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Perceived community acceptance on traditional birth attendants assisted childbirth care and associated factors among pregnant women in Ethiopia

Solomon Abrha Damtew[1*], Fitsum Tariku Fantaye[2], Metages Yohannes[3] and Kelemua Menegesha Sene[4]

Abstract

Background Community acceptance of Traditional birth attendants (TBAs) as professional birth attendant was reported as one of the bottlenecks that has been hindering facility childbirth care service use. Hence, the World Health Organization (WHO) recommended that all childbirths needed to be attended by professional skilled attendants who at least possessed midwifery skill through the safe motherhood initiative. However, many births in developing countries have been being attended by Traditional birth attendants (TBAs) mainly due to pregnant women and community acceptance for TBAs as sole birth attendants. Therefore, measuring pregnant women's perceived community acceptance towards TBAs assisted childbirth care and identifying factors could be imperative. This provides evidence for policy makers, health program managers and health care practitioners in their effort to escalate skilled and facility childbirth care there by improving maternal and newborn health outcome.

Methods This study had used the cross-sectional baseline data from Performance and monitoring for action Ethiopia (PMA_Et) cohort one survey which enrolled and collected data from currently pregnant women and recently postpartum women. The baseline survey collected real time data on various sexual, reproductive, maternal and new born nationwide priority indicators using customized Open Data Kit Mobile application. These data were collected using standard pretested questionnaire prepared in three local languages (Amharic, Afan Oromo and Tigrigna) by well experienced resident enumerators. The final sample size was 2,186 women who were pregnant by the time of the survey and who provided response for the perceived community acceptance for TBAs assisted childbirth care question item. Frequencies were computed to describe the study participant's characteristics. Multinomial logistics regression statistical model building process was employed to identify associated factors of perceived community acceptance for childbirths to be attended by TBAs. Results were presented in the form percentages and odds ratio with 95% Confidence Intervals. Candidate variables were selected using *p*-value of 0.25. Statistical significance was declared at *p*-value of 0.05.

Results The overall proportion of perceived community acceptance for TBAs assisted childbirth care was found to be 58.63% (95%CI: 56.47%, 60.76%). Attending primary education was found to increase the likelihood of pregnant

*Correspondence:
Solomon Abrha Damtew
abrsole2006@gmail.com

Full list of author information is available at the end of the article

women perceived community acceptance by most people in their community for TBAs assisted childbirth care. Women having intentions to have another child were found to have higher likelihood perceived community acceptance by few people in their community for TBAs assisted childbirth care. On the contrary, religion, residing in the well to do households, residing in the Southern nations, nationalities and Peoples Region (SNNPR) and Addis Ababa had lowered pregnant women's perceived community acceptance by most, few and some pleople in their community for TBAs assisted childbirth care.

Conclusions The overall substantially greater proportion of pregnant perceived community acceptance for TBAs assisted childbirth care calls up on tremendous work to be done to avert such high level pregnant women perceived community acceptance for childbirths to be assisted by TBAs. Activities targeting in improving women economic status and empowerment; increasing women enrollment to secondary and higher education; using religious leaders and institutions to promote skilled delivery and childbirth care service use could likely aid in mitigating such huge surge of misconceptions towards childbirth care attendants. This significant perceived community acceptance substantially impact maternal and newborn health outcomes negatively which calls for awareness creation through community campaign to reverse this skewed perception. The activities and interventions need to be region specific. The finding also underscores the relevance of birth preparedness and complication readiness. The implication of the study is that the Health Minister and relevant actors need to design and implement region specific programs and strategies on women reproductive health empowerment and skilled childbirth care service use improvement. The other key implication of the finding was serving as one source of evidence to follow the WHO's recommendation aimed at reducing maternal mortality through skilled delivery and childbirth care service provision. It also served to track the status of the new role of TBAs to serve as a liaison between the pregnant women and the modern health care system to escalate skilled childbirth care services.

Keywords Women Health, Traditional birth attendants, Ethiopia, Deliveries, TBAs assisted Childbirth care, Delivery care by TBAs, PMA

Background

Community acceptance of Traditional birth attendants (TBAs) as professional birth attendant was reported as one of the bottlenecks that had been hindering facility childbirth care service use in low and middle income countries [1, 2]. Hence, the world health organization (WHO) and other international organizations that have focused on maternal mortality reduction efforts through the availability of skilled birth attendance had recommended to the exclusion of traditional birth attendants (TBAs) as care providers [3, 4]. Moreover, the world health organization (WHO) recommended that all childbirth cares needed to be attended by professional skilled attendants who possessed at least midwifery skill through the safe motherhood initiative [1, 5]. Furthermore,currently traditional birth attendants' (TBAs) role has been changed to bridging the gap by linking pregnant women with the formal health system. This is owing to the fact that TBAs have the power and opportunity to convince expectant pregnant women to use the modern health system and/or to seek skilled delivery care at health facilities [6–8]. However, optimal integration of these traditional methods with modern healthcare practices remains a topic of debate [9].

Pregnancy and child birth is a natural process which is expected to be joyful for the expectant mothers and their families [10]. Unfortunately, in reality many pregnancies are completed and ended up with poor maternal and fetal outcome in many part of the world, notably in low and middle income [3, 5, 11]. Moreover, 50% of childbirths in Ethiopia are occurring outside of the health facilities. Furthermore, empirical evidences revealed that the proportion of childbirths attended by traditional birth attendants (TBAs) ranged from 31.5% in Angela Tara district [12] to the maximum, 78% of births attended by TBAs in the current South Central Region, Kembata Tmebaro area [13]. In addition, there are some evidences on the benefit of training TBAs, though of a low to very low certainty [9, 11]. Furthermore, an interventional study from Pakistan showed that trained traditional attendants reduce maternal and perinatal mortality [14]. Because of the health extension programs and availability of health extension workers (HEWs), however, most TBAs were not trained in Ethiopia [15]. Even what is more unfortunate is that as per WHO the current role of TBAs has been changed to serve as a liaison between pregnant women and the health facilities and skilled childbirth care providers in the modern health system [8].

Evidences also showed that community acceptance of Traditional birth attendants (TBAs) as professional birth attendants was reported as one of the bottlenecks that hindered facility childbirth care service use in particular and health service utilization in general [1, 2]. A study [13] reported that women perception of TBAs as culturally acceptable and another study [16] reported TBAs as competent community health workers which is

one thematic factor [13] are reasons for not using skilled attendant. As opposed to skilled childbirth care; women preferred home delivery in Ethiopia which exacerbate the existing poor pregnancy and delivery outcomes [11, 16, 17].

Evidence suggested that community acceptance for births to be attended by TBAs was one of the reasons for the utilization unskilled delivery care services and subsequent maternal, newborn and fetal sequela [3, 9, 11]. Majority of the deliveries that occurred outside of the health facilities which were attended by traditional birth attendants (TBAs). This is largely due to women persistent preference for TBAs. In addition, delivering women and people in their community perceived that delivery care being provided by TBAs is culturally accepted. The direct and indirect cost of facility delivery was another justification to prefer TBAs for their childbirth care [2, 3, 13]. Women also mentioned that poor quality of health care service delivery and previous negative experiences from the health facilities and providers as a additional resasons for not receiving skilled childbirth care service [13]. Such a preference is being affected by a basket full of factors: Women's individual characteristics and facility side factors. Pregnancy and child birth has a major social dimension [18], hence, women's positive attitude [12] is one of the factors that favor delivery to be attended by TBAs over the use of skilled delivery care.

Women perceived acceptance that people in their community are in favor of childbirths to be attended by TBAs has been less explored bottleneck which has needed further investigation to improve maternal and fetal outcome. One of the proposed strategy by WHO to achieve this was promoting health facility childbirth care and using TBAs as a link players [6, 8] rather than considering TBAs as preferred and skilled birth attendants [1, 5].

Hence, documenting the level of perceived community acceptance by people in their community for TBAs assisted childbirth care among pregnant women and identifying associated factors could be imperative. This could facilitate in generating actionable evidence to improve maternal and newborn outcome by improving facility and skilled childbirth care. Therefore, measuring pregnant women perceived community acceptance towards births attended by TBAs and identifying factors could provide actionable evidence for policy makers, health program managers and health care practitioners to escalate skilled and facility childbirth care thereby improving maternal and newborn health outcome. This finding could also guide to track the TBAs new role of acting as doulas. It also further provide evidence for current debate on the integration of TBA's with the modern health system in the process of providing skilled childbirth care and facility delivery.

Methods and data sources

Study design, population and sample size

This study has used community based baseline cross-sectional data from a prospective cohort study with 6 weeks, 6 months and one year postpartum follow up interviews apart from the baseline cross sectional data used for this study. The data were collected from pregnant women in Ethiopia from six regions: namely: Addis Ababa, Afar, Amhara, Oromia, SNNPR and Tigray. The study has been started by recruiting and enrolling pregnant and puerperal women less than six weeks which was followed by administering the female baseline questionnaire. Then these panel of women were interviewed at 6 weeks, 6 months and one year postpartum as follow up interviews. However, this study further analyzed and present data from the cross-sectional baseline survey.

First the data set was kept by female respondent baseline questionnaire results. This was followed by excluding responses from the outcome response categories; do not know and no response. This preliminary analysis and data cleaning resulted a final sample size of 2,186 who were pregnant women by the time of the survey.

Performance Monitoring for Action (PMA) employed a two stage cluster sampling; in the first stage enumeration areas (EAs) were selected. In each selected EA s census was conducted to screen and enroll pregnant women and less than 6 weeks postpartum women by the time of the baseline survey. This study was restricted to only 2,189 pregnant women from 217 enumerations areas who completed the baseline female questionnaire. In the female baseline questionnaire women were asked about their antenatal care sought thus far in their pregnancy, partner support and perceived community encouragement on the use of the three main domains of the maternal and newborn care components, their reproductive and sexual history, their birth preparedness and complication readiness, about their agreement and disagreement on girls and women empowerment towards contraceptive use, sexual and reproductive issues, contraceptive use history and there fertility intention. Most important to this study women were asked the following question: "Do X people in your community think it's acceptable to deliver with Traditional Birth Attendant (TBA)" to understand their perceived acceptance that no, few, some and most people in their community think that it's acceptable for women to give birth with the TBA: perceived community acceptance for TBAs assisted childbirth care which is the main outcome variable of this particular further analysis study."

They were also asked how their husband felt when their husbands and/or partners learned their index pregnancy, which regard as women perceived paternal fertility emotion towards the index pregnancy which is the main outcome variable in this study. The details on the indicators measured, sampling procedure, field operation and

quality assurance employed by the project runners has been well described in the published protocol [19].

Cohort one baseline cross sectional data were collected from Nov 2019 to Jan 2020. The details regarding the field work implementation, survey design and key methodological issues was reported elsewhere [20]. The first field work of the panel baseline survey was screening pregnant women and women who were less than 6 weeks post-partum.

A two-stage stratified cluster sampling method was used to select enumeration areas. In order not to miss all pregnant and six weeks postpartum women by then complete census was conducted in the selected enumeration areas (EAs). It was executed by Addis Ababa University's School of Public Health in a collaborative efforts with the Ethiopian Public Health Association, the Federal Democratic Republic of Ethiopia Health Minister, Central Statistical Services, Bill & Melinda Gates Institute for Population and Reproductive Health (Johns Hopkins Bloomberg School of Public Health). The main sample units or enumeration areas (EAs) were chosen using the frame to Ethiopia Population and Housing Census (PHC), which was performed in 2019 by the Ethiopia Central Statistical Services. Of the total of 265 EAs which were chosen in the first stage with independent selection in each sampling stratum and a probability proportional to EA size; pregnant women from 217 EAs which were selected from the six panel regions were included in this further analysis. In second stage, a census of all households was conducted in all the selected EAs to obtain adequate sample size of pregnant women and to improve the study's power. The protocol of PMA Ethiopia contains all the details on sample design and selection probabilities, design effects and sampling methods [20].

In order to maximize the sample of pregnant women; a census of all the panel enumeration areas (EAs) was conducted. All women aged 15–49 who were usual members of the household were screened by using self-reported current pregnancy status and approximate gestational age. If pregnant, they were approached for enrollment in the panel and voluntarily consented women were recruited to participate the study. For the census, a 95% response rate was assumed, that the average number of women aged 15–49 per household is 0.98, and of these, 10% have reported of being pregnant or 42 days postpartum– the calculated sample size was found sufficient to examine selected key maternal and newborn health (MNH) indicators at the national level with 5% margin of error.

Variables

Outcome variable

The main outcome variable was perceived community acceptance for traditional birth attendants (TBAs) assisted childbirth care which was measured by asking the respondent a single question with four categories: (no, few, some and most people): "Do X people in your community think it's acceptable to deliver with Traditional Birth Attendant (TBA)" (Table 1). The outcome variable is treated as nominal scale variable with more than two categories, hence, multinomial logistics regression was found to be appropriate for the analysis [21].

Independent variables

Independent variables were classified into individual-level variables and enumeration area-level variables. Individual-level independent variables further categorized into socio-demographic/economic characteristics variables, parity and other reproductive health (RH) characteristics, couples' reaction when they learned that they were pregnant and contraception ever used were considered in the study.

Group or enumeration area (EA) level variables included two integral variables namely, region and place of residence were considered. "Region" was grouped into six categories Tigray, Afar, Amhara, Oromia, SNNPRs and Addis Ababa city administration. Place of residence follows the default urban/rural classification.

Table 1 Items used to create the pregnant women perceived community acceptance that no, few, some or most people in their community thinks that it's acceptable for traditional birth attendants assisted childbirth Care, PMA Cohort one baseline survey data, and Nov 2019 to Jan 20

Do X people in your community think it's acceptable to deliver with Traditional Birth Attendant (TBA)	Variable	Question & Responses		Categories
		Item	Response	
	TBA NORM		Do not know =-88	66 Excluded
			No people think	No people think
			Most people think	Most people think
			Some people think	Some people think
			Few People Think	Few People think

Analysis and measurement

The cross-sectional baseline women data set from the panel survey were used for this further analysis. Stata v16 was used for this analysis. Frequencies and percentages were computed to characterize the study population. Chi-square test statistics was computed to check cell sample size adequacy, and the sample size was found to be adequate to provide unbiased estimates on perceived community acceptance for traditional birth attendants (TBAs) assisted childbirth care.

Exploratory data analysis was run for data cleaning thereby checking item nonresponse rate for every variable and don't know responses which were later excluded from the analysis. Following this variable were recoded to create biological plausible categories along with checking distribution of the recoded variables using mean and proportion. No sign of multicollinearity detected among variables in the final model.

Multinomial logistics regression statistical modeling process was employed to identify important associated factors for pregnant women perceived community acceptance on deliveries to be attended by Traditional Birth Attendants. At bivariate analysis a *p*-value cut of 0.25 was used to select candidate variables for multinomial multivariate logistics regression statistical modeling analysis. Results were presented in the form of percentage; and odds ratio with 95% CI. Significance was declared at a significance level of 0.05. Results were reported based on weighted count. Model fitness test was checked using the command «mlogitgof». The model fitness results have shown that the statistical model emptied was fit meaning that variables included in the final multinomial multivariate logistics regression statistical modeling process explained for the observed variation in the perceived community acceptance for traditional birth attendants (TBAs) assisted childbirth care. This was supported by the model fitness test results; *p*-value=0. 737 with a chi-square statistic of 19.274.

Data quality management and control

Data completeness for variables and items for creating composite variables was checked by exploratory data analysis following which any item nonresponse was excluded from the analysis. Frequency was run to exclude responses with do not know (DNK) and no response (NR).

PMA Ethiopia used of standard and pretested tool, intensive training with mock interviews for resident enumerators was provided, close supervisor during filed work, timely progress report and correction, 10% random check were some of the modalities used to maintain the quality of the collected data, the detail is reported elsewhere [20].

Result

Magnitude of perceived community acceptance on giving birth with TBA

The overall proportion of perceived community acceptance for TBAs assisted childbirth care was 58.63% (95%CI: 56.47%, 60.76%). The proportion women perceived community acceptance by few people, some people and most people for TBAs assisted childbirth care was found to be 25.32% (95%CI: 23.42%, 27.31%), 15.05% (95%CI: 13.44%, 16.81%) and; 18.26% (95%CI: 16.55%, 20.11%) respectively. The proportion women perceived community acceptance by no people for TBAs assisted childbirth care was found to be 41.36% (95%CI: 39.23%, 43.52%), (Fig. 1).

Distribution of pregnant women perceived community acceptance on childbirth care assisted by traditional birth attendants (TBAs)

The following paragraphs reported the proportion of perceived community acceptance for TBAs assisted childbirth care by independent variables.

Perceived community acceptance for TBAs assisted childbirth care was found to show variation by the selected independent variables. Accordingly, the proportion of perceived community acceptance by most people was found to be one in 6 among pregnant women aged 20 to 24 years (17.6%) and (16.4%) among those aged 35 to 39 years for TBAs assisted childbirth cares. Similarly, nearly one in 4 (25.4%) of the pregnant women aged 15 to 19 considered that TBAs assisted childbirth care was acceptable by few people in their community. Among pregnant women who attended primary education, the proportion of perceived community acceptance by most, some and few people in their community for TBAs assisted childbirth care was found to be 18.2%, 16.0% and 28.2% respectively. Concerning religion, the respective proportion of perceived community acceptance for Muslim religion followers was reported to be 20.74%, 15.42% and 23.97%. Among currently married women, the proportion of perceived community acceptance by most, some and few people for TBAs assisted childbirth care was 18.2%, 15.0% and 26.5% respectively (Table 2).

Similarly, among those who have higher birth order of 3 to 12 children, pregnant women reported that the proportion of perceived community acceptance by most, some and few people in their community for TBAs assisted childbirth care was found to be 21.7%, 15.9% and 25.7% respectively. Likewise, among pregnant women who wanted to have another child 17.7%, 13.7% and 27.5% of them perceived that most, some and few people in their community considered that it's acceptable for childbirth care to be to be assisted by TBAs respectively. In a similar fashion, among contraceptive ever users; the proportion perceived community acceptance for TBAs

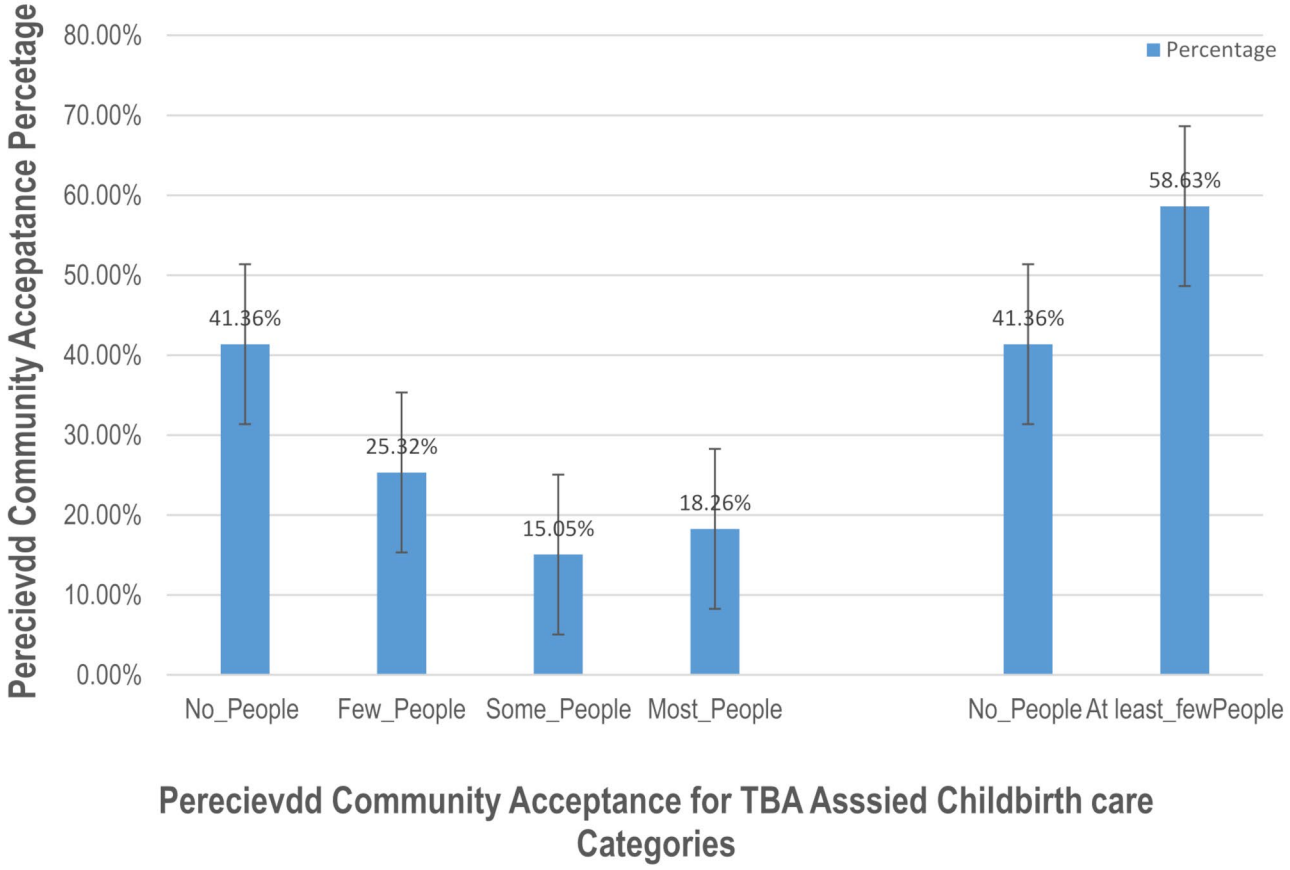

Fig. 1 Proportion of Perceived Community Acceptance for TBAs Assisted Childbirth care with 95% CI among Pregnant Women PMA Cohort One Nov 2019 to Jan 20; evidence from PMA Cohort One Baseline cross-sectional data set: Nov 2019 to Jan 20

assisted childbirth care was found to be 15.3% for most people, 13.4%; and 24.7% for some and few people in their community respectively (Table 2).

In a similar manner, among women residing in the well to do households, the proportion of perceived community acceptance by most, few and some people in their community for TBAs assisted childbirth care was found to be 8.4%, 6.2% and 19.4% respectively. Likewise, among rural residents pregnant women 21.1%, 16.7% and 27.9% of them perceived that childbirth cares assisted by TBs was considered acceptable by most, some and few people in their community respectively (Table 2).

Among pregnant women who were residing in Tigray region; the proportion of perceived community acceptance for TBAs assisted childbirth care was 1 in 4 women (26.70% for most and 25.3 for few people) while 11.3% for some people. This same figure for perceived community acceptance by most, few and some people in their community among pregnant women residing in Oromia region was found to be 20.8%, 19.4% and 25.0% (Table 2).

In terms of desired attendant, for those pregnant women who have reported that their desired birth attendant was health professional 10.25%, 12.2% and 26.06% of them perceived that most, some and few people thinks that TBAs assisted childbirth care was acceptable respectively. Similarly, for pregnant women who have reported that their desired place of delivery was health facility, this respective figure for TBAs assisted childbirth care was found to be 9.6%, 12.5% and 25.9%. Finally, among those whose planned childbirth attendants were health professionals, 52.4% of them have reported that no people accepted for TBAs assisted childbirth care and among those pregnant women whose planned place of delivery was health facility, 52.1% of them reported that no people in their community accepted TBA assisted childbirth care (Table 2).

Factors affecting perceived community acceptance on traditional birth attendants (TBAs) assisted childbirth care among pregnant women, evidence from PMA cohort one survey, Nov 2019 to Jan 20

In summary, this study investigated to identify factors influencing perceived community acceptance by most, some and few peoples in their community for TBAs assisted childbirth care among pregnant women. Accordingly, educational status increase the likelihood

Table 2 Distribution of pregnant women Perceived Community acceptance for traditional birth attendant (TBAs) assisted childbirth care (TBA), evidence from PMA Cohort one, Nov 2019 to Jan 20 ($n=2,189$)

	Variable	No People	%	Most People	%	Some People	%	Few People	%	Total
Age Category	15–19 years	68	29.6	54	23.2	50	21.8	59	25.4	231
	20–24 years	213	41.1	91	17.6	74	14.3	140	27.1	518
	25–29 years	301	47.3	102	16.0	77	12.0	157	24.6	637
	30–34 years	158	37.4	81	19.3	64	15.2	119	28.2	423
	35–39 years	126	43.8	47	16.4	42	14.6	73	25.3	288
	40–49 years	35	37.6	17	18.6	22	23.8	18	19.9	92
Educational Status	No Formal Education	345	37.3	199	21.5	147	160	232	25.2	923
	Primary Education	326	37.6	157	18.2	139	16.0	245	28.3	867
	Secondary +_Education	231	57.8	36	9.0	43	10.9	89	22.3	400
Religion	Other**	10	24.6	15	36.2	8	18.7	9	20.5	42
	Orthodox	386	47.3	138	17.0	105	12.8	187	23.0	816
	Protestant	212	35.6	86	14.5	104	17.4	194	32.5	596
	Muslim	293	40.0	152	20.7	113	15.4	176	24.0	734
Wealth Quintile	Lowest quintile	113	26.1	102	23.7	74	17.1	143	33.1	432
	Lower quintile	142	32.7	81	18.7	84	19.5	126	29.1	433
	Middle quintile	169	36.5	89	19.3	80	17.4	124	26.9	462
	Higher quintile	197	45.2	84	19.2	65	14.8	91	20.8	437
	Highest quintile	281	66.0	36	8.4	26	6.2	82	19.4	425
Parity ($n=2186$)	No Child	222	43.6	82	16.1	77	15.1	128	25.2	509
	1_2 Children	333	45.2	106	14.3	103	13.9	195	26.5	737
	3_12 Children	345	36.7	204	21.7	150	15.9	242	25.7	940
Marriage Type ($n=2170$)	Only Once	766	40.6	348	18.4	297	15.7	477	25.3	1888
	More than Once	125	44.4	41	14.6	31	11.07	84	29.9	282
Husband has other wives ($n=2129$)	No	812	42.1	335	17.4	284	14.8	497	25.8	1929
	Yes	60	29.9	47	23.2	35	17.3	59	29.6	200
Fertility Intentions	Undecided	91	44.4	39	19.3	42	20.7	32	15.7	204
	Wanted	631	41.1	271	17.7	210	13.7	422	27.5	1535
	No more	180	39.9	82	18.1	77	17.1	112	24.9	450
Marital Status ($n=2187$)	Never Married+	21	52.9	7	18.4	7	16.4	5	12.2	40
	Married	839	40.2	380	18.2	313	15.0	552	26.5	2084
	Living With Partner	40	64.1	5	8.1	8	13.1	9	14.8	63
Contraceptive ever use ($n=2188$)	No	276	32.6	188	22.1	149	17.6	234	27.6	847
	Yes	625	46.6	204	15.3	180	13.4	332	24.7	1341
Place of Residence	Urban	307	66.7	28	6.1	42	9.0	83	18.1	460
	Rural	594	34.4	364	21.1	288	16.7	483	27.9	1729
Region	Tigray	58	36.8	42	26.8	18	11.4	39	25.1	157
	Afar	6	12.4	29	65.6	6	13.5	4	8.5	45
	Amhara	212	49.1	67	15.5	50	11.6	102	23.8	431
	Oromia	331	34.7	199	20.8	185	19.4	239	25.0	953
	SNNP*	228	43.3	53	10.1	69	13.1	177	33.6	527
	Addis Ababa	67	88.6	2	3.26	1	1.6	5	6.5	76
Index Pregnancy Husband Feeling ($n=2143$)	No partner	33	32.4	17	16.6	26	26.2	25	24.8	101
	Very unhappy	19	42.7	11	25.6	3	6.9	11	24.9	44
	Sort of unhappy	31	29.2	22	20.7	22	20.7	31	29.4	105
	Mixed Feeling	63	36.8	26	15.5	27	15.9	54	31.8	171
	sort of happy	327	45.0	128	17.6	94	13.0	177	24.3	726
	Very happy	429	43.1	172	17.2	150	15.0	246	24.7	997

Table 2 (continued)

	Variable	No People	%	Most People	%	Some People	%	Few People	%	Total
Index Pregnancy Women Feeling (*n* = 2187)	Very happy	391	43.0	151	16.6	147	16.1	220	24.2	909
	Sort happy	251	44.1	92	16.1	77	13.6	149	26.3	569
	Mixed Feeling	132	38.2	79	22.9	43	12.4	92	26.6	346
	Sort unhappy	67	35.9	29	15.4	32	17.1	59	31.6	187
	Very unhappy	58	33.3	42	23.8	30	16.9	46	26.0	175
Desired birth attendant for the index Pregnancy (*n* = 2186)	No One	21	16.9	19	15.1	30	24.4	54	43.6	124
	Health Professional	734	52.4	145	10.4	178	12.7	365	26.1	1401
	TBA/Family Member	144	22.5	229	35.8	120	18.8	147	23.0	640
Desired birth attendant for the index Pregnancy	Home	182	22.6	260	32.2	157	19.5	208	25.8	808
	Government Health Facility	719	52.1	132	9.6	172	12.5	358	25.9	1381

*Former SNNPR region

** wake feta, traditional followers

of perceived community acceptance by most people for childbirth care to be attended by TBAs. A fertility desire to have another child was found to increase the likelihood of perceived community acceptance by few people for TBAs assisted childbirth care (Table 3).

Compared with women with no formal education; pregnant women with primary educational status had 1.516 (95% CI: 1.056, 2.175) higher likelihood of perceived community acceptance by most people for childbirth care to be attended by TBAs. Similarly, a fertility desire to have another child increased the likelihood of perceived community acceptance by few people for childbirth care for TBAs assisted childbirth care by 1.610 (95% CI: 1.013, 2.549) (Table 3).

On the contrary, living in the well to do households and; residing in SNNPR and Addis Ababa regions were found to reduce perceived community acceptance by most, some and few people in their community for childbirth cares to be attended by TBAs. Similarly, follower's Muslim religion as well as pregnant women whose desired place of deliver was health facility had reduced likelihood of perceived community acceptance by most people in their community for TBAs assisted childbirth care. (Table 3).

The likelihood of perceived community acceptance by most people for TBAs assisted childbirth was found to be 80% lower for Orthodox Christina religion 0.195 (95% CI: 0.059, 0.643) and Muslim religion 0.175 (95% CI: 0.054, 0.564) followers compared with followers of other religion. Similarly, compared with pregnant women belonging to the poorest households; those residing in households of higher wealth quintile had a 60% 0.408 (95% CI: 0.253, 0.658), 45% 0.557 (95% CI: 0.335, 0.926) and 57% 0.431 (95% CI: 0.281, 0.659) times lowered odds of perceived community acceptance by most, some and few people in their community for TBAs assisted childbirth cares respectively (Table 3).

Compared to Tigray Region, the likelihood of perceived community acceptance by most, some and few people for childbirth cares to be attended by TBAs was found to be only 0.05 (95% CI: 0.024, 0.095), 0.30 (95% CI: 0.15, 0.59) and 0.59 (95% CI: 0.36, 0.97) respectively among pregnant women residing in the former SNNPR. This same respective likelihood was found to be only 0.04 ((95% CI: 0.02, 0.11), 0.09 ((95% CI: 0.03, 0.32) and 0.18 ((95% CI: 0.091, 0.35) for residents of Addis Ababa.

As compared with women who have reported their desired delivery place was at home; the likelihood of perceived community acceptance by most people for TBAs assisted childbirth care was found to be 66% lower 0.337 (95% CI: 0.173, 0.657) among pregnant women whose reported desired place of delivery was health facility. This similar likelihood perceived community acceptance by few people for TBAs assisted childbirth care was found to be only 0.268 (95% CI: 0.131, 0.549) among those who reported that their planned birth attendant was health care provider as compared with those who planned no one as planned birth attendant (Table 3).

Discussion

Maternal and newborn health outcomes can be greatly improved with cost effective interventions among others skilled childbirth care played a pivotal role. Unfortunately, being short of half way in the SDG era; women still prefer their births to be assisted by TBAs which occurred outside of the health facilities where complication management is poor and its sequela is higher. Evidence showed that one of the bottlenecks for such huge surge is women perception that people in their perceived community acceptance of childbirths to be attended by TBAs. This in turn is one of the major reasons for seeking unskilled childbirth care. Therefore, at this time when modern health service is being available and accessible to a larger extents at community and/or kebele level where

Table 3 Multinomial logistic regression pregnant women perceived Acceptance on births to be delivered by TBA, evidence from PMA Cohort 1, Nov 2019 to Jan 2020

	Variables	Most People ARRR	Some People ARRR	Few People, ARRR
Women Age Category	15–19 years	1	1	1
	20–24 years	0.71 (0.41,1.24)	0.66 (0.37,1.17)	1.11 (0.68,1.82)
	25–29 years	0.64 (0.36,1.17)	0.57 (0.30,1.06)*	1.02 (0.60,1.73)
	30–34 years	0.65 (0.33,1.28)	0.68 (0.33,1.40)	1.43 (0.78,2.59)
	35–39 years	0.66 (0.31,1.41)	0.74 (0.34,1.63)	1.12 (0.58,2.16)
	40–49 years	0.66 (0.25,1.74)	1.083 (0.42,2.78)	0.67 (0.28,1.63)
Educational Status	No formal education	1	1	1
	Primary Education	1.52 (1.10,2.18)**	1.30 (0.89,1.89)	1.26 (0.93,1.71)
	Secondary+ _Education	1.13 (0.69,1.86)	1.491 (0.88,2.52)	1.05 (069,1.58)
Religion	Others	1	1	1
	Orthodox	0.20 (0.06,0.64)***	0.36 (0.1,1.28)	0.77 (0.23, 2.63)
	Protestant	0.34 (0.10,1.14)*	0.82 (0.23,2.91)	1.15 (0.34,3.93)
	Muslim	0.18 (0.05,0.56)***	0.36 (0.104, 1.278)	0.76 (0.23, 2.60)
Wealth Index	Poorest quintile	1	1	1
	Lower quintile	0.64 (0.40, 1.03)*	0.87 (0.53, 1.42)	0.746 (0.494,1.124)
	Middle quintile	0.63 (0.40, 1.01)*	0.82 (0.50,1.34)	0.57 (0.38,0.86)***
	Higher quintile	0.41 (0.25, 0.66)***	0.56 (0.34,0.93)**	0.43 (0.28,0.66)***
	Highest quintile	0.56 (0.28,1.12)	0.18 (0.09,0.38)***	0.45 (0.25,0.81)***
Parity	No Child	1	1	1
	1_2 Children	0.84 (0.55,1.29)	0.95 (0.59,1.52)	0.90 (0.62, 1.27)
	3_12 Children	0.97 (0.56,1.69)	0.87 (0.471,1.59)	0.76 (0.48. 1.23)
Husband Has other Wives	No	1	1	1
	Yes	1.20 (0.73,1.96)	1.05 (0.624,1.762)	1.05 (0.68, 1.63)
Fertility Desire	Undecided	1	1	1
	Wanted another child	0.794 (0.503.1.255)	0.67 (0.41,1.07)*	1.61 (1.01,2.55)**
	No more another child	0.68 (0.39,1.169)	0.75 (0.43, 1.31)	1.39 (0.83,2.35)
Contraceptive Ever Use	No	1	1	1
	Yes	0.99 (0.71,1.38)	0.84 (0.59,1.20)	0.82 (0.62,1.09)
Residence	Urban	1	1	1
	Rural	1.46 (0.85,2.52)	0.83 (0.49,1.39)	1.54 (0.99,2.40)*
Region	Tigray	1	1	1
	Afar	1.41 (0.65,3.07)	2.49 (1.04,5.96)**	0.96 (0.42,2.17)
	Amhara	0.17 (0.11, 0.27)***	0.59 (0.34,1.03)*	0.69 (0.45,1.06)*
	Oromiya	0.18 (0.11,0.30)***	0.979 (0.554,1.729)	0.83 (0.53,1.29)
	SNNP	0.05 (0.024,0.095)***	0.30 (0.15,0.59)***	0.59 (0.36,0.97)**
	Addis	0.04 (0.02,0.11)***	0.09 (0.03,0.32)***	0.18 (0.091,0.35)***
Desired Delivery Place	Home	1	1	1
	Health Facility	0.34(0.17,0.66)***	0.59 (0.29,1.20)	0.81 (0.44,1.46)
Desired Attendant	No one	1	1	1
	Health Professional	0.84 (0.32.2.20)	0.46 (0.191,1.12)*	0.27 (0.13,0.55)***
	TBAs/Family Member	2.07 (0.88,49)*	0.55 (0.25,1.17)	0.30 (0.16,0.57)***

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

health extension workers can identify early risk and refer to higher level facilities; and the government of Ethiopia is very committed to provide delivery service with exemption from payment; documenting the proportion pregnant women perceived community acceptance of TBAs assisted childbirth care and identifying its associated factors contributing for the variation for such an acceptance could be very critical in availing actionable evidence to improve maternal and new born outcome by increasing skilled childbirth care and delivery care at health facilities.

The overall proportion of perceived community acceptance for TBAs assisted childbirth care was 58.63% (95%CI: 56.47%, 60.76%). One fourth, nearly one in five (18.27%) and 15.05% of the pregnant women have reported a perceived community acceptance of TBAs assisted childbirth cares by few people, most and some people respectively. This level of acceptance might be

related to social and cultural norms of TBAs assisted childbirth care [6, 16, 22].

This study identified both positively and negatively associated factors affecting pregnant women's perceived community acceptance for TBAs assisted childbirths care.

Accordingly, educational status, i.e. this study found out that attending primary education had increased the likelihood of pregnant women's perceived community acceptance by most people in their community for TBAs assisted childbirths. Currently pregnant women who intended to have another child have higher likelihood of perceived community acceptance by few people in their community for TBAs assisted childbirths. The perceived acceptance of less educated pregnant women that most people in their community thinks that its acceptable for births to be attended by TBA can be related with low awareness on complication of pregnancy and child health and; misconception that women with complication alone need professionally assisted delivery as stated in a study [2]. A number of respondents from studies including qualitative studies [2, 16, 23] have reported that trained delivery attendants or an institutional delivery care were only required for women who have previously experienced obstetric complications. Another possible explanation for the observed finding might be also related with the TBAs cultural and social acceptability [18]. The finding that pregnant women who intends to have another child had a higher likelihood perceived acceptance by few people in their community for TBAs assisted childbirth care might be related with the confidence that the women developed since they have previous pregnancy and child bearing experience [10, 18].

On the contrary, religion, residing in the well to do households (HHs), residing in the former SNNP and Addis Ababa were associated factors found to lower pregnant women's perceived community acceptance of TBAs assisted childbirths by most, few and some people in their community. This might be due to that pregnant women residing in well to do HH had the opportunity and potential to plan for their deliveries to be attended by skilled birth attendance at health facilities [10, 13, 23]. Living in a well to do house hold is likely to empower women on decision making with respect to utilization of health services thereby being prepared for their pregnancy and delivery and women tend to held low perceived community acceptance for births to be delivered by TBA [24, 25].

Similarly, pregnant women who have reported that they were followers of Muslim and orthodox religion and whose desired place of delivery was health facility had lower likelihood towards perceiving that most people in their community think it is acceptable for deliveries to be attended by TBAs. The influence of religion and culture on pregnancy and child bearing in general and women perceived acceptance to their community people thought that it was ok if births are attended by TBA had and as evidence basis from previous similar studies [16, 18, 23].

This study was not spared of limitations. To begin with, perception measurement has always possessed challenges in research undertakings. This study used women perception of the community as proxy indicator to measure community acceptance of TBAs assisted childbirth care. This proxy finding could give insight in assessing community influence on skilled childbirth care services use which is the focus of contemporary health research. However, future studies needed to conduct sensitivity analysis among the categories of the outcome variable and come up with a direct measurement approach options to capitalize findings from this study. In addition, inherent to all secondary data analysis; not all the necessary confounder variables were not measured.

Conclusion

The finding that the overall proportion of perceived community acceptance for TBAs assisted childbirth care was 58.63% calls up on region specific holistic programs and intervention by the Federal Democratic Republic of Ethiopia Health Minister and relevant partners to improve skilled childbirth care. This entails individual women and community level awareness creation on the importance of skilled childbirth care including at health facility while women came for antenatal and postnatal cares along with reproductive and child health care visits and using various community health related community gatherings and meetings as missed opportunity.

Activities with the goal to improve women's economic empowerment, increasing women's enrollment to secondary and higher education, using religious leaders and institution to promote skilled childbirth care use and skilled delivery would probably change the society and/or community perceived acceptance for TBAs assisted childbirth care and women perceived community acceptance as well. Improving the childbirth care service use to be friendly and accessible including hiring high level health professionals, as in large cities, could contributed in mitigating the high-level preference of TBAs assisted childbirth care use. Use health facilities visits as opportunity to educate women about the use of health facility and skilled childbirth care in particular and on the importance of birth preparedness and complication readiness components such planning delivery place and choosing birth attendants in general could help in addressing the perceived community acceptance for TBAs assisted childbirth care. Enabling women to have control over their future fertility could also help in addressing women perceived community acceptance for childbirths to be attended by TBAs.

Implication of the study

This significant perceived community acceptance of TBAs assisted childbirth care substantially impact maternal and newborn health outcomes negatively which calls us for awareness and community campaign to reverse this skewed perception. The finding underscores the relevance of birth preparedness and complication readiness. The implication of the study is that the Health Minister and relevant actors need to design and implement region specific programs and strategies on women reproductive health services use empowerment in general and skilled childbirth care in particular. The other key implication of the finding is serving as one source of evidence to track the WHO's recommendation aim to reduce maternal mortality through skilled delivery care provision and assess the new role of TBAs to serve as a liaison between the pregnant women and the modern health care system.

Abbreviations

ARRR	Adjusted relative risk ratio
CRRR	Crude relative risk ration
EA	Enumeration Areas
HH	Households
PMA	Performance Monitoring for Action
SNNPR	Southern nations, people's nationalities Region
TBAs	Traditional birth attendants

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Author contributions

SA conceptualized the study, obtained the data; conducted the data curation and the formal analysis; draft the original manuscript and wrote the final draft, interpreted the results and critically revised the manuscript. SA also participated in the field wok supervision, coordination, implementation and project facilitation. FT contributed to interpretation of the results along with critically reviewing the final manuscript. KM contributed to critically reviewing the final manuscript version. MY has revised the final version. She also participated in field work process. All authors reviewed and approved the final manuscript.

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Data availability

The datasets generated during the study are publicly available from the PMA website. https://www.pmadata.org/data/request-access-datasets.

Declarations

Ethics approval and consent to participate

This study involved a secondary analysis of deidentified data from the PMA Ethiopia The PMA Ethiopia survey was conducted strictly under the ethical rules and regulations of world health organization and IIRB of Ethiopian Health and Nutrition Research Institute (EHNRI). Informed consent was obtained from respondents during the data collection process of PMA Ethiopia on the baseline data collection on Oct 2021. Minors less than 15 years as per the law were not included in this study. Informed verbal consent was taken from study participants. PMA surrey has been also conducted after obtaining ethical approval from Bloomberg School of Public Health at Johns Hopkins University in Baltimore, USA.

Consent for publication

N/A not applicable.

Competing interests

The authors declare that they have no competing interest.

Author details

[1]Department of Epidemiology and Biostatistics, School of Public Health, Wolaita Sodo University, Wolaita Sodo, Ethiopia
[2]FTF Research Consulting PLC, Addis Ababa, Ethiopia
[3]Metages Yohannes Health Research Consultant, Addis Ababa, Ethiopia
[4]Department of English Language, Kotebe Metropoliatan University, Addis Ababa, Ethiopia

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References

1. WHO. Traditional Birth Attendants A field guide to their training, evaluation, and articulation with health services. WHO Offset Publication No 44. 1979. Ajoint WHO/UNFPA/UNICEF Statement. 1992.
2. Titaley et al. Why do some women still prefer traditional birth attendants and home delivery? a qualitative study on delivery care services in West Java Province, Indonesia. BMC Pregnancy and Childbirth. 2010, 10:43 http://www-biomedcentralcom/1471-2393/10/43. 2010.
3. Garces A, McClure EM, Espinoza L, Saleem S, Figueroa L, Bucher S, et al. Traditional birth attendants and birth outcomes in low-middle income countries: a review. Semin Perinatol. 2019;43(5):247–51.
4. WHO. WHO recommendations on maternal and newborn care for a positive postnatal experience. WHO maternal, newborn, child and adolescent health and ageing data portal: www.whoint/data/maternal-newborn-child-adolescent-ageing/maternal-and-newborn-data/maternal-and-newborn—coverage. 2018.
5. World Health Organization. Intrapartum care for a positive childbirth experience. [cited 2018 July 23]. Geneva: World Health Organization. 2018. Available from: http://apps.who.int/bookorders
6. Kassie A, Wale A, Girma D, Amsalu H, Yechale M. The role of traditional birth attendants and problem of integration with health facilities in remote rural community of West Omo Zone 2021: exploratory qualitative study. BMC Pregnancy Childbirth. 2022;22(1):425.
7. Miller T, Smith H. Establishing partnership with traditional birth attendants for improved maternal and newborn health: a review of factors influencing implementation. BMC Pregnancy Childbirth. 2017;17(1):365.
8. Margaret E, MacDonald et al. The Place of Traditional Birth Attendants in Global Maternal Health: Policy Retreat, Ambivalence and Return. Chapter 6 L J Wallace editors, Anthropologies of Global Maternal and Reproductive Health, Global Maternal and Child Health, https://doi org/101007/978-3-030-84514-8_6. 2022.
9. Dwivedi R, Shamim MA, Dwivedi P, Banerjee AR, Goel AD, Vyas V, et al. Maternal and Child Health Training of Traditional Birth Attendants and pregnancy outcomes: a systematic review and Meta-analysis. J Epidemiol Glob Health. 2024;14(3):690–8.
10. JHPIEGO. monitoring birth preparedness and complication readiness tools and indicators for maternal and newborn health. 2004.
11. Miller PC, Rashida G, Tasneem Z, Haque M. The effect of traditional birth attendant training on maternal and neonatal care. Int J Gynecol Obstet. 2012;117(2):148–52.
12. Taye BT, Zerihun MS, Kitaw TM, Demisse TL, Worku SA, Fitie GW. ea. Women's traditional birth attendant utilization at birth and its associated factors in Angolella Tara, Ethiopia. PLoS ONE 17(11): e0277504 https://doi.org/10.1371/journalpone0277504. 2022.
13. Shiferaw et al. Why do women prefer home births in Ethiopia? 2013; BMC Pregnancy and childbirth 2013, 13:5 http://www.biomedcentral.com/1471-2393/13/5
14. Abdul Hakeem Jokhio et. Ai. An Intervention Involving Traditional Birth Attendants and perinatal and maternal mortality in Pakistan. n engl j med 352;20 www.nejm.org may 19, 2005. 2005.

15. Assefa Y, Gelaw YA, Hill PS, Taye BW, Van Damme W. Community health extension program of Ethiopia, 2003–2018: successes and challenges toward universal coverage for primary healthcare services. Global Health. 2019;15(1):24.
16. Aziato and Omenyo. Initiation of traditional birth attendants and their traditional and spiritual practices during pregnancy and childbirth in GhanA. BMC Pregnancy and Childbirth. (2018) 18:64 https://doiorg/101186/s12884-018-1691-7. 2018.
17. Gurara M, Muyldermans K, Jacquemyn Y, Van Geertruyden JP, Draulans V. Traditional birth attendants' roles and homebirth choices in Ethiopia: a qualitative study. Women Birth. 2020;33(5):e464–72.
18. Aynalem BY, Melesse MF, Bazezew YB. Cultural beliefs and traditional practices during pregnancy, child birth, and the postpartum period in East Gojjam Zone, Northwest Ethiopia: A qualitative study. Women's Health Rep. 2023;4(1):415–22. https://doi.org/10.1089/whr.2023.0024.
19. Zimmerman L, Desta S, Yihdego M, Rogers A, Amogne A, Karp C, et al. Protocol for PMA-Ethiopia: a new data source for cross-sectional and longitudinal data of reproductive, maternal, and newborn health. Gates Open Res. 2020;4:126.
20. Zimmerman L, Desta S, Yihdego M, Rogers A, Amogne A, Karp C et al. Protocol for PMA-Ethiopia: a new data source for cross-sectional and longitudinal data of reproductive, maternal, and newborn health. 2020;4.
21. David W. Hosmer, stanley Lemshow. Applied Logistic Regresion Second Edition 2000.
22. Ntoimo LFC, Okonofua FE. CEe. Why women utilize traditional rather than skilled birth attendants for maternity care in rural Nigeria: implications for policies and programs. Midwifery. 2022;104:103158.
23. Sarker BK, Rahman M, Rahman T, Hossain J, Reichenbach L. Reasons for preference of Home Delivery with Traditional Birth attendants (TBAs) in Rural Bangladesh: a qualitative exploration. PLoS ONE. 2016;11(1):e0146161. https://doi.org/10.1371/journal.pone.0146161
24. Sialubanje et al. Reasons for home delivery and use of traditional birth attendants in rural Zambia: a qualitative study. BMC Pregnancy and Childbirth (2015) 15:216 DOI 101186/s12884-015-0652-7. 2015.
25. Fantaye FT, Damtew SA. Women decision making on use of modern family planning methods and associated factors, evidence from PMA Ethiopia. PLoS ONE. 2024;19(2):e0298516. https://doi.org/10.1371/journal.pone.0298516

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