

Article

Socioeconomic Position in Modern Contraceptive Uptake and Fertility Rate among Women of Childbearing Age in 37 Sub-Saharan Countries

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Abstract: Women's socioeconomic position has a significant effect on health services use. With the nature of the socioeconomic empowerment process in relation to improvements in sexual and reproductive health, population-based contraceptive use is key to determining the growth in the human development index of every country. We looked into the effects of women's socioeconomic position on modern approaches to birth control in sub-Saharan African (SSA) women of childbearing age. A sample of 496,082 respondents was analyzed from 2006–2021 Demographic and Health Surveys data. From the analysis, Southern SSA (46.0%), Eastern SSA (27.0%), Central SSA (16.0%), and Western SSA (15.0%) have decreasing prevalence of any modern methods of contraceptive uptake among all women. Similarly, Southern SSA (57.0%), Eastern SSA (37.0%), Western SSA (16.0%), and Central SSA (14.0%) have decreasing prevalence of married women currently using any modern methods of contraception. Furthermore, Southern SSA (76.0%), Eastern SSA (56.0%), Western SSA (36.0%), and Central SSA (26.0%) have decreasing prevalence of demand for family planning satisfied by modern contraceptives. While Southern SSA reported a total fertility rate of 3.0%, other sub-regions have a pooled rate of 5.0%. Our results indicated that increasing women's socioeconomic position can increase contraceptive use and, thus, maternal healthcare service utilization.

Keywords: family planning; maternal health; Africa; reproductive health; women



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1. Background

Sexual and reproductive health (SRH) is a matter of public health concern worldwide, particularly for women [1,2]. SRH care is mentioned in Goal 3 of the Sustainable Development Goals (SDGs) of the United Nations, which aims to ensure that all people have access to family planning, information, and education services as well as other sexual and reproductive health services [3]. Given the range of its positive effects and efficiency as a technique for fertility control and family planning (FP), which supports both the mother's and the child's health, contraception stands out among medical interventions [4–6]. Whereas FP is widely regarded as a prominent public health achievement of recent times, and global acceptance is increasing [7], it is considered one of only a few long-term, low-cost interventions that can have an immediate impact on women and their families and reach far beyond the individual level [8]. Due to its inclusion in the Millennium Development Goals (MDGs) and Sustainable Development Goals (SDGs) as a measure of maternal health progress, contraceptive use shields women from high-risk pregnancies, unsafe abortions, reproductive tract infections, and sexually transmitted infections [3,9].

Unintended pregnancies occur because about 200 million women worldwide are unable to use safe and effective contraceptives [7]. Increased contraceptive use in resource-constrained settings has resulted in a 40% reduction in maternal deaths over the last two

decades simply by reducing the number of unintended pregnancies [10]. A few studies have shown that socioeconomic factors, including women's educational attainment, household wealth status, women's employment status, and place of residence, are strongly related to contraceptive use [6,11,12]. It has also been demonstrated that promoting and increasing the prevalence of contraception among women is an efficient public health strategy for improving maternal and child health measures [11]. A previous study has demonstrated that expanding contraceptive prevalence directly prevents maternal mortality by reducing unwanted pregnancies, unsafe abortions, and high-risk pregnancies, as well as permitting pregnancies to be stretched [12]. Without contraceptive use, the fertility rate will continue to increase.

Fertility rates significantly vary across sub-Saharan African (SSA) countries [13]. Currently, total fertility rates vary from 2.4 in Southern Africa, 3.1 in Northern Africa, 4.5 in Eastern Africa, and 5.2–5.3 in Western and Central Africa [14]. Total fertility rates were approximately 6.5 births per woman in all regions in the 1960s [14]. The preference for large family sizes continues to be a major determinant of fertility levels in SSA. However, the factors influencing women's socioeconomic position are complex and vary by location, although there are some similarities. Furthermore, socioeconomic status appears to play a significant role in reproductive decisions and, as a result, total fertility rates and trends in SSA.

Both directly and indirectly, changes in the health system have prompted increased policy support for improving sexual and reproductive health. Contraceptive use is increasing, but so is contraceptive discontinuation. Increased availability of long-acting contraceptives, promotion and delivery of contraceptive methods during the postpartum period, and reliance on community health workers for contraceptive outreach and service delivery are recent program initiatives [15]. Family planning is still hampered in SSA by weak health systems that must balance competing priorities in order to manage disease prevention and primary health care [15]. As contraceptive use is suboptimal, there is a need to better understand the impact of socioeconomic position on contraceptive use [16]. Furthermore, a periodic examination of prevalence and risk factors is required to track its current situation because a high contraceptive prevalence rate is always expected for controlling births in populous countries, such as in SSA. As a result, this study looked into the impact of socioeconomic position on modern contraceptive use among women of child-bearing age in SSA. In addition, this study contributed to the literature on contraceptive use estimates among women and how their socioeconomic position is shaping health-seeking behaviour in contraceptive use.

2. Materials and Methods

2.1. Data Source

A sample of 496,082 women in SSA was studied between 2006 and 2021 using cross-sectional Demographic and Health Surveys (DHS) data. DHS uses a multi-stage cluster stratified sampling methodology to gather data. Geographical location is used to categorize respondents into groups, and the difference between urban and rural living is frequently bridged by this factor. Using a multi-level stratification approach, the population is broken down into first-level strata, which are then further broken down into second-level strata, and so on. The countries examined in this study included: Angola ($n = 14,379$), Benin ($n = 15,928$), Burkina Faso ($n = 17,087$), Burundi ($n = 17,269$), Cameroon ($n = 14,677$), Chad ($n = 17,719$), Comoros ($n = 5329$), Congo ($n = 10,819$), Congo Democratic Republic ($n = 18,827$), Cote d'Ivoire ($n = 10,060$), Eswatini ($n = 4987$), Ethiopia ($n = 8885$), Gabon ($n = 8422$), Gambia ($n = 11,865$), Ghana ($n = 9396$), Guinea ($n = 10,874$), Kenya ($n = 31,079$), Lesotho ($n = 6621$), Liberia ($n = 8065$), Madagascar ($n = 17,375$), Malawi ($n = 24,562$), Mali ($n = 10,519$), Mauritania ($n = 15,714$), Mozambique ($n = 7749$), Namibia ($n = 10,018$), Niger ($n = 11,160$), Nigeria ($n = 41,821$), Rwanda ($n = 14,634$), Sao Tome and Principe ($n = 2615$), Senegal ($n = 8649$), Sierra Leone ($n = 15,574$), South Africa ($n = 8514$), Tanzania ($n = 13,266$), Togo ($n = 9480$), Uganda ($n = 18,506$), Zambia ($n = 13,683$), and Zimbabwe ($n = 9955$). DHS data

is publicly available and can be found at <http://dhsprogram.com/data/available-datasets.cfm> (accessed on 22 June 2022).

Since 1984, these surveys, which are conducted in over 85 countries, have been repeated every five years. The results from various countries can be compared because every country uses the same sampling design and data collection strategy. The DHS has quickly grown to be the most significant source of population surveillance for monitoring population health indices, especially in settings with limited resources. This is even though its original purpose was to supplement fertility, demographic, and family planning data collected in World Fertility Surveys and Contraceptive Prevalence Surveys. The DHS gathers information on immunizations, infant and maternal mortality, fertility, domestic violence, female genital mutilation, nutrition, lifestyle, infectious and non-infectious diseases, family planning, water and sanitation, and other health-related topics. DHS excels at data collection by offering appropriate interviewer training, nationwide coverage, and a reliable data collection instrument. Epidemiological studies that calculate prevalence, trends, and inequities can be produced using DHS data. Information about DHS was previously made public [17].

2.2. Selection and Measurement of Variables

2.2.1. Outcome

This study's outcome variables included: (a) current use of any modern method of contraception (all women); (b) married women currently using any modern method of contraception; (c) demand for family planning satisfied by modern methods; (d) total fertility rate among women aged 15–49 years.

2.2.2. Independent Variables

Residence in an urban or rural area; levels of education (no education or primary vs. secondary or higher); and quintiles of household wealth (lowest, second, middle, fourth, and highest) were examined. The wealth index from the DHS was kept because it is directly available in the dataset [18]. By constructing a linear index out of asset ownership indicators and weighting it with a principal components analysis, the DHS household wealth index was developed. Assigning household scores and then ranking each member of the household population according to those scores allowed the wealth index to be created in the original survey. The distribution was next split into five equally sized categories, each with 20% of the total population and economic indicators like housing quality, household amenities, consumer durables, and land holding size. The wealth index from the initial survey's five groups was kept for this study (lowest, second, middle, fourth, highest).

2.3. Statistical Analysis

The Stata survey module ('svy') was employed to take sampling weights, stratification, and clustering into account. A calculation of prevalence was made. The heterogeneity of the modern contraceptive uptake and fertility rate among women of reproductive age in SSA was examined using the forest plot analysis. A forest plot is required in an observational study to synthesize data. When dealing with descriptive data or graphically displaying summary statistics such as prevalence, Stata software has no limitations. In addition, in the forest plot, we calculated each weighted effect size ($w*es$). This was calculated by multiplying the size of each effect by the study weight. Country heterogeneity is measured using the Q-test, which functions similarly to the t -test. It was calculated as the weighted sum of squared differences between the effects of each study separately and the combined effects of all study effects. At $p < 0.05$, we rejected the null hypothesis (and hence the countries estimates were not similar). The cutoff for statistical significance was 5%. Stata provides the means to analyse this type of data.

2.4. Ethical Consideration

This study was based on an examination of population-based datasets that were freely available online and in the public domain, with no identifying information. DHS/ICF International granted the authors permission to use the data. For the protection of respondents' privacy, the DHS Program adheres to industry standards. ICF International guarantees that the survey complies with the Human Subjects Protection Act of the United States Department of Health and Human Services. Prior to conducting the surveys, the DHS team sought and received ethical approval from each country's National Health Research Ethics Committee. This study did not require any additional approvals. Further information on data and ethical standards can be found here: <http://goo.gl/ny8T6X> (accessed on 22 June 2022).

3. Results

Table 1 shows the descriptive statistics of the respondents by background characteristics, including age (years), place of residence, education, household wealth quintiles, and marital status. The results show that there were more younger women in the survey across countries (15–19, 20–24, and 25–29 years). In addition, some of the countries had more respondents from the rural settlements except Angola, Cameroon, Congo, Cote d'Ivoire, Gabon, Gambia, Ghana, Liberia, Mauritania, Namibia, Sao Tome and Principe, and South Africa. The majority of respondents in many countries had no formal education or primary education and belonged to the lowest and second household wealth quintiles. Furthermore, in several countries, the majority of respondents had been married, except in Namibia and South Africa.

Figure 1 shows inequalities in any modern contraceptive uptake among women in SSA countries. Based on the results from Figure 1, Namibia (50.0%), Lesotho (49.0%), South Africa (48.0%), Zimbabwe (48.0%), and Malawi (45.0%) have the leading prevalence of any modern method of contraceptive uptake among all women. On the other hand, Chad (5.0%), Congo Democratic Republic (8.0%), and Comoros (10.0%) have the least prevalence of any modern method of contraceptive uptake among all women.

Table 2 shows that women with higher socioeconomic status have a greater prevalence of the use of any modern method of contraception. For example, urban residents, women with secondary or higher education, and those from rich households have a higher uptake of any modern method of contraceptive uptake. However, of the urban women, those with secondary or higher education and rich households have a lower prevalence in Ghana, Malawi, Rwanda, and Zimbabwe.

In Figure 2, the results show that Zimbabwe (66.0%), Lesotho (60.0%), Rwanda (58.0%), Malawi (58.0%), Namibia (55.0%), South Africa (54.0%), Kenya (54.0%), and Eswatini (48.0%) had the highest prevalence of married women currently using any modern method of contraception. Conversely, Chad (5.0%), Congo Democratic Republic (8.0%), Guinea (11.0%), and Comoros (14.0%) had the lowest prevalence of married women currently using any modern method of contraception.

Table 3 shows that married women with higher socioeconomic status have a greater prevalence of using any modern method of contraception. Among urban women, those with secondary or higher education and from rich households have higher uptake of any modern method of contraceptive uptake. However, urban married women have a lower prevalence in Ghana, Liberia, Rwanda, and Sao Tome and Principe.

Table 1. Descriptive statistics results.

Country	Survey Year	Total Sample Size	Percentage of Women from the Total Sample Size																						
			Age (5-Year Groups)						Residence		Education (Groups)		Wealth Quintile					Marital Status							
			15–19	20–24	25–29	30–34	35–39	40–44	45–49	Urban	Rural	No Education or Primary	Secondary or Higher	Lowest	Second	Middle	Fourth	Highest	Never Married	Married	Living Together	Divorced/Separated	Widowed	Married or Living Together	Widowed, Divorced, Separated
Angola	2015–16 DHS	14,379	24	21.2	17.1	12.5	10.5	8.6	6.2	69.6	30.4	56.9	43.1	16.9	17.6	19.5	22.5	23.6	35.2	10.8	44.5	7.4	2	55.3	9.4
Benin	2017–18 DHS	15,928	21	18.4	18.7	13.8	11.8	8.3	7.9	42.4	57.6	74.9	25.1	17.2	19	19.5	21.4	22.9	24.4	55.1	15	3.4	2	70.1	5.5
Burkina Faso	2010 DHS	17,087	19.4	19.4	17.3	15.1	11.7	9.6	7.5	27.1	72.9	87.6	12.4	17.5	18.7	19	19.9	24.9	17.5	75.6	3.8	1.3	1.8	79.4	3.1
Burundi	2016–17 DHS	17,269	22.3	18.8	17.4	14.1	11.4	8.9	7	12.9	87.1	75.5	24.5	19.2	19.9	20	19.5	21.4	34.6	41.8	14.8	5.1	3.7	56.6	8.8
Cameroon	2018 DHS	14,677	24.3	17.8	17.8	14.5	11	8	6.6	55.4	44.6	47.1	52.9	16.4	18.4	19.8	21.6	23.8	34.5	43.9	13	5.9	2.7	56.9	8.6
Chad	2014–15 DHS	17,719	22.2	17.3	18.3	14.5	11.6	8.5	7.6	23.8	76.2	85.1	14.9	19	19.5	19.6	20.2	21.6	16.6	68.1	6.8	5.3	3.3	74.8	8.6
Comoros	2012 DHS	5329	24.7	18.7	16.9	14	11.8	8.5	5.5	33.1	66.9	50.6	49.1	16.3	20.1	20.5	21.1	22	32.3	55.6	5.6	5.8	0.7	61.2	6.5
Congo	2011–12 DHS	10,819	20.3	18.8	18.7	14.4	12.6	8.4	6.9	68.6	31.4	29.6	70.4	16.7	19.6	20.7	21.7	21.3	25.9	10.7	47.4	14.1	1.9	58.1	16
Congo Democratic Republic	2013–14 DHS	18,827	21.5	19.6	18.8	13.9	11.6	8.1	6.4	38.4	61.6	52.3	47.7	18.6	19.1	18.6	19.4	24.3	26	46.5	17.7	7.5	2.2	64.2	9.7
Cote d'Ivoire	2011–12 DHS	10,060	20.1	19.4	19.1	15	11.2	8.5	6.7	51.4	48.6	78.6	21.4	17.6	17.3	18.2	20.8	26.2	30.2	39.3	23.4	4.9	2.2	62.7	7.1
Eswatini	2006–07 DHS	4987	25.5	21	14.6	12.3	10.1	8.8	7.7	26.7	73.3	40.7	59.3	15.7	17.3	19.4	22.3	25.3	49.9	31.9	9.5	3.2	5.6	41.3	8.8
Ethiopia	2016 DHS	15,683	21.6	17.6	18.9	15	12.3	8.2	6.5	22.2	77.8	82.8	17.2	16.8	17.9	19	19.8	26.5	25.7	63.9	1.3	6.3	2.7	65.2	9.1
Gabon	2012 DHS	8422	21.2	19.4	17.6	14.4	11.7	8.9	6.8	88.6	11.4	25.6	74.4	14.5	19.3	21.2	22.3	22.7	36.2	19	34.2	9.1	1.6	53.1	10.7
Gambia	2019–20 DHS	11,865	22.2	18.4	18.9	13.6	12.1	8.7	6	73.7	26.3	50.3	49.7	16.8	18	19.3	21.8	24	31.2	63.2	0.2	3.8	1.5	63.4	5.4
Ghana	2014 DHS	9396	17.3	17.2	17.1	14.6	13.8	11	9.1	53.8	46.2	36.9	63.1	16.1	17.4	20.6	22.5	23.3	32.9	42.2	14.4	7.7	2.7	56.6	10.4
Guinea	2018 DHS	10,874	24	16.2	17.5	13.2	12.1	8.7	8.3	37.6	62.4	80.4	19.6	18.9	19.7	18.9	19.8	22.7	25.2	68.8	2.3	2.1	1.7	71.1	3.7
Kenya	2014 DHS	31,079	18.7	18.5	19.6	14.5	12.1	9.3	7.3	40.8	59.2	57.3	42.7	15.6	17.6	19.4	21.1	26.4	28.9	54.6	5.1	7.7	3.7	59.7	11.4
Lesotho	2014 DHS	6621	21.7	20	16.5	14.5	11.2	8.5	7.5	36.5	63.5	39.6	60.4	14.5	15.6	18.8	24.2	26.9	33.1	53.6	1	5.4	7	54.6	12.4
Liberia	2019–20 DHS	8065	20.5	18.7	17	13.8	12.6	9.5	7.8	62.3	37.7	54.4	45.6	17.1	17.7	18.8	22.7	23.7	38.8	25.6	26.6	7.2	1.7	52.3	8.9
Madagascar	2008–09 DHS	17,375	22.8	16.2	15.9	14.4	12.3	10	8.5	17.3	82.7	67.9	32.1	18	18.2	18.9	20.1	24.8	18.1	60.5	8.8	10.7	1.9	69.3	12.6
Malawi	2015–16 DHS	24,562	21.4	21	16.1	14.9	11.9	8.3	6.4	18.3	81.7	74.2	25.8	19.3	19.1	18.9	19.1	23.7	21	61.7	4	10.4	2.9	65.7	13.3

Table 1. Cont.

Country	Survey Year	Total Sample Size	Percentage of Women from the Total Sample Size																						
			Age (5-Year Groups)						Residence		Education (Groups)		Wealth Quintile					Marital Status							
			15–19	20–24	25–29	30–34	35–39	40–44	45–49	Urban	Rural	No Education or Primary	Secondary or Higher	Lowest	Second	Middle	Fourth	Highest	Never Married	Married	Living Together	Divorced/Separated	Widowed	Married or Living Together	Widowed, Divorced, Separated
Mali	2018 DHS	10,519	20	18	19.1	15.3	13.2	8.5	6	26.3	73.7	78.7	21.3	17.5	18.8	19.1	21.1	23.4	16	80.7	0.7	1.4	1.2	81.4	2.6
Mauritania	2019–21 DHS	15,714	23.5	17.2	16.7	14	11.9	9.4	7.3	51.2	48.8	71.3	28.7	17.2	18.2	20	22.1	22.5	26.6	62.5		9.4	1.5	62.5	10.8
Mozambique	2015 AIS	7749	21.6	20	15.7	12.5	12.8	9.3	8.1	35.2	64.8	77.2	22.8	19.3	18.9	18.2	20.6	23	17	36.9	29.1	12.8	4.1	66	16.9
Namibia	2013 DHS	10,018	20.8	19.5	16.2	13.7	12.1	10	7.7	56.6	43.4	24.2	75.8	15.6	17.7	19.6	23.1	24.1	59.5	17.9	16.1	4.4	2.1	34	6.5
Niger	2012 DHS	11,160	16.4	17.8	20.4	16.6	12.9	8.9	7	18.8	81.2	91.4	8.5	18.1	18.8	19.7	20.6	22.8	7.9	88.4	0.2	2.5	1.1	88.5	3.6
Nigeria	2018 DHS	41,821	20.2	16.3	17.3	14.8	13.1	9.4	8.9	45.8	54.2	49.4	50.6	17.3	19.2	19.6	21.5	22.4	25.2	67.2	2.3	2.7	2.5	69.6	5.2
Rwanda	2019–20 DHS	14,634	22.3	16.5	14.2	14.5	14.2	10.2	8.3	19.9	80.1	67.7	32.3	18.7	18.8	18.8	20.3	23.3	40.4	32.1	18.4	6.4	2.6	50.6	9
Sao Tome and Principe	2008–09 DHS	2615	21.2	17.6	17.3	15.2	9.9	10.8	8.1	54.8	45.2	63.9	36.1	17.7	19.7	18.2	21.3	23.1	23.1	3.6	62.1	10.8	0.3	65.7	11.1
Senegal	2019 DHS	8649	22	19.1	16	14.9	12.5	8.4	7	48.9	51.1	68.3	31.7	16.4	17.7	19.5	21.6	24.9	29.8	65.3	0.1	4	0.7	65.4	4.8
Sierra Leone	2019 DHS	15,574	22	16.9	17.5	12.5	14.3	8.6	8.3	46	54	59	41	17.6	18.2	19	21.7	23.5	32.5	58.5	3.9	2.9	2.3	62.4	5.1
South Africa	2016 DHS	8514	16.8	16.6	17	15.7	12.6	11	10.4	67.3	32.7	11.1	88.9	19.4	20.1	21.2	20.7	18.6	58.6	23.3	12.5	3.4	2.2	35.8	5.5
Tanzania	2015–16 DHS	13,266	21.9	18.7	16	13.2	12.4	10.3	7.5	36.3	63.7	76.6	23.4	16.9	17.1	17.6	21.3	27.1	25.3	44.9	17	10	2.9	61.9	12.8
Togo	2013–14 DHS	9480	17.9	17.6	17.8	15	13.7	9.7	8.3	45.4	54.6	65.2	34.8	16.6	16.9	18.2	22.8	25.5	26.8	51.4	14.9	4.2	2.6	66.3	6.9
Uganda	2016 DHS	18,506	23	20.7	16.5	13.7	10.9	8.7	6.5	26.7	73.3	67.1	32.9	17.5	18.4	18.7	19.9	25.5	25.8	30.3	30.3	10.7	2.8	60.6	13.5
Zambia	2018 DHS	13,683	21.9	20	16.4	13.6	12.4	9.2	6.6	46.6	53.4	52	48	17.8	17.4	18.1	22	24.6	31.2	55.4	0.5	10	2.9	55.9	12.9
Zimbabwe	2015 DHS	9955	22.1	17	16.6	16.3	12.4	9.7	5.9	38.5	61.5	27.1	72.9	17.1	17	17.6	23.2	25.1	25.2	58.7	3.1	8.6	4.4	61.8	13

Current use of any modern method of contraception (all women)

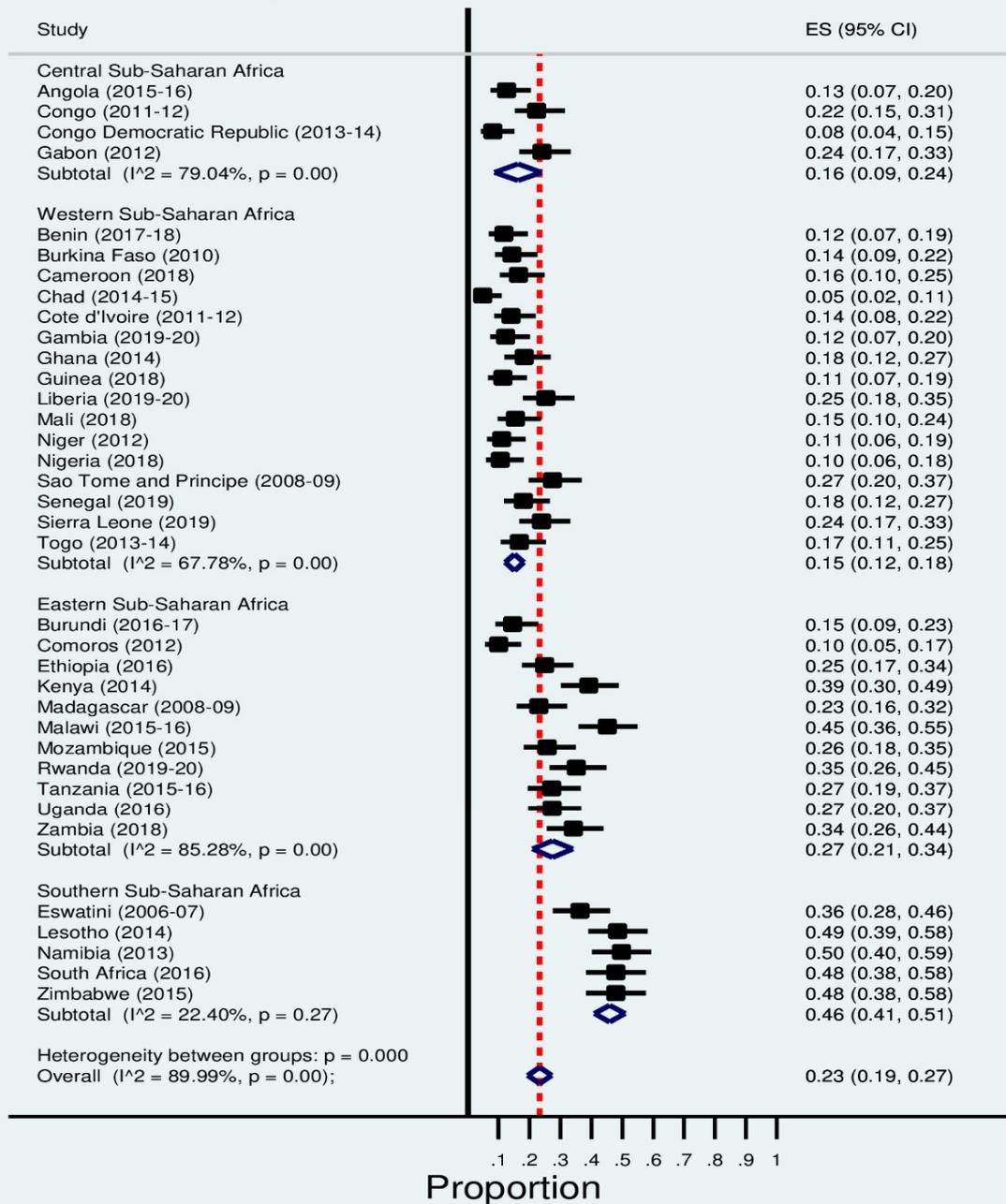


Figure 1. Prevalence of current use of any modern method of contraception (all women).

Table 2. Distribution of current use of any modern method of contraception (all women) in sub-Saharan countries.

Country	Residence (%)		Education (%)		Wealth Quintile (%)				
	Urban	Rural	No Education or Primary	Secondary or Higher	Lowest	Second	Middle	Fourth	Highest
Angola	17.1	1.9	4.7	22.7	1.1	3	9.3	17.2	25.7
Benin	13.7	10.2	10.7	14.6	8.7	9.2	11.3	12.3	15.6
Burkina Faso	25.9	9.9	12	30.4	6.4	8	8.9	15.3	27.7
Burundi	15.9	14.4	16.2	9.5	14.9	14.8	14.4	12.7	15.9
Cameroon	20.5	11.3	10.4	21.7	4.8	12.9	17.3	20.3	22.7
Chad	9.6	3.4	3.8	11.1	3.5	3.8	3.7	2.7	9.9
Comoros	14.6	7.5	10.2	9.5	7.7	8.8	11.1	12.3	8.9
Congo	26.6	12.9	14.8	25.4	10.1	18.5	22.8	27.4	29.6
Congo Democratic Republic	13.1	5	4.7	11.8	3.6	5	5	11.2	14
Cote d'Ivoire	17.4	10.2	11.8	21.8	7.6	10.1	13.5	16.2	19.2
Eswatini	44.1	33.5	30.1	40.5	25.9	31.7	38.7	36.6	43.9
Ethiopia	27.2	24.2	25.3	22.7	16	24	27	28.1	27.1
Gabon	25.3	13.8	14	27.4	14.7	21.9	22.3	26.8	30.3
Gambia	12.3	12.1	14.3	10.1	12.6	11.6	12.5	13.6	11
Ghana	16	20.6	19	17.7	17.8	20.5	21	16.5	15.8
Guinea	16.5	8.4	9.9	17.8	4.5	8.6	10.6	15.1	17.1
Kenya	41.5	37.5	39.8	38.3	23.5	40	43	44.4	40.7
Lesotho	51	47.1	47.6	49.2	41.6	47.1	50.2	50.6	50.1
Liberia	25.3	25.3	21.8	29.5	22.3	25.2	27.1	27.8	23.7
Madagascar	25.7	22.4	22.4	24.2	15.4	20.1	23.2	27.9	26.5
Malawi	43.4	45.5	47.1	39.7	42.2	48.4	46.8	46.7	42.3
Mali	19.7	13.9	13.4	22.9	10	10	15.4	19.4	20.3
Mozambique	34.1	21.2	21.7	39.2	16.7	17	18.9	30.9	41.2
Namibia	55.1	42.7	40.6	52.6	38.9	48.5	52.4	52.1	53.1
Niger	19.4	9.1	10.4	16.9	8.1	7.2	8	11.6	18.4
Nigeria	14	7.6	6.4	14.6	3.5	5.9	9.8	14.4	16.9
Rwanda	30.4	36.3	40.3	24.2	40.8	36.7	38	35.6	26.6
Sao Tome and Principe	23.7	31.9	29.2	24.4	24.6	27.1	27.1	29.2	28.6
Senegal	18.9	16.9	19.8	13.7	14.4	17	19.4	19.2	18.6
Sierra Leone	27.5	20.8	18.4	31.8	18.3	19.9	24.9	29.3	25.5
South Africa	48.2	47.2	40.8	48.8	46.3	49.7	50	49.1	43.8
Tanzania	28.8	26.2	28.5	22.7	19	24.9	30.6	32.1	27.5
Togo	19	14.8	14.3	21.2	13.6	15.5	14.9	17.7	20
Uganda	30.5	26.1	25.7	30.5	18.9	25.5	28.2	31	30.8
Zambia	34.2	34	35.1	33	31.3	33.7	37.4	37.7	30.7
Zimbabwe	47.6	48.1	49.9	47.1	48.7	49	45.7	50.8	45.3

Married women currently using any modern method of contraception

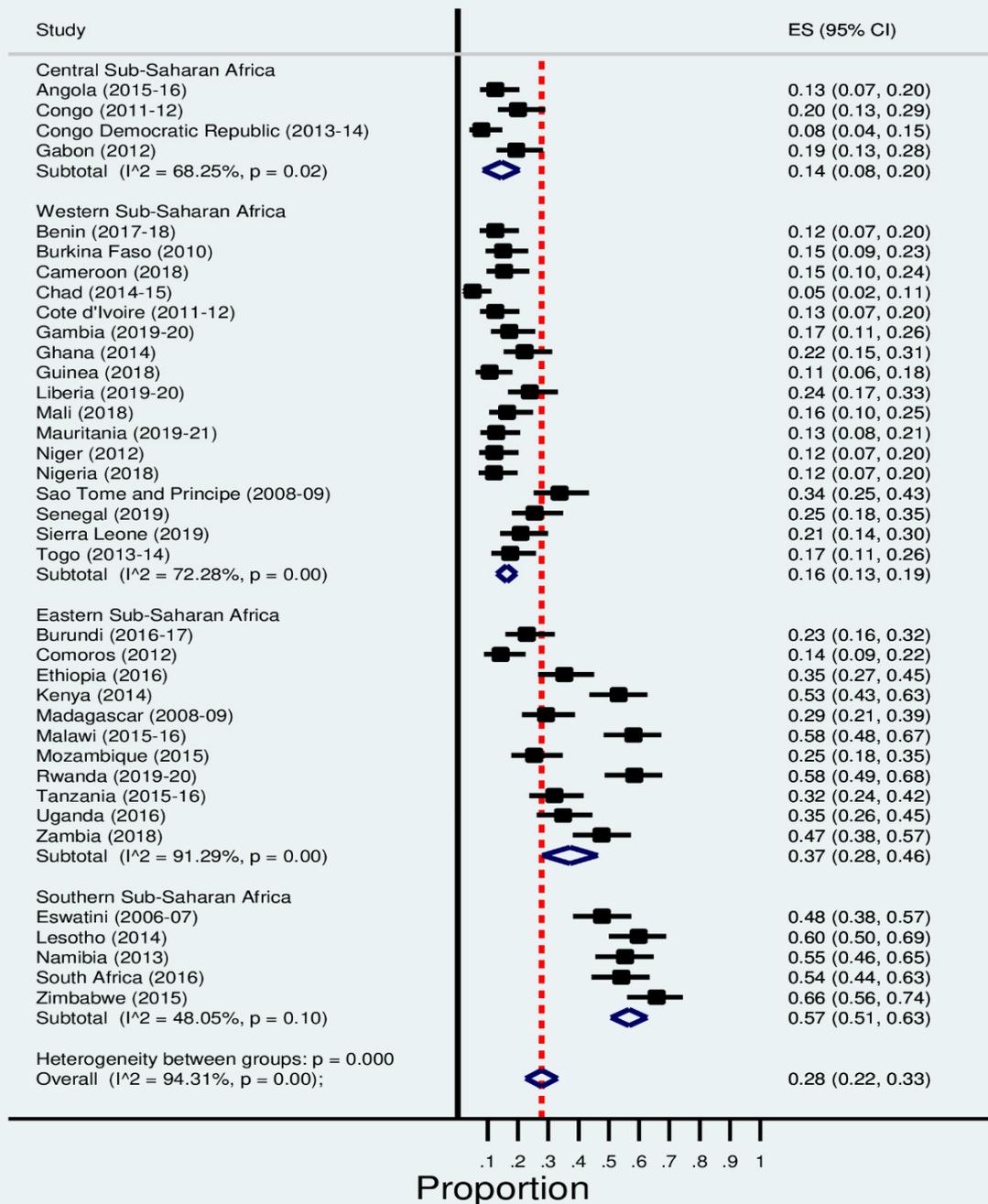


Figure 2. Prevalence of married women currently using any modern method of contraception.

Table 3. Distribution of currently using any modern method of contraception among married women in sub-Saharan countries.

Country	Residence (%)		Education (%)		Wealth Quintile (%)				
	Urban	Rural	No Education or Primary	Secondary or Higher	Lowest	Second	Middle	Fourth	Highest
Angola	18.4	1.8	5.3	26.8	1	2.6	8.9	18.5	30.7
Benin	14.5	11	11.6	16.6	9.4	9.9	11.9	12.9	17.9
Burkina Faso	30.8	10.8	12.9	44.2	7.1	8.6	9.7	16.3	33.6
Burundi	28.5	22.3	22.3	28.5	22.2	22.5	22.7	20	27.6
Cameroon	20.7	10.6	9.9	23.6	4.2	13	17.2	19.8	24.3
Chad	10.1	3.8	4.1	13.7	3.8	4.1	4.3	3.1	10.6
Comoros	20.6	11	12.3	17.4	10.9	13.2	14.1	17.8	14.2
Congo	24.6	11.7	14.6	22.8	9.5	15.4	22.7	22.9	28.8
Congo Democratic Republic	14.6	4.6	4.6	12.9	3.3	4.7	4.5	11	17.2
Cote d'Ivoire	16.3	9.8	11.5	19.9	7.4	9.7	11.3	15	20.1
Eswatini	55.8	44.8	37.1	56.9	35.7	40.7	50.3	47.2	59
Ethiopia	49.8	32.4	33.4	50.7	19.5	31	36.7	40.6	47.4
Gabon	20.7	11.3	12.3	22.8	11.9	18.8	20.2	22.1	21.9
Gambia	17.9	15.3	16.4	18.4	15.7	15.3	16.2	20.5	17.7
Ghana	19.8	24.6	21.2	23.1	21.2	24.9	24	22.1	19.5
Guinea	15.5	8.4	9.5	19.1	4.4	9.1	9.6	14.5	17.1
Kenya	56.9	50.9	49.9	59	29.2	54.1	59.5	60.9	57.7
Lesotho	65.2	57.3	55	63.8	49.9	56.3	62.3	60.8	65.9
Liberia	22.4	25.6	21.8	27.7	23.5	25.2	23.2	29	18.4
Madagascar	35.6	28	27.1	34.4	17.6	23.8	29.2	36.4	36.4
Malawi	61.4	57.5	58.1	58.4	53.2	58	58.8	59.6	60.6
Mali	21.4	15	14.2	28.7	11	10.7	16.5	20	23.5
Mauritania	19.9	7	10.9	20.8	4.5	7.6	11.8	18.2	23
Mozambique	34.3	21.5	22.6	39.2	16.7	17.4	20.3	31.1	43
Namibia	60.5	48	45	59.8	42.1	53	56.8	58.4	62.3
Niger	27	9.7	11.2	30	8.7	7.7	8.3	12.8	23.7
Nigeria	18.2	7.8	6.9	19.9	3.7	6.3	11.2	18	22.3
Rwanda	55	59.2	59	56.5	60.2	60.6	60.8	59.2	51.8
Sao Tome and Principe	28	40.1	34.5	31.5	31.1	32.3	30.9	36.8	36.8
Senegal	32.4	20.9	24.4	30.7	16.6	21.2	27.3	30.2	32.6
Sierra Leone	25.8	18.1	18.1	29.2	15.8	17.9	20.8	25.9	25.8
South Africa	54.6	52.5	39.5	56.3	53.6	50.5	53.3	57.8	55.1
Tanzania	35.2	30.6	31.8	33.2	20.3	27.9	35.8	40.4	35.4
Togo	18.8	16.3	16	21.4	15.5	16.7	16.7	16.4	20.8
Uganda	40.6	33	32.2	41.1	22.4	32.2	35.8	40.2	42.1
Zambia	52.6	44	44.5	52.1	38	43.4	51.1	53.6	51.3
Zimbabwe	70.7	63.2	60.2	68.3	61.8	61.5	63.1	68.7	72.3

Figure 3 shows the prevalence of demand for family planning satisfied by modern contraceptive methods among women of reproductive age in SSA countries. Zimbabwe (85.0%), South Africa (78.0%), Lesotho (76.0%), Namibia (75.0%), Malawi (75.0%), Rwanda (75.0%), Kenya (71.0%), Eswatini (63.0%), Ethiopia (61.0%), and Senegal (53.0%) have the leading prevalence of demand for family planning satisfied by modern contraceptive methods.

Demand for family planning satisfied by modern methods

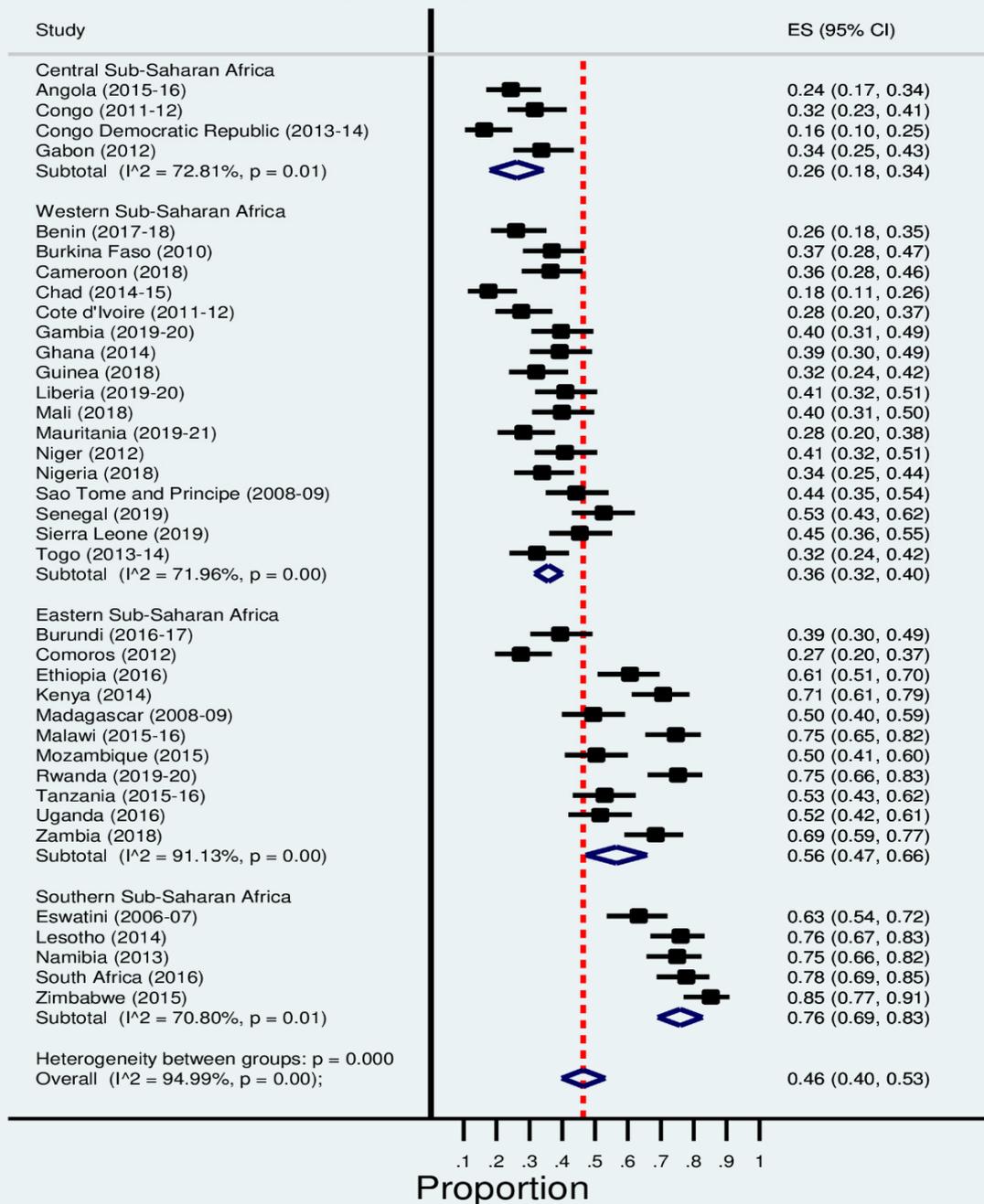


Figure 3. Prevalence of demand for family planning satisfied by modern methods.

Table 4 shows that women with higher socioeconomic status have greater demand for family planning satisfied by modern methods. From the results, among urban women, those with secondary or higher education and from rich households have a higher demand for family planning satisfied by modern methods. However, urban married women have a lower prevalence in Ghana, Liberia, Rwanda, Sao Tome, and Principe.

Table 4. Distribution of demand for family planning satisfied by modern methods among women in sub-Saharan countries.

Country	Residence (%)		Education (%)		Wealth Quintile (%)				
	Urban	Rural	No Education or Primary	Secondary or Higher	Lowest	Second	Middle	Fourth	Highest
Angola	31.5	4.6	11.5	42.8	2.9	6.1	16.2	31.2	48.4
Benin	28.1	24.3	25.1	29.7	23.4	22	24.9	25.7	31.9
Burkina Faso	54.9	29.5	33.1	67.2	22.3	24.4	26.6	38.8	57.9
Burundi	48.4	38.3	38.2	49	39.4	38.9	39	34.4	45.4
Cameroon	42.2	29.2	28.1	44.4	15	32.3	37.7	41	47.2
Chad	27.1	14.3	15.1	32.4	13.6	15.3	16.5	12.4	27.7
Comoros	38.3	21.8	25	31.2	19.8	25.8	26.8	33.9	29.7
Congo	38.4	19.1	23.3	35.9	16	24.5	36.8	34.3	44.8
Congo Democratic Republic	24.6	10.8	10.8	22.7	8	10.9	9.9	21.6	27.6
Cote d'Ivoire	33.9	22.5	25.6	40.8	18.3	21.6	24.6	30.6	42.6
Eswatini	70.6	60.5	53	71.2	49.8	58.8	63.7	62.5	74.3
Ethiopia	78.6	56.7	58.3	77.2	42.2	52.9	60.3	66	75.2
Gabon	35.4	21.3	24.5	37.2	22	31.7	34.1	38.2	38.6
Gambia	40.8	37	38	42.6	38.5	35.4	37.5	46.1	40.5
Ghana	36.3	41.9	40	38.7	39.8	41.8	40.9	37.5	36.6
Guinea	41.5	27.2	29.7	46.3	16.1	29.5	29.3	38.2	45.9
Kenya	76.7	66.7	67	76.7	45.6	66.4	72.8	78.2	78.8
Lesotho	82.4	73.1	70.9	80.3	66.6	70.6	78.2	77.5	82.7
Liberia	38.5	43.6	39.4	43.3	40.9	41.7	40	44.6	36
Madagascar	49.9	49.4	50.4	47.8	41	47.7	50.9	55.1	49.3
Malawi	77.5	74	74.4	75.2	71	73.8	75.1	75.5	77.2
Mali	49.2	37	35.5	60.1	26.5	29.3	39.5	47	54.2
Mauritania	40.1	16.7	24.8	40.2	11.4	17.4	25.7	37.3	46.3
Mozambique	60	45.5	47	64.6	38	38.6	45.2	58	66
Namibia	80.6	66.9	63.8	79.7	60.9	72	74.2	77.3	85.2
Niger	58.3	35.7	38.8	62.6	31.5	31.8	33.4	41	56.7
Nigeria	39.4	27.7	25.5	40.9	17.8	25	31.4	38.3	43.2
Rwanda	73	75.6	74.6	77.3	75.7	76.2	77.1	75.2	71.5
Sao Tome and Principe	37.1	52.3	45.8	40.3	39.1	43.1	41	49.4	48.2
Senegal	59.6	46.8	51	59	40.6	45.7	56.6	54.5	62.8
Sierra Leone	50	42.3	41.9	53.6	39.7	41	45.4	50.4	50.3
South Africa	78.6	75.4	65.5	79.4	76.7	72.7	80.2	80.4	78.7
Tanzania	53.5	52.6	53.3	51.1	39.2	48.9	57.2	62.5	53.8
Togo	34.2	31	30.6	37.2	30	31.5	31.6	29.7	38
Uganda	59	49.3	48.5	59	36.3	48.2	52	58.8	60
Zambia	73.4	65.1	64.5	74.7	59.5	63.1	71.7	74.5	72.6
Zimbabwe	87.3	84.1	80.3	87.4	80.4	82.5	86.4	85.9	90.3

Figure 4 shows the fertility rate of reproductive-aged women in SSA countries. Prominently, the fertility rate ranged between 5.0–7.0% in several countries, except Zimbabwe, Gambia, Liberia, Malawi, Namibia, Rwanda, Ghana, Kenya (4.0% each), Lesotho, and South Africa (3.0% each)

Total fertility rate among women aged 15-49 years

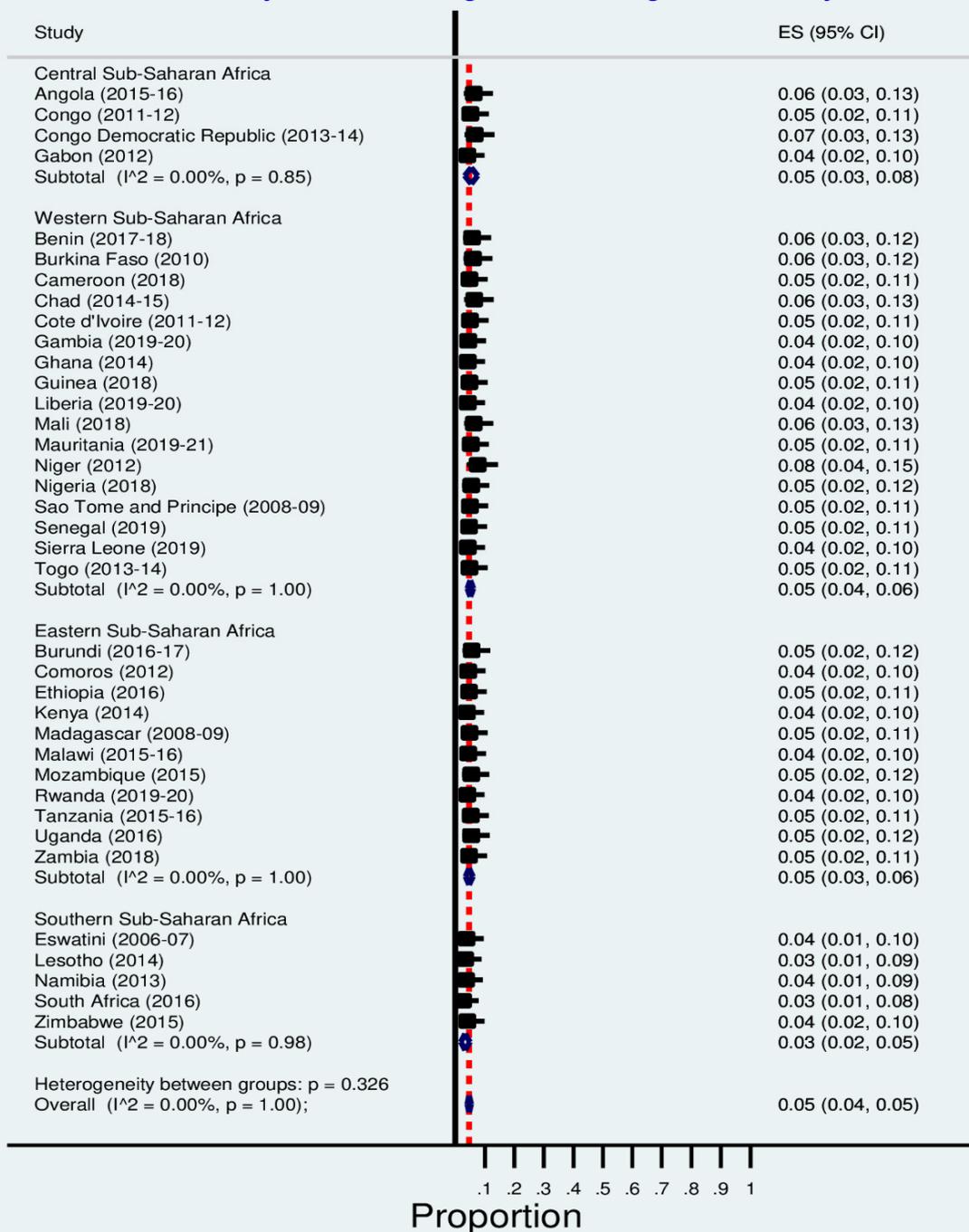


Figure 4. Total fertility rate among women aged 15–49 years.

Table 5 shows that women with higher socioeconomic status have a lower total fertility rate in SSA countries. From the results, among urban women, those with secondary or higher education and from rich households have a lower total fertility rate in SSA countries. See Table 5 below for the details.

Table 5. Distribution of fertility rate among women in sub-Saharan countries.

Country	Residence (%)		Education (%)		Wealth Quintile (%)				
	Urban	Rural	No Education or Primary	Secondary or Higher	Lowest	Second	Middle	Fourth	Highest
Angola	5.3	8.2	7.5	4.5	8.5	8.2	6.8	4.7	4
Benin	5.2	6.1	6.1	4.2	7	6.2	6.1	5.3	4.2
Burkina Faso	3.9	6.7	6.4	3.1	7.1	6.9	6.7	6.2	3.7
Burundi	4.1	5.7	6.1	4.1	6	6	5.5	5.8	4.4
Cameroon	3.8	6	5.9	3.8	6.6	6	5.1	4	3
Chad	5.4	6.8	6.7	4.8	7	7	6.8	6.2	5.3
Comoros	3.5	4.8	5.5	3.1	6.7	4.6	4.2	3.5	3.4
Congo	4.5	6.5	6.6	4.5	7	6.1	4.9	4.1	3.8
Congo Republic	5.4	7.3	7.5	5.6	7.6	7.4	7.1	6.5	4.9
Cote d'Ivoire	3.7	6.3	5.5	2.6	6.7	6.4	5.3	4.5	2.9
Eswatini	3	4.2	4.6	3.4	5.5	5	3.9	3.3	2.6
Ethiopia	2.3	5.2	5	2.1	6.4	5.6	4.9	4.3	2.6
Gabon	3.9	6.1	5.7	3.6	6.6	4.6	3.8	3.5	2.9
Gambia	3.9	5.9	5.5	3.4	6	5.2	4.6	3.8	3.2
Ghana	3.4	5.1	5.5	3.5	6.3	5.5	3.9	3.5	2.8
Guinea	3.8	5.5	5.1	3.5	5.9	5.5	4.9	4.7	3.4
Kenya	3.1	4.5	4.7	3	6.4	4.7	3.8	3.1	2.8
Lesotho	2.3	3.9	3.9	2.9	5	3.9	3.8	2.7	2.1
Liberia	3.4	5.5	5.1	3.2	6.2	5.3	4.2	3.3	2.8
Madagascar	2.9	5.2	5.6	3.1	6.8	5.9	5.1	4.4	2.7
Malawi	3	4.7	4.9	3.2	5.7	5.2	4.6	4.1	2.9
Mali	4.9	6.8	6.7	4.5	7.5	7.2	7	5.5	4.6
Mauritania	4.1	6.4	5.8	3.6	7.6	6.4	5.1	4.3	3.5
Mozambique	3.6	6.1	5.8	3.2	6.1	6.6	6.2	4.8	3.1
Namibia	2.9	4.7	4.9	3.3	5.5	4.4	3.9	3.1	2.3
Niger	5.6	8.1	7.9	4.9	8.2	8	8	8.1	6.1
Nigeria	4.5	5.9	6.5	4.2	6.7	6.2	5.6	4.6	3.8
Rwanda	3.4	4.3	4.4	3.7	4.9	4.4	4.2	4	3.4
Sao Tome and Principe	4.4	5.5	5.5	4.2	5.6	5.4	5.7	4.3	3.9
Senegal	3.8	5.6	5.4	3.6	6.8	5.6	4.6	4	3.4
Sierra Leone	3.1	5.1	5	3	5.6	5.1	4.7	3.6	2.6
South Africa	2.4	3.1	3.4	2.6	3.1	2.9	2.7	2.3	2.1
Tanzania	3.8	6	5.7	3.6	7.5	6.5	5.7	4.5	3.1
Togo	3.7	5.7	5.5	3.5	6.3	5.8	5.4	3.9	3.5
Uganda	4	5.9	6	4.2	7.1	6.3	5.6	4.9	3.8
Zambia	3.4	5.8	5.7	3.6	6.7	5.9	4.9	3.7	3
Zimbabwe	3	4.7	5.1	3.7	5.6	4.9	4.5	3.7	2.4

4. Discussion

The results of this study showed significant differences in the use of contraception across SSA countries. Less than a quarter of women in several countries used a modern form of contraception, according to the findings, which also showed low contraceptive use. Despite the rate of economic growth in some SSA countries, for example, Nigeria, which is assumed to be the fastest growing economy in Africa, there remains low contraceptive use among women. This could be consequent upon several barriers to contraceptive use in SSA countries. For example, contraceptive use has been hindered by a wide range of individual, social, and systemic barriers, such as myths and misconceptions, known side effects of contraceptives, prohibitive social norms, and unfavourable attitudes of health professionals [19]. These barriers and others, including illiteracy, rural place of residence, preference for large family size, stigmatization, cost, patriarchal nature of society, and lack of decision-making power and empowerment [20–23], have, in no small measure, affected

the progress of family planning programmes and policies. Similarly, there have been reports of low contraceptive use in many developing countries in recent studies [5,15,24].

The relationship between the use of contraceptives and women's socioeconomic status was also examined in this study. According to earlier research, women's socioeconomic status was found to be positively associated with the use of healthcare services in 67 developing countries. This relationship between women's socioeconomic status and contraceptive use is consistent with those earlier findings [25]. Urban women have a higher prevalence of modern contraceptive use when compared with their rural counterparts. This is consistent with findings from previous studies [11,26–28]. This could be due to more enlightenment programmes and exposure to health information from urban residency.

This study contributed to the body of research using population-based data to describe aspects of women's socioeconomic position while taking into account common indicators across SSA countries [29,30]. In order to determine the effect of women's socioeconomic status on contraceptive use and other health outcomes, researchers studying global health use the validated measure as a key tool. Similar to this, the measure permits comparisons among various SSA countries while taking into account the particular qualities of each context. Collaboration is, therefore, essential for enhancing women's economic status and fostering business ventures. African women who might lack collateral for loans from financial institutions will be helped by local savings groups, community banks, and microfinance institutions, in particular [26]. Furthermore, favourable trade policies and financial institutions should support the expansion of profitable medium- and small-scale businesses. Promoting economic status for women through local support groups, charitable organizations, wealthy individuals, business ventures, and effective policies would result in increased socioeconomic status [27,31].

Contraceptive use increased with improved educational attainment among women in several countries. In this study, differences in educational attainment were associated with differences in contraception use, such that women with higher education reported a higher willingness to accept modern contraceptive methods, a finding that was similar to that observed in a previous study [24]. Furthermore, several studies conducted in resource-constrained settings in Asia and Africa indicated an increased demand for modern contraceptive methods in women with a higher educational status, which often correlated with their desire for career planning and development [28,32,33]. Low contraceptive uptake is commonly explained by most women's lower educational status, and the culturally acceptable view of family size is primarily a man's decision [34]. Conversely, in countries with improved health insurance coverage with lower out-of-pocket expenditure, such as Ghana [35], contraceptive use was not clearly dependent on women's educational attainment.

Similarly, in this study, the use of modern contraceptive methods was higher in wealthy households. This finding is consistent with a trend observed in some resource-constrained settings in South Asia and Africa, where socioeconomic status was found to be strongly related to contraceptive use [36]. Reducing women's decision-making power in Africa may have an impact on their fertility outcomes, as women's socioeconomic position strategies are critical in sensitizing communities to gender equality. Furthermore, the focus of family planning programs should be on men because they have emerged as the primary decision-makers in SSA in terms of determining the family size and their wives' acceptance of contraception.

Contraceptive use patterns significantly differed across SSA countries. Similar geospatial variations in contraceptive use have been reported by previous authors [37]. Individual and household factors have dominated studies on the causes of geospatial variations in contraceptive use [37]. The results suggested that contraceptive use was linked to a variety of demographic, biological, socioeconomic, and behavioural factors. Age, parity, marital status, and marriage type were all demographic factors that influenced contraceptive use. These factors differed by country and might account for the observed differences in contraceptive use. Since women live in communities, it is obvious that communities influence

personal health behaviour, as there are often strong correlations between personal attitudes and beliefs and community norms. In terms of contraceptive use, women must traverse community norms in order to achieve their fertility choice and contraceptive uptake. Numerous factors, including the socioeconomic makeup of the neighbourhood, the presence of medical infrastructure and facilities, and prevailing attitudes and behaviours, all have an impact on women's use of contraceptives. As a result, research in the field of reproductive health is now turning to examine the role of contextual factors in explaining the observed variations in contraceptive use, with an increased focus on how the community influences people's reproductive health behaviour, including their use of contraception [38,39].

Strengths and Limitations

For plausible comparisons, large multi-country datasets were examined. We used data collected from different countries at different points in time. This could have a potential impact on each country's socioeconomic situation. Other factors, such as political situation, healthcare system development, and the government's health policy, may also result in a different representation of socioeconomic conditions in each country over time. This may result in data bias. In addition, the DHS does not collect data on household spending, which is a traditional indicator of wealth. The assets-based wealth index used in this study is merely a proxy for household economic status, and its findings are not always consistent with revenue and expenditure measurement techniques where such statistics are available or can be collected reliably. The statistical significance level in this study was set at 0.05. Considering the large sample sizes, future studies could utilize a 0.01 significance level. This study did not examine the impact of cultural and religious factors on contraceptive use. We recommend that future studies should investigate the impact of religion, culture, ethnicity, and language on contraceptive use within African countries.

5. Conclusions

According to this study, women's socioeconomic status, including education, household wealth, socioeconomic status, and residential status, was related to their use of contraceptives. In SSA countries, improving contraceptive use could lead to better maternal health. This could be accomplished by giving women more decision-making autonomy and raising their level of education. Additionally, community-based initiatives for women's socioeconomic advancement, like those promoting women's access to the media and health information, may be successful interventions for empowering women. The impact of women's socioeconomic status on maternal health care should take into consideration a number of pathways from empowerment to action, such as maternal autonomy and sexual and reproductive healthcare, in order to achieve relevant SDGs. Contraception is an important factor affecting women's health, and we recommend that cultural and religious aspects also need to be addressed and considered when planning and implementing contraception policies within African countries.

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