

# BMJ Open Decision-making autonomy in maternal health service use and associated factors among women in Mettu District, Southwest Ethiopia: a community-based cross-sectional study

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## ABSTRACT

**Objectives** Women's autonomy is valued in a range of healthcare settings, from seeking and receiving care to deciding between treatment options. This study aimed to assess the level of decision-making autonomy women have and associated factors when it comes to using maternal healthcare services.

**Design** A community-based cross-sectional study was conducted.

**Setting** The study was conducted in Mettu Rural District, Iluababor Zone, Southwest Ethiopia.

**Methods** Data were collected using a pretested interviewer-administered questionnaire from 541 women selected by a multistage sampling technique. The collected data were entered into EpiData V.3.1 and exported to SPSS V.22 for analysis. Bivariable and multivariable binary logistic regression were used to identify factors associated with women's decision-making autonomy on maternal health service use. Variables with a p value less than 0.05 at 95% CI were declared significant, and the strength of the association was measured by an adjusted OR (AOR).

**Primary outcome** Level of women's decision-making autonomy on maternal health service use.

**Results** It was found that 60.5% of women were autonomous in maternal health service use (95% CI 56.2% to 64.7%). The older age group (AOR=4.27, 95% CI 1.6 to 11.4, p=0.034), higher educational level (AOR=3.8, 95% CI 2.2 to 6.7, p=0.042), small family size (AOR=2.5, 95% CI 1.5 to 4.1, p=0.01) and proximity to health facilities (AOR=5.3, 95% CI 2.5 to 11.3, p=0.004) were all associated factors with healthcare decision-making autonomy.

**Conclusion** Two-fifths of women have diminished autonomy in decision making on healthcare service use. Age, level of education, family size and accessibility of health services were found to influence women's autonomy. Special attention should be given to education and access to health services to improve women's autonomy.

## INTRODUCTION

Autonomy is self-determination and the power to obtain information and arrive at decisions about one's concerns.<sup>1</sup> Women's autonomy

## Strengths and limitations of this study

- The key components of maternal healthcare services were used to quantify women's autonomy.
- Husbands were not included in the study.
- Qualitative data were not used to support the findings.
- Only time to conceive was used to assess women's autonomy regarding family planning.
- A cross-sectional study design cannot affirm any causal inference or direction of the association.

refers to their ability and freedom to make decisions and act autonomously, including their ability to explain strategic choices, and access to and control over resources.<sup>2</sup> It is the control women have over their own lives and the extent to which a woman has an equal voice with her husband in all matters affecting themselves and their families, control over resources, access to information, authority to take independent decisions and freedom of mobility.<sup>2,3</sup> According to the United Nations International Conference on Population and Development,<sup>4</sup> increased gender equality among families is a necessity for making progress in all areas of development. Its action plan emphasised the importance of increasing women's standing to improve their decision-making capacity at all levels and in all areas of life.<sup>5</sup>

Many societies, particularly those in low-income and middle-income countries, restrict women's autonomy and ability to make decisions about many aspects of their lives.<sup>6</sup> The societies in low-income and middle-income countries have strong social structures that rigorously define men's and women's roles, which are frequently encoded in religious, tribal and social traditions.<sup>7</sup> These limits frequently characterise the circumstances in

which women have or do not have the autonomy to make health-related decisions for themselves.<sup>8</sup>

Women's autonomy to achieve their choices, which includes a larger preference for preserving their health, is linked to their decision-making autonomy and the use of maternal health services.<sup>9</sup>

Studies have showed that women with high autonomy are assumed to have high self-esteem, do not accept gender inequalities in power and disagree with any justification for wife-beating. Many studies elsewhere have shown that a woman's decision-making ability and attitudes towards domestic violence are valid measures for assessing a woman's autonomy.<sup>8,9</sup> Evidence also shows that sufficient healthcare use and women's empowerment in healthcare decision making have a favourable impact on maternal healthcare use and are critical to reducing mother and child morbidity and mortality.<sup>10–12</sup>

The WHO has specifically stated that meeting the maternal health goal requires guaranteeing universal healthcare coverage for sexual, reproductive and maternity healthcare, as well as eliminating inequities in access and quality of sexual, reproductive and maternal healthcare by addressing all causes of maternal mortality, illness and disability, as well as enhancing healthcare systems to meet the needs and priorities of women.<sup>13</sup>

Various studies have shown that women's flexibility in decision making in healthcare is crucial to better outcomes in maternal and child health.<sup>3,14,15</sup> Moreover, they sometimes have unequal access to nutrition, education and healthcare, yet have a limited opportunity to earn income and have control over resources, as well as few effective legal rights particularly in Africa.<sup>16</sup>

In addition, according to the Demographic and Health Survey (DHS) Kenyan report, 39% of women are the primary decision makers in their healthcare, while 40% of women decide jointly with their husbands and 21% decide primarily with their husbands.<sup>17</sup> Only less than a quarter of women (23%) are the primary decision makers for visits to family or relatives and only 20% on major household purchases.<sup>18</sup> Other characteristics that have been linked to maternal healthcare use include age, education, employment or labour force involvement, and wealth quintile.<sup>15–18</sup>

Other studies have found no link between women's participation in decision making and their use of antenatal and delivery care services.<sup>19</sup> However, such investigations in the context of African countries have been few.<sup>20</sup> Some of the direct measures of women's autonomy identified by different researchers include access to and control over resources, participation in economic decisions, self-esteem and mobility.<sup>21–23</sup> The use of maternal healthcare was linked to women's autonomy in household decision making in studies based on the Ethiopian Demography and Health Survey (EDHS) from 2005.<sup>24</sup> Evidence from the EDHS indicated that Ethiopian women's autonomy in healthcare decision making was generally declining from 2005 to 2016.<sup>25</sup> According to the 2016 EDHS, only 15.4% of Ethiopians were autonomous in household

decision making and used health services to meet reproductive health goals, including safe motherhood. Women who did not participate in any household decisions and those who did not have freedom of movement were much less likely to receive antenatal care, delivery care from a skilled provider and postnatal check-ups.<sup>26</sup>

More than 80% of Ethiopian women live in rural areas, where they are treated as subordinates by their husbands, which would harm women's autonomy to properly exercise their reproductive health rights.<sup>27</sup> Women's decision-making power appears to be the most powerful predictor among many others for increasing maternal health service use.<sup>24</sup> Overall, few studies from Ethiopia have examined the level of women's decision-making autonomy in maternal healthcare service use in rural settings in Ethiopia. Thus, studying factors that affect women's decision-making autonomy is very important to enhance maternal healthcare service use by addressing them. Therefore, this study was designed to assess the level of women's decision-making autonomy and associated factors in maternal healthcare use.

## Study objectives

This study was designed to determine decision-making autonomy on maternal health service use and associated factors among reproductive-age women in Mettu District, Southwest Ethiopia.

## METHODS

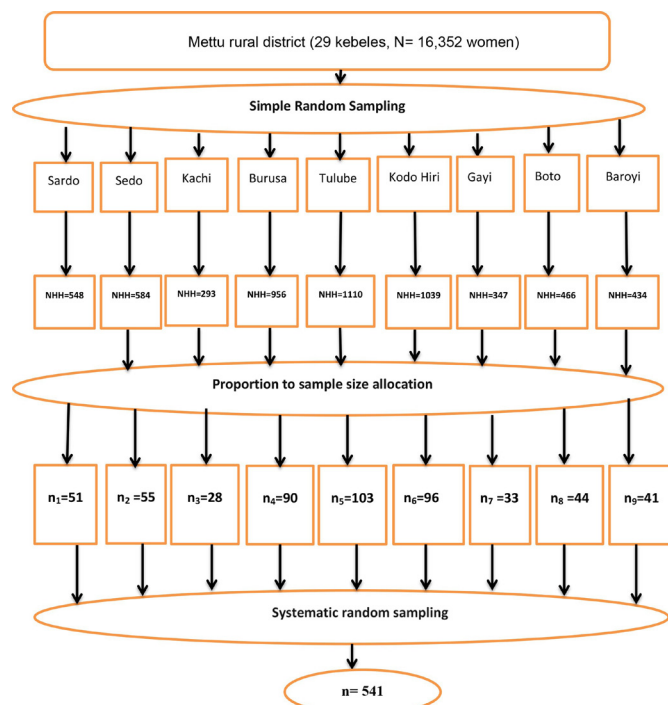
### Study setting and period

A community-based cross-sectional study was conducted in Mettu District, Iluababor Zone, Southwest Ethiopia, from 19 June to 20 August 2021. Mettu District is 1 of 13 rural districts in Iluababor Zone, located 600 km to the southwest of Addis Ababa, the capital city of Ethiopia. The district has 29 rural kebeles with an estimated total population of 87 771, of whom 44 448 (50.6%) are female rural dwellers and 43 323 are male rural dwellers. There are 5 health centres and 29 health posts in the district. Married women who had given birth at least once, age above 18 years and lived in the Mettu District for at least 6 months were included in the study.

The sample size was determined by using a single population proportion formula considering 95% confidence level, 5% margin of error<sup>28</sup> and taking 80% of women making autonomous decisions regarding their own healthcare needs from a study done in southern Ethiopia.<sup>20</sup> These assumptions are substituted in the following formula:

$$n = \frac{(Z_{(\alpha/2)})^2 * p(1-p)}{d^2} = \frac{(1.96)^2 * 0.8(0.2)}{(0.05)^2} = 246$$

where n is the initial sample size; Z/2 is the critical value for normal distribution at 95% confidence level, which equals 1.96 (z value at 0.05); p is the proportion of women who participate in healthcare decision making; 80% (0.80) was taken from the study conducted in the Wolaita zone, Southern Ethiopia<sup>20</sup>; and d is the margin



**Figure 1** Schematic presentation of the sampling procedure.

of error, 5% (0.05). The calculated sample size is multiplied by a design effect of 2; a 10% non-response rate is added; and the final sample size was 541 women. Sample size calculation was also considered for factors associated with the decision-making autonomy of women by considering different factors associated with women's decision-making autonomy on maternal health service use using Epi Info V.7 software by the following assumption made: two-sided confidence level of 95%, power of 80%, exposed to unexposed ratio of 1:1, design effect of 2 and 10% non-response rate. The factors considered were taken from studies conducted in different parts of Ethiopia.<sup>20 24 29 30</sup> Accordingly, from the magnitude (541) and factor (440) sample sizes, the largest sample size was taken, which was 541. The district had 29 kebeles (the lowest administrative unit in Ethiopia), and 9 kebeles were selected using a simple random sampling method in the first stage. The total sample size was allocated to each selected kebele using proportional allocation. A systematic random sampling method was used to select eligible married women from households in selected kebeles in the second stage (figure 1). The sampling interval was 10, and the first household selected from the list was number 2, by lottery method, and then every 10th household was included in the study. A woman in the reproductive age group was interviewed from the selected households, and if there were more than one woman in the selected households, a lottery method was used to select only one.

## Data collection

A structured, pretested and interviewer-guided questionnaire was used to collect data. The questionnaire

was prepared originally in English and then translated into the local language, Afan Oromo. The questionnaire consisted of sociodemographic and healthcare-related questions which were developed by the authors, and questions related to women's decision-making autonomy in maternal healthcare service use and household affairs which were adapted from previous similar studies in Ethiopia,<sup>20 24 29</sup> which are validated for use in similar studies. Accordingly, women's autonomy in healthcare decision making was assessed by asking women about who makes decisions concerning their healthcare using the answers to the following six questions: on antenatal care, delivery at a health institution, postnatal care services, where to get maternal health services, family planning and continuation or stopping the use of maternal health services. Accordingly, their responses were classified into any of the following four choices: 'woman alone', 'woman and husband jointly', 'husband alone' or 'other else'. As a result, a woman was considered autonomous in healthcare decision making if she usually made that decision alone or jointly with her husband. A score of 1 was given if women decided independently or jointly, and a score of 0 was given for partners who decided independently or whose decision was made by others. Likewise, the maximum score was 6 and the minimum was 0. Women's decision-making autonomy on the use of maternal healthcare services was declared by using the median score. That means those scoring less than 3 points have diminished or no decision-making autonomy, and those scoring greater than or equal to 3 points have decision-making autonomy.<sup>20 24</sup> Finally, women's decision-making autonomy on maternal healthcare service use was dichotomous, with having decision-making autonomy if the score was above 3 and having no decision-making autonomy if the score was below 3.

Women's decision-making autonomy in household affairs was measured using the answers to the following five questions: who decides on matters on (1) the woman's health (personal decision-making authority), (2) major purchases (economic decision-making authority), (3) visits to friends or family (mobility decision-making authority), (4) husband's earning and (5) child healthcare? A woman who made more than two decisions, either alone or jointly with her husband, was categorised as having high decision-making authority.<sup>24</sup> A woman who made below two decisions was categorised as having low decision-making authority.

## Patient and public involvement

Patients or the public were not involved in the design, conduct, reporting or dissemination plans of our research.

## Data management and analysis

The quality of the data was assured through careful design, pretesting of the tools, proper training and close supervision of the data collectors, and proper handling of the data. The collected data were coded, cleaned and entered into EpiData V.3.1 and exported to SPSS V.22 for analysis.



The analysis results output of the participants' sociodemographic characteristics and outcome variables were summarised using descriptive summary measures. Mean and SD were used for normally distributed continuous variables and per cent for categorical variables. A variable with a p value less than 0.2 in bivariable binary logistic regression was taken as a candidate for further multivariable binary logistic regression analysis after checking for the assumptions (the dependent variable was categorical and dichotomous; multicollinearity between independent variables was checked using linear regression 'colinearity diagnostics'; and  $\chi^2$  assumption was checked by using the minimum number of 10 observations per independent variable as a rule of thumb). Then, a multivariable binary logistic regression analysis was used to identify the presence of an association between the dependent and independent variables. The goodness of fit of the model was checked by Hosmer-Lemeshow's goodness-of-fit test, which indicated a value that was not significant (0.292), indicating that the model was doing well. Statistical significance was declared using 95% CIs of adjusted ORs (AORs) and a p value of less than 0.05.

## RESULTS

### Sociodemographic characteristics of the participants

A total of 532 married women were involved in the study, making up 98% of the response rate. Two hundred twenty (41.4%) respondents were in the age group of 30–39 years. The mean age of women was 32.17 (SD 8.599) years. Regarding the educational status, 212 (39.9%) of women have not attended formal education and 72.2% of the husbands of participants have attended primary and higher education. As for the occupation of respondents, 266 (50%) of the respondents were housewives, and 60.4% of the respondents' husbands were farmers. Regarding the monthly income of the households, 15.8% of the respondents earned 2500–10 000 Ethiopian birr (ETB), while 48 (9.2%) of the respondents earned more than 10 000 ETB per month. Four hundred six (76.3%) had family sizes of five or less than five members (table 1).

### Health service use among participants

Five hundred twenty-five (98.7%) of the study participants reported having attended antenatal care during pregnancy. However, only 46.7% of them had attended

**Table 1** Sociodemographic characteristics of women in Mettu Rural District, Southwest Ethiopia, 2021

Variables	Category	Frequency	Per cent
Age group	Under 20	48	9
	20–29	156	29.5
	30–39	220	41.2
	40–49	108	20.3
Educational level	No formal education	212	39.8
	Primary level (1–8)	224	42.1
	Secondary and above	96	18
Husband's education	No formal education	148	27.8
	Primary level (1–8)	240	45.1
	Secondary and above	144	27.1
Occupation of the respondent	Housewife	266	50
	Farmer	84	15.8
	Merchant	98	18.4
	Government employee	56	10.5
	Daily labourer	28	5.3
Husband's occupation	Farmer	320	60.2
	Daily labourer	60	11.3
	Merchant	80	15.0
	Government employee	60	2.3
	Others	12	3.0
Monthly income of the household	<2500 ETB*	399	75
	2500–10 000 ETB	84	15.8
Family size	>10 000 ETB	49	9.2
	Small (below five members)	406	76.3
	Large (more than five members)	126	23.6

ETB, Ethiopian birr.

**Table 2** Maternal health service use among women in Mettu District, Iluababor Zone, Southwest Ethiopia, 2021 (n=532)

Variables	Category	Frequency	Per cent
ANC follow-up	Yes	525	98.7
	No	7	1.3
Number of ANC visits	Less than four visits	280	53.3
	More than four visits	245	46.7
Time to start ANC	Before the fourth month	294	56
	After the fourth month	231	44
Means of transportation	On foot	153	28.7
	By public transportation	379	71.3
Distance from health facility	Less than 30 min	98	18.4
	More than 30 min	434	81.6
Postnatal check-up	Yes	105	19.7
	No	427	80.3
First postnatal check-up	<24 hours	79	14.8
	24–48 hours	26	4.9
Number of postnatal check-ups	One time	69	14
	Two times	23	4.3
	Three times	13	2.4
Reasons for not seeking postnatal care (n=427)	Too much cost	43	8.1
	Too far	185	34
	No trust/poor quality	100	18.8
	No transportation	99	18

ANC, antenatal care.

the recommended four antenatal care (ANC4)+ visits per pregnancy. A majority of the participants (71.3%) go to health facilities by public transportation. Regarding postnatal care services, 14.8% of the mothers reported getting check-ups while they were in the health institutions. Ninety-eight (18.4%) of the participants were less than or equal to 30 min away from the health facility (by foot) (table 2).

### Women's autonomy in household decision making

Overall, 308 (57.9%) married women have decision-making autonomy in household decision making. Concerning women's decision-making autonomy in household decisions, 280 (52.7%) and 266 (60%) had decision-making autonomy on their husbands' earnings and major household purchases, respectively. About fifty-six (10.5%) of the participants made decisions related to visiting family, friends or relatives alone and 168 (31.6%) with their husbands. Also, concerning women's decision-making autonomy about their healthcare, 5.3% of them usually make decisions themselves. In 42.1% of the study participants, women's healthcare decisions are made by their husbands or partners. Two hundred fifty-two (47.4%) of the respondents reported that they decided to visit a health facility jointly, as indicated in table 3. Three hundred eight (57.9%) of women have

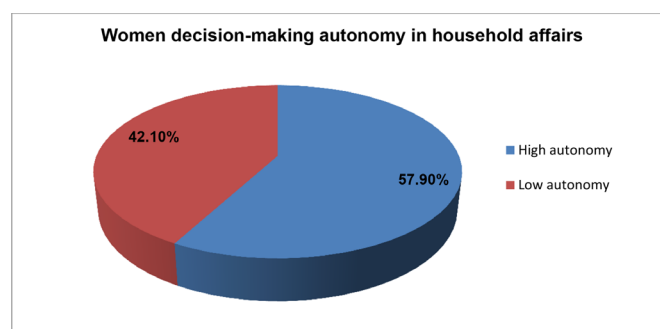
**Table 3** Women's autonomy in household decision making in Mettu Rural District, Oromia Region, Southwest Ethiopia 2021, n=532

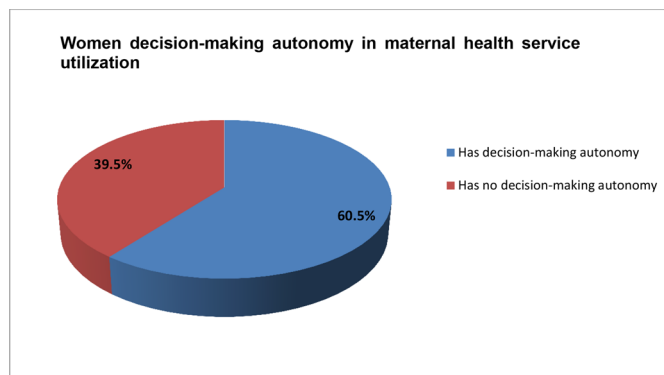
Variables	Category	Frequency	Per cent
Decision made on husband earning	Husband/other else	252	47.4
	Jointly	252	47.4
	Woman alone	28	5.3
Decision made on major household purchase	Husband/other else	266	50
	Jointly	238	44.7
	Woman alone	28	5.3
Decision made on visiting family or friends	Husband/other else	168	31.6
	Jointly	308	57.9
	Woman alone	56	10.5
Decision made on woman's healthcare	Husband/other else	224	42.1
	Jointly	280	52.6
	Woman alone	28	5.3
Decision made on child healthcare	Husband/other else	196	36.8
	Jointly	308	57.9
	Woman alone	28	5.3
Women's decision-making power in household	Low autonomy	224	42.1
	High autonomy	308	57.9

high autonomy regarding decision making on household affairs (figure 2).

### Women's decision-making autonomy on maternal health service use

Three hundred twenty two (60.5%) of women who had decision-making autonomy in maternal health service use (figure 3). Accordingly, concerning women's decision-making autonomy regarding family planning, 5.3% of them made decisions by themselves, whereas 60.9% made decisions jointly with their husbands. In addition, more than half (51.1%) of women made decision regarding antenatal care service jointly. Similarly, 50.3% of participants had joint decision on postnatal care service use.

**Figure 2** Women's autonomy in household decision making in Mettu District, Southwest Ethiopia, 2021.



**Figure 3** Women's decision-making autonomy on maternal health service use in Mettu District, Southwest Ethiopia, 2021.

About 42 (7.9%) of participants made decisions on whether to continue or stop using intended maternal health services alone and 296 (55.6%) made decisions with their husbands (table 4).

**Table 4** Women's decision-making autonomy on maternal health service use in Mettu Rural District, Oromia Region, Southwest Ethiopia, 2021 (n=532)

Variable	Category	Frequency	Per cent
Decision making on antenatal care	Husband/other else	218	41
	Jointly	272	51.1
	Women alone	42	7.9
Decision-made giving birth at health Institution	Husband/other else	220	41.3
	Jointly	284	53.4
	Women alone	28	5.3
Decision made to seek PNC services	Husband/other else	236	44.4
	Jointly	268	50.3
	Women alone	28	5.3
Decision made on family planning	Husband/other else	180	33.8
	Jointly	324	60.9
	Woman alone	28	5.3
Decision made on where to get maternal health services	Husband/other else	212	39.8
	Jointly	292	54.9
	Women alone	28	5.3
Decision made on whether to continue/stop using the maternal health services	Husband/other else	194	36.5
	Jointly	296	55.6
	Woman alone	42	7.9
Decision-making autonomy on maternal healthcare services	Not autonomous	210	39.5
	Autonomous	322	60.5

### Factors associated with decision-making autonomy of women

In bivariable binary logistic regression, the respondent's age, educational status, household income, family size, women's occupation, number of ANC visits and distance to the health facility were found to be significantly associated with women's decision-making autonomy, and variables with p values of less than 0.2 were used in the multivariable binary logistic regression analysis.

After controlling for confounding using backward stepwise multivariable binary logistic regression analysis, women's age, education, family size and distance from the health facility were identified as independent predictors of women's healthcare decision-making autonomy. Accordingly, the odds of women aged 40–49 years old having decision-making autonomy on maternal health services were four times higher compared with women aged under 20 years (AOR=4.3, 95% CI 1.6 to 11.4, p=0.034). Also, the odds of participating in healthcare decision making among women who have a primary education are around four times higher compared with women who have no formal education (AOR=3.8, 95% CI 2.1 to 6.7, p=0.042). In addition, the odds of women who had a family size of less than or equal to five were 2.5 times more likely to have decision-making autonomy on maternal healthcare services compared with women who had more than five members (AOR=2.5, 95% CI 1.5 to 4.1, p=0.01). Furthermore, women who spent less than 30 min on the way to a health facility had a higher likelihood of having decision-making autonomy for maternal health services than women who spent more than 30 min (AOR=5.3, 95% CI 2.5 to 11.3, p=0.004) (table 5).

### DISCUSSION

Women's autonomy is likely to vary according to characteristics at the individual, interpersonal, community, and macropolitical and societal levels. In this study, it is found that 322 (60.5%) (95% CI 56.2% to 64.7%) of the study participants have autonomy in making healthcare decisions either alone or jointly.

This finding was higher than that of a study conducted in Dawro, Southern Ethiopia,<sup>20</sup> and lower than that of Adwa, Northern Ethiopia,<sup>31</sup> and of an Ethiopian DHS.<sup>32</sup> This finding is also higher than the study conducted in the Bale zone.<sup>21</sup> This finding is also somewhat higher compared with the study conducted in Ghana,<sup>22</sup> which found that nearly half of the maternal health service use is independently decided by husbands, and women have very little autonomy in deciding about health service use. This difference might be the result of a discrepancy in the scope of the studies, as the current study involved only rural women, while the former studies incorporated both rural and urban women. It is known that urban women have relatively better education, the better economy, and information access. Hence, the current study found a relatively lower rate of healthcare decision-making autonomy than the aforementioned study. Women's autonomy in this study could be attributed to the fact that in Ethiopia,

**Table 5** Multivariable binary logistic regression showing factors associated with women's decision-making autonomy on maternal health service use in Mettu Rural District, Oromia Region, Southwest Ethiopia, 2021, n=532

	Autonomy on maternal health service use			
Variable	Autonomous	Not autonomous	COR (95% CI)	AOR (95% CI)
Age of woman (years)				
Under 20	26	22	1	1
20–29	96	60	0.5 (0.2 to 1.4)	1.9 (0.7 to 5.0)
30–39	130	90	0.2 (0.08 to 0.6)	1.2 (0.3 to 4.7)
40–49	70	38	0.8 (0.2 to 3.0)	4.3(1.6 to 11.4)*
Woman's education				
No formal education	168	44	1	1
Primary level (grades 1–8)	110	114	0.3 (0.1 to 0.4)	3.8 (2.1 to 6.7)*
Secondary and above	44	52	0.2 (0.1 to 0.4)	0.8 (0.5 to 1.6)
Household monthly income				
≤2500ETB	226	171	1	1
2500–10 000 ETB	48	34	1.1 (0.6 to 1.7)	0.4 (0.1 to 1.0)
>10 000 ETB	48	5	7.3 (2.8 to 18.6)	0.4 (0.1 to 1.2)
Family size				
Small (less than five members)	280	126	4.4 (2.9 to 6.8)	2.5 (1.5 to 4.1)*
Large (above five members)	42	84	1	1
Woman's occupation				
Housewife	186	80	1	1
Farmer	56	28	0.9 (0.5 to 1.5)	3.6 (1.4 to 8.7)
Government employee	42	56	0.3 (0.25 to 0 .5)	2.4 (0.9 to 6.3)
Merchant	28	28	0.46 (0.25 to 0.8)	0.9 (0.3 to 2.6)
Daily labourer	10	18	0.46 (0.211 to 1.0)	0.2 (0.12 to 1.5)
Distance to a health facility (min)				
≤30	70	28	0.5 (0.3 to 0.9)	5.6 (2.7 to 11.31)*
>30	252	182	1	1
Number of antenatal care visits				
<4 times	154	126	1	1
≥4 times	163	82	1.6 (1.1 to 2.3)	0.7 (0.5 to 1.15)

\*Significant at a p value of &lt;0.05.

AOR, adjusted OR; COR, crude OR; ETB, Ethiopian birr.

over a period of time, there has been a strong commitment and effort made by the Ethiopian government on maternal health, women's education (more than 60% of women in this study had attended primary and higher education) and the expansion of health service to kebele level. Besides, the current focus of the Ethiopian government and other stakeholder efforts to increase women's empowerment in decision making is related to maternal health.<sup>33</sup> In addition, in rural parts of Ethiopia, many women have received informal health education interventions like a family conversation at health posts for basic maternity care, which tends to increase the health knowledge of women, thereby increasing their autonomy in maternal healthcare service use.

Furthermore, the possible difference might be due to a difference in the education and socioeconomic status of study participants, as evidenced by the presence of low participation in the decision-making autonomy of maternal health services in the current study. About 210 study participants in the current study thought decision making was the responsibility of the husband. This suggests that women did not exercise their decision-making autonomy sufficiently to obtain maternal health services and freedom from household decision making in their lives. Additionally, the differences in the socioeconomic characteristics and geographical contexts across countries and the period of studies might also explain the observed inconsistencies of the findings.



This study shows that women's age was significantly associated with women's decision-making autonomy regarding maternal healthcare services. Accordingly, it is found that women's autonomy to make their own health-related decisions increases with age, which is in line with a study done using the EDHS.<sup>25</sup> Several studies in low-income and middle-income countries have also indicated that women's increasing age has a favourable impact on their autonomy to make health-related decisions on their own.<sup>2</sup> Other studies have also demonstrated the influence of age on women's autonomy.<sup>20 22 34</sup>

This could be because women's positions in society are socially constructed and their status varies, depending on their age and role in society<sup>35</sup>; moreover, in many African societies including Ethiopia, as a woman gets older, she becomes more autonomous since self-esteem increases with age.<sup>36</sup>

Education also affects women's autonomy to make their own decisions. The odds of women's decision-making autonomy on maternal healthcare were higher among those who had received primary or higher education than their illiterate counterparts. This finding is in line with the study conducted in Nepal (25) and also consistent with a study from Ethiopia (26) in which women who have received primary or higher education were four times more likely to make decisions on seeking healthcare than uneducated women. This is because education empowers women, providing them with increased autonomy and resulting in almost every context of maternal health service use.<sup>37</sup> This might be because the more a woman is educated, the more she will accept gender equality and believe in equal participation in decision making with her husband. This means that improving education has a significant impact on later-life decision-making participation in maternal healthcare services.

Women with a small family size (less than five members) were more likely to have decision-making autonomy in maternal healthcare services than women with a large family size. This finding is supported by a study conducted in southern Ethiopia<sup>20</sup> and Addis Ababa, Ethiopia,<sup>38</sup> which stated that having fewer children was associated with better reproductive health decision making.<sup>38</sup> As a result, having a smaller family would help women exercise freedom of healthcare decision making and end male dominance in a family. The study conducted in southern Ethiopia also revealed that the probability of autonomy in healthcare decision making in women with a family size of five to six people was lower compared with women with a family size of fewer than five people (16). This could be due to the size and character of the family members, who may or may not be connected to the mother, but who, in any event, support her in household decision making, where her autonomy is sometimes jeopardised and her mind occupied with different family issues. According to an Indian study, women who did not live with their mothers-in-law were more involved in the decision-making process.<sup>39</sup> In addition, women's autonomy confers total fertility reduction, higher child survival rates and allocation of resources in favour of children in the household.<sup>40</sup>

Also, the odds of decision-making autonomy on maternal healthcare services among women who live a distance from the health facility of fewer than 30 min are higher compared with those who live at a distance of greater than 30 min from a nearby health facility. The study conducted in Nigeria revealed that the further a patient lives from a health facility, the less likely they can use the services.<sup>41</sup> A study in Kenya<sup>42</sup> also identified distance and physical proximity to healthcare facility as barriers to the use of skilled attendance. This is because the preferred care source was often the closest one. In the African context, the principal barriers to accessibility are transport and cost, so distance is mostly reported as a single obstacle to the use of healthcare services.

The cross-sectional design of this study precluded drawing causal inferences between explanatory factors and women's decision-making autonomy in maternal healthcare service use. As the participants in this study were only women, there remains a potential for bias or discordance regarding the level of autonomy enjoyed by women, as this is to a large extent a subjective phenomenon. In addition, women's autonomy is a complex concept and difficult to quantify, and there is no universally agreed definition or tool for measurement. Despite this limitation, this study demonstrated important factors influencing women's decision-making autonomy in maternal healthcare service use in a rural setting.

## CONCLUSION

Even though every woman has the right to participate in her healthcare decision making, two in five women have diminished autonomy in decision making regarding their health service use. This study concludes that higher educational level, age, small family size and short distance from the health facility could lead to women's decision-making autonomy on maternal health service use. Health service accessibility, educating women and family planning activities might increase women's decision-making autonomy in maternal healthcare service use. Of note, educating women about their rights and health service expansion to the community level is recommended to raise the level of autonomy in maternal health service use.

## Generalisability

The study was conducted with a random selection of participants obtained after a random selection of a representative number of kebeles (35%) in the district. Hence, the results can be generalised for the district as well as the respective zone.

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**Ethics approval** This study involves human participants and was approved by the ethical review committee of the College of Health Science, Mettu University (approval number RCS/036/2020) and presented to Mettu District Administration and Health Office. An official letter was obtained from Mettu District Administration and Health Office and presented to the respective kebeles. The purpose and importance of the study were explained to the study participants, informing them of the right to withdraw at any time during the study period. Mothers were interviewed after verbal consent was obtained and the privacy and confidentiality of participants were maintained at all levels. The participants gave informed consent to participate in the study before taking part.

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## REFERENCES

- Friedman M. *Autonomy, gender, politics*. Oxford University Press, 2003.
- Osamor PE, Grady C. Women's autonomy in health care decision-making in developing countries: a synthesis of the literature. *Int J Womens Health* 2016;8:191.
- Adhikari R. Effect of Women's autonomy on maternal health service utilization in Nepal : a cross sectional study. *BMC Womens Health* 2016;1-7.
- Chandra-Mouli V, Ferguson BJ, Plesons M, *et al*. The Political, Research, Programmatic, and Social Responses to Adolescent Sexual and Reproductive Health and Rights in the 25 Years Since the International Conference on Population and Development. *J Adolesc Health* 2019;65:S16-40.
- UNFPA. *Programme of action, adopted at the International Conference on population and development*, 1994: 1-115.
- Cepal NU. Annotated index of the position document of the fourteenth session of the Regional Conference on Women in Latin America and the Caribbean Women's autonomy in changing economic scenarios 2019.
- Du C, Anser MK, Peng MY-P. Women's autonomy and its impact on environmental sustainability agenda. *J Environ Plan Manag* 2021;1-21.
- Budu E, Ahinkorah BO, Seidu A-A, *et al*. Child marriage and sexual autonomy among women in sub-Saharan Africa: evidence from 31 demographic and health surveys. *Int J Environ Res Public Health* 2021;18:3754.
- Allendorf K. The quality of family relationships and maternal health care use in India. *HHS Public access* 2016;41:263-76.
- Mullany BC, Becker S, Hindin MJ. The impact of including husbands in antenatal health education services on maternal health practices in urban Nepal: results from a randomized controlled trial. *Health Educ Res* 2007;22:166-76.
- Rasch V, Lyaruu MA. Unsafe abortion in Tanzania and the need for involving men in postabortion contraceptive counseling. *Stud Fam Plann* 2005;36:301-10.
- Sialubanje C, Massar K, Hamer DH, *et al*. Reasons for home delivery and use of traditional birth attendants in rural Zambia: a qualitative study. *BMC Pregnancy Childbirth* 2015;15:1-12.
- WHO. *WHO's strategic vision in sexual and reproductive health and rights Business Plan 2010-2015*, 2015.
- Seidu A-A, Aboagye RG, Okyere J, *et al*. Women's autonomy in household decision-making and safer sex negotiation in sub-Saharan Africa: An analysis of data from 27 Demographic and Health Surveys. *SSM - Population Health* 2021;14:100773.
- Mistry R, Galal O, Lu M. "Women's autonomy and pregnancy care in rural India: a contextual analysis". *Soc Sci Med* 2009;69:926-33.
- Sheldon K. *African women*, 2018.
- National Bureau of Statistics-Kenya ICFI. *2014 KDHS key findings*. Rockville, Maryland, USA: KNBS ICF Int, 2015.
- AbouZahr C, Macfarlane SB. Influence of Women's Empowerment on Place of Delivery in Related searches kenya demographic and health. In: *The Palgrave Handbook of global health data methods for policy and practice*. 17, 2021.
- Acharya P, Adhikari TB, Neupane D, *et al*. Correlates of institutional deliveries among teenage and non-teenage mothers in Nepal. *PLoS One* 2017;12:e0185667.
- Alemayehu M, Meskele M. Health care decision making autonomy of women from rural districts of southern Ethiopia: a community based cross-sectional study. *Int J Womens Health* 2017;9:213-21.
- Singh PK, Rai RK, Alagarajan M, *et al*. Determinants of maternity care services utilization among married adolescents in rural India. *PLoS One* 2012;7:e31666.
- SpringerLink. *Women's autonomy and maternal healthcare service utilization in Ethiopia*. 7043, 2021.
- Allendorf K. Couples' reports of women's autonomy and health-care use in Nepal. *Stud Fam Plann* 2007;38:35-46.
- Tiruneh FN, Chuang K, Chuang Y. *Women ' S autonomy and maternal healthcare service utilization in Ethiopia*. 2, 2017.
- Asabu MD, Altaseb DK. The trends of women's autonomy in health care decision making and associated factors in Ethiopia: evidence from 2005, 2011 and 2016 DHS data. *BMC Womens Health* 2021;21:1-9.
- Central Statistical Agency (CSA) and ICF. *Ethiopia demographic and health survey 2016*. Addis Ababa, Ethiopia, and Rockville, Maryland, USA: CSA and ICF, 2021.
- Tadele A, Tesfay A, Kebede A. Factors influencing decision-making power regarding reproductive health and rights among married women in Mettu rural district, south-west, Ethiopia. *Reprod Health* 2019;16:155.
- Naing L, Winn T, Rusli BN. *Practical issues in calculating the sample size for prevalence studies*, 2006: 9-14.
- Woldemicael G, Tenkorang EY. *Women ' S autonomy and maternal health-seeking behavior in Ethiopia*. 19, 2010.
- Mihiretu AMM. *Health care decision making autonomy of women from rural Ethiopia*. 68, 2021.
- Alemayehu M, Hailesellase K, Biruh G. Married women's autonomy and associated factors on modern contraceptive use in Adwa Town, Northern Ethiopia. *Science* 2014;2:297-304.
- Woldemicael G. Women's autonomy and reproductive preferences in Eritrea. *J Biosoc Sci* 2009;41:161-81.
- Bayeh E. The role of empowering women and achieving gender equality to the sustainable development of Ethiopia. *Pacific Science Review B: Humanities and Social Sciences* 2016;2:37-42.
- Sado L, Spaho A, Hotchkiss DR. The influence of women's empowerment on maternal health care utilization: evidence from Albania. *Soc Sci Med* 2014;114:169-77.
- Sougou NM, Bassoum O, Faye A, *et al*. Women's autonomy in health decision-making and its effect on access to family planning services in Senegal in 2017: a propensity score analysis. *BMC Public Health* 2020;20:1-9.
- Robins RW, Trzesniewski KH. Self-Esteem development across the lifespan. *Curr Dir Psychol Sci* 2005;14:158-62.
- Jejeebhoy SJ. Women's education, autonomy, and reproductive behaviour: Experience from developing countries. *OUP Cat* 1995.
- Delbiso TD. *Gender power relations in reproductive decision-making : The case of Gamo migrants in Addis Ababa*. Ethiopia Refbacks, 2013.
- Bloom SS, Wypij D, Das Gupta M, Das GM. Dimensions of women's autonomy and the influence on maternal health care utilization in a North Indian City. *Demography* 2001;38:67-78.
- Anderson S, Eswaran M. BREAD Working Paper No. 101: What Determines Female Autonomy? In: *Evidence from Bangladesh by Siwan Anderson and Mukesh Eswaran*, 2017.
- Babalola S. *BMC Pregnancy and Childbirth Determinants of use of maternal health services in Nigeria - looking beyond individual and household factors Bivariate analysis Multilevel models*, 2021.
- Gitimu A, Herr C, Oruko H, *et al*. Determinants of use of skilled birth attendant at delivery in Makueni, Kenya: a cross sectional study. *BMC Pregnancy Childbirth* 2015;15:1-7.