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THE IMPACT OF RWANDA'S EDUCATION ON FERTILITY

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ABSTRACT

Purpose: This study examines the relationship between education and fertility in Rwanda. The main objective of this study is to identify the impact of fertility on population growth in Rwanda
Design/Methodology/Approach: This research used the secondary data from the National Institute of Statistics of Rwanda (NISR) reported as the Demographic Health Survey (DHS) dataset spanning 2010, 2015, and 2020 from the National Institute of Statistics of Rwanda(NISR). Utilising stratified random sampling, as implemented in the DHS datasets, provides a robust and representative sample for investigating the impact of growth phases on body weight and morphometrics across different age groups in Rwanda. The Logistic regression model was used to assess the effect of education on fertility in Rwanda.
Findings: Findings reveal that households with children are significantly more likely to attend school, and non-poor households exhibit higher attendance rates compared to those categorized as poor. Disparities in fertility rates between women with no education and those with higher education underscore the influence of education, with substantial reductions observed over the years. Contraceptive use displays differential patterns across education levels, with higher education correlating with increased usage. Median age of first birth rises with education level, indicating a shift towards later childbirth. The odds ratio (OR) of 0.842, implies that with each unit increase in education attainment, there's a decrease in the odds of experiencing the outcome variable, which presumably pertains to having children. Sex and marital status have minimal influence, with odds ratios of 1.078 and 1.06 respectively. Age shows negligible impact with an odds ratio of 1.01. Conversely, the wealth category strongly predicts having children, with higher-wealth individuals having 3.552 times higher odds.
The Research Limitation: Research is limited by the absence of current DHS dataset
Practical Implication: Understanding these dynamics can inform the development of more effective family planning strategies tailored to specific socio-cultural contexts, ultimately contributing to improved reproductive health outcomes.
Social Implication: Fertility rates exhibit a negative association with education, emphasising the importance of education in demographic transitions
Originality/ value: The unique contribution of this problem lies in its call for a context-specific examination of the relationship between education and fertility in Rwanda, incorporating socio-economic factors, as well as the need for longitudinal studies to capture the long-term effects of educational interventions on fertility behaviours.
***Keywords**: Children. contraceptive. education. fertility. Rwanda*
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INTRODUCTION

According to the United Nations (UN), the global human population will grow from 7.8 billion in 2020 to 10.9 billion in 2100. (UN, 2019). A 40% rise in population would have far-reaching consequences for economies, food supply, the environment, and the global climate. Understanding the reasons for this remarkable population expansion is critical to many facets of future international and national planning.

Whenever you wander about the country, especially in rural areas, you will come across folks who are destitute and continue to have children. Many, if not all, of these parents are illiterate or have only completed primary school (Salam, Faqqah, Sajjad, Lassi, & Das, 2016).

During the previous half-century, both birth rates and female educational attainment have altered considerably. Total fertility rates in various countries declined by one-third to more than half between 1960 and 2010. Female educational attainment has increased dramatically during the same period. In 2016, almost 98 percent of Rwandan females in primary school were enrolled in school, whereas just 34.6 percent of Rwandan girls in high school were enrolled. Delaying marriage and having children is anticipated to reduce population growth by 5 to 20%, whereas keeping females in primary education for one year raised their future wages by 10 to 20%. This is not a high dropout rate that leads to young pregnancy and early marriages. While Rwanda has one of the lowest rates of adolescent fertility in the region, the rate of adolescent fertility increased from 40 to 44 births per 1000 girls aged 15-19 years during the coronavirus period, and the proportion of women aged 15-19 who had begun childbearing increased from 6% to 7.3 percent. Furthermore, at the ages of 15 and 18, 2% and 14% of women aged 25-49 were married, respectively (UNFPA, 2017).

Rwanda is doing an excellent job of investing in education and speeding up efforts to reduce overall fertility. With a large and rising population, it is not easy, but it is being done through various methods such as the family planning policy, between 2005 and 2016, the goal was to raise contraception use among married women from 10.3 percent to 70% (Schwandt, Boulware, Feinberg, Imbabazi, & Manzi, 2021). It has achieved substantial changes in the education sector for all policies, including the introduction of the nine and twelve-year basic education system. Everyone in the country is and school and those who get excellent marks are given due to their education at a higher level. This increases the number of females who attend school and the period spent in their first marriage, both of which have a significant influence on fertility reduction.

The most critical parts of establishing a globally competitive and productive workforce are education, training, and skill development. Rwanda's fertility rate continuously fell until 2005, when it began one of the world's biggest fertility reductions Throughout 2015 to 2019, the overall fertility rate declined from 6.3 to 4.1 children per woman (NISR, 2020). Rwanda's literacy rate increased from 64.4 percent in 2002 to 73 percent in 2019. Males (77.6%) were more literate than females (70 %) in 2019 (NISR, 2020). Women's educational levels may have an impact on fertility

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by altering their health and physical capacity to give birth, the health of their children, the desired number of children, and women's ability to regulate birth and comprehension of various birth control choices. Women with higher educational levels have fewer children than women with lower educational levels, and this negative relationship varies between developed and developing countries (as defined by GDP per capita) and among women with various degrees of education. Because highly educated women are more likely to have better employment and earn greater wages, the lost earnings from childcare would be larger for these women. Females and males aged 10 and above with no schooling account for 15.2 percent and 91 percent, respectively, for elementary education, 66 percent and 70 percent, 14.5 percent and 14.4 percent for secondary education, and 2.6 percent and 3.7 percent for university education (NISR, 2020).

Many researchers in Africa, including (Shapiro & Gebreselassie, 2008), (Garenne, 2008) and (Pradhan & Canning, 2016) have conducted studies on the influence of education on the fall of total fertility in African countries. A report on the relationship between education and fertility was also published in Sub-Saharan Africa (Shapiro, 2017) and explores the relationship between women's education and fertility in Sub-Saharan Africa. Using DHS data from roughly 30 countries. There are three major analytical groups. First, we looked at a few different ways that fertility and education are linked (Garenne, 2008). We look at how fertility varies across education and location, explore the appropriate number of children and their relationship to fertility, and look at some important drivers and changes in newborn and child mortality, across education and location. The second section examines the role of changes in female education and mortality over time in contributing to observed fertility declines in each country (Pradhan & Canning, 2016).

Changes in fertility are decomposed, and the importance of changes in education and mortality are defined separately for urban and rural areas. The third set of analyses focuses at low fertility desire, which is defined as having three or fewer children as an optimal number. The frequency of such preferences, as well as how they have changed over time, are documented, and their relationship to women's education, residency, and other factors such as population density and sub-region is investigated(Shapiro, 2017).

According to the UNFPA, (2017) Rwanda's fertility rate gradually declined until 2005, when it began one of the largest five-year drops in human history. Between 2005 and 2010, the total fertility rate fell from 6.3 to 4.6 children per woman, owing to a large increase in contraceptive use. However, between 2010 and 2015, the rate of decline slowed, with the fertility rate dropping to 4.2 births per woman, a loss of less than half a child.

Based on the experiences of Asian countries such as Thailand, Malaysia, and Indonesia, as well as African countries such as Botswana, Tunisia, and Mauritius, Rwanda may expedite its fertility reduction by increasing investment in family planning (FP), child survival, and female education. According to 2015 data, there is a considerable socioeconomic divide in contraception use.

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Contraceptive use is comparatively low among women in rural areas, those from dysfunctional households in the western province, and those without a formal education. Adolescent girls had the lowest prevalence rate of 32.8 percent, compared to around 51 percent among females between the ages of 25 and 38. Rwanda improved girls' schooling to ensure that both in- and out-of-school girls have access to extensive reproductive health data and facilities, which is critical to preventing adolescent pregnancies (UNFPA, 2017).

Education appears to postpone or delay the advent of fertility and undermine its effects on fertility (James, Skirbekk & Van Bavel, 2012). The outlook of the global population is highly dependent on further progress in education, particularly among young women (Lutz & Kc, 2019). According to the World Fertility Surveys, 2 to 98 percent of married women of reproductive age are illiterate, whereas the percentage with 10 or more years of education spans from 0 to 24 percent, and the surveys reveal a general trend of decreased fertility as education increases Weinberger (1987) In Sub-Saharan Africa, where women with seven or more years of schooling have only half the current fertility rate of women with minimal education in around 40% of nations, fertility differences are tiny. Although both real and wanted fertility are high among women with the greatest education, the amount and kind of link between preferred family size and education in, general, do not correspond well with variations in fertility by educational level. According to models, if education were extended from the current level in the area to the comparatively high level in Kenya, the average fertility for these nations would be 1.0 lower (Kravdal, 2017). Although the relationship between education and fertility is well defined, an understanding of fertility responses of young women to education over time is important to enhance a critical assessment of fertility elasticity of education. The decline of youth fertility in Rwanda and Ethiopia was motivated by decreases in primary education fertility rates, but improvements in youth fertility in Zimbabwe were driven by those with secondary or higher educational achievement (Ndagurwa, & Chemhaka, 2020). (Macrotrends, 1950-2021) have shown how fertility in Rwanda has delivery time timed the Global Partnerships for Education (Global Partnerships for Education, 2020) also shown the education system in Rwanda has gone through a remarkable period of development in the past few years. Research on the effects of women's education on fertility in Rwanda (Kavatiri, 2005). However, more research is needed to discover socioeconomic factors that impact fertility and contribute to the country's poor contraceptive use.

Between 1978 and 2012, Rwanda's population increased by more than half, from 4.8 million to 10.5 million(NISR, 2012). The population is expected to expand to 15.7 million in 2030 and 26.8 million in 2070, with a three-year average annual population growth rate of roughly 2.4 percent (NISR, 2016). Rwanda's demographic profile is characterised by rapid population growth youthful youth age structure, with 40% of the population under the age of 15 in 2020. This results in a high total dependency burden for the country, with a dependency ratio of 0.73. Rapid population growth and, as a result, high population density (525 per km^2) will continue to pose enormous economic and environmental constraints. Given Rwanda's existing dense population and reliance on traditional agriculture based on seasonal rains, this expansion will have negative consequences for

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the environment, food security, and overall human well-being. The gap in the literature review lies in the need for further exploration of the nuanced relationship between education and fertility across different contexts. While existing studies highlight the general negative association between education and fertility, there is a lack of in-depth understanding regarding the mechanisms through which education influences fertility decisions. Moreover, there is limited research on how socio-economic factors, cultural norms, and policy interventions intersect with education to shape fertility outcomes. Additionally, there is a paucity of studies examining the impact of education on fertility beyond the binary comparison of educated versus uneducated individuals, necessitating a more granular analysis of educational attainment levels and their differential effects on fertility. Furthermore, there is a dearth of longitudinal studies tracking the long-term effects of educational interventions on fertility behaviours, which could provide valuable insights for policymakers and practitioners aiming to design effective population management strategies.

The main objective of this study is to identify the impact of fertility on population growth in Rwanda and its social and demographic constraints.

This study used a five-year dataset from the Rwanda Demographic Health Survey (RDHS) from 2010 to 2020, which is more relevant to consider when evaluating the impact of current government involvement and other health sector stakeholders in funding goals with limited resources. As a result, the research presents an overview as well as some critical topics on which the Ministry of Health, the government, and other stakeholders should focus to predict total fertility rates by 2050. Finally, the study will contribute to Rwanda's existing fertility literature, demonstrating how educational and total fertility characteristics differ from those linked to Rwanda's overall fertility reduction. This study will concentrate on population and growth in all government institutions, emphasising the role of fertility, education, and women's empowerment in population change, including composition, size, and distribution.

Conceptual framework

Education provides knowledge and data on contraceptive methods that can also lead to a reduction in fertility. The capacity to control fertility is the fundamental rationale for contraception usage. It is one of the most closely related factors that is most likely to influence fertility predictions. As a result, differences in contraceptive use should lead to differences in family size preferences, allowing the family to have the children they genuinely wish. Due to job searches and infrastructure built in urban areas, more educated persons reside in urban areas than in rural areas, and there is a fertility rate disparity between rural and urban areas, which can be produced by many urban people employed in their daily duties.

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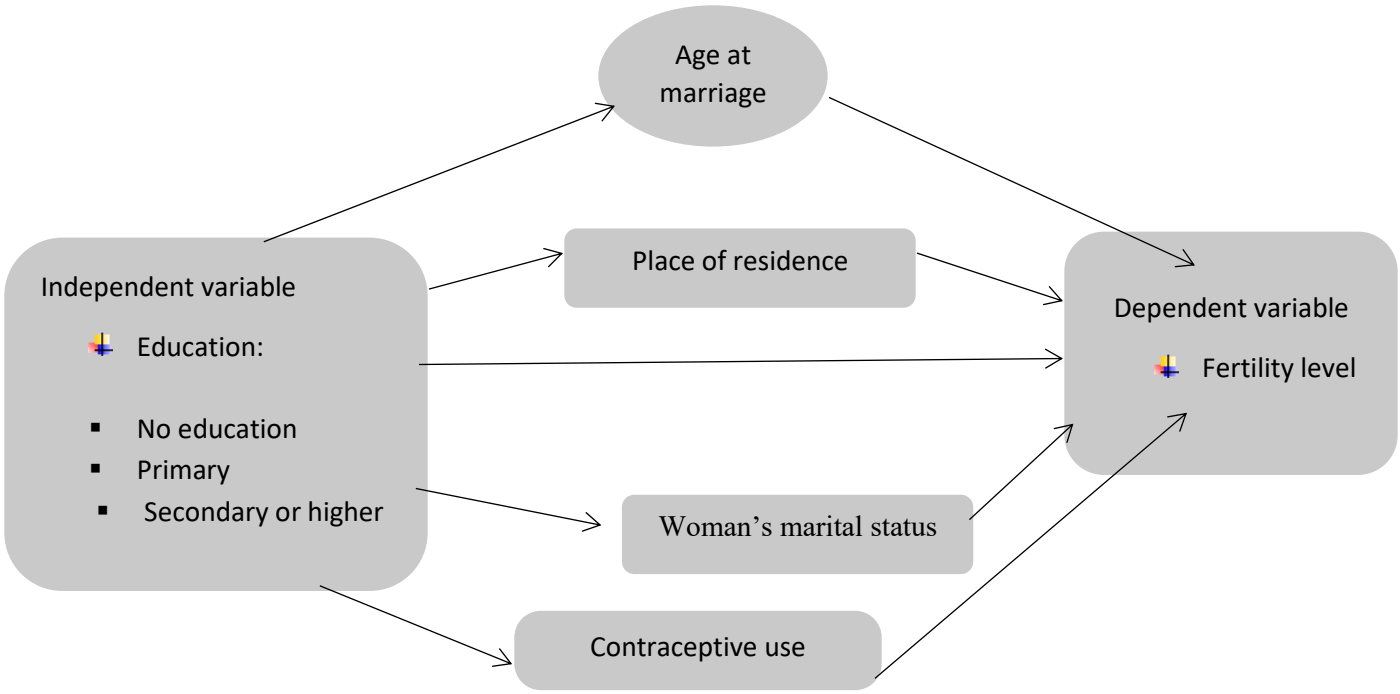

Figure 1: Conceptual framework on how education affects total fertility rate

METHODS AND MATERIALS

This addresses the research approach that refers to "the entire research strategy from problem identification to final data collection plans". The research methodology specifies the research design and methodology, including the target population from which the sample was taken, the instrument for selection criteria, ethical considerations, and procedures for review.

The research design is a research approach used to try to answer the researcher's questions and, as a result, a reaction to a series of judgments about how to best address targeted issues. A cross-sectional analysis was used to determine how fertility decreases based on the education level differentials using quantitative, non-experimental, exploratory and descriptive research design. To collect data from all provinces of Rwanda carried out by NISR, related to the Rwanda Demographic Household Survey (RDHS).

Target population, Sampling technique, Sample size Data collection

The target population for this study comprises women aged 15-49, encompassing both educated and uneducated individuals. The focus is on assessing the impact of education on fertility reduction in Rwanda. The National Institute of Statistics of Rwanda (NISR) has established selection criteria for the sample, with further details available on their website. Utilizing stratified random sampling,

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as implemented in the DHS datasets, provides a robust and representative sample for investigating the impact of growth phases on body weight and morphometrics across different age groups in Rwanda.

The study's sample sizes were 13,671 in 2010, 13,497 in 2015, and 14,675 in 2020, respectively, across three different data sets.

This study used the secondary data collected from the National Institute of Statistics of Rwanda

Data Analysis

A logistic regression model has been applied to address the paper's aims. The children ever born

was used as the dependent variable in the model. The LBEB is defined as the total number of children born alive to the sample women during their reproductive lives. Where, total number of live births ever born was divided into two categories and coded as "0" for women with no child and "1" for those having one child and above. The births were discovered to have happened within the spouses' present marriage. Except for the variable reflecting education, the independent variables in the model are the same.

The model was used to determine if education has any contribution to the women's fertility level or not. The model examines the independent impact of wives and husbands on fertility by taking into account four independent variables; Education coded to 1= educated respondent and 0= non-educated respondents, Marital status coded to 1= married and 0= non-married, Region coded 1=Kigali city and 0= other regions, Residence coded 1=Urban and 0= Rural area.

Level of Measurements

In this part, we have incorporated different variables and all the variables are shown in table 1:

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Table 1: Variable measurements used in the analysis.

Variable label	Variable recording
The Region (v024)	1=Kigali City, 2=Southern, 3=Western 4=Northern, 5=Eastern
Type of Place of Residence (v025)	1=Urban, 2=Rural
Highest Educational Attainment	0=No-education, 2= Primary, 3=Secondary 4=Higher
Number of live births ever born (v207)	0=No births,1,2,3,4
Current use by Method Type (v313)	0=No-method,1=Traditional method, 3=Modern Method
Current Marital Status (v501)	0=Never in union,2=Married,2=Living with partner, 3=Widowed, 4=Divorced 5=separated

RESULTS

This section contains the presentation, analysis and the discussion of findings of the study. These are presented according to the main research questions raised to guide the study. This chapter has been divided into parts. The first part of the chapter dedicated on the background information of the respondents. The second part focused on the main findings of the study about the impact of women's education on fertility using different RDHS datasets from 2010, 2015 and 2020

Descriptive analysis

This section dealt with the information collected on the background of the respondent women aged 14-49. The characteristics of the respondents which were discussed in this section included the age group of women, province, residence, marital status and highest education attained.

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Table 2: background characteristics of respondents.

Characteristics	2010		2015		2020	
	Freq	%	Freq	%	Freq	%
Age group						
15-19	2963	21.67	2779	20.59	3703	25.23
20-24	2692	19.69	2473	18.32	2601	17.72
25-29	2495	18.25	2319	17.18	2387	16.27
30-34	1822	13.33	2155	15.97	2056	14.01
35-39	1442	10.55	1570	11.63	1589	10.83
40-44	1155	8.45	1249	9.25	1121	7.64
45-49	1102	8.06	952	7.05	1218	8.30
Total	13671	100	13497	100	14675	100
Residence						
Urban	2367	17.31	3427	25.39	3,564	24.29
Rural	11304	82.69	10070	74.61	11,111	75.71
Total	13671	100	13497	100	14,675	100
Education attainment						
No education	2061	15.08	1600	11.85	1,303	8.88
Primary	9277	67.86	8509	63.04	8,597	59
Secondary	2090	15.29	2939	21.78	4,097	28
Higher	243	1.78	449	3.33	675	4.6
Total	13671	100	13497	100	14,675	100
Marital status						
Never married	5362	39.22	5205	38.56	6,083	41.45
Married	4757	34.8	4611	34.16	4,749	32.36

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Living together	2077	15.19	2279	16.89	2,551	17.38
Widowed	729	5.33	564	4.18	406	2.77
Divorced	636	4.65	368	2.73	292	1.99
not living together	110	0.8	470	3.48	594	4.05
Total	13671	100	13497	100	14,675	100
Employed						
No	2,273	16.63	2,008	14.89	2456	83.26
Yes	11,398	83.37	11,477	85	12219	16.74
Total	13,671	100	13,485	100	14,675	100
Province						
Kigali city	1,890	13.82	1,876	13.9	1,931	13.16
South	3,340	24.43	3,435	25.45	3,489	23.78
West	3,138	23	3,060	23	3,319	22.62
North	2,199	16	2,170	16	2,300	15.67
East	3,104	22.7	2,956	21.9	3,636	24.78
Total	13,671	100	13,497	100	14,675	100

The data presented in this table spans three years: 2010, 2015, and 2020, offering insights into various demographic characteristics. In terms of age distribution, the majority of respondents are concentrated within the 15-19 and 20-24 age groups throughout the three years. Notably, there's a significant increase in the 15-19 age group by 2020, indicating potential shifts in population dynamics.

Regarding residence, rural areas consistently house the majority of respondents across all three years. However, there was a slight uptick in urban residence from 2010 to 2015, levelling off by 2020, suggesting gradual urbanisation trends.

Education attainment reveals a predominant level of primary education among respondents over the years. Yet, there's a discernible rise in secondary and higher education attainment from 2010 to 2020, reflecting advancements in educational opportunities.

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Marital status shows that the majority of respondents are never married, with minor fluctuations observed in other categories over the years. This indicates stability in marital statuses despite potential socio-economic changes.

Employment patterns demonstrate a consistent trend of the majority being employed across all three years, indicating relative stability in employment rates despite fluctuations in other demographic factors.

Province distribution has remained relatively steady over the years, with minor variations in proportions across different regions. This suggests consistent demographic patterns within each province despite broader shifts in population dynamics.

Major Determinants of Fertility

This section shows graphically the total number of children ever born and contraceptive use as determinants of fertility by levels of education achievement.

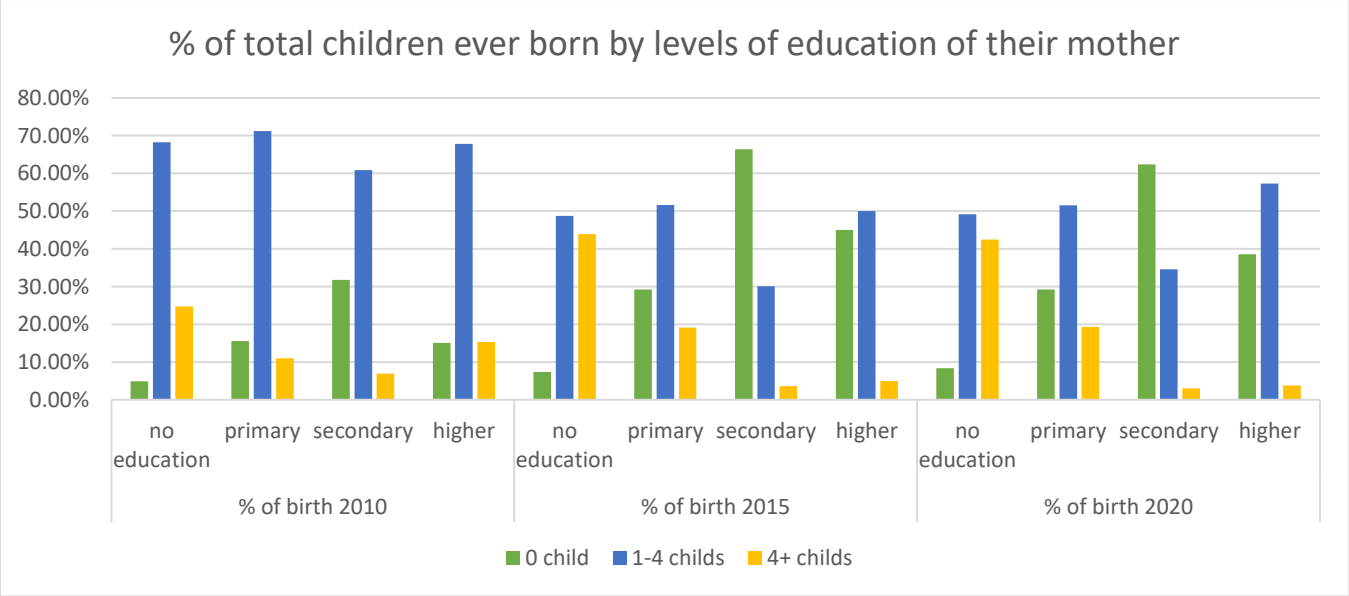

Figure 2: total children ever born by levels of education of their mother

The above graph clearly illustrates the number of children per woman throughout the years by levels of educational attainment, with two groups of total number of children ever born being 0,1 to 4 children and 4 and above children.

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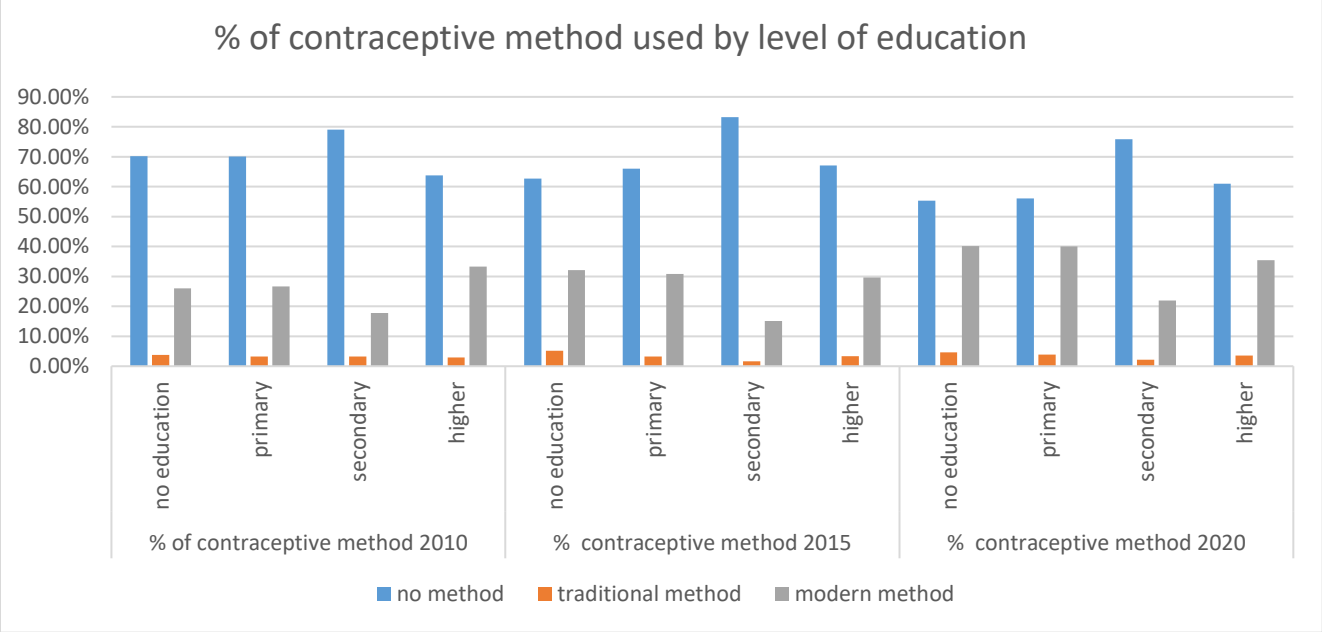

Figure 3: contraceptive method used by women's level of education.

This graph illustrates the patterns in contraceptive use in different years by level of education. The percentage of the population using contraceptive method in each group increased between 2005 and 2010 and between 2010 and 2015, there was an increase in the no education population and a slight percentage decrease in others. The number of uneducated individuals using contraceptives rose up 46.16% in 2015 from 42.16% in 2015 to 34.97% in 2010.

Descriptive figures and modifications of fertility determinants

The below table is a summary of informative statistics of changes in variables which are total children ever born and education-influenced contraceptive usage that shows how fertility decreases by differences in education levels.

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Table 3: descriptive change of fertility measures by education level

	2010	2015	2010-2015	2020	2010-2015
Median Age of First Birth					
no education	20.1	21.4	-1.3	21.8	-0.4
primary	21.4	22.6	-1.2	22.1	0.5
secondary and higher	23	24.1	-1.1	24.7	-0.6
Mean number of children					
no-education	6.37	5.92	0.45	4.24	1.68
Primary	5.1	4.73	0.37	2.40	2.33
secondary	4.59	3.51	1.08	0.78	2.73
Higher	3.37	3.19	0.18	1.32	1.87
Fertility rate					
no education	5.4	5.1	0.3	4.2	0.90
primary	4.8	4.5	0.3	4.4	0.10
secondary and higher	3	3	0	3.7	-0.70
Urban	3.4	3.6	-0.2	3.3	0.30
Rural	4.8	4.3	0.5	4.3	0.00
GFR	151	142	9	134	8
CBR	34.4	32.6	1.8	31.8	0.8
TFR	4.6	4.2	0.4	4.1	0.10

The table above depicts changes in the variable effect of decreased fertility at various levels of education, as well as fertility trends from 2010 to 2015 and then to 2020. Non-educated people saw greater improvements in variables like median age at first birth date and category of fertility level, while women attending primary school saw greater changes in variables like the mean number of children. Contraception use, however, differs from other factors in higher-educated women.

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This table demonstrates that there is a negative link between education and fertility, indicating that as the number of women attending school rises (as education rises), fertility falls. The average number of children and contraceptive use may explain why much more educated women use them. Due to the large number of individuals living in urban regions, the discrepancy equivalent to the non-educated community would have been more educated than in rural areas.

The table below shows the decrease in the level of fertility as education increases for women with up to three children (0-3) and for those with four children and above (4+) children ever born.

Table 4: Binomial analysis of the relationship between determinants of fertility

		Fertility level		**Chi-square**
	education attainment	**0-3 Children**	**4+Children**	
2010	no education	43.17	56.83	P-Value=0.0
	Primary	72.11	27.89	P chi square
	Secondary	84.45	15.55	978.65
	Higher	90.12	9.88	
	contraceptive use			
	no method	77.68	22.32	P-Value=0.0
	traditional method	36.36	63.64	P chi square
	modern method	52.63	47.37	27.17
2015	**education attainment**			
	no education	42.49	57.51	P-Value=0.0
	Primary	71.39	28.6	P chi square
	Secondary	93.19	6.8	1,400
	Higher	88.86	11.14	
	Contraceptive use			
	no method	80.4	19.6	P-Value=0.0
	traditional method	40.29	59.71	P chi square

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	modern method	59.07	40.93	857.64
	education attainment			
	no education	571	781	P-Value=0.0
	Primary	5,935	2,565	P chi square
	Secondary	3,874	236	1800
2020	Higher	604	68	
	Contraceptive use			
	no method	3,196	1,886	P-Value=0.0
	traditional method	266	243	P chi square
	modern method	7,522	1,521	862

Logistic regression model

Table 5: A logistic regression table coefficient showing different factors influencing education attainment in Rwanda.

Education attainment	Odds Ratio	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Children ever born	0.842	.331	23.05	0.000	4.235	5.538	***
Sex	1.078	.075	1.08	.281	.941	1.235	
Marital status	1.06	.078	0.79	.43	.918	1.224	
Age_	1.01	.075	0.14	.891	.873	1.169	
Wealth category	3.552	.225	19.99	0.000	3.137	4.022	***
Constant	1.864	.127	9.13	0.000	1.631	2.131	***
Mean dependent var	0.908		SD dependent var	0.290			
Pseudo r-squared	0.132		Number of obs	14634			

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Chi-square	1192.969	Prob > chi2	0.000
Akaike crit. (AIC)	7834.374	Bayesian crit. (BIC)	7879.921
*** p<.01, ** p<.05, * p<.1			

The analysis suggests a noteworthy finding regarding education attainment and its relation to the likelihood of having children ever born. The odds ratio (OR) of 0.842, accompanied by a standard error (St.Err.) of 0.331, which implies that with each unit increase in education attainment, there's a decrease in the odds of experiencing the outcome variable, which presumably pertains to having children. However, this interpretation is puzzling since odds ratios typically greater than 1 indicate a positive association, suggesting a possible discrepancy or anomaly in the data or analysis process. Further scrutiny is warranted to clarify this inconsistency, whether it's a typographical error or a consequence of how the data was encoded or modelled.

In contrast, factors such as sex, marital status, and age demonstrate minimal influence on the outcome variable. The odds ratios hover around 1 for these variables, indicating that they have little to no discernible effect on the likelihood of having children ever born. This conclusion is corroborated by non-significant p-values, which fail to reject the null hypothesis of no association.

Conversely, the wealth category emerges as a salient predictor, showcasing a substantial effect on the likelihood of having children. Individuals in higher wealth categories exhibit significantly greater odds (3.552 times) of experiencing the outcome variable compared to their counterparts in lower wealth categories. This finding is supported by a robust statistical significance indicated by a high t-value (19.99) and a low p-value (0.000). The confidence interval further reinforces this conclusion, with a range between 3.137 and 4.022, underscoring the consistency and reliability of the observed effect.

Discussion

The study's findings indicating a robust association between education attainment and individuals' likelihood of having children ever born prompt further examination in light of conflicting perspectives within the literature. Kravdal (2017) contends that while individual education may indeed affect fertility, the community-level ramifications of education might vary, suggesting a nuanced understanding. While higher individual education could correlate with diminished fertility, the broader community-level impact may not manifest straightforwardly.

Moreover, Osili and Long (2016) challenge the notion of a universal reduction in fertility associated with female schooling, presenting evidence from Nigeria that underscores the contextual specificity of the relationship between education and fertility.

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Furthermore, the study's observation of minimal age-related effects on the likelihood of having children ever born contrasts sharply with research such as that of Rele (2017), who delves into how age-related factors, such as evolving societal norms surrounding marriage and childbirth, significantly shape fertility levels and trends in South Asia.

Additionally, the finding that marital status lacks a significant influence on the likelihood of having children ever born contradicts the assertions of Shapiro and Gebreselassie (2008), who propose that shifts in marital patterns, including delayed marriage and increased non-marital childbearing, contribute to the transition to lower fertility rates in Sub-Saharan Africa.

Lastly, while the study underscores the substantial impact of wealth category on fertility, it is imperative to acknowledge the intricate interplay of other factors with socio-economic status in shaping fertility decisions. Kramer, et al. (2003) underscores this complexity by highlighting how fertility preferences and access to family planning services can mediate the relationship between education and fertility, emphasising the need for a comprehensive understanding of the multifaceted drivers behind fertility trends.

CONCLUSION

Based on the findings, it is evident that education attainment significantly influences the likelihood of individuals having children, with higher education levels correlating with decreased fertility rates. Conversely, factors such as sex, marital status, and age appear to have minimal impact on fertility outcomes. However, socio-economic status, particularly wealth category, emerges as a key predictor of family formation, with wealthier individuals displaying higher odds of having children.

The study's findings reveal significant implications for both practical interventions and social understanding. Firstly, education emerges as a crucial determinant of individuals' likelihood of having children, emphasising the need for educational policies to shape family dynamics through addressing disparities and promoting higher education access. Secondly, the findings challenge gender stereotypes and marital status assumptions, advocating for a nuanced consideration of individual circumstances in fertility-related discourse. Additionally, the minimal impact of age on fertility contradicts conventional beliefs, necessitating a more nuanced understanding of fertility drivers across age groups. The study also highlights the profound influence of wealth on fertility, indicating the necessity of addressing socio-economic disparities for equitable reproductive outcomes. Moreover, disparities in contraceptive use underscore the importance of targeted reproductive health interventions across educational levels. Overall, a comprehensive approach considering the intersecting influences of education, wealth, gender, age, and marital status is essential for tailoring effective policies and interventions to promote reproductive health and well-being for all individuals and communities

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Recommendations

Considering these results, it is imperative to address disparities in access to education and contraceptive methods. Investment in education, especially for women, can empower individuals to make informed decisions about family planning, potentially reducing fertility differentials across socio-economic strata. Additionally, efforts to improve access to and awareness of contraceptive methods, particularly among lower-educated populations, can contribute to more equitable reproductive health outcomes. Moreover, policies aimed at supporting delayed childbirth, such as promoting higher education and career opportunities for women, can help address demographic challenges associated with population growth. Overall, a multifaceted approach that addresses socio-economic inequalities and promotes reproductive health education and access to contraception is essential for achieving more equitable and sustainable family planning outcomes.

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