

Socio-Economic Related Inequalities in The Utilization of Family Planning Services Among Women in Zambia

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Abstract

Background: While a large literature documents inequalities in healthcare utilization in Zambia, and the rest of sub-Saharan Africa, there has been limited focus on the examination of inequalities in family planning use and in general has increased, health inequalities persist. Similarly, despite the increase in utilization of family planning services from 15% in 1992 to 48% in 2018, the increase has not been equally shared in the population. We examine drivers of socio-economic related inequalities in utilization of family planning services among women of childbearing age in Zambia.

Methods: Using secondary data from the 2014 Zambia Demographic and Health Survey (ZDHS), concentration curves and indices are applied to examine how pro-poor and pro-rich the distribution of family planning is. A Blinder-Oaxaca decomposition analysis is conducted to decompose the rural-urban differences in the utilization of family planning services among women of reproductive age.

Results: Our findings show that less than half (45%) of the 12,498 respondents used family planning. Use of family planning services was unequally concentrated on the well-off ($CI=0.590$, $P=0.055$). The results are mainly driven by inequalities in rural areas ($CI=0.4009$, $P=0.0730$) as the distribution of family planning use in urban areas is more equal ($CI=0.049$, $P=0.159$). In addition to family planning use being more unequal in rural areas, the proportion of women who use family planning services is 5.16 percentage points lower than in urban areas. The factors accounting for the gap between rural and urban use of family planning, with a tendency to increase it, include wealth (54.79%), tertiary education (79.46%) and age-group of 45-49 years (53.68%). Some factors act to moderate, or reduce this gap and have negative contribution on family planning use. These include women with 7 and more children (-48.22%), being married (-43.45%), primary education (-33.93%) and middle wealth group (-43.75%).

Conclusion: Despite progress in the utilisation of family planning services, socioeconomic inequalities have persisted, primarily in rural areas. Interventions to increase family planning use should aim at addressing rural socioeconomic disadvantage, with programs targeting poor women and those with low levels of education. Narrowing the rural-urban gap in family planning use should focus on improving wealth and education of rural women.

1. Background

Family Planning refers to working out a plan by a couple on when and how many children to have and how to prevent unwanted pregnancies. It saves the lives of both the woman and the new born and preserves their health (UNFPA, 2018). Despite advances in the provision of effective modern family planning services to women of childbearing age living in sub-Saharan Africa, Zambia inclusive, the prevalence of modern family planning was at 43% (WHO, 2011). Limited use of family planning services is attributable to low levels of education among women of reproductive age, lack of women's empowerment or due to scarce financial resources and poverty (UNFPA, 2018).

Despite the increase in modern contraceptive use in Zambia from 15% in 1992 to 48% in 2018 (CSO, 2018), it is not certain if everyone or only the well-offs are benefiting from this progress. Despite efforts by the Zambian government to intergrate family planning services into reproductive health services, maternal and child health services and safe motherhood, socioeconomic inequalities in family planning use have persisted primarily in rural areas (UNFPA et al., 2016). Globally, the greatest burden of socioeconomic inequalities in family planning utilization lies on the disadvantaged and poor populations of women of reproductive age. There are significant differences in the use of family planning services between urban and rural areas of sub-Sahara Africa because family planning information and services were more often used by the urban women, wealthier households and empowerment less important in determining family planning utilization (Groot et al., 2018; Larsson & Stanfors, 2014). Some of the prominent factors among the rural-urban variations in family planning use include low levels of education (Larsson & Stanfors (2014) and lack of wealth (Aslam et al. (2016).

Most studies have documented inequalities in healthcare utilization in Zambia, and the rest of sub-Saharan Africa (Phiri & Ataguba (2014). There is limited literature focusing on inequalities and decomposition of the factors driving differences in family planning use. The literature further shows that there has been major improvement in healthcare utilization in Zambia in many dimensions, but also with increase in inequalities (Phiri & Ataguba (2014). An examination of socioeconomic related inequalities in utilization of family planning services is necessary to fully understand why the rural women of childbearing age were using less family planning services compared to their urban counterparts. This is despite the various strategies and policy measures that the Zambian government implemented, such as strengthening integrated reproductive health services, as well as supporting, promoting and strengthening health education and promotion (MoH, 2012; Chanda et al., 2017). Such examination of socioeconomic related inequalities is essential to inform the design of effective policy interventions seeking to improve and promote increase in utilization of family planning services. Further, this study through the Ministry of Health will help policy makers to come up with deliberate policies to monitor the delivery of family planning services such as monitoring and evaluation strategies and measures for all health facilities as a supervisory tool for improving access and utilization of family planning services. The aim of the present study is to examine socioeconomic related inequalities in utilization of family planning services among women of childbearing age in Zambia.

2. Methods

The setting of this study is Zambia, a country in sub-Saharan Africa with an estimated population of 17 million of which 40 percent is urban. We conducted a cross-sectional analysis using data from the 2014 Zambia Demographic and Health Survey (ZDHS). The sample comprised of 12, 498 women of childbearing age from 15–19 years in Zambia. The sample included non-pregnant women who were sexually active (n = 12498) because they are likely to use family planning services. It excluded women of childbearing age from 15–49 years who were not sexually active (3,628) because they were not using family planning at the time of the survey. Family planning use was constructed from the question that asks women that reported using any form of family planning during the 2013–2014 Zambia

Demographic and Health survey. Demographic factors of interest included type of residence (urban vs. rural), age (15–19, 20–24, 25–29, 30–34, 35–39, 40–44, 45–49), number of children (none, 1–3, 4–6, 7+), and marital status (married, not married). Socioeconomic factors included educational attainment (no education, primary, secondary, tertiary), and quintile of socioeconomic status (poorest, poor, middle, richer, richest).

We began by first assessing the factors associated with family planning use. A logistic regression model was used, reporting marginal effects. In this instance, point estimates are reported as the probabilities and percentages along with the corresponding 95 percent confidence intervals. Now, to examine inequalities in family planning use, we employed a number of methods. First, concentration curves and indices were calculated to explain the distribution of family planning use between the rural and urban populations. The concentration curve shows the cumulative share of family planning utilization (56%, 60%). If the concentration curve lies above the 45° line, the distribution of family planning use is said to be and examined how pro-poor. If it is below the 45° line, then the distribution is pro-rich, or favoring the rich. The concentration index quantifies this inequality, it ranges from – 1 to 1, if it is -1, then the family planning use is more among the poor and when it is + 1, the utilization of family planning services is more among the rich women of reproductive age.

Second, we assessed the gap in family planning use between the rural and urban women of reproductive age. The Oaxaca-blinder decomposition method was employed to examine what factors accounted for this rural-urban gap. The gap was decomposed into that part that was due to group differences in the magnitudes or levels of the factors determining family planning use (determinants) and the differences in the effects or impact, as opposed to level, of these determinants. The part which looks at levels is called the endowment effect. The differences due to effects can be seen as the coefficient effect. It looks at how even if rural and urban area may have the same level of determinants, say health workers, but the effective of these determinants could be different between rural and urban areas. There is also an interaction term which measures the simultaneous effect of differences in the endowments and coefficients. Concentration curves and indices, and Oaxaca-blinder decomposition were generated using Stata version 13 (Stata, College Station, TX, USA).

3. Results

3.1 Socio-Demographic Data

The participants for this study included 12,498 women of childbearing age out of which 8,173 (65.39%) were married and 5,662 (45%) reported using family planning. A total of 5,852 (46.82%) of these women were from the urban region. About 36.32% of the study participants had at least attained secondary school. Table 1 below provides a summary of these results.

Table 1
Demographic Characteristics of Study Participants

Variable	Category	Proportion (%)
Age	Age range (years)	1, 577 (12.62%)
	15–19 years	2, 319 (18.55%)
	20–24 years	2, 353 (18.83%)
	25–29 years	2, 089 (16.71%)
	30–34 years	1, 795 (14.36%)
	35–39 years	1, 380 (11.04%)
	40–44 years	985 (7.88%)
	45–49 years	
Level of Education	No education	1, 152 (9.22%)
	Primary	6, 120 (48.97%)
	Secondary	4, 539 (36.32%)
	Tertiary	687 (5.50%)
Marital status	Not married	4, 325 (34.61%)
	Married	8, 173 (65.39%)
Religion	Roman Catholic	2, 182 (17.46%)
	Protestants	10, 172 (81.39%)
	Muslim	62 (0.50%)
	Others	82 (0.66%)
Number of children	0 children	1, 496 (11.97%)
	1–3 children	5, 466 (43.73%)
	4–6 children	3, 516 (28.13%)
	7 & more children	2, 020 (16.17%)
Wealth index	Poorest	2, 272 (18.18%)
	Poorer	2, 368 (18.95%)
	Middle	2, 753 (22.03%)
	Richer	2, 634 (21.08%)
	Richest	2, 471 (19.77%)

Variable	Category	Proportion (%)
Provinces	Central	1, 064 (8.51%)
	Copperbelt	1, 266 (10.13%)
	Eastern	1, 569 (12.55%)
	Luapula	1, 222 (9.78%)
	Lusaka	1, 400 (11.20%)
	Muchinga	1, 043 (8.35%)
	Northern	1, 171 (9.37%)
	North Western	1, 270 (10.16%)
	Southern	1, 345 (10.76%)
	Western	1, 148 (9.19%)
Region	Rural	6, 646 (53.18%)
	Urban	5, 852 (46.82%)

3.2 Average Marginal Effects

When average marginal effects were estimated for different age groups, it was observed that family planning utilization differs greatly by age. For instance as shown in Table 2 below, compared to the 15–19 age group, women in the 20–24 age group had 4% higher utilization ($P < 0.05$ CI 0.0089, 0.0737). The same can be said for women in the 25–29 age group. Use is only 1% higher for the older age groups (30–34 years) and falls sharply in subsequent age groups. For example, it is 26% ($P < 0.0001$ CI -0.2925, -0.2202) lower in the age group 45–49 years compared to those women in the age group of 15–19 years.

Married woman are more likely to use family planning services by about 24% ($P < 0.0001$ CI 0.2208, 0.2595) compared to unmarried women. It was observed that family planning utilization differs by the levels of education. For instance as shown in Table 2 below, compared to those without education, women with primary education had 7% higher utilization ($P < 0.0001$ CI 0.0456, 0.1029). Similarly, women with secondary and tertiary education had 14% ($P < 0.0001$ CI 0.108, 0.1713) and 18% ($P < 0.0001$ CI 0.1327, 0.2262) higher utilization.

The results also showed that the likelihood of using family planning among the women with 1–3 children was 30% ($P < 0.0001$ CI 0.2719, 0.3229) higher, 37% ($P < 0.0001$ CI 0.3432, 0.3992) higher for those with 4–6 children and 39% ($P < 0.0001$ CI 0.3636, 0.4177) higher for those women with 7 and more children in comparison with those women without children. The richest wealth group was about 9% ($P < 0.0001$ CI 0.0473, 0.1245) more likely to use family planning while use for those in the richer, middle and poorer quintile in comparison with the poorest wealth group was 7% ($P < 0.0001$ CI 0.0405, 0.1058) more, 8% ($P < 0.0001$ CI 0.0538, 0.1089) higher and 4% ($P < 0.05$ CI 0.0143, 0.0672) more respectively. Use of family

planning was 5% ($P < 0.0001$ CI 0.0225, 0.0668) higher in among urban women compared to rural women. Note that even when there were negative average marginal effects on all different religions when compared to the Catholics, the results were not statistically significant except for those that were classified as “Other” religions. Table 2 below provides a summary of these results.

Table 2
Average Marginal Effect Estimates

n = 12,498	coef	P-Value	95% CI	
Age Groups	Ref			
15–19 yrs				
20–24 yrs	0.0413	0.012	(0.0089,	0.0737)
25–29 yrs	0.0362	0.04	(0.0017,	0.0706)
30–34 yrs	0.0058	0.761	(-0.0313,	0.0428)
35–39 yrs	-0.0524	0.007	(-0.0907,	-0.0141)
40–44 yrs	-0.089	< 0.0001	(-0.1292,	-0.0489)
45–49 yrs	-0.2564	< 0.0001	(-0.2925,	-0.2202)
Marital Status				
Not married				
married	0.2401	< 0.0001	(0.2208,	0.2595)
Religion				
Catholics	Ref			
Protestants	-0.0054	0.624	(-0.0268,	0.0161)
Muslims	-0.1016	0.065	(-0.2097,	0.0065)
Others	-0.1367	0.005	(-0.2321,	-0.0412)
Level of Education				
No education	Ref			
Primary	0.0743	< 0.0001	(0.0456,	0.1029)
Secondary	0.1397	< 0.0001	(0.108,	0.1713)
Tertiary	0.1794	< 0.0001	(0.1327,	0.2262)
No children	Ref			
1–3 children	0.2974	< 0.0001	(0.2719,	0.3229)
4–6 children	0.3712	< 0.0001	(0.3432,	0.3992)
7 & more children	0.3906	< 0.0001	(0.3636,	0.4177)
Wealth Groups				
Note: Ref in Table 2 refers to the reference categories.				

n = 12,498	coef	P-Value	95% CI	
Poorest	Ref			
Poorer	0.0408	0.003	(0.0143,	0.0672)
Middle	0.0814	< 0.0001	(0.0538,	0.1089)
Richer	0.0731	< 0.0001	(0.0405,	0.1058)
Richest	0.0859	< 0.0001	(0.0473,	0.1245)
Provinces				
Central	Ref			
Copperbelt	0.0477	0.013	(0.0101,	0.0852)
Eastern	0.1378	< 0.0001	(0.1029,	0.1726)
Luapula	-0.031	0.107	(-0.0686,	0.0067)
Lusaka	0.1038	< 0.0001	(0.0668,	0.1407)
Muchinga	0.0523	0.009	(0.0133,	0.0913)
Northern	0.0585	0.003	(0.0201,	0.0969)
North Western	0.014	0.464	(-0.0235,	0.0515)
Southern	0.0937	< 0.0001	(0.0573,	0.13)
Western	0.0475	0.016	(0.009,	0.0861)
Regions				
Rural	Ref			
Urban	0.0447	< 0.0001	(0.0225,	0.0668)
Note: Ref in Table 2 refers to the reference categories.				

3.3 Concentration Curves and Indices

The concentration curve is below the line of equality showing that use of family planning in Zambia is pro-rich, or the rich use more family planning than their poorer counterparts as shown in Fig. 1 below. In other words, the concentration curve's deviation from the line of equality implies that there is socio-economic related inequality among women of reproductive age in Zambia. This is further confirmed by a significant positive concentration index (CI = 0.590, P = 0.055).

Decomposing results by rural urban shows that the inequalities in family planning use are driven by inequalities in rural areas, with no inequalities in urban areas (Fig. 2). Clearly, the concentration index for

urban areas is not statistically distinguishable from zero (CI = 0.049, P = 0.1593). The concentration index for rural areas is positive and significant (CI = 0.4009, p = 0.0730).

Figures 1 and 2 above show that family planning use was disproportionately distributed among the better off overall, with no socioeconomic related inequality among urban women while inequalities in favour of the better off in rural women.

3.4 Oaxaca – Blinder Decomposition

Table 3 below shows the contribution of age, marital status, religion, level of education, number of children, wealth index, region and province to the component of change in the utilization of family planning services. The mean of family planning utilization was 0.418 for rural and 0.4696 for urban, yielding family planning utilization gap of 5.16 percentage points, which was significant (P < 0.0001). The endowment effect accounted for 34.50% and coefficient effect accounted for 40.12% of the average gap in the utilization of family planning services and the contribution of the interaction effect was 25.39% as shown in Table 3 below.

Table 3 below shows how differences in the distribution of each factor contributed separately to the first part of the gap (endowment effect). This highlights the increase in family planning use among the rural populations when there are similar characteristics as compared to those in the urban populations. All the categories of these independent variables made significant contribution to explaining the rural-urban inequality gap. In the endowment effect, some factors have positive contribution to the gap, thus increasing the gap while others have negative contributions thus reducing the gap, with total percentage contributions adding up to 100 percent.

The factors that contributed positively to the gap were the richest wealth group (54.79%), richer wealth group (26.79%) and women with 1–3 children (30.36%). Secondary and tertiary levels of education contributed about 19.64% and 79.46% respectively. Being 40–44 and 45–49 years contributed about 29.46% and 53.68% respectively. Substantively, if the rural women had wealth similar to those of urban women, the gap would have been smaller by 5.3 percentage points. On the other hand, being married and having seven (7) and more children helped to reduce the gap in family planning utilization by 33.45 percentage points and 48.22 percentage points respectively. Other factors that also appeared to minimize the gap in the utilization of family planning services between the rural and urban population were belonging to the poorer wealth group (22.34 percentage points), middle wealth group (43.75 percentage points), primary level of education (33.93 percentage points) and having 4–6 children (16.96 percentage points).

Table 3 below also shows the part of the gap that was accounted by different effect of the factors (coefficient effect) between the rural and urban women of childbearing age. For compositional effect, a positive coefficient suggested that the change in the percentage with that characteristic between rural and urban women of childbearing age was associated with an increase in the difference in use of family planning services. On the other hand, a negative coefficient indicated that family planning use in rural

women of reproductive age would have been better if their characteristics had been the same as their urban counterparts. It demonstrates that being married and having more children were offsetting factors in the use of family planning services which could mean that being married and having more children contributed in the reduction of inequalities in utilization of family planning services.

Table 3
Oaxaca – Blinder decomposition

Blinder-Oaxaca decomposition	Number of obs = 12498
	Model = linear
Group 1: Rural = 0	Number of obs = 6646
Group 2: Urban = 1	Number of obs = 5852

Family planning	Coef.	P-Value	95% CI	
overall				
rural	0.418	< 0.0001	(0.4061,	0.4299)
urban	0.4696	< 0.0001	(0.4568,	0.4824)
difference	-0.0516	< 0.0001	(-0.0691,	-0.0341)
endowments	-0.0112	0.336	(-0.0539,	0.0184)
coefficients	-0.0205	0.195	(-0.052,	0.0106)
interaction	-0.0109	0.563	(-0.0576,	0.0313)

Blinder-Oaxaca decomposition	Number of obs = 12498
Model = linear	
Group 1: Rural = 0	Number of obs = 6646
Group 2: Urban = 1	Number of obs = 5852

Characteristics	Endowments		coefficients		Interaction	
	Coef.	P-Value	Coef.	P-Value	Coef.	P-Value
Age Groups						
15–19 yrs	Ref					
20–24 yrs	-0.0006	0.321	0.0028	0.661	-0.0004	0.663
25–29 yrs	-0.0004	0.458	0.0026	0.707	-0.0002	0.709
30–34 yrs	0.0004	0.454	0.0083	0.197	-0.0004	0.381
35–39 yrs	-0.0001	0.899	0.0145	0.01	0.0001	0.899
40–44 yrs	-0.0033	0.002	0.0102	0.015	0.0022	0.038
45–49 yrs	-0.0059	< 0.0001	0.0037	0.247	0.001	0.266
Marital Status						
Not married	Ref					
Married	0.0038	< 0.0001	-0.0048	< 0.0001	-0.0011	< 0.0001
Religion						
Catholics	Ref					
Protestants	0.0001	0.766	-0.0108	0.541	0.0001	0.578
Muslims	0.0004	0.374	-0.0003	0.848	0.0002	0.848
Others	-0.0003	0.261	-0.0002	0.787	-0.0001	0.789
Educational level						
No education	Ref					
Primary	0.0038	0.634	0.0234	0.055	0.0175	0.055
Secondary	-0.0022	0.008	0.0024	0.215	-0.0013	0.216
Tertiary	-0.0089	0.005	0.0078	0.225	-0.0066	0.225

<table><tr><td colspan="3">Blinder-Oaxaca decomposition</td><td colspan="4">Number of obs = 12498</td></tr><tr><td colspan="3"></td><td colspan="4">Model = linear</td></tr><tr><td colspan="3">Group 1: Rural = 0</td><td colspan="4">Number of obs = 6646</td></tr><tr><td colspan="3">Group 2: Urban = 1</td><td colspan="4">Number of obs = 5852</td></tr></table>							Blinder-Oaxaca decomposition			Number of obs = 12498							Model = linear				Group 1: Rural = 0			Number of obs = 6646				Group 2: Urban = 1			Number of obs = 5852																																																																									
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Footnote:

[1] Table 2 consists of Average Marginal Effects from a logistic regression model

[2] Fampu on the figure below stands for family planning utilization. It shows that family planning use was more concentrated among the better off.

[3] Fampu on the figure 2 above stands for family planning utilization The figure shows that family planning was more concentrated among the urban women of childbearing age.

[4] Some factors have positive contribution to the gap, thus increasing the gap while others have negative contributions which meant reducing the gap with total percentage contributions adding up to 100 percent.

4. Discussion

Family planning utilization in Zambia has increased in the past years, from 15% in 1992 to 48% in 2018 (CSO, 2018). There is uncertainty if this progress is cross cutting or only specific to certain socio-economic groups. This study therefore, sought to examine socio-economic related inequalities of family planning service utilization amongst women of reproductive age (15–49 years) in Zambia.

This study shows that family planning use declines beyond age 30 and continues to decline until menopause at age 49 years which could be because of satisfied parity and onset of menopause. This is in line with other studies that found that as women approached menopause, loss of partner or acquired the desired number of children, the use of family planning services decreased (Atuahene et al., 2016). There is, to some extent, an inverse U-shaped association between age and family planning utilization with the probability of use attaining a maximum in the age range 20–29 years and gradually decline at older ages. These results are anticipated as it reflects a decreasing need for family planning services among older women entering menopause. As shown by estimated average marginal effects, women in the 35–49 age group were 25.64% less likely to utilize family planning services than the 15–19 age group.

This study also revealed that married women were more likely to use family planning services because they were more sexually active. On the other hand, unmarried women were less likely to use family planning services because of fear of stigmatization in society as they were not married and unlikely to be given priority by healthcare providers (United Nations, 2017). The positive average marginal effect reinforces this conclusion that moving from not married to married, a woman's likelihood of family planning utilization is increased. This finding does not support the previous studies that showed that married women used less family planning compared to the unmarried because they had a childbearing obligation (Lemba et al., 2014). In addition, Lemba and others (2014) asserted that men have continued to appreciate having a lot of children despite their economic status and that having a lot of children was a part of status in the society (Lemba et al., 2014). The differences between the current study and Lemba et al., 2014 study may be due to differences in the sample sizes and the geographical location of the studies. Lemba et al., 2014 looked at a more localized population in Kazungula district of Southern province with a sample size of 137 men and women of reproductive age, while this study used data from 2013–2014 ZDHS, a nationally representative survey, with a sample size of 12, 498 women of reproductive age.

Further, women with an education and those whose ideal number of children is met were more likely to utilize family planning services. This is because women with higher education and those with more children were more likely to make rational decision on reproductive health issues and achieved satisfied parity, respectively (Amentia et al., 2015). In addition, the more literate one is the more likely they are to be engaged in other economic activities that may disrupt their reproduction. The findings of this study are similar to that of the previous studies that revealed that education is important in utilization and improvement of family planning services (Larsson & Stanfors, 2014; Amentie, 2015). On the other hand,

the more children a woman has, the more likely they are to use family planning services because of their achieved satisfied parity. In other words, those without children were not likely to use family planning services as they needed to conceive compared to those with children. This is in disagreement with Blackstone et al. (2017), who found that men in the rural areas for instance, despite their economic status, appreciate having a lot of children which to them is a status in society and would only use family planning services when there is parity satisfaction.

Our study also found that women from richer households used family planning more, which could be because they were more likely to have more access to reproductive health knowledge and therefore have an enhanced ability to make decisions regarding their fertility. Their economic status could also give them means and access to reproductive health services that others may not access. In addition, urban women were more likely to utilize family planning services compared to their rural counterparts which could be due to high literacy levels, and availability and accessibility of family planning services as the health facilities were within reach, as was found by Aslam and others (2016).

This study's findings further revealed that underutilization of family planning combined with lack of wealth and lack of education are some of the key factors that determine the rural-urban gap. The argument is that, the rural poor have less income compared to their urban counterparts leading to the parallel disparities that exists between them in family planning utilization. This finding supports the findings of a previous study that showed that socio-economic gap or differences in family planning utilization exists and had persisted among women and this had disadvantaged the poor (Aslam et al., 2016).

Urban women of childbearing age were engaged in economic activities that could give them the ability and power to purchase the family planning commodity. Some urban women would utilize family planning services as they could be in employment, and due to career development. Thus, moving from rural areas to urban areas increases the probability of family planning utilization. This finding of this study is similar to Kabonga et al. (2010) who found that rural women had little or no income compared to their urban counterparts and this meant that fertility was high in the rural compared to urban areas.

The concentration curve and indices results showed that utilization of family planning services are in favour of or advantaging wealthier and urban women. This is not surprising since wealth is correlated with education which facilitates the increase to use (Ortayli & Malarcher, 2010). This finding supports previous studies that showed that higher socioeconomic status improves the use of family planning services (Aslam et Al., 2016). Studies show that economically self-sufficient women are more likely to utilize contraception as it enhances their ability to make rational decisions on reproductive health issues (Ortayli, 2010). Regarding the right to use family planning services, while economic status does prevent women from making sole decision about their reproductive health, it could, however, initiate a demand for contraception (Hindin et al., 2014; Amalba et al., 2014).

The Oaxaca – Blinder decomposition results showed that education had a bigger effect in urban than in rural which could imply that the urban population is much better off than their rural counterparts as the

disparity in education is in favour of the urban women. The findings of this study are similar to that of the previous studies that revealed that there was low utilization of family planning services which could have been attributed to low education levels. This could be influenced by the ability of individuals to judge when care should be sought (Ashraf et al., 2009). Furthermore, Stanfors et al., 2014 found that educational level and higher income lead to an increase in demand for the resources involved in acquiring contraceptives. Other studies also revealed massive socioeconomic gap in health and health care utilization among women of reproductive age due to lower secondary and tertiary levels of education (Aslam et al., 2016; Groot et al., 2018).

Our study found that religion has no effect on family planning use. This could imply that belonging to a particular religion or denomination did not have an influence on family planning use. This result is not in support of some empirical evidence which has demonstrated that religious influences may lead low uptake of family planning despite high knowledge and awareness among women of reproductive age (Kabonga et al., 2010; Mubita-Ngoma and Kadantu, 2010).

4.1 Implications for policy and practice

This study shows that socioeconomic inequalities in the utilisation of family planning services have persisted, primarily in rural areas despite the policy by the Ministry of Health to integrate family planning services into Mother and Child Health services. The policy was inadequate to increase family planning service utilization to about 58% by 2020 in Zambia. Therefore, there was need for the government to integrate family planning services into every stage of service delivery at Primary Health Care. Additionally, there is need by the government to intensify on interventions such as awareness about importance of utilization of family planning services in the community. This is easier said than done, but can be introduced slowly in line with the existing capacity in the health facilities.

Integration at all levels can be the beginning, and then slowly increase the capacity to handle the increase in family planning services utilization. Further, there was need for all health care workers to under-go training in family planning services. This was to ensure provision of all types of contraceptives in all health facilities to reduce family planning inequalities. Practice (service provision at primary level) was one way of reducing inequalities in family planning service utilization thus by increasing capacity of the health care providers who trained on how to offer different types of family planning services in order to match a woman's fertility intentions. Furthermore, there is also need to offer family planning services at all points of health service delivery at all times in order to increase uptake.

4.2 Limitations

Our study had a number of limitations. First, the study opted to use data on sexually active women of childbearing age as data was readily available. Second, even though data was readily available, the variables were limited as the data was not meant for this research. Third, the limitation in the number of covariates chosen had an effect on the power and robustness of the results. This study did not measure some variables such as side effects, cultural expectations or beliefs and accessibility which might also

affect the rural-urban gap in the use of family planning services. However, the broader picture was still clear and the most imperative factors explaining use of family planning have been captured.

5. Conclusion

Despite efforts by the Zambian government to increase the availability of family planning services, this study has showed that inequality in the use has persisted. Socio-economic inequalities were mostly to the disadvantage of the rural women and in favour of the urban women. These disparities were mainly due to rural-urban differences in the level of education, ages, level of wealth and number of children. If the country is to bridge the gap between the rural and urban women of reproductive age in utilization of family planning services, the problem of low education should be addressed. In addition, health-promotion awareness programs, and economic and non-formal educational empowerment among the rural population should be implemented to enhance the rural women's ability to make rational decisions on reproductive health issues. Furthermore, improving the way health care systems effectively interact with illiterate women could be a favourable solution in reducing inequality in family planning use.

Abbreviations

CSO: Central Statistics Office; MoH: Ministry of Health; UN: United Nations; UNFPA: United Nations Population Fund; UNZABREC: University of Zambia Biomedical Research Ethics Committee; WHO: World Health Organization; ZDHS: Zambia Demographic and Health Survey; ZSA: Zambia Statistics Agency.

Declarations

Ethical Approval and consent to participate

Ethical clearance and approval were obtained from the University of Zambia Biomedical Research Ethics Committee (UNZABREC, Ref: 013-08-18) and permission was sought from the Zambia Statistics Agency (ZSA), Lusaka. The clients did not accrue any direct benefit from this study. However, the results of their responses would be used to come up with recommendations to guide resource allocation decisions for health planners, administrators and policy makers. The results will also offer insights on the need to ensure the provision of effective family planning services through developing appropriate structures and instituting enduring management capabilities as a platform for effective utilization.

Consent for publication

All three (3) authors were involved in this manuscript from conception of the study to the final writing of this paper. We gave consent and approved its publication.

Availability of data and material

We used data from the 2013 - 2014 ZDHS dataset whose permission was obtained from the Zambia Statistics Agency formerly known as Central Statistics Office, Zambia.

Competing interest

The authors declare that they have no competing interests.

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Contributions

All the three (3) authors conceived the study and worked on the research proposal. We obtained the 2013 - 2014 ZDHS dataset from the Central Statistics Office, now known as the Zambia Statistics Agency. The authors performed the analysis and interpretation of the data including the final writing of the manuscript.

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Figures

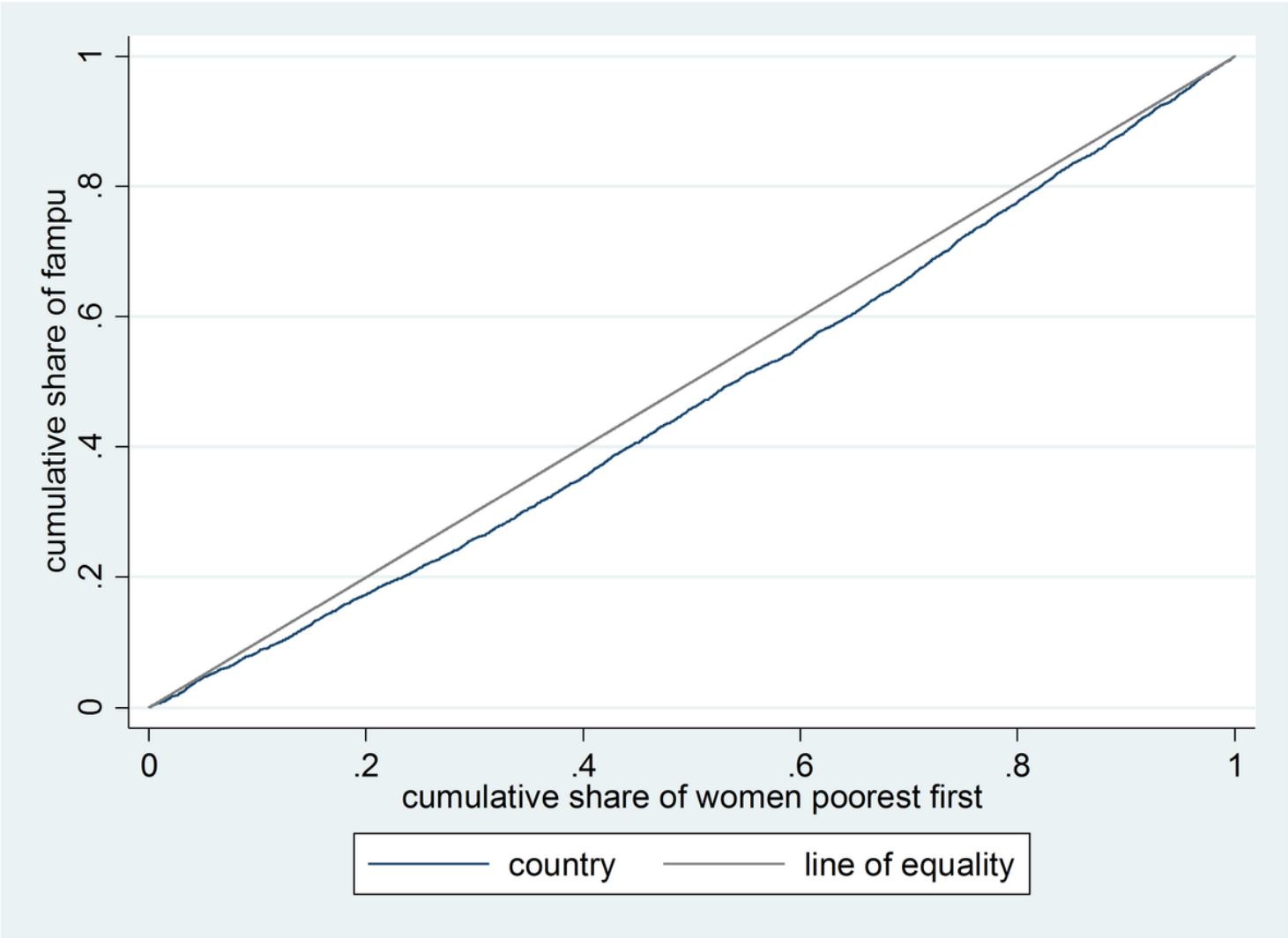


Figure 1
Concentration Curve for Women of Childbearing Age in Zambia

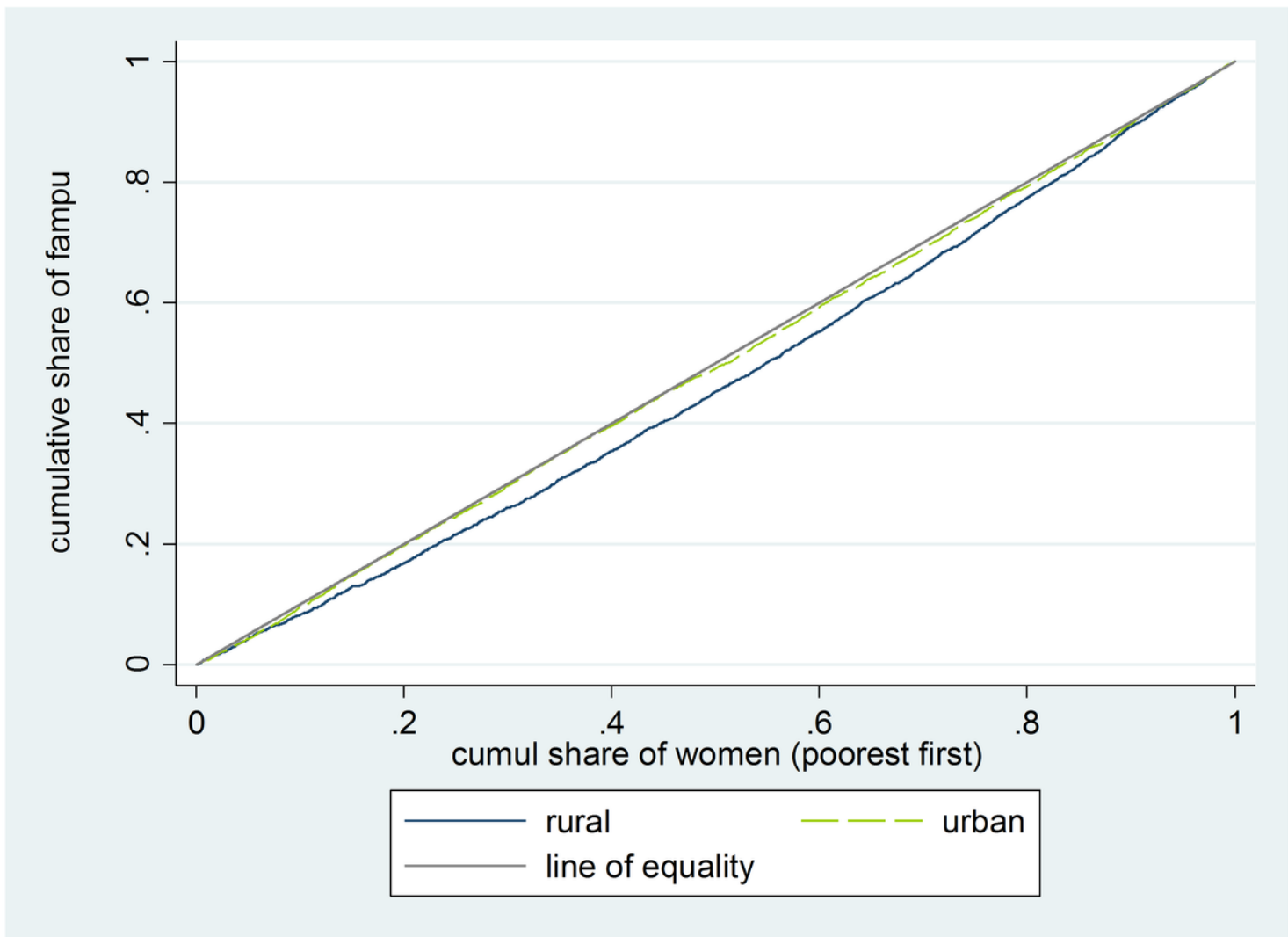


Figure 2

Concentration Curve for Rural and Urban Women of Childbearing Age