooking?	1. Wood 2. Charcoal 3. Electricity 4. Other _____		
114	Do you have a separate kitchen for cooking?	0. No 1. Yes		
115	To whom the house you are living in belongs to?	1. Own property 2. Rented from private 3. Ranted from Gov't 4. Gifted from parents 5. Other _____		
116	What is the main material of the floor in your house?	1. Mud 2. Cement 3. Other _____ (specify)		
117	What is the main material of the wall in your house?	1. Mud with wood 2. Mud and cement 3. Bricks 4. Other _____ (specify)		
118	What is the main material of the roof in your house?	1. Corrugated iron 2. Thatch/grass 3. Other _____		
119	How many bedrooms in the household are used for sleeping?	_____ _____		

120	Does your household own agricultural land?	0. No 1. Yes		If no go to 123
121	How many hectares agricultural land do you have?	_____		
122	How many of the following domestic animals does your household have in number?	Cows and Oxen together	_____	
		Horse, Donkey, and Mule together	_____	
		Goat and Sheep together	_____	
		Chickens	_____	
123	Does any member of the bank or microfinance saving account	0. No 1. Yes		
200	OBSTETRIC HISTORY			
201	Did you receive ANC at recent pregnancy?	0. No 1) Yes		
202	How many times did you receive antenatal care	1) First, visit only		
		2) 2-3 visits		
		3) >= 4 visits		
		99) Don't know?		
203	How many pregnancies do you have experienced before?	1. One time		
		2. Two or more		
204	During your recent pregnancy were you	0 No		If ans "0" or
		1 Yes		

	told about possible pregnancy complications?	88 not know/don't remember		"88" go to 206
205	What were the pregnancy complications you were told about?		1.No 2.Yes	
		1) Bleeding		
		2) Fever		
		3) Swollen hands/face/feet		
		4) Tiredness/breathlessness		
		5) Headache/blurred vision		
		6) Convulsions		
		7) Prolonged labor		
		8) Anemia		
9) Other _____ (specify)				
206	Did you experience any pregnancy-related complications for your most recent pregnancy	0. No		
		1) Yes		
207	Where did you deliver your child?	1) Health facility		If ans is "1" go to 208
		2) Home		
		3) Other -----specify		
208	For women who did not deliver in a health facility only why did you not deliver your baby in a health facility? Probe circle all mentioned.		0 No 1.Yes	
		1) Distance		
		2) Lack of knowledge		
		3) Didn't feel it was needed		
		4) Lack of transportation		
		5) Permission not granted		
		6) Costs		

		7) Perception of quality				
		8) Perception of health worker attitudes				
		9) Perception of health worker availability				
		10) Midwife not available				
		11) Doctor not available crowding/waiting time				
		12) Fear of facilities				
		13) Availability of a trained TBA				
		14) Delivered on the way to the facility				
209	Did you have transportation problem to a health facility for the last delivery	0) NO 1) YES				
210	What kind of problem you faced?	_____ _____ _____				
211	Did you have a companion for a facility visit	0 NO 1 YES				
3	Attitude and Subjective norm measurement					
300	Attitude measurement	1	2	3	4	5
301	For me staying in the health center for institutional delivery 15 days before giving birth is good.					
302	For me staying in the health center for institutional delivery 15 days before giving birth is useful.					

303	For me staying in the health center for institutional delivery 15 days before giving birth is pleasant.					
304	For me staying in the health center for institutional delivery 15 days before giving birth is interesting.					
Key 1=Strongly Disagree 2= disagree 3= Neutral 4= Agree 5= Strongly Agree						
Subjective norm measurement						
305	Most people who are important to me will approve of my staying in the health center for institutional delivery 15 days before giving birth.					
306	Most people who are important to me will think that I should stay in the health center for institutional delivery 15 days before giving birth.					
307	Most people who like me want my staying in the health center for institutional delivery 15 days before giving birth.					
308	It is expected of me that I have to stay in the health center for institutional delivery 15 days before giving birth.					
Key 1=Strongly Disagree 2=disagree 3= Neutral 4= Agree 5= Strongly Agree						
4	Perceived barrier measurement	1	2	3	4	5
401	For me staying in a health center for institutional delivery 15 days before giving birth is difficult.					
402	For me stay of companion in the health center for 15 days before I give birth is not difficult.					
403	Difficult to get individuals that can give care for my children once I left for maternity waiting home.					
404	For me, upkeep cost in pregnant women waiting area to stay 15 days/more before birth is difficult.					
405	For me companion being away from work at stay time in pregnant women waiting area 15 days/more before birth is difficult.					
406	For me being away from work at stay time in pregnant women waiting area 15 days/more before birth is difficult.					
500	Pregnant women waiting area service utilization status					
501	Have you ever heard	0	No			

	about the pregnant women waiting area?	1 Yes		
502	Did you know that the health facility had pregnant women waiting area before?	0 No 1 Yes		
503	Did you ever use a pregnant women waiting area during recent pregnancy?	0 No 1 Yes		
504	How many months pregnant were you when you first came to the pregnant women waiting area?	_____ (number of months)		
505	How many days have you stayed in PWWA?	0 Less than or equal to 15 days 1 Greater than 15 days		Not read as a choice
506	Who usually decides your health at home		0 NO 1 YES	
		1) Myself		
		2) Husband		
		3) Myself \$ anyone else		
		4) Other _____ (specify)		
507	What were the reasons for seeking care at the pregnant women waiting area? Probe: circle all mentioned		0 NO 1 YES	
		1) For a good pregnancy outcome		
		2) Complications		
		3) Previous use of a maternity waiting home		
		4) Referral from a health facility or a health worker		
		5) Recommended by a family member		

		or friend		
		6) Other-----		
508	How satisfied were you with the services at the pregnant women waiting area?	0 Very unsatisfied		
		1 Unsatisfied		
		2 Neutral		
		3 Satisfied		
		4 Very satisfied		
509	What services were available while you were in the pregnant women waiting area?		No	
			Yes	
		1) Food		
		2) Kitchen utensils		
		3) Electric light		
		4) Drinking water		
		5) Accommodation for companion		
6) Other _____ _____specify				

Thank you. We very much appreciate your time

Annex II

Kambatigna version questionnaire

Xa'mmuta

Jimma University

Institute of Health Sciences

Department of Epidemiology

Muggeen topheen kambaatti xambaaro zanaan dambooya woradaan Lamm folaaka follooci min ta'mmi duuhataa ta'mmu kantaa xawaakataa qormii qixanteetaa xa'mmaka

I. Sereketoon dagantoo manii malleeshata

Hallo: Xumma galteen/xumma hosseen?

Emman xumma waalteen yaan su'mmuid _____ . Lammi folaaka fooloci mini ta'mmi duuhata kantaa maanakataa qormii hasisano sawitta ki'nneech aaqota kabar kanbechu waaleem. Mato 20 daqiiq qaxa xoofaa xa'mmakata xa'mmanki'nne. Ku serekettu ammaka fayimata woyisiihaa ammaka rehuta kotisiihaa kaa'llano daffii ki'nnee gare fanqashut serrekettoohans abissi kaa'llitaa. Ta serreketoon daganteenunta abiniin xa'mmanteenandagamu hoogu quuxaanki'nne, hatta aagumbu xa'mmutaa xa'mmusi insiich birsiteen xa'mmiyenii xa'mmo mereeronnii agurteen agurrii danditeenanta . A'nno,oot assiteenanta sawwittu hakuunii tanni sereketoo kaa'llanua bagaan wollii kulamumbua. Tanni srekketoon dagamii danditeentaa lottoreenet worroodiin xaafamo saitta hindi yitteen laagatta attentada serreketus qaxalii dandinaam

Serreketo yaadu: Lamm folaaka follooci min ta'mmi duuhataa ta'mmu kantaa xawaakataa dambooya woradi amaaka aleen qormii.

Serreketo tammit: Tanni serreketoon dagamiin daqqiteenanta tammit yooba,a. Xawu ikkodaa sereketus wolle serrreketoo shoohuta ikki kaa'llitaaunii dambooya woraddan ta'mmu kantaa xawaakata annana assiin yaada yaadii kaa'llano.

Serreketus eebaa hawwu: Ti serreketus ki'nnee aleen eebaa hawu yooba,a.

Sawwita aassonno manni garit: tann sereketoon dagamu ki'nneetaa garri serrketo merreeroon agurriha danditeenanta haseenta xa'mmoba marihaa danditeenanta.

Fojuta: sawwitu'nne wollii kulamunbuunii su'mmu'nee xaafamunbua.

Laaga hidirru

Alluudiiin xaafamo sawwita anababeem ten aaggaae laaggaan anababamee, enii hind yi aaqeemni. Tann serreketon dagamii hassanindo?

1, Aa'aa (galaxxaam yit uuris) 2, Aaa (xa'mmus awant xa'mmi)

Serreketos anni su'mmu Yonaas Pheexiroos Handeebo

Ma'nnit:- Tillileenu +251916747450 Email yonaspertos27@gmail.com

Roshas mini su'mmu:- Jimma institute of health science research ethics committee

Ma'nnit: Jimma Ethiopia

POsaxiinu:378

Xa'mmamo Manchu laaga hidiru aaqi xa'mmameed xa'mmus xa'mee manch/cho furmu _____

Xa'mmos baru (Tophewollogiin) _____ / _____ / _____

Xa'mmos laalut 1, Xoofeeu 2, Fanqashano Manchu yooba, a 3, Gibeeu 4, Xoofimba, a

Supervayzeriin cheekaikkeu su'mmu _____ furmu _____ baru _____

Wollut	Xa'mmut	Fanqasho hagaru	Fanqas hut	Sawwittu
100	Socio-demographic questionnaire			
101	Qaballit	_____		
102	Ummuru woggeen	_____		
103	Bollochi hagarru	1) Mini assitteeta		
		2) Hardichuta		
		3) Mini Manchu reettaa		
		4) Gafa'rraqanteeta		
		5) Wollu _____		
104	Ammannaattukki mahaan?	1) Ortodokisa		
		2) Isliminaa		
		3) Protestaanta		
		4) Katolika		
		5) Wollu'rr'ooot _____		
105	Rossha duuhat hattet	1) Anababuhaa xaafuhaa dandumbuu		
		2) Anababuhaa xaafuhaa xalla dandannoo		
		3) Wonna Gardabbi roshata (kifili 1-8)		
		4) Lanki Gardabbi roshata (kifili 9-10)		
		5) Preparatooreroshata (kifili 11-12)		
		6) Higher education		

106	Minni anni Rosha duuhat hattet	1) Anababuhaa xaafuhaa dandumbuu		
		2) Anababuhaa xaafuhaa xalla dandannoo		
		3) Wonna Gardabbi roshata (gardabbi 1-8)		
		4) Lanki Gardabbi roshata (gardabbi 9-10)		
		5) Preparatoore roshata (grad 11-12)		
		6) Higher education		
107	Hujjikki mahaan?	1) Minni ammatta		
		2) Zazzallaanchuta		
		3) Rossaanchuta		
		4) Mangisttiyee hujataanchu		
		5) Hoggutta		
		6) Wollu _____		
108	Minniich faayimma qorrabi mini iillanqaxxee meu sa,atta aaqanno	Jeechut daqiiqqiin: _____		Sa,attain kullamoda daqiiqiba doorri
	Qabaaxo keenantuta			
109	Mini manii caakisantoo aphut yoo'nendo?	Radoonu	0 Aa'aa 1 Aaa	
		TV	0 Aa'aa 1 Aaa	
		Mejjeju	0 Aa'aa 1 Aaa	
		caalsaanchu	0 Aa'aa 1 Aaa	

		Biskeetu	0 Aa'aa 1 Aaa	
		Dodoqit	0 Aa'aa 1 Aaa	
		Seatu	0 Aa'aa 1 Aaa	
		Mobayili tilileenu	0 Aa'aa 1 Aaa	
		Osaeno ma'nnatwimaariinin	0 Aa'aa 1 Aaa	
111	Woa daqqiteenanta micheet	1 Buub Woa 2 Elehaa 3 Zaazzano Woa 4 Wollu		
112	Shuma minu yoo'nnendo	0 Aa'aa 1 Aaa		
113	Shumas mini hagarru hattigoonnaan?	1 Ube Ullaneet 2 Eloo Emmeet 3 VIP 4 Wollu		
114	Ichata sholii ta'mmiteenanta mahaan?	1 Haqqita 2 Kashalaa 3 Korrontita 4 Wolloot		
115	Annanu ichaatta sholleno minu yoo'nnendo	0 Aa'aa 1 Aaa		
116	He,eenanta minu ayeen?	1. Gagiye 2 Manniich kera aphineemiyaa 3 Mangistiich kera aphineemiyaa 4 Annakat aatttehaa 5 Wollu		

117	He,eenanta mini gaxu miich wezameehaan?	1. Buchaa 2. Simintooch 3. Wollu		
118	He,eenanta mini gidgidu miich wezameehaan?	1. Orciichii haqeechii 2. Orciichii Simintoochii 3. Blokeetiich 4. Wollu		
119	He,eenanta mini alus miich wezameehaan?	1. Qorqoruta 2. Ubaanaa 3. Wollu		
120	Meu osso kifilu yoo'ne	_____		
121	Hogo uulat yoo'nnendo	0 Aa'aa 1 Aaa		
122	Meu hectaaru yoou	_____		
123	Hawanku mini gizzu yyo'ne	Lalu		
		Gammamu		
		Hoollatii fellauhuu		
		Antabecu		
123	Baanki quxuru yoos manchu mine yoo?	0 Aa'aa 1 Aaa		
200	OBSTETRIC HISTORY			
201	Meitta koddatta lamfoollaka aassantaa kaalatuta aaqqitteent	1) Mexenii marimba'a 2) Matita koddatta awneem 3) 2-3 koddatta awaneem 4) >=4 koddatta awaneem		
		99) daggimba,a?		

202	Meiitta koodata sallee,nnit kassa?	1. matita koodata		
		2. mattiich abbaa		
203	Onxanne hoongeen waalii danditta fayyima hawwaakka tannee kullameekke?	1) Aaa		Fanqashut fanqashut “2” or “88”go to 206
		2) Aa’aa		
		88=Daggimba,a		
204	Kulantooke hongeen waallii dandittaa fayyima hawaakata kulli?		1.Aaa	
			2.Aa,aa	
		1) Qeggi zaazu		
		2) Iibbu		
		3) Anga ille lokka darshannat		
		4) Kee,mmaashatt hoongitt		
		5) Boqqo damuummitt		
		6) Huxisu		
		7) Qerra’rru baalu		
		8) Qeggi kontitt		
9) Wollu _____				
205	Hongeen waallii dandittaa fayyima hawaakata gambba yitti kassakendo	1) Aaa		
		2) Aa’aa		
206	Ka ciila hakanne illiteent?	1) Fiyyimma xaxxiti minneen		Fanqashut “1” ikooda 208 mari
		2) Minne		
		3) Fayyima xaxxitti minni maran woqqaan		
		4) Wollu ----- (boyees)		
207	Fayyimatta qorrabi minneen illu hoggoont daafus mahaan?		1 Aaa	
			2 Aa’aa	
		1) Woqqee qee’rimat		

	Kultooii hundanka maraxi.	2) Illisiis kaalatut aasantaaga dagu hooggiin 3) Hasisanoo aguji macocamimba,a 4) Traanspoorta hoggiin 5) Mine faqqadamu hoggiin 6) Kaalatoohans baatamanno gizzu bataiin 7) Danaamit kaalatut aasantumbo bikkii 8) Fayyima lubbaamatt danaammoga xuudumbo bikkii 9) Fayyima lubbaamatt baccaa bikkii 10) Ilisisaa lubbaamat heumbobikkii 11) Mannu bata,anno bikkii 12) Fayyima xaxxitti mini waajiin 13) Ilisisaa ammaakkatt olloon heiin 14) Fayyima minimara woqaan illeem		
208	Tann illaan fayyima mini marii traanspoort hawu gamba yeeke?	0) Aa'aa 1) Aaa		
209	Gamba yeeke hawu mahaan?	_____		

210	Fayyima mini kessan bargam mare Manchu yoondo?	0) Aaa 1) Aa'aa					
3	Attitudina Subjective norm keennatuta						
300	Attitudikeennatuta. Key 1=abbish ama'naamba'a 2 = ama'naamba,a 3= mereeranchua 4= ama'naam 5= abbish ama'naam		1	2	3	4	5
301	Essaa 15 bari illach birseen egeru danaamua						
302	Essaa 15 bari illach birseen egeru kaa'lla'nnaa						
303	Essaa 15 bari illach birseen egeru culu assa'nnaa						
304	Essaa 15 bari illach birseen egeru shiggig assummbua						
	Subjective norm keenatuta						
305	Essaa yoo'e yam mannu horunku baalu affanno anniich 15 birita lamfollaka follocatti mminneen eggerunta assa'nnaa						
306	Essaa yoo'e yam mannu horunku baalu affanno anniich 15 birita lamfollaka follocatti mminneen eggerunta sawwi yaa'nnaa						
307	Essaa yoo'e yam mannu horunku baalu affanno anniich 15 birita lamfollaka follocatti mminneen hasa'nnaa						
308	Essaa yoo'e yam mannu horunku baalu affanno anniich 15 birita lamfollaka follocatti mminneen qorrabama,nnua						
400	Perceived barrier Key 1= abbish ama'naam 2= ama'naam 3= mereeranchua 4= ama'naamba,a 5= abbish ama'naamba,a		1	2	3	4	5

401	Illata illaam anniich 15 bar birsi ammaaka follooci mineen egeru kee'maasha					
402	Kaa'llanoe manchu illata illam anniich 15 bar birsi ammaaka follooci mineen egeru kee'maasha					
403	Lamfollaaka amaaka foloocii mini agur maroomida mine yoo cillakat qoorabano manchu daqqu hawwaa					
404	Illata illam anniich 15 bar birsi ammaaka follooci mineen egerii hasisano gizu kee'maasha					
405	Kaa'llanoe Manchu 15 bari hujeech qee,rru ke'mmaasha.					
406	Essaa 15 bari hujeech qee,rru ke'mmaasha.					
500	Lamm folaaka mini ta'mmi duuhata					
501	Lamm-follaaka follooci minitannee kanniich bire macooti kassa?	0 Aa'aa				
		1 Aaa				
502	Lamm follaaka follooci minu fayyima qorabbi xaxxitti mnneen hues macooti kassa??	0 Aa'aa				
		1 Aaa				
		88 Dagaamba'a				
503	Lamfollaaka follooci minneen folloocit kassa?	0 Aa'aa				
		1 Aaa				
504	Lammi follaka foollooci mini aageentii meiqi aganaaneti ikke?	(wollut aganiin) 88 (illanatiich zakiin ikkoda)				
505	Lammi follaka foollooci mineen meu bari egerteenta?	1) 15 barihaa aluudiinii				
		2) 15 bareech woroodiin				
506	Lammi foollaakka mini kaa,llaqituta asseeii ayeet?		1=Aaa			
		2=Aa'aa				
		1) Gagaankai				
		2) Aroohaa'nni				
		3) Arroonii annii mexedooman				
	4) Balluta'nni					

		5) Fayyima lubaamaatta		
		6) Olloon yoo illisiis lubaamitt		
		7) Ollee fayimma lubaamu		
		8) Wollu heoda caakkis_____		
	Lamm follaka foolooci mineen kaalatuta daqqituta assee mashuku mahaan?		1=Aaa 2=Aa'aa	
		1) Saloo danaamu ihunta hasaam bikii		
		2) Sale'nniin xaacee ke,mmaashu fayyima hawu yooe daafii		
		3) Kanniich biren kaa'llaqaam bikkii		
		4) Fayyimaa lubaammat kaa'llaqunt sokkoo daafii		
		5) Mini manuhuu jaalaakaii mari yitoo bikii		
		6) Wollu yooda caakkis----- -		
507				
	Lammi follaaka foollooci mineen aassantaa kaalatoon hawanka bajigeent?	1) Abish Bajigimba,a		
		2) Bajigimba,a		
		3) Mereeranchua		
		4) Bajigeem		
		5) Abbish bajigeem		
508				
	Lamifollaka folooci minneen ma-ma kaalatuta daqitteent?		1=Aaa 2=Aa'aa	
		1) Ichata		
		2) Dummi aazi oddakkata		
		3) Korrontita		
		4) Aggeenno woa		
		5) Kaa'llanoe manchi foolooci ma'nnita		
		6) Wollu yooda caakis -----		
509				

ANNEX_III

DECLARATION

I, the undersigned, Master of Public Health in General public health student declare that this thesis is my original work in partial fulfillment of the requirement for the degree of Master of Public Health in General public health.

Name: YONAS PETROS

Signature: _____

Name of the institution: Department of Epidemiology, Faculty of Public Health, Institute of Health, Jimma University.

Date of submission: _____

This thesis work has been submitted for examination with our approval as University advisor(s).

Approval of advisors

1) Dr. SAHILU ASSEGID (ASSOCIATE PROFESSOR)

Signature-----

2) Mr. TAMRAT SHEWANEH (BSC, MPH, ASSISTANT PROFESSOR)

Signature-----