

Factors associated with decision making power of women to use family planning among married women in sub-Saharan Africa: A multilevel analysis of demographic health surveys

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Abstract

Background: In sub-Saharan Africa there are several socio-economic and cultural factors which affect women's ability to make decision regarding their own health including contraceptive usage. The main aim of this study was to determine factors associated with decision making power of women to use family planning in sub-Saharan Africa.

Methods: The appended, most recent demographic and health survey datasets of 35 sub-Saharan countries were used. A total weighted sample of 83,882 women were included in the study. Both bivariable and multivariable multilevel logistic regression were done to determine the associated factors of decision making power of women to use family planning in SSA. The Odds Ratio (OR) with a 95% Confidence Interval (CI) was calculated for those potential variables included in the final model.

Results: Those married women with primary education (AOR=1.24; CI:1.16,1.32), secondary education (AOR=1.31; CI:1.22,1.41), higher education (AOR=1.36; CI:1.20,1.53), media exposure (AOR=1.08; CI: 1.03, 1.13), currently working (AOR=1.27; CI: 1.20, 1.33), antenatal care visit of 1-3 (AOR=1.12; CI:1.05,1.20) and ≥ 4 ANC visit (AOR=1.14; CI:1.07,1.21), women who were informed about family planning (AOR=1.09; CI: 1.04, 1.15), women who had less than 3 children (AOR=1.12; CI: 1.02, 1.23) and 3-5 children (AOR=1.08; CI: 1.01, 1.16) had higher odds of decision making power to use family planning than their counterparts.

Besides, mothers with age of 15-19 (AOR=0.61; CI: 0.52, 0.72), 20-24 (AOR= 0.69; CI: 0.60, 0.79), 25-29 (AOR=0.74; CI: 0.66, 0.84), and 30-34 years (AOR=0.82; CI: 0.73, 0.92) had reduced chance of decision making power of women to use family planning.

Conclusion: Age, women's level of education, occupation of women and their husband, wealth index, media exposure, ANC visit, fertility preference, husband's desire number of children, region and information about family planning were factors associated with decision making power to use family planning among married women.

Background

Sub-Saharan Africa accounted 66% of the deaths globally and had the highest Maternal Mortality Ratio (MMR) at 546 maternal deaths per 100,000 live births(1). Unplanned pregnancy and short inter-pregnancy spacing are leading causes of maternal and child death in this region; use of modern family planning methods after delivery is considered an important part of interventional efforts(2, 3). In developing countries, more than 222 million women's pregnancies are unplanned(4).

The 2030 Agenda for Sustainable Development Goal(SDGs) includes relevant targets for using contraceptive under the broader goals of health and well-being of the population and gender equality (5, 6). Family planning service contributes not only to the reduction of morbidity and mortality of mothers and children, but also avoiding unintended pregnancy and its adverse consequence including preventing HIV/AIDS and high risk abortion, improving standard of living, and efficient use of natural resources(7).

Only 17% of married women are using contraceptives in sub-Saharan Africa which is too low as compared to North Africa (50%), Middle East (39%), East Asia (76%) and Latin America (68%) (8, 9). Although 30% of maternal deaths and 10% of child death could be avoided by extending pregnancy (10), 41% of women in Sub-Saharan Africa who intended to use modern contraceptives were not using (11).

A woman's ability to choose the method of modern contraception she uses are likely to be affected by her self-image and sense of empowerment. A woman who feels that she is unable to control other aspects of her life may be less likely to feel that she can make decisions about fertility(12). Independent decision making or joint decision making with partners on family planning use has a substantial contribution to the improvement of maternal health(13). Although women's empowerment is a key to use contraceptives(12), most of husbands give inferior positions to women in all aspects of decision-making in developing countries including decision making power to use contraceptives (12, 14).

Women often have less power due to their political, economic, and sociocultural status and may not be in a position to protect themselves from unwanted sexual intercourse and gender-based violence and resulting in sexually transmitted infections and other sexual and reproductive health (SRH) problems(15). This indicates that gender inequalities worsen a difference in SRH well-being and ill health, and sometimes life and death(16).

One of the reasons women have reported for their nonuse of contraceptive is that they do not decide to use or not to use it(17). Evidences showed that women who have decision-making power are more likely to use contraceptive than those who had not(18, 19). However, decisions for contraceptive use may be affected by unbalanced power relations between women and their partners, especially in more male-controlled societies and cultural discrimination (20). Furthermore, previous studies showed that decision-making power of women to use family planning was associated with education(4, 21–23), age(4, 23–26), better knowledge(24, 27, 28), working status of women(25, 26, 29), gender equitable attitude(27), number of living children(21, 25, 26), socio-economic status (22, 23, 29–31), residence(25, 26), husband desire number of children(28) and attitude towards family planning(24).

Despite decision making power of women to use family planning is a huge problem in SSA region, to the best of our knowledge, there is no study that investigates the factors associated with decision making power to use family planning among married women in the region. Hence, this study was conducted to fill the gap in literature in determining the associated factors of decision making power of women to use family planning in sub-Saharan Africa, which in turn highly relevant to recommend the design and implementation strategies of decision making power of women to use family planning in the region.

Methods

Data source

This study used the most recent appended demographic and health survey (DHS) datasets of 35 sub-Saharan countries which were conducted from 2009 to 2018. The DHS is a nationally representative

survey, collected every five years, to provide population and health indicators at the national and regional levels. A pretested standard Demographic and Health Survey questionnaires were used for data collection of the DHS surveys. The questionnaire was conceptualized to the different countries context and the data were collected by trained data collectors. The datasets of each sub Saharan country were obtained at https://dhsprogram.com/data/dataset_admin/index.cfm. Those countries with no data on decision making power of women to use family planning were excluded from the analysis. In this study, a total weighted sample of 83,882 women were included (Table 1).

Table 1

List of sub-Saharan countries included, and their demographic and health Survey's year

Country name	Survey year
Angola	2015/16
Burkina Faso	2010
Benin	2017/18
Burundi	2016/17
Cameroon	2018
Congo Democratic Congo	2013/14
Chad	2015
Comoros	2012
Congo	2011/12
Cote d'vore	2011/12
Ethiopia	2016
Gabon	2012
Ghana	2014
Gambia	2013
Guinea	2018
Kenya	2014
Liberia	2013
Lesotho	2014
Madagascar	2009
Mali	2018
Malawi	2015/16
Mozambique	2011
Nigeria	2018
Niger	2012
Namibia	2013
Rwanda	2014/15

Country name	Survey year
Sera lone	2016
Sao tome and Principe	2009
Senegal	2011
Togo	2013
Tanzania	2015/16
Uganda	2016
South Africa	2016
Zambia	2018
Zimbabwe	2015

Variables of the study

Dependent variable

The dependent variable for this study was decision making power of women to use family planning. According to DHS, decision making power of women to use family planning was reported in four categories (decision making by women, partner, joint and others). Hence, we dichotomized this variable as: yes (if the women decide independently or together with their partner/husbands to use family planning) and no (if the decision making to use family planning was made by their partner/husbands only or others)(24).

Independent variables

Both individual and community level variables were considered as independent variables. The individual level variables were age, education level, wealth index, occupational status of women and their husbands, media exposure, ANC visit, number of living children, desire fertility of women, desire number of children by husbands, and information related to FP at health facility. Residence and SSA region were the community level factors included in this study.

Data analysis procedure

We used STATA 14 software to extract, recode and analyze the data. The data were weighted before doing any statistical analysis to restore the representativeness of the sample and get a reliable estimate and standard error. The whole procedure of weighting and its rationale is found on the guide of DHS statistics (32).

Due to the correlated nature of DHS data, measures of community variation/random-effects such as Median Odds Ratio (MOR), Interclass Correlation Coefficient (ICC), and Proportional Change in Variance

(PCV) were calculated. Accordingly, the values of these measures were found to be significant, and hence the use of multilevel logistic regression model is more appropriate than using ordinary logistic regression. To choose the best fitted model, first we developed four models and compared them with Deviance. These were: the null-model; a model with no independent variable, model I ; a model that have individual-level factors only, model II; a model with community-level factors only and model III; a model that contain both community level and independent variables. Of the four models fitted, model III was selected as best fitted model (it had the lowest Deviance).

Then after, both bivariable and multivariable multilevel logistic regression was performed to determine the associated factors of decision making power of women to use FP in SSA. All variables which has a p value < 0.25 during bi-variable analysis were entered into the multivariable logistic regression model. In the final model, we used p value ≤ 0.05 to declare statistically significant variables.

Results

Sociodemographic characteristics of the respondents

The total weighted samples of 83,882 married women were included in this study. Of these, 22.9% of the respondents were in the age group of 25–29 years and while more than half (60 %) of the respondents were live in rural area. More than one-third of both the respondents (39.9%) and their husbands (34.4%) had primary education level. Majority of the respondents (73.3%) and their husbands (92.7%) were currently working /employed. Similarly majority of the study participants (67%) had media exposure (Table 2).

Table 2
Sociodemographic characteristics of the respondents in sub-Saharan Africa

Variable Category		Weighted Frequency	Percent (%)
Age(in years)	15–19	3,215	3.8
	20–24	13,693	16.0
	25–29	19,210	22.9
	30–34	17,890	21.0
	35–39	15,016	17.9
	40–44	9,794	11.9
	45–49	5,063	6.5
Residence	Urban	33,704	40.0
	Rural	50,177	60.0
Region	East Africa	37,713	44.7
	West Africa	19,471	24.0
	South Africa	15,430	18.6
	Central Africa	10,534	12.7
Education level of respondents	No formal education	16,714	19.9
	Primary	33,490	39.9
	Secondary	28,100	33.5
	Higher	5,578	6.7
Education level of husband	No formal education	15,251	18.2
	Primary	28,865	34.4
	Secondary	30,280	36.0
	Higher	9,406	11.0
Respondents' occupations	Currently working	61,454	73.3
	Currently	22,428	26.7
	Not working		
Husbands occupations	Currently working	77,741	92.7
	Currently	6,141	7.3
	Not working		

Variable Category		Weighted Frequency	Percent (%)
Wealth index	Poorest	10,934	13
	Poorer	14,093	16.8
	Middle	16,119	19.4
	Richer	19,309	23
	Richest	23,425	27.8
Media exposure	Yes	56,269	67.0
	No	27,585	33.0

Reproductive characteristics of the respondents

Of the respondents, 47.6% of them had four and more ANC visit. Majority of the respondents (69.2%) were told about family planning methods during their facility visit. More than half of the respondents (56%) had fertility preference to have other children. Regarding contraceptive methods used, 36.2% of study participants used injections (Table 3).

Table 3
; Reproductive characteristics of the respondents in sub-Saharan Africa

Variables Category		Frequency	Percent (%)
Number of ANC visit	0	24,679	29.4
	1-3	19,255	23
	≥ 4	39,948	47.6
Number of living children	< 3	32,908	39.2
	3-5	38,515	45.9
	> 5	12,458	14.9
Fertility preference	Unable to have children	5100	6
	Do not want another children	31,887	38
	Want to have another children	46,895	56
information about FP at health facility	Yes	25,844	30.8
	No	58,037	69.2
Husbands desire for children	The same with spouse	37,187	44
	Husbands wants more	39,023	46.5
	Husbands wants fewer	7,671	9.5
Type of contraceptive method used	Pill	12,892	15.4
	IUD	2,292	2.73
	Injections	30,380	36.2
	Male condom	7,236	8.6
	Female sterilization	4,305	5
	Periodic abstinence	6,703	8
	Withdrawal	3,777	4.5
	Implants /Norplant	12,311	14.7
	Lactation amenorrhea (LAM)	1,776	2.2
	Other methods (including traditional method)	2205	2.7

The random-effects model result showed that there is significant clustering of decision making power of women to use family planning across the communities (OR of community level variance = 0.07, 95% CI = 0.06–0.10). The value of ICC in the null model revealed that 2.16 % of the overall variation of decision making power of women to use family planning was attributed to cluster variability. The 1.23 MOR value of the null model also indicates the presence of variation in the decision making power of women to use family planning between clusters. It means if we randomly select households from different clusters, those households at the cluster with higher decision making power of women to use family planning had 1.23 times higher chance of decision making power to use family planning compared to their counterparts. As you can see in the Table 3 below, model III has the lowest Deviance value. Hence, it was selected as best fitted model (Table 4).

Table 4
Model comparison and random effect analysis result

Parameters	Null model	Model I	Model II	Model III
Community level variance	0.07(0.06–0.10)	0.07(0.06–0.10)	0.07(0.05–0.09)	0.07(0.05–0.09)
ICC	2.16 %	2.14%	2.00%	2.02%
MOR	1.29	1.29	1.28	1.28
PCV	Ref	0.69%	7.42%	6.60%
Model fitness				
Deviance	54592.124	53855.498	53915.178	53310.886

Factors associated with decision making to use contraceptive

The odds of decision making power to use family planning among married women with age 15–19, 20–24, 25–29 and 30–34 years was decreased by 39% (AOR = 0.61; CI: 0.52, 0.72), 31% (AOR = 0.69; CI: 0.60, 0.79), 26% (AOR = 0.74; CI: 0.66, 0.84), and 18% (AOR = 0.82; CI:0.73, 0.92)as compared to their counterparts, respectively. The odds of decision making power to use family planning among married women whose education level was primary, secondary and higher was about 1.24 (AOR = 1.24; CI:1.16,1.32), 1.31 (AOR = 1.31; CI:1.22,1.41) and 1.36 (AOR = 1.36; CI:1.20,1.53) times higher compared to those who did not have formal education.

Women who are currently working were 1.27 (AOR = 1.27; CI: 1.20, 1.33) times more likely to have decision making power to use contraceptive as compared to women who were not currently working. Women who had media exposure were 1.1 (AOR = 1.08; CI: 1.03, 1.13) times more likely to have decision making power on family planning use as compared to those women who did not had media exposure.

Similarly, the odds of decision making power on family planning among participants who had 1–3 and ≥ 4 ANC visit was increased by 12% (AOR = 1.12; CI: 1.05, 1.20) and 14% (AOR = 1.14; CI: 1.07, 1.21) than those who had not ANC visit, respectively. Besides, the odds of decision making power on family planning among participants who had informed about family planning was increased by 9% (AOR = 1.09; CI: 1.04, 1.15) than their counterparts. Women whose husband's desire want fewer children 14% (AOR = 0.86; CI: 0.79, 0.93) reduced chance of decision making power for family planning than their counterparts.

Women who had less than 3 and 3–5 children were 1.12 (AOR = 1.12; CI: 1.02, 1.23) and 1.08 (AOR = 1.08; CI: 1.01, 1.16) times higher odds of decision making power to use family planning than women who had > 5 children, respectively. Women who did not have children were 48% reduced odds of decision making power to use FP than women who want to have children (AOR = 0.52; CI: 0.47–0.58). Moreover, the odds of decision making power to use FP was increased by 1.12 (AOR = 1.10; CI: 1.04, 1.17) times among participants who do not want other children than those who wants to have other children (Table 5).

Table 5

; multilevel regression analysis of decision making power to use family planning among married women in sub-Saharan Africa

Variables	Decision making		Odds ratio	
	Yes, No (%)	No, No (%)	COR(95%CI)	AOR(95%CI)
Age (years)				
15–19	2797(87)	418(13)	0.76(0.66–0.87)	0.61(0.52–0.72)*
20–24	12,167(88.9)	1526(11.1)	0.91(0.81–1.00)	0.69(0.60–0.79)*
25–29	17,144(89.3)	2066(10.7)	0.96(0.87–1.07)	0.74(0.66–0.84)*
30–34	16,092(89.9)	1799(10.1)	1.04(0.94–1.05)	0.82(0.73–0.92)*
35–39	13,506(89.9)	1510(10.1)	1.06(0.95–1.17)	0.89(0.79–1.00)
40–44	8,798(89.8)	996(10.2)	1.01(0.91–1.13)	0.92(0.82–1.02)
45–49	4527(89.5)	536(10.6)	1	1
Residence				
Urban	30,082(89.3)	3622(10.7)	1	1
Rural	5229(10.4)	44,949(89.6)	1.01(0.97–1.06)	1.02(0.96–1.08)
Region				
East Africa	34,861(92.4)	2,853(7.6)	1	1
West Africa	17,302(85.6)	2,901(14.4)	0.52(0.49–0.53)	0.52(0.49–0.56)*
South Africa	13,895(90.1)	1536(9.9)	0.76(0.71–0.81)	0.76(0.71–0.82)*
Central Africa	8,973(84.2)	1561(14.8)	0.51(0.48–0.55)	0.51(0.47–0.55)*
Education level of respondents				
No education	14,423(86.3)	2,291(13.7)	1	1
Primary	30,266(90.4)	3,224(9.6)	1.51(1.42–1.59)	1.24(1.16–1.32)*
*P-value ≤ 0.05				

	Decision making		Odds ratio	
Secondary	25,250(89.9)	2,851(10.1)	1.40(1.32–1.49)	1.31(1.22–1.41)*
Higher	5,093(91.3)	485(8.7)	1.66(1.49–1.85)	1.36(1.20–1.53)*
Respondents' occupations				
working	55,489(90.3)	5,965(9.7)	1.35(1.29–1.42)	1.27(1.20–1.33)*
not working	19,542(87)	2,886(13)	1	1
Husband's occupation				
working	69,705(89.7)	8,035(10.3)	1.24(1.15–1.35)	1.17(1.08–1.27)*
not working	5,326(86.7)	816(13.30)	1	1
Wealth index				
Poorest	9,656(88.3)	1,277(11.7)	1	1
Poorer	1,558(11.1)	12,535(88.9)	1.06(0.98–1.18)	1.01(0.93–1.09)
Middle	1,736(11)	14,383(89)	1.09(1.01–1.18)	1.01(0.94–1.09)
Richer	2,071(10.3)	17,239(89.3)	1.12(1.04–1.20)	1.02(0.94–1.11)
Richest	2,208(9.4)	21,217(90.6)	1.28(1.19–1.38)	1.13(1.03–1.23)*
Media exposure				
Yes	50,675(90.1)	5,594(10.9)	1.19(1.14–1.26)	1.08(1.03–1.13)*
No	24,335(88.2)	3,251(11.8)	1	1
ANC visit				
no ANC visit	21,972(89)	2,708(11)	1	1
1–3 ANC visit	1,964(10.2)	17,291(89.8)	1.08(1.02–1.51)	1.12(1.05–1.20)*
≥ 4 ANC visit	4,179(10.5)	35,769(89.5)	1.06(1.01–1.12)	1.14(1.07–1.21)*

*P-value ≤ 0.05

	Decision making		Odds ratio	
Number of living children				
<3	29,429(89)	3,749(11)	1.06(0.99–1.13)	1.12(1.02–1.23)*
3–5	34,552(89.7)	3,964(10.3)	1.09(1.02–1.17)	1.08(1.01–1.16)*
>5	11,050(88.7)	1,408(11.3)	1	1
Fertility preference				
who did not have children	4,300(84.3)	800(15.7)	0.68(0.63–0.74)	0.52(0.47–0.58)*
Do not want other children	29,101(91.3)	2,786(8.7)	1.29(1.23–1.36)	1.10(1.04–1.17)*
Want to have other children	41,630(88.8)	5,265(11.2)	1	1
Women who are told FP at health facility				
Yes	23,291(90.1)	2,553(9.9)	1.13(1.08–1.19)	1.09(1.04–1.15)*
No	51,739(89.2)	6,298(10.8)	1	1
Husband's desire for children				
The same with spouse	33,656(90.5)	3,531(9.5)	1.22(1.17–1.28)	0.99(0.94–1.04)
Husbands wants more	34,518(88.5)	4,505(11.5)	1	1
Husbands wants fewer	6,856(89.4)	815(10.6)	1.07(0.98–1.16)	0.86(0.79–0.93)*
*P-value ≤ 0.05				

Discussion

The main aim of this study was to determine associated factors of decision making power to use family planning among married women in sub-Saharan Africa. Accordingly this study; age, education level of women, women and their husbands' occupation, wealth index, region, media exposure, ANC visit, fertility preference of the women, husband's desire for the number of children and information about family planning were factors associated with decision making power of women to use family planning.

As this study showed older women were more likely have decision making power to use FP. This finding is similar to a study conducted in Ethiopia(26), Mozambique(33) and Bangladesh(34). This might be due to if a woman gets more aged, she may feel more self-confident to decide on family planning use individually and by discussing with her husband (35). In most African countries context, young women might not be expected to argue with their older husbands and are required to respect their opinions at all time which might be responsible for low decision making power of women to use FP.

The present study revealed that education level of women was associated with decision making power of women to use FP. Consistently, other studies also showed that women who were more educated were higher odds of decision making power to use family planning (4, 25, 35, 36). Education improves women's control over their reproductive choices by increasing women's position within the family and educated women are more likely to desire smaller families than others and hence have a stronger motivation to practice contraceptives(37).

This study showed that those women and their husbands who were currently working contribute to decision making power of women to use FP. This finding is similar with other studies in Malawi(38), Ethiopia (4), Nigeria(39) and South Asia(40). Women who had occupation might have power and resources and consequently independent in making decisions since they may not depend on their spouses for every resource compared to those who had no occupation. Besides, women whose husbands had occupation may improve the family life generally and this may contribute in women decision making power to use FP indirectly.

Similarly wealth index was positively associated with decision making power of women. Those women from a household with richest wealth index had higher chance of decision making power to use FP than the poorest one. This finding is in line with other previous studies which explain that women's economic status impacts their health and decision-making power on contraceptive usage (41–43). Women who had more income might have access and exposure to mass media about contraceptive and hence increase the likelihood of women decision making power to use contraceptive. Furthermore, in this study, media exposure was also associated with women decision making power to use FP which is in line with other studies(26, 39). Mass media helps to increase the decision making power of women to use contraceptive(27).

In the present study we observed that women who had more children were less likely to have decision making power on contraceptive use as compared to those who had fewer children. This finding seems odd and contrast with other studies(21, 25). This might be due to related to some religions which teach their followers no to use any modern family planning methods. On the other hand, in this study we also observed that women whose husbands' had high desire number of children had poor decision making power to use FP. This finding was similar to a study conducted in Hondurans(44) and Ethiopia(28). This could be related to husbands might influence women not to use FP especially in developing countries. Hence, awareness on the importance of FP should be given not only for women but also for their husbands.

In this study women who were informed about FP at health facility had more decision making power to use FP compared to their counterparts. This finding is consistent with other studies (45, 46). The implication of this finding is those women who have information and knowledge about family planning could help them to discuss and influence their husbands. Similarly this study showed that those women who had ANC visit had more likely to have decision making power to use family planning for next. This finding was also consistent with other studies(22, 47). This might be due to as women go to health facilities for ANC service, they could be getting health information including family planning.

One of the strength of this study is using a very huge and representative datasets of 35 sub-Saharan countries which makes the finding of the study to be generalizable for the region. The other strength of this study is the use of multilevel modeling, a model that accounts the nested/hierarchical nature of the demographic and health survey to get reliable estimates. However, the study has also limitation. Because of the secondary nature of the study, we are unable to assess self-stem and others similar psychological variables which could have strong association with the decision making power of the women to use family planning.

Conclusion

Age, women level of education, women and their husband's occupation, wealth index, media exposure, ANC visit, fertility preference, husband's desire for the number of children, region and information about family planning were factors associated with decision making power to use family planning among married women. Behavior change interventions including health education and promotion in this region should target on young married women, women who are not educated, women who are not currently working and whose husband's desire more number of children to improve the decision making power of women to use family planning.

List Of Abbreviations

ANC: Antenatal Care

DHS: Demographic and Health Surveys

FP: Family Planning

MMR: Maternal Mortality Ratio

SRH: Sexual Reproductive Health

SSA: sub-Saharan Africa;

WHO: World Health Organization

Declarations

Ethics approval and consent to participate

Since we have used a secondary analysis of DHS data, obtaining ethical approval was not needed. However, we have received a permission letter to download and used the data files from DHS Program. Anyone who wants to use the DHS data can obtain from the DHS Program website (https://dhsprogram.com/data/dataset_admin/index.cfm) after reasonable request.

Consent for publication

Not applicable

Availability of data and materials

All data related to the study were included in the manuscript.

Competing interests

All authors declare that they have no competing interests

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Authors' contributions

GDD and YY designed the study, analyzed the data and drafted the manuscript. YA, WA and AAG were involved in the analysis of the data and critically reviewed the article. All authors read and approved the final manuscript

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