

**RESEARCH PAPER**

# Urban-rural disparity and determinants of delivery care utilization in Oromia region, Ethiopia: Community-based cross-sectional study

Dinke Kenea MSc Lecturer<sup>1</sup> | Hunduma Jisha MSc Lecturer<sup>2</sup><sup>1</sup>Oromia Labor and Social Affairs Agency, Addis Ababa, Oromia, Ethiopia<sup>2</sup>Health Science College, Jimma University, Jimma, Oromia, Ethiopia**Correspondence**Hunduma Jisha, Jimma University, Health Science College, Jimma, Oromia, Ethiopia.  
Email: hunjisha@gmail.com**Funding information**

Oromia Labor and Social Affairs Agency

**Abstract**

Low delivery care utilization continues to be a public health problem that significantly contributes to maternal morbidity and mortality, especially in developing countries like Ethiopia.

The aim of the study is to determine the extent of urban-rural disparity of delivery care utilization and its determinants.

A community-based cross-sectional quantitative study supplemented with qualitative data was conducted from February 15 to March 10, 2014. Data were collected from eligible woman using interviewer-guided semistructured questionnaires and focus group discussions. Logistic regression analysis with 95% confidence interval and *p*-value less than 5% was used to identify potential determinant variables.

From 567 women, institutional delivery care was attended by 45.9% (260) respondents of whom 69.3% were urban and 21.3% were rural. Mass media and antenatal care attendance were the major determinants in urban respondents, whereas children ever born, partners' occupation, women's autonomy, and pregnancy-related health problems were statistically significant associations in rural women.

The need for maternal health care is not met to the required level. There is a significant disparity in delivery care attendance among urban and rural women of the study area. Women's empowerment and awareness creation should be extensively worked on through mass media and posters or health information.

**KEYWORDS**

antenatal care, delivery care utilization, determinant, Ethiopia, midwifery, place of childbirth

**SUMMARY STATEMENT**

What do we know?

- An Ethiopian Demographic and Health Survey of 2011 showed institutional delivery care utilization was very low and varied from place to place ranging from 12.1% to 38.1%.
- Despite extensive work on the prevalence of institutional delivery, little has been done to explore the extent of urban-rural disparity and its determinants.

What this study adds?

- This study showed institutional delivery in 45.9% (260/567) of participants; the majority (69.3%) of whom were urban women.
- Statistically significant associations with delivery care utilization were mass media exposure and antenatal care attendance for urban

women; in rural women, previous childbirth, partner's occupation, autonomy of the respondent, and pregnancy-related health problems encountered during pregnancy were significant.

The implications of this paper:

- Optimal awareness creation and public health information need to be provided, and the importance of antenatal care service and institutional delivery has to be promoted.
- There have to be alternative ways to start antenatal care for women who have difficulty bringing their partner along.

**1 | INTRODUCTION**

Despite significant improvements in ensuring access to modern maternal health care, studies have shown that women continued

uninterested in attending delivery care service in Sub-Saharan Africa including Ethiopia. Low utilization of maternal health care services for delivery has been a research agenda for a long time. Being a long distance from health services, high costs, multiple demands for women's time, low coverage, and poor quality of care have been identified as key factors, which hinder women from seeking institutional delivery services. Pregnancy and childbirth are normal and continuous processes in which many women are at risk for developing complications during pregnancy and childbirth (Babalola & Fatusi, 2009; Requejo, Bryce, & Victora, 2012; WHO, UNICEF, UNFPA, WBG, & UNDP, 2012).

Maternal health care service is considered one of the foundation stones for safe motherhood. But the need for maternal health care is not met to the required level; specifically, delivery care utilization is lower and continues to be a public health problem in Sub-Saharan countries. Although global maternal deaths have dropped from 543 000 per year in 1990 to 287 000 per year in 2010, Sub-Saharan African and South Asian countries are still suffering a lot of maternal mortality. The African woman's lifetime risk of dying from pregnancy-related causes is 100 times higher than that of a woman in a developed country (Babalola & Fatusi, 2009; Lawn, Tinker, Munjanja, & Cousens, 2006).

The importance of antenatal care (ANC), delivery care, and postnatal care have been well documented as effective tools in screening, preventing, and treating disease- and pregnancy-related complications. It is widely accepted that maternal mortality is generally preventable and that states have an affirmative obligation to prevent this (Kinney et al., 2010; WHO, UNICEF, UNFPA WBG and UNDP, 2012). The majority of maternal deaths occur because of unexpected complications, which would require the availability of emergency obstetric care and services (Requejo et al., 2012).

According to the Ethiopian Demographic and Health Survey of 2012 (Agency, 2012), the maternal mortality ratio was 676 per 100 000 live births in this country. This is among the highest in the world. Different studies explain that one of the important causes for poor health outcomes among women is the absence of utilization of modern maternity care by the majority of women in the country (Dana, Noreen, & German, 2003; UNICEF. The State of the World's Children, 2009).

Although many efforts have been made to increase the coverage of health care service centers, little improvement has been noticed regarding utilization, especially, of delivery care services at a national level. About 20 000 Ethiopian women are dying each year from complications of pregnancy and childbirth with many more maternal morbidities occurring for each maternal death (World Health Organisation. Maternal Death Surveillance and Response (MDSR) Technical Guideline, 2013). In Oromia regional state, 60.5% of pregnant women have not received ANC from a skilled provider and 91.5% of births were delivered at home (Agency, 2012). A 3-year review of district documents showed institutional delivery care (IDC) utilization was 9.1% in urban and 1.3% in rural areas.

Even though this review revealed the magnitude of delivery care utilization over 3 years, there is no current information or any detailed information why the IDC utilization is so low. Therefore, this study aimed to evaluate the magnitude and explore the determinants of delivery care utilization in the study area.

## 2 | METHODS

### 2.1 | Study area and period

This was a comparative cross-sectional community-based study using quantitative and qualitative data collection methods in Dale Wabera District, Oromia regional state. This region is located 585 km to the west from Addis Ababa, Ethiopia. In 2007, the district was inhabited by around 129 707 people, among whom 64 664 were female, 26 781 of whom were of reproductive age (Central Statistics Agency, 2007 census). It has 4 urban and 34 rural kebeles (residential areas and villages). In the Dale Wabera district, there are 2 health centers and 34 health posts run by the government and 16 small clinics and 1 higher clinic owned by private and a nongovernmental organization, respectively.

### 2.2 | Study population

All women of reproductive age (15-49 years) who have been residents of the Dale Webera district and had at least 1 live birth in the past 3 years prior to the survey were eligible. If a woman had more than 1 live birth in the past 3 years, the only care received for the most recent live birth was considered for data collection. Women unable to communicate (both mentally and physically ill) or who did not give live birth in the past 3 years preceding the survey were excluded.

### 2.3 | Sample size determination and sampling procedure

The sample was recruited from 2 residential areas; hence, the size was determined and doubled, assuming an equal number of respondents in each of the 2 areas. Using the previously reported delivery care utilization proportion (Dale Webera District Health office report of 2012) among both residential areas of urban women =0.091 and rural women =0.013, with a confidence interval of 95% and margin of error 5%, we calculated the sample required as  $n = 267$  from each location. Since the sampling method involved multistage-sampling techniques, we considered a design effect of 1.8. Allowing for 10% nonresponse rate, the final sample size was 294 for each urban and rural population; thus, the total sample size calculated was  $n = 588$ .

From a total of 4 urban and 34 rural kebeles in the district, 2 and 4 kebeles from urban and rural areas, respectively, were selected using a simple random-sampling technique. We used stratified random sampling to get 588 study subjects, proportional to the kebele's population. An initial list number of women who have given birth in the past 3 years before the survey irrespective of the outcome of pregnancy were obtained from each health worker of the 6 selected kebeles. The actual sample was selected by simple random sampling.

### 2.4 | Data collection and measurement

Data were collected by a face-to-face interview using a structured questionnaire modified from a questionnaire used in the Ethiopian Demographic and Health Survey (EDHS), 2012, to collect information on sociodemographic characteristics, health service barriers, knowledge of pregnancy-related health problems, and delivery care

utilization. The questionnaire was prepared in English and translated to Afaan Oromo (and vice versa to check its accuracy), the official language of the region, Oromia.

Before the study started interviewers and supervisors were given one and half days' training about the aims of the study and data collection techniques, and going through the questionnaire questions. After the pretest had been completed, data were collected by interviewing women who had delivered at least 1 child in the study area.

A total of 6 focus group discussion (FGD), each with 6 to 8 participants, was performed. These FGDs were conducted with women aged 15-49 years, to get in-depth information on key issues. Qualitative data were generated from the selected women and service providers using an unstructured interview guide; the main topics discussed were awareness about utilization of delivery care services and the main reasons for not using delivery care. Each FGD was recorded using a tape recorder.

## 2.5 | Data handling, analysis, and interpretation

Data quality was assured by properly designing and pretesting the questionnaire, training the interviewers and supervisors on data collection procedures and the processes of categorizing, and coding the questionnaire. Questionnaire results were checked every day for completeness by the supervisors, and the necessary feedback was offered to data collectors the next morning before data collection. Qualitative data were directly collected by the principal investigators.

After field work, questionnaires were checked and coded. Data were manually entered into SPSS Version 20. Data cleaning was executed by using frequencies and cross-tabulations to check accuracy, outliers, consistencies, and missing values. Accordingly, incorrect entries were identified and reentered.

Descriptive analysis—percentages, means, and standard deviations—were computed to describe the study population in respective of sociodemographic and other relevant variables. The methods of analyses were thematic analysis for qualitative data; bivariate and multivariate logistic regression analysis was used for quantitative data. Logistic regression analysis was used to identify potential determinant variables. Odds ratios with 95% confidence interval (95% CI) were used to assess the association of variables. Odds ratios were used in bivariate and multivariate logistic regression analysis to determine the effect of various factors on the outcome variable. In logistic regression analysis, each explanatory variable was assessed for its association with the outcome variable; those variables whose *p*-value < .25 were taken as candidate variables for further analysis using logistic regression. A *p*-value less than 5% was used to identify significant association.

## 2.6 | Ethical considerations

Ethical clearance was obtained from Addis Ababa University College of Development Studies. A formal letter of cooperation was written from the Oromia Regional Health Bureau, Zonal Health Office to Dale Webera District health office. Permission was obtained from the relevant bodies of Dale Webera administrative and district health office. Prior to interview respondents' consent was sought to participate in the study. They were informed that all data obtained from them would

be handled confidentially. At the end of every interview, respondents in the nonuser group were advised to attend antenatal and IDC services.

## 3 | RESULTS

### 3.1 | Sociodemographic characteristics of respondents

From a total of 588 selected women, 567 (96.42%) gave a complete response; of which 290 were urban and 277 were rural residents. Of the total respondents, 460 (81.1%) were women aged between 20 to 34 years; 302 (53.3%) were illiterate; 536 (94.5%) were married; 271 (48%) had 3 or more children and 155 (27.3) were housewives.

Of 277 rural respondents, mean age was 27.07 (SD 5.59) years and 227 (81.9%) were aged 20 to 34 years; 281 (96.8%) were married; 198 (68.2%) were farmers and 48 (17.3%) were housewives; 147 (53.1%) had an income of 500 to 1500 birr per month and 45.5% earned less than 500 birr (about US \$22).

Among 290 urban respondents, mean age was 24.94 (SD 5.76) years with 233 (80.3%) aged 20 to 30 years; 179 (38.3%) were illiterate; 256 (92.4%) were married; 107 (36.9%) were housewives and 80 (27.6%) farmers; 155 (53.4%) had an income of 500 to 1500 birr per month and 59 (20.3%) earned less than 500 birr.

About 3 quarters (76.1%) of the rural respondents were married to farmers, while only one-third (29.1%) of urban respondents. Almost 31% of rural but only 9.7% of urban respondents' partners did not attend formal education (See Table 1).

### 3.2 | Delivery care and health care utilization barriers

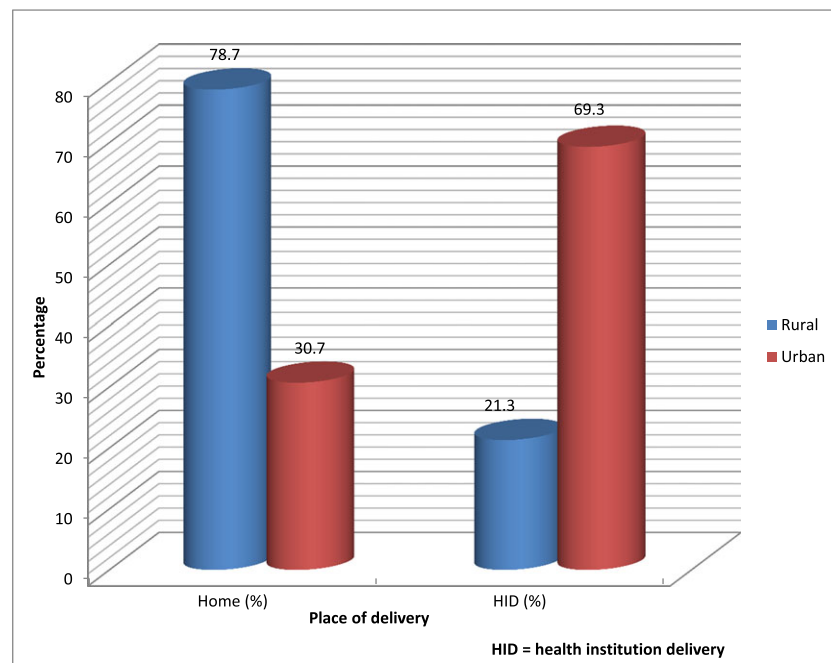
Of all respondents, 260 (45.9%) women gave birth at the health institution; of which 201 (69.3%) were urban and 59 (21.3%) were rural respondents. (See Figure 1)

Antenatal care visits were reported in 81% and 54.5% of the urban and rural women, respectively. For about half (54.5% of urban and 50.9% of rural women), the visit was done in the second trimester. Health facility delivery during the most recent pregnancy was higher, at 201 (69.3%), among urban women than in rural women, at 59 (21.3%).

More than 3 in 5 (63.5%) urban and 1 in 4 (24.2%) rural women made this decision by themselves or in consultation with their husband. One in 5 (20.7%) urban and 3 in 5 (62.1%) rural women reported complaints of pregnancy-related health problems during delivery. In the urban area, 158 (54.5%) and 153 (52.8%) respondents indicated that they preferred to have a male health care provider during ANC and delivery, respectively. However, 71.5% and 70.8% of rural respondents showed preference for a female health care provider during ANC and delivery care, respectively. About 31.0% of rural and 7.2% of urban women reported that they experienced more than 36 hours in labor. Almost two-third (61.7%) and more than one-third (37.2%) of birth outcomes in urban and rural areas, respectively, were undesirable or bad (see Table 2).

**TABLE 1** Sociodemographic characteristics of respondents by residence, Dale Webera district, Kellem Wollegga zone; 2014

Variable	Urban n (%)	Rural n (%)	Total n (%)
<b>Age</b>			
15-19	31(10.7)	13(4.7)	44(7.8)
20-34	233(80.3)	227(81.9)	460(81.1)
35-49	26(9)	37(13.4)	63(11.1)
Total	290(100)	277(100)	567(100)
Mean/Std. deviation	24.95(5.76)	27.07(5.59)	25.99(5.77)
<b>Marital status</b>			
Married	268(92.4)	268(96.8)	536(94.5)
Others	22(7.6)	9(3.2)	31(5.5)
Total	290(100)	277(100)	567(100)
<b>Children born</b>			
1-2	172(59.3)	123(44.4)	295(52)
3-4	85(29.3)	98(35.4)	183(32.3)
> = 5	33(11.4)	56(20.2)	89(15.7)
Total	290(100)	277(100)	567(100)
<b>Educational status of respondent</b>			
No schooling	111(38.3)	191(69)	302(53.3)
Elementary school (1-8)	103(35.5)	67(24.2)	170(30)
Secondary high school (9-12)	61(21)	18(6.5)	79(13.9)
College diploma and above	15(5.2)	1(0.4)	16(2.8)
Total	290(100)	277(100)	567(100)
<b>Respondent occupation</b>			
Housewife	107(36.9)	48(17.3)	155(27.3)
Farmer	80(27.6)	189(68.2)	269(47.4)
Others	103(35.5)	40(14.4)	143(25.2)
Total	290(100)	277(100)	567(100)
<b>Educational status of respondents' partners</b>			
No schooling	26(9.7)	83(31)	109(20.3)
Elementary school (1-8)	104(38.8)	147(54.9)	251(46.8)
Secondary high school(9-12)	104(38.8)	30(11.2)	134(25)
College diploma and above	34(12.7)	8(2.9)	42(8)
Total	268(100)	268(100)	536(100)
<b>Respondents' partner occupation</b>			
Farmer	78(29.1)	204(76.1)	282(52.6)
Others	190(70.9)	64(23.9)	254(47.4)
Total	268(100)	268(100)	536(100)
<b>Average family income, birr/mo</b>			
<500	59(20.3)	126(45.5)	185(32.6)
500-1500	155(53.4)	147(53.1)	302(53.3)
>1500	76(26.2)	4(1.4)	80(14.1)
Total	290(100)	277(100)	567(100)
Mean/Std. deviation	1187.43 (842.35)	567.56 (304.99)	884.60 (709.81)
<b>Family size</b>			
1-4	155(53.4)	101(36.5)	256(45.2)
5-8	125(43.1)	144(52.0)	269(47.4)
> = 9	10(3.4)	32(11.6)	42(7.4)
Total	290(100)	277(100)	567(100)
Mean/Std. deviation	4.60(1.65)	5.56 (2.19)	5.07 (1.99)
<b>Media exposure (radio/TV)</b>			
Yes	15(18.3)	2(1.1)	17(6.5)
No	67(81.7)	179(98.9)	246(93.5)
Total	82(100)	181(100)	263(100)



**FIGURE 1** Percentage distribution for place of delivery

Among those women who said “YES” to knowledge of pregnancy-related complications, urban women mentioned more conventional danger signs than rural women (see Figure 2).

The reasons indicated by rural women why they preferred home delivery was the distance to health institutions, the cost of delivery care, and cultural influences. By contrast, urban women preferred home delivery because they had not had a prior bad experience in any previous delivery, because of cultural influences and their family's preference to deliver with relatives nearby (see Figure 3).

All FGD participants agreed that IDC is the best way to reduce maternal deaths and fetal loss. Nonetheless, the hindrances to institutional delivery that were claimed during discussions included: that to attend ANC, they were forced to come with their husband to start ANC care; the distance of the health institution from home coupled with the lack of transport; and distrusting the information given by health workers, such as false estimated delivery date and risk of still birth.

### 3.3 | Predictors of delivery care utilization

Multivariate logistic regression was performed to determine the best predictive variables of delivery care utilization in both residential areas using variables found to be statistically significant during bivariate analysis.

The result showed that mass media exposure and ANC attendance were the best determinant factors of delivery care utilization in urban residents; for rural women, prior childbirths, partner's occupation, the autonomy of the women, and pregnancy-related health problems were statistically significant.

The likelihood of delivery care utilization among urban women without any exposure to mass media was lower by 67.5% by comparison to women who had exposure to media [AOR = 0.32, 95% CI = 0.14-0.76]. Women who did not attend ANC at least once were 3 times less likely to use delivery care than women who attended [AOR = 2.87, 95% CI = 1.19-6.92].

In the rural residents, the likelihood of delivery care utilization among women who gave birth to 5 or more children was 0.07 times lesser compared to women who had given birth once or twice [AOR = 0.06, 95% CI = .01-0.64]. Women whose partner's occupation was a farmer were 0.3 times less likely to attend delivery care at a health institution compared to women whose partners were involved in nonfarming occupations [AOR = 0.31, 95% CI = 0.13-0.72]. The likelihood of attending delivery care was higher among those rural women whose decision to attend was made by husband or relatives compared with rural women who decided by themselves [AOR = 7.78, 95% CI = 1.69-35.77] and [6.12, 95% CI = 0.41-90.71], respectively. Women who had faced pregnancy-related health problems during pregnancy were more likely to attend for delivery care at the health institution: 71.8% more than women who had not had this experience [AOR = 0.28, 95% CI = 0.11-0.74] (see Table 3)

Numbers of children ever born, educational status of respondent partner, respondent partner/ husband's occupation, distance from a health institution, and media exposure were found to be the overall predictor variables for delivery care utilization in the Dale Wabera district. The study revealed less likelihood of attending IDC for women with 3 or more children ever born in comparison with those who had ever born 2 children or less [AOR = 0.89, 95% CI = 0.53-1.50] and [0.32, 95% CI = 0.14-0.71], respectively.

A woman whose partner was uneducated was 59.3% less likely to use delivery care compared to a woman whose partner was educated to diploma level and above [AOR = 0.41, 95% CI = 0.12-1.34]

Being a farmer's partner hindered them from attending delivery care when compared with women whose partners were in nonfarming occupations (such as private/government employee, petty trading, daily laborer, and owner of the shop) [AOR = 0.53, 95% CI = 0.32-0.88].

Women living far from a health institution 70.2% less often attended IDC services compared to those living nearby [AOR = 0.30, 95% CI = 0.15-0.58].

**TABLE 2** Distribution and association of sociodemographic and health barrier factors with delivery care utilization in Dale Wabera district, Kellem Wollega zone; 2014

Variable	Delivery care attendance of rural			Delivery care attendance of urban		
	Home n (%)	HID n (%)	COR (95% CI)	At home n (%)	HID n (%)	COR (95%, CI)
<b>Age</b>						
15-19	6(2.8)	7(11.9)	13.22(2.65, 65.95)**	10(11.2)	21(10.4)	0.77(.24, 2.44)
20-34	178(81.7)	49(83.1)	3.12(.92, 10.59)	72(80.9)	161(80.1)	0.82(.33, 2.05)
35-49 (RC)	34(15.6)	3(5.1)	1	7(7.9)	19(9.5)	1
<b>Children ever born</b>						
1-2 (RC)	89(40.8)	34(57.6)	1	50(56.2)	122(60.7)	1
3-4	79(36.2)	19(32.2)	.63(.33, 1.19)*	26(29.2)	59(29.4)	.93(.53, 1.64)
> = 5	50(22.9)	6(10.2)	.31(.12, .80)	13(14.6)	20(10)	.63(.291, 1.364)
<b>Educational status respondents</b>						
No education	169(77.5)	22(37.3)	.0(0)	50(56.2)	61(30.3)	.44(.133, 1.479)
Elementary school	42(19.3)	25(42.4)	.0(0)	24(27)	79(39.3)	1.19(.349, 4.104)
Secondary school	6(2.8)	11(18.6)	.0(0)	11(12.4)	50(24.9)	1.65(.443, 6.172)
Diploma and above (RC)	0	1(1.7)	1	4(4.5)	11(5.5)	(1)**
<b>Educational status of respondents' partner</b>						
No education	76(35.7)	7(12.7)	.09(.02, .45)**	13(16.2)	13(6.9)	.21(.07, .69)*
Elementary school	117(54.9)	33(60)	.28(.07, 1.19)	39(48.8)	66(35.1)	.36(.14, .95)*
Secondary school	16(7.5)	11(20)	.69(.14, 3.35)**	22(27.5)	81(43.1)	.79(.29, 2.14)
Diploma and above (RC)	4(1.9)	4(7.3)	(1)**	6(7.5)	28(14.9)	(1)*
<b>Partner occupation</b>						
Farmer	175(84.1)	29(56.9)	.25(.13, .48)***	34(43.6)	44(23.4)	.39(.23, .69)**
Other (RC)	33(15.9)	22(43.1)	1	44(56.4)	144(76.6)	1
<b>Average family income birr/ month</b>						
<500	106(48.6)	20(33.9)	.19(.02, 1.42)	19(21.3)	40(19.9)	.43(.19, .98)*
500-1500	110(50.5)	37(62.7)	.34(.05, 2.47)	57(64)	98(48.8)	.36(.18, .70)**
>1500 (RC)	2(0.9)	2(3.4)	1	13(14.6)	63(31.3)	1
<b>Media exposure (radio/TV)</b>						
Yes (RC)	2(1.1)	4(7.3)	1	15(18.3)	67(34.2)	1
No	179(98.9)	51(92.7)	.14(.02, .80)*	67(81.7)	129(65.8)	.43(.23, .81)**
<b>Received ANC (at least once)</b>						
Yes	130(59.6)	35(59.3)	1.01(.56, 1.82)	55(61.8)	180(89.6)	5.30 (2.84, 9.87)***
No (RC)	88(40.4)	24(40.7)	1	34(38.2)	21(10.4)	1
<b>Lack of privacy</b>						
Yes	75(47.5)	26(45.6)	.93(.51, 1.70)	9(12.5)	49(25)	2.33(1.08, 5.04)*
No (RC)	83(52.5)	31(54.4)	1	63(87.3)	147(75)	1
<b>Autonomy of respondent</b>						
Self (RC)	62(28.4)	5(8.5)	1	59(66.3)	119(59.2)	1
Husband	151(69.3)	51(86.4)	4.19(1.60, 10.99)*	24(27)	75(37.3)	1.55(.89, 2.70)
Relative	5(2.3)	3(5.1)	7.44(1.36, 40.59)*	6(6.7)	13(3.5)	.578(.19, 1.80)
<b>Pregnancy related health problem during pregnancy</b>						
Yes	193(88.5)	44(74.6)	.38(.18, .78)**	19(21.3)	66(32.8)	1.80(1.00, 3.24)*
No (RC)	25(11.5)	15(25.4)	1	70(78.7)	135(67.8)	1
<b>Delivery outcome</b>						
Bad	134(61.5)	37(62.7)	1.93(.76, 4.89)	29(32.6)	79(39.3)	1.33(.76, 2.34)
Fair	42(19.3)	16(27.1)	2.67(.95, 7.48)	19(21.3)	38(18.9)	.98(.50, 1.90)
Good (RC)	42(19.3)	6(10.2)	1	41(46.1)	84(41.8)	1
<b>Professional's sex preference during ANC care</b>						
Male (RC)	56(25.7)	23(39)	1	52(58.4)	142(70.6)	1
Female	162(74.3)	36(61)	.54(.29, .99)*	37(4.6)	59(29.4)	.58(.35, .98)*

(Continues)

TABLE 2 (Continued)

Variable	Delivery care attendance of rural			Delivery care attendance of urban		
	Home n (%)	HID n (%)	COR (95% CI)	At home n (%)	HID n (%)	COR (95%, CI)
Distance of health institution						
Average (RC)	10(4.6)	208(95.4)	1	83(93.3)	197(98)	1
Too far	2(3.4)	57(96.6)	1.37(.29, 6.43)	6(6.7)	4(2)	.28(.08, 1.02)

Abbreviations: CI, confidence interval; COR, crude odd ratio; HID, health institution delivery; RC, Reference category.

\*P ≤ .05;

\*\*P ≤ .01;

\*\*\*P = ≤.001

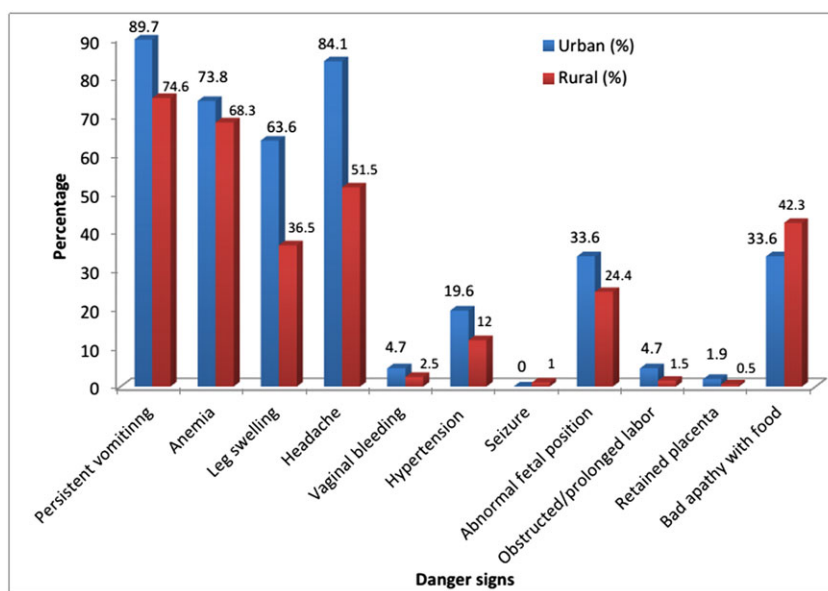


FIGURE 2 Percentage distribution of respondent's knowledge about danger signs during pregnancy

Women with radio and TV exposure 70% more often attended IDC services than their counterparts without media exposure [AOR = 0.30, 95% CI = 0.15-0.60]. (See Table 4)

### 3.4 | Focus group discussion findings

Women were asked about their experiences and knowledge of pregnancy and childbearing-related problems.

Overall, the majority of women reported that problems encountered during pregnancy and delivery at a health institution were cues to their future action. A 29-year-old FGD participant said, "...I face this problem because of poor quality of services by health care providers. After they give me an injection and told me to go back to my home, then I just fall on ground". Another FGD participant said, "Some women deliver at home because of not attending antenatal care during pregnancy".

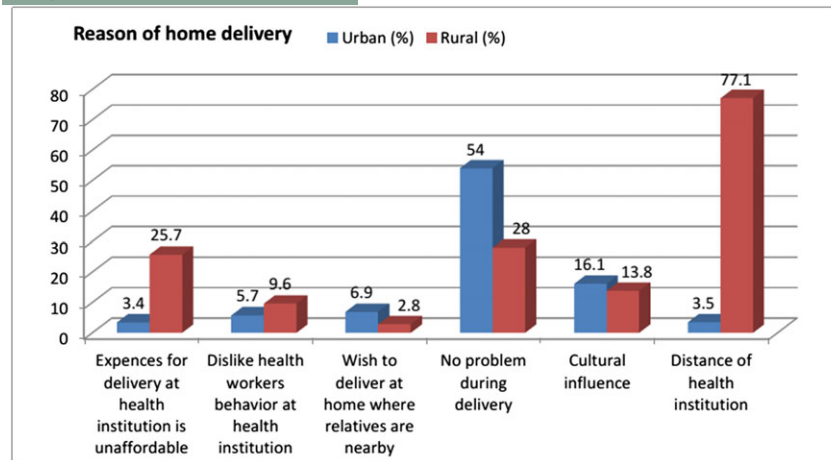
The absence of male/partner involvement was also mentioned as a problem. One of the FGD participants stated, "I delivered at home..... because the health workers strictly asked me to come with my husband for antenatal care and my husband did not agree". Participants also mentioned the experience of a woman they knew in their neighborhood, saying, "There was a woman who was forced to deliver at home at the

hand of an unskilled birth attendant because the health workers insisted on asking her to bring her husband, who has a mental problem, for antenatal care". The problem is even more worrisome for unmarried pregnant women. "Some unmarried women were forced to deliver without health care assistance and lost their pregnancy/children since health workers strictly asked them to bring their partner during pregnancy for antenatal care service provision".

## 4 | DISCUSSION

Nowadays, optimal maternal health care service utilization has been recognized as a global public concern. This study aimed to assess the determinants and urban-rural disparity of delivery care services utilization among reproductive age women in the general population of the Dale Wabera Woreda. So far, limited studies have been conducted in the area because of its distance from the central part and educational institution of the country.

The results of study showed that IDC services were used by 45.9% in the Woreda area; this is consistent with the finding of a study conducted in another similar area of Afar, Ayssaita, at 45.8% (Fenta, 2005). However the rate is higher than shown by studies conducted



**FIGURE 3** Percentage distribution of respondent's knowledge about danger signs during pregnancy

**TABLE 3** Predictors of institutional delivery care utilization among the urban and rural women of Dale Webera district, Kelem Wollegga zone; 2014

Variable	Delivery care attendance at		AOR (95% CI)
	Home n (%)	HID n (%)	
Urban			
Media exposure			
Yes (RC)	15(18.3)	67(34.2)	1
No	67(81.7)	129(65.8)	.33(.14, .76)*
Received ANC (at least once)			
Yes (RC)	55(61.8)	180(89.6)	1
No	34(38.2)	21(10.4)	2.87(1.19, 6.92)*
Rural			
Children ever born			
1-2 (RC)	89(40.8)	34(57.6)	1
3-4	79(36.2)	19(32.2)	.660(.276, 1.580)
> = 5	50(22.9)	6(10.2)	.06(.01, .64)*
Partner occupation			
Farmer	175(84.1)	29(56.9)	.31(.13, .72)**
Non-farmers (RC)	33(15.9)	22(43.1)	1
Pregnancy related health problem during pregnancy			
Yes	193(88.5)	44(74.6)	.282(.11, .74)**
No (RC)	25(11.5)	15(25.4)	1
Autonomy of respondent			
Self (RC)	62(28.4)	1(1.7)	1
Husband	151(69.3)	55(93.2)	7.78(1.69, 35.77)**
Relative	5(2.3)	3(5.1)	6.12(.41, 90.71)

Abbreviations: ANC, antenatal care; AOR, adjusted odd ratio; CI, confidence interval; HID, health institution delivery; RC, reference category.

\* $P < .05$ ;

\*\* $P < .01$ ;

\*\*\* $P = < .001$

in the Oromia region, East Gojjam, Adami Tullu, Bench Maji zone, north west, and in the Ethiopia EDHS (2011), at 18.2%, 29%, 17%, 38.1%, 12.1%, and 10%, respectively (Addisalem & Meaza, 2012; Alemayeh, 2012; Amano, Gebeyehu, & Birhanu, 2012; Berihan, 2010; Central Statistical Agency. Ethiopia Demographic and Health Survey, 2011; Fira, Ababulgu, & Bekuma, 2011). This difference might be due to the time of the study (the other studies were conducted around 2 years previously). The emphasis given to the development of health extension programs in training the health extension workers and the expansion of the health facilities in recent years could also be possible reasons. In addition to this, some improvements were made to optimize maternal health care services; for example, ambulance services, portage, "5

to 1" team formation to assist pregnant women to ANC attendance, and coffee ceremonies were arranged by the community around the health institution. On the other hand, reports from Denbia Woreda and Goba district, Ethiopia, showed better uptake than our findings, at 69.7% and 47% (Odo & Shifti, 2014; Tekelab, Yadecha, & Melka, 2015), respectively. This discrepancy may be related to cultural differences among the 2 communities.

The overall goal of communication initiatives for reproductive health and the Millennium Development Goal in 5 years (MDGs 5) was to raise awareness and influence the public and political agenda globally and nationally. Initiatives focused on emergency obstetric care, social determinants of maternal mortality, midwifery, and fistula. This has been addressed through social and mass media (Fira et al., 2011; World Health Organization (WHO), 2014). This study showed that women who have information from the radio and TV were 70% more likely to use IDC than women with no exposure. This figure agrees with the finding of a study from Jijiga town and Sekela district (Alemayeh, 2012; Zewdie, 2009), showing the contribution of increasing women's awareness on dangerous signs of pregnancy-related health problems for which they should seek medical care. Similarly, the contribution of media in promoting women's maternal care attendance has been documented in the reports from UNICEF and UNFPA (Abouzahr, 2004; Addisalem & Meaza, 2012; Fira et al., 2011; World Health Organization (WHO), 2014). Another study, from East Gojjam, also found the importance of mass media in increasing public knowledge in this regard (Berihan, 2010).

This study showed that women who received ANC (at least once) were more likely to use IDC than those who did not attend ANC. This might be due to the information they received on the importance of IDC use during the ANC follow-up. Women who encountered pregnancy-related health problems were more likely to use institutional delivery in the rural area, because they were forced to seek medical care for the problem. In addition, first or second births were more likely to be delivered at the health institution than higher birth order children. This finding strongly agrees with the result of a study of Rwandan women (Umurungi, 2010). This might be due to their expectation and fear being much higher in the first than subsequent pregnancies.

Partner's occupation was another factor that was seen to play a role in preference of place of delivery for rural women. Women whose partners were engaged in nonfarming activities had a greater tendency



**TABLE 4** Predictors of delivery care utilization of the Dale Webera district women, Kellem Wollegga zone; 2014

Variable	DC attendance of Dale Webera woreda		AOR (95%, CI)
	At home n (%)	HID n (%)	
Children ever born			
1–2 (RC)	139(45.3)	156(60)	1
3–4	105(34.2)	78(30)	.89(.46, 12)
> = 5	63(20.5)	26(10)	.32(.16, .80)**
Educational status of respondent's partner			
No education	89(30.4)	20(8.2)	.41(.12, 1.34)
Elementary school (1–8)	155(52.9)	96(39.5)	.75(.28, 2.03)
Secondary high school (9–12)	39(13.3)	95(39.1)	1.71(.63, 4.65)
Diploma and above (RC)	10(3.4)	32(13.2)	1**
Partner occupation			
Farmer	209(72.1)	73(30)	.53(.32, .88)*
Non-farmer (RC)	81(27.9)	170(70)	1
Distance health institution			
Average (RC)	93(30.3)	199(76.5)	1
Too far	214(69.7)	61(23.5)	.30(.15, .58)***
Media exposure (radio/TV)			
Yes (RC)	17(6.5)	71(28.3)	1
No	246(93.5)	180(71.7)	.30(.15, .60)**

Abbreviations: AOR, adjusted odd ratio; CI, confidence interval; DC, delivery care; HID, health institution delivery; TV, television; RC, reference category.

\* $P < .05$ ;

\*\* $P < .01$ ;

\*\*\* $P = < .001$

to attend delivery care at a health institution. These findings strongly agreed with findings reported from Bangladesh (Chakraborty, Islam, Chowdhury, & Bari, 2002; Chakraborty, Islam, Islam, Bari, et al., 2003). Those partners might have an opportunity to share information on the importance of delivery care from their work station.

Overall women who were autonomous in decision making for the place of delivery had more frequently attended IDC services, although this was not the case for rural women. These findings strongly agree with the results of East Gojjam research (Berihan, 2010).

Respondents who earn more than 1500 birr per month are more likely to use delivery care services, unlike that of Binyam's 2005 findings (Ayele, 2005); in which he did not find any association. This discrepancy may be because a majority of Binyam's study participants had an income of more than 1500 birr per month, which is just more than enough for the payment required for services.

We did not find that the educational status of women impacted on delivery care utilization. However, research conducted in other parts of Ethiopia has shown this as the strongest association with the use of maternal health care services (Agency, 2012; Berihan, 2010). Educated mothers are likely to have better knowledge and information on modern medical treatments and have greater capacity to recognize specific illnesses. In this study, educated women were considered to be those educated to diploma level and above, which was not significant in this study area.

#### 4.1 | Limitations of the study

This study has many strengths but also a number of limitations. The retrospective nature of the questionnaire entails a risk that mothers

might have forgotten events of her childbirths; however, all possible ways to reference events were considered to help them recall the time of birth. There was also a risk that, as the questionnaire was not completed by the women alone, the presence of the researchers might mean that they hesitated to provide full information. However, efforts were made to ensure their comfort, and confidentiality was assured.

## 5 | CONCLUSION

Institutional delivery care utilization was significantly lower in the study area although higher in urban than in rural women. Sociodemographic and health barriers were the most hindrance to health facility delivery utilization. Quality of delivery care received, maternal media exposure, and attendance for ANC determined the level of delivery care utilization in urban areas. For rural residents, on the other hand, numbers of children ever born, partner's occupation, the autonomy of respondents, and pregnancy-related health problems during pregnancy were the determinants that influenced facility delivery care utilization. Overall, in Dale Webera Woreda, the influential determinants of health facility delivery care attendance were numbers of children ever born, partners' occupation and educational status, distance to the health institution, and media exposure. In addition, problems with the quality of care also affected health facility delivery care utilization in the study area.

This study offers benefit for the community. It provides valuable information to policy makers, health workers, and health facility staff to make changes to promote health facility delivery care

utilization in both urban and rural locations in the study area and more widely.

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## CONFLICT OF INTEREST

The authors in this study declare no conflict of interest.

## AUTHORS' CONTRIBUTIONS

All authors equally participated in the concept of study design and interpretation of data, critically revised the manuscript, and have approved the final version of the manuscript.

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