

A Comparative Study of the Impact of the Total Fertility Rate (TFR) on Trends in the Second Demographic Transition (SDT) in Rwanda

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Abstract

While several studies have been conducted on Second Demographic Transition (SDT), current research concerning the shift of the Total Fertility Rate (TFR) in most regions of Sub-Saharan Africa (SSA) is increasingly focused on epidemics such as AIDS, political tensions and crises, internal migration, forced displacement, and migration. The present study based in Rwanda highlighted the impact of the economy, the health sector, the impact of women's education, as well as a higher attitude and perception of fertility among young women aged 15 to 25 as one of the most recent indicators in SSA. It is based on the results of a qualitative and guided questionnaire on fertility aimed at women aged 15–49 as well as data from the researcher's experiments and from the Demographic Health Survey (DHS) 2019–20 report of the National Institute of Statistics of Rwanda (NISR). It was observed that the Kuza n'ijoro ('coming at night') culture was at 18.86%, living apart together (LAT) at 17.76%, abortion at 5.62% among women without children and at 5.15% among women with children, 75.87% of women preferred to have 2–3 children, and 50.81% of women indicated 25–30 years as the preferred age of first marriage. The preference for single mothers increased by 1.97%. While the use of contraception by women without children plays a substantial role in 42.27% of rural and 54.65% of urban, it is highly valued by women with children in 82.82% of rural and 87.57% of urban. These factors contributed to the decrease in TFR, which resulted in SDT trends. Section 1 of this paper consists of the introduction, section 2 presents the literature review, section 3 details the methodology, and section 4 presents the result analysis, data discussion, and conclusion.

Keywords: Kuza n'ijoro, Rwanda, Second Demographic Transition (SDT), Total Fertility Rate (TFR), Living Apart Together (LAT)

1. Introduction

Human populations are undergoing a demographic transition. In recent years, Second Demographic Transition (SDT) research on a global scale has been focused more on the developed world compared to the African continent. The majority of the studies concerning the trends in the Total Fertility Rate (TFR) focus on the epidemics and political issues that contribute to the African continent's population decline, particularly in Sub-Saharan Africa (SSA) where AIDS, malaria, and other epidemics are identified (Houtenville, A.J., David C. Stapleton, Robert R. Weathers II, and Richard V. Burkhauser, eds., 2009).. Women after the post-independence era's economic and political changes and the impact of HIV/AIDS, particularly on child mortality (Endale Kebede, Anne Goujon, and Wolfgang Lutz. 2019) , highlight that fertility is a multi-faceted and difficult process. It varies depending on the location and severity of the violence (Verwimp, Philip; Davide Osti & Gudrun Østby. 2020). The alteration in the TFR has been associated with the link between internal migration and fertility in Nigeria (Odimegwu, C.O., and Adewoyin, Y. 2020). These are some of the variables impacting the fall in the TFR in SSA, although other key factors such as women's education, health sector development, and the economy are also pertinent.

The present qualitative study focuses on both the rural and urban areas of Rwanda, with the goal of examining the level of perception and attitude of residents in terms of fertility for women aged 15–49 years. This data is also compared to that from the Demographic Health Survey (DHS) 2019–20 report of the National Institute of Statistics of Rwanda (NISR).

This study intends to demonstrate the trends of SDT in SSA, using Rwanda as an example, where qualitative data collected in five districts reveals a comparative understanding of fertility in rural and urban areas. Even Rwanda's pledge to have three children per family by 2030 will result in a household size of less than 2.1 by 2050 (NISR, PHC report, 2012).. This paper is organized as follows: section 1 consists of the introduction, section 2 presents the literature review, section 3 details the methodology, and section 4 delineates the result analysis, data discussion, and conclusion.

2. Literature Review

The notion of SDT was introduced in the Dutch language at the end of the 20th century (Lesthaeghe R, and van de Kaa D.,1986) and refers to the replacement of fertility by cohabitation across entire European countries, owing to cultural changes (Lesthaeghe, R.,2014).). The SDT viewpoint of fertility, in the context of a new arrangement of social living other than marriage, revealed a remarkable gap between the time of first marriage and procreation (Lesthaeghe, R., 2020). The FDT and SDT oppose the norms concerning first marriage founded in the middle ages (Lesthaeghe R. & Neels, K. 2002).

SSA has a high fertility rate; despite its decline, total fertility ranged from 2.4 in South Africa to 7.0 in Niger during 2015–20, with only six of the 34 countries reporting total fertility below 4.0 and 27 reporting total fertility between 4.0 and 5.0 (Ben Malinga John & Vissého Adjiwanou.,2021). During 1975–80, the total fertility rate was 6.8 children per woman. With 4–5 children per women, the average in SSA is significantly higher.

Fertility fluctuations in SSA are intricately linked to the institution of marriage, owing to the idealization of childbearing within marriage. The average age for first marriage in most SSA nations is under 20 years(United Nations, Population Division. 2019b. World Marriage Data, 2019). For example, fertility trends revealed a TFR of 4.0 children per woman in Zimbabwe in 2015, compared to 4.1 children per woman in 2010–11, (Zimbabwe National Statistics Agency and ICF International. 2016); TFR of 2.6 children per woman in South Africa, a decline from 2.9 in 1998 (National Department of Health - NDoH, Statistics South Africa - Stats SA, South African Medical Research Council - SAMRC, and ICF.,2019); and a TFR of 4.2 children per woman in Sierra Leone for the 3 years preceding the survey, which is a decline from the rate reported in 2013 (4.9 children per woman) (Statistics Sierra Leone Stats SL and ICF.,2020). Therefore, Rwanda is experiencing SDT trends, with 4.1 children per woman in the DHS report 2019-20, compared to 6.17 children per woman in 1995.

2.1 Hypothesis

It is hypothesized that there are early traces of SDT in Rwanda.

SDT is not only remarked in developing countries; education and family planning programs as indicators have played a role in the fall of the TFR, considering three SSA nations, including Rwanda, as examples, (Bongaarts, J. (2020). One of the factors contributing to the reduction of TFR in SSA is the impact of women's education. Women with a higher level of education are more likely to participate in government-sponsored programs such as family planning. Women's education raises the marriage age, which contributes to the fall in TFR, (Endale K., Erich S., & Anne G.,2020). In other research, the role of endless civil wars, forced displacement, and migration in SSA has been highlighted. Rwanda is one of the countries in SSA where SDT is gathering pace due to different factors such as childbearing, divorce, separation, Kuza n'ijoro ('coming at night') form of cohabitation, single mother preference, and the abortion level.

3. Methodology

The data for this research was collected from four provinces and Kigali City and compared to those from reports such as the DHS 2019-20 and the Marital Status and Nuptiality (MSN) Report 2014.

The information gathered is unique because it was collected for the first time and, hence, is considered unofficial source. Primary information is original and well-known.

Researchers employed various procedures such as interviews, surveys, and experiments to obtain original data from primary sources. Primary data was often gathered directly from the source through observation, interviews, or surveys (Ackroyd, S. and Hughes, J.,1992). The researcher collected data using surveys, interviews, and experiments in order to better understand and solve the topic at hand (Bryman, A.,1989). Primary data sources provided information on substance addiction and dependency prevalence rates, although the quality and availability of accessible data differs greatly between nations (King A., Li L., and Hser YI.,2017).

3.1 Survey Data Collection Method

Knowledge of survey methodology is beneficial to people who use data as well as those who produce it (Houtenville, Andrew J., David C. Stapleton, Robert R. Weathers II, and Richard V. Burkhauser, eds. 2009.). The researcher's technique and analytical approach determine how the data is used and what explanations it can generate; therefore, data gathering methods are important (Arianne Teherani, Tina Martimianakis, Terese Stenfors-Hayes, Anupma Wadhwa, MD; Lara Varpi, and J. 2015). Data is collected using a number of methods, including face-to-face and telephone interviews, postal questionnaires, and internet surveys. Complex computer-assisted forms or forms on which an interviewer writes the answers using a pen and paper can be used (Uwe Engel, Ben Jann, Peter Lynn, Annette Scherpenzeel, and Patrick Sturgis, 2015). Survey research is frequently used to investigate people's feelings, opinions, and perspectives. The objectives of survey research is specific and limited. Today, survey research is used by a wide range of people and organizations. Surveys are frequently used by psychologists and sociologists to analyse behaviour. The homogeneity of the survey questionnaire technique is used in lower degree of standardization. The researcher engaged in conversation with the participants and collected written responses. We collected unified data in writing via the respondents' participation in the communication process through a monitored survey.

3.2 Cluster Sampling (Stratified Random Sampling)

A qualitative research, such as lengthy interviews with a small group of people, uses a tiny sample, or sampling, which entails dividing a population into smaller sections called strata (Trost, J.E. (1986). The present study divided the population into strata (mutually exclusive classes) such as 'women with children' and 'women without children'. Then, random sampling was done within the strata. The study population consisted of 40% women without children and 60% with children. To get a sample of 100 people, we randomly chose both categories of women from the age group 15–49; our sample was then guaranteed to have the correct categories of women. The data collection took place throughout Rwanda's various zones, from four districts in each of the country's four provinces and one district in Kigali City.

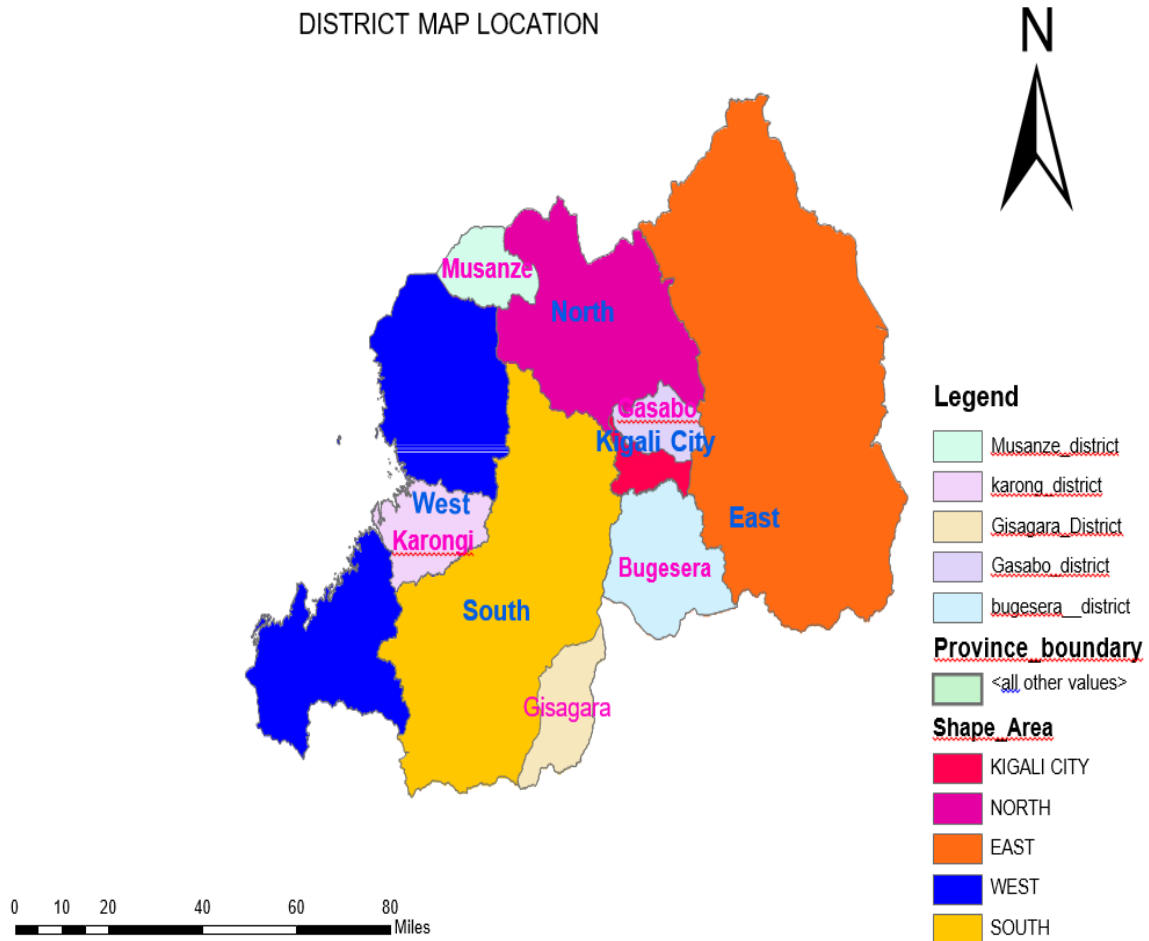


Figure I. Data gathering location

The area covered during data collection is depicted in the map of Rwanda. It also encompasses the provinces, districts, and the city of Kigali.

3.3 Sample Size Calculation

Sample size determination is the process of determining how many observations or repetitions should be included in a statistical sample.

The method is used to compute an acceptable sample size, given desired levels of precision and confidence and the projected percentage of the property held by the people (Cochran.W.G., (1977)). The Cochran formula proves useful when dealing with large populations.

Sample size is determined in two steps:

1. Calculate the sample size for infinite populations
2. Adjust the sample size to required populations Calculation of the sample size for infinite populations:

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$$S = Z^2 * P (1-P) / M^2$$

where, S= Sample size for infinite population

Z=Z-score

P= Population proportion (assumed to 50%=0.5)

M= Margin of error

Z-score is determined based on the confidence level; the confidence level is the probability that the value of a parameter falls within a specified range of values.

Required sample size (90%)	Required sample size (95%)	Tolerance level
1691	2401	2%
752	1067	3%
271	384	5%
68	96	10%

Confidence level	Z value
90%	1.645
95%	1.960
99%	2.576

If we consider 95% as the confidence level, then the Z-score value is 1.960.

Margin of error is a small value that is allowed, considering the eventuality of miscalculation or change of circumstances.

The margin of error is noted as 5%= 0.05

$$M=0.05$$

$$Z\text{-score}=1.96$$

$$P= 0.5$$

$$M=0.05$$

$$S = (Z\text{-score})^2 * P * (1-P) / (\text{Margin of error})^2$$

$$S = (1.96)^2 * 0.5 * (1-0.5) / (0.05)^2$$

$$S = 384.16$$

Value of infinite population size is +384.16.

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Calculation of sample size for the required population:

For example, if the population of the study is 1,927,944, then use the following formula for adjusted sample size:

$$\text{Adjusted sample size} = (S)/1 + [(S-1) / \text{Population}]$$

$$\text{Adjusted } S = (S) / 1 + [(S-1) / \text{Population of study}]$$

$$\text{Adjusted } S = 384.16 / 1 + [(384.16-1) / 1927944]$$

$$\text{Adjusted } S = \mathbf{385}$$

Hence, the sample size is 385 for a population study of 1,927,944 inhabitants.

Required sample size (90%)	Required sample size (95%)	Tolerance level
1691	2401	2%
752	1067	3%
271	384	5%
68	96	10%

The equation for calculating the sample size is as follows:

$$S = Z^2 * P (1-P) / M^2$$

S= Sample size for infinite population

Z=Z-score

P=Population proportion (assumed to be 50%= 0.5)

M=Margin of error (3%)

Z-score is determined based on the confidence level; confidence level is the probability that the value of a parameter falls within a specified range of values.

$$S = 384.16 / 1 + [(384.16-1) / 1927944] = 1,067$$

Sample size is 1,067 for a population study of 1,927,944 inhabitants.

The 1,067 respondent participants were divided into two categories: 40% women without children and 60% women with children.

4. Results and Data Description

Table I. Respondent Percentage Distribution of Women Aged 15–49 and Their Background Characteristics, Rwanda

Background characteristics	Women without children		Women with children	
	Weighted percent	Weighted number	Weighted percent	Weighted number
Age				
15-19	40.98%	175	1.56%	10
20-24	43.09%	184	12.96%	83
25-29	12.88%	55	20.31%	130
30-34	0.70%	3	23.43%	150
35-39	0.46%	2	20.46%	131
40-44	Na	Na	13.12%	84
45-49	1.87%	8	8.12%	52
Religion				
Catholic	40.04%	171	36.25%	232
Protestant	30.91%	132	38.28%	245
Adventist	13.58%	58	14.84%	95
Muslim	10.53%	45	7.03%	45
Traditional	Na	Na	Na	Na
Jehovah's Witness	1.40%	6	1.09%	7
Other	Na	Na	Na	Na
No religion	3.51%	15	2.5%	16
Marital status				
Never married	1.40%	6	Na	Na
Single	63.70%	272	Na	Na
Cohabitation	17.33	74	Na	Na
Married	Na	Na	91.71%	587
Living together	17.56%	75	Na	Na
Divorced/separated	Na	Na	3.43%	22
Polygamy	Na	Na	0.31%	2
Widowed	Na	Na	4.53%	29
Residence				
Urban	40%	172	40%	258
Rural	60%	255	60%	382
Province				
Kigali city	20.14%	86	20.15%	129
South	20.14%	86	20.15%	129
West	19.43%	83	19.37%	124
North	20.14%	86	20.15%	129
East	20.14%	86	20.15%	129
Education				
No education	3.74%	16	18.28%	117
Primary	27.63%	118	40.93%	262
Secondary	62.52%	267	39.53%	189
University level	6.08%	26	11.25%	72
Occupation				

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Student	39.81%	170	1.25%	8
Farmer	31.85%	136	59.21%	379
Public servant	3.04%	13	6.09%	39
Private sector	25.29%	108	33.43%	214
Wealth quantile				
Lowest	80.09%	342	63.28%	405
Second	18.73%	80	30.15%	193
Middle	1.17%	5	6.25%	40
Fourth	Na	Na	0.31%	2
Highest	Na	Na	Na	Na
Total 15-49	100%	427	100%	640
50-59	Na	Na	Na	Na
Total 15-59	Na	Na	Na	Na

Source: Researcher data collection September 2021

The characteristics of the respondents are shown in this table (women with and without children aged 15–49). The age, education, religious belief, wealth, marital status, and area of residence are all represented in the distribution, which is calculated from the sample size.

Table II. Kuza N'ijoro as a Form of Cohabitation

Area of residence	Women without children	
	Count	%
Rural	43	16.86%

Source: Researcher data collection September 2021

Kuza n'ijoro is the most frequent form of cohabitation in Rwanda, with 16.86% persons aged 20–30 likely to live together, especially during their engagement, due to self-esteem-related reasons, of which poverty is a major concern.

This practice differs from Western cohabitation practices in that people who make a decision at least two years in advance give birth. Thus, the data we have gathered reveals that rural separation is higher, amounting to 95% in 13.87 % [see Table IV], which is more visible due to this cohabitation structure. As a result of their low degree of sensitivity, people in rural areas are more likely to separate because they are not legally married. However, it is also observed more among people with a lower education level (zero education and primary level).

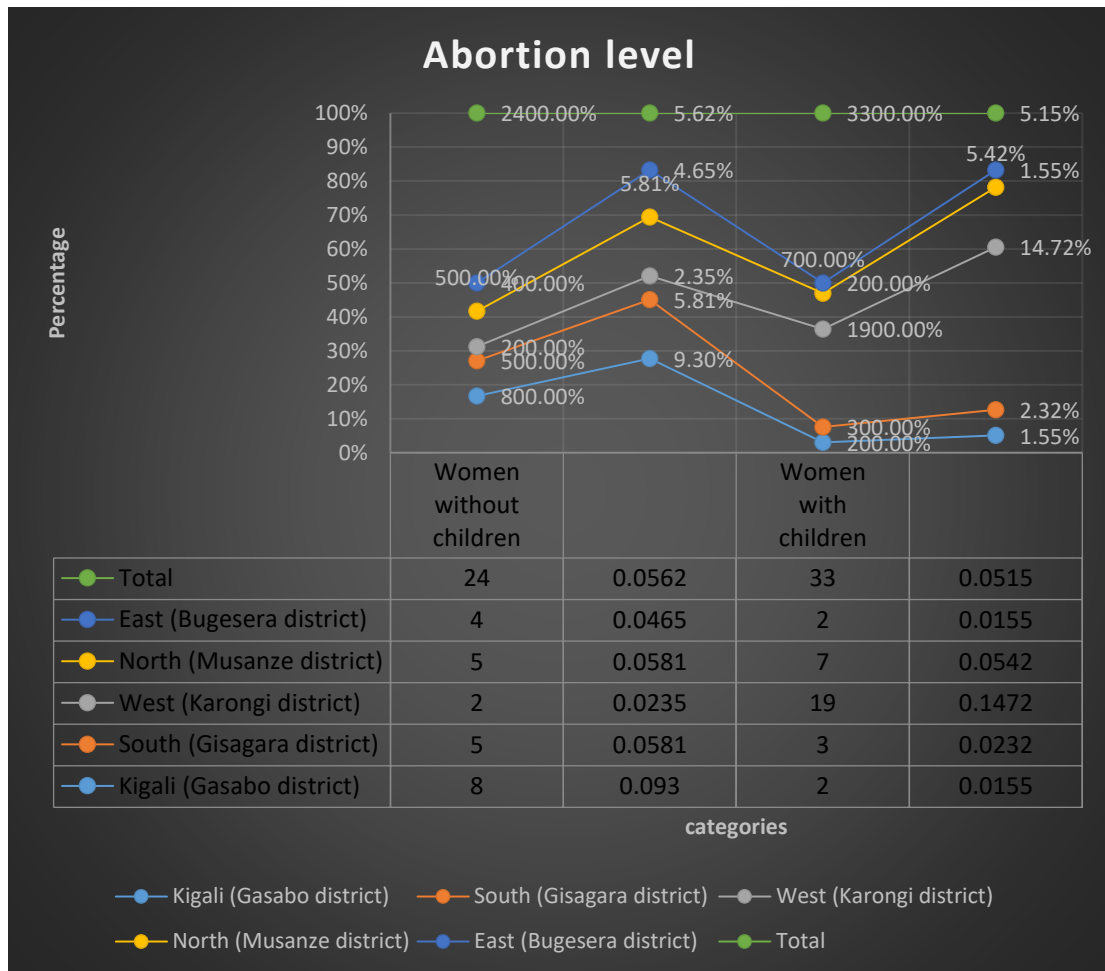


Figure II. Level of Abortion
Source: Researcher data collection September 2021

Many abortions are kept private, despite the fact that information about them is difficult to come out. Since the Rwandan government’s implementation of the law of abortion, 5.62% of women without children declared that they had undergone it in the past, with some declaring that they had it done twice, while 5.15% of women with children have had abortions. The statistical difference between urban and rural locations appears to be insignificant. Pregnancy statistics since the Women's Abortion Act reveal that abortion is more common among those without children compared to women with children; however, it is still insignificant with a 0.47% difference. Furthermore, from a comparative study, abortions appear to be fewer in urban areas because young people's opinions regarding family planning methods are more positive [Table 6].

Table III. Marriage, Sexual Activity, Childbearing, and Family Size (Women without Children)

Characteristics	Women without children							
	0 children		Less 2 children		2-3 children		above 3 children	
	Count	%	count	%	count	%	count	%
Desired children								
Kigali (Gasabo district)	1	1.16%	2	2.32%	70	81.39%	11	13%
South (Gisagara district)	2	2.32%	2	2.32%	58	67.44%	24	27.9%
West (Karongi district)	3	3.51%	6	7.05%	66	77.64%	10	11.76%
North (Musanze district)	0	Na	5	5.81%	66	76.74%	15	17.44%
East (Bugesera district)	0	Na	2	2.32%	64	74.41%	20	23.25%
Rural area	1	0.39%	7	2.74%	188	70.5%	54	20%
Urban area	5	2.94%	10	5.81%	136	79.06%	26	15%
Total	6	1.40%	17	3.98%	324	75.87%	80	18.73%
Desired age for first child	Below 25 years				Between 25- 30 years		Above 30 years	
	Count		%		Count	%	Count	%
Kigali (Gasabo district)	50		58.13%		34	39.53%	1	1.16%
South (Gisagara district)	55		63.95%		28	32.55%	1	1.16%
West (Karongi district)	44		53.01%		35	42.16%	1	1.20%
North (Musanze district)	15		17.44%		71	82.55%	0	Na
East (Bugesera district)	42		48.83%		44	51.16%	0	Na
Rural area	141		56.07%		107	41.96%	2	0.78%
Urban area	65		37.79%		105	61.04%	1	0.58%
Total	206		48.94%		212	50.81%	3	0.70%
Desired age for last child	Below 30 years				Between 30-40 years		Above 40 years	
	Count		%		Count	%	Count	%
Kigali (Gasabo district)	5		5.88%		69	81.17%	11	12.94%
South (Gisagara district)	12		14.28%		71	84.52%	1	1.19%
West (Karongi district)	17		21.25%		54	67.5%	9	11.25%
North (Musanze district)	18		20.93%		64	74.41%	4	4.65%
East (Bugesera district)	3		3.48%		73	84.88%	10	11.62%
Rural area	32		12.85%		198	79.51%	20	8.03%
Urban area	23		13.85%		133	80.12%	15	9.03%
Total	55		13.06%		331	78.62%	35	8.31%

Source: Researcher data collection September 2021

The perception ratio of childless women regarding the number of children they want to give birth to is changing, as many of them do not want to give birth to more children. The urban range is 2.93% for those who do not want to give birth at all, whereas for the rural area it is 0.39%.

In the urban zone, 5.81% of women would like less than 2 children, while it is 2.74% for the rustic region. In the urban area, 79.06% of women desire between 2–3 children, whereas 75.50% do so for the rural area. The percentage of urban women who desire more than 3 children is 20%, whereas within the rural zone it amounts to 15%. Insights regarding a total

of 75.87% women who desire 2–3 children correspond with the Rwandan projection of 2.1% of children per family in 2050, which is a sign of trends towards the SDT.

The number of births under the age of 25 in the rural area is 56.07%, which is still higher than the number of births under the age of 25 in the urban area, which is 37.79%. This difference is explained by the attitude and perception of the urban population, which is influenced by education and difficult life situations.

The ratio of those who want to give birth for the first time between 25 and 30 years shows a positive image, with the urban area at 61.04% and the rural area at 41.96%, indicating that women who want to give birth at this age help and give birth less. Women who want to give birth after the age of 30 have the lowest rates of 0.58% for urban areas and 0.70% for rural areas.

Women's desired attitude to not have more children is becoming more widespread. Indeed, 12.86% of rural women under 30 years and 13.85% of urban women under 30 said they want to stop having children by a young age to better serve their unborn children. According to the survey, 79.51% of women in rural areas and 80.12% in urban areas stated 30–40 years as the average age for having their last child. Less than 8.03% of women in the rural area and only 9.03% in the urban area want to give birth to children over the age of 40, which clearly explains why they want to stop having children at an early age in order to be able to raise their children.

Table IV. Level of Divorced, Polygamous, & Unmarried Women

Marital status	Both category of women	
	Count	%
Rural		
Divorced /separated	53	13.87%
widow/widower	12	3.14%
Never married	2	0.78%
Polygamy	1	0.26%
Cohabitation/ kuza nijoro (rural area)	73	28.62%
Urban		
Divorced /separated	12	4.65%
widow/widower	5	1.93%
Never married	6	3.48%
Cohabitation	31	7.25%
Polygamy	Na	Na

Source: Researcher data collection September 2021

Due to illiteracy, ignorance, poverty, low education, and the cohabitation system (Kuza n'ijoro), the rural divorce/separation rate is higher at 13.87%, while the urban divorce rate is 4.65% [see Table II]. The issue of poverty is more prevalent in couples who have not been legally married, leading to domestic violence with dangers of death and other consequences, which contributes to the decision to separate.

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People in the city opt to remain unmarried for a number of reasons; at 3.48%, it is higher than in the rural area, where 0.78% opt to remain unmarried. Many people in the city struggle to make ends meet; they would rather not have children as they are unable to raise them due to a lack of resources and higher education opportunities, coupled with the high rate of poverty.

In Rwanda, it is extremely rare to come across a woman who is more common than a male; in the countryside, we only encountered a few cases of women, the majority of them being prostitutes.

Table V. Preference for Being a Single Mother After Divorce/Separation

Area of residence	Women with children	
	Count	%
Rural	6	1.57%
Urban	5	1.93%
Total	11	1.71%

Source: Researcher data collection September 2021

Although divorce/separation is common in Rwanda, many women are increasingly likely to desire to remain a single mother (1.71%), unless they want to empower their children for a variety of reasons, including property conflicts and backlash. There was no substantial difference between urban and rural areas, with only a 0.36% difference. Women in rural communities are frightened of being beaten by their spouses if they remarry, fearing that they would be infected with HIV/AIDS. Women who have achieved self-sufficiency in urban areas (working in institutions or the own in small and large businesses).

Table VI. The Level of Use of Contraceptive Methods in Women With/Without Children

Area of residence	Women without children		Women with children	
	Count	%	Count	%
Kigali (Gasabo district)	48	55.81%	109	84.49%
South (Gisagara district)	28	32.55%	118	91.47%
West (Karongi district)	33	39.75%	91	70%
North (Musanze district)	46	53.48%	117	90.69%
East (Bugesera district)	44	51.16%	107	82.94%
Rural area	105	41.17%	316	82.72%
Urban area	94	54.65%	226	87.59%

Source: Researcher data collection September 2021

The use of medications or other methods of contraception appears to have increased in popularity; it is at 87.59% in urban areas and 82.72% in rural areas for married women. This difference is explained by the level of perception and, living in rural regions, most people refer to this approach as a crime, owing to their ignorance or rationale grounded in religious beliefs. According to the NISR 2019 report, the number of women without children using contraceptive methods has increased to 54.65% in rural regions and to 41.17% in urban areas,

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which is one of the reasons for the reduction in unplanned births, which has a beneficial impact on Rwanda's population growth balance.

Table VII. The Level of Non-Use of Contraceptive Methods in Women With/Without Children
Source

Area of residence	Women without children		Women with children	
	Count	%	Count	%
Kigali (Gasabo district)	38	44.18%	15	11.62%
South (Gisagara district)	57	66.27%	22	25.5%
West (Karongi district)	51	61.44%	24	17.05%
North (Musanze district)	40	46.51%	21	16.15%
East (Bugesera district)	42	48.83%	16	12.40%
Rural area	150	58.82%	62	16.23%
Urban area	78	45.34%	36	13.95%

Source: Researcher data collection September 2021

There appear to be a number of examples where people do not utilize any type of contraception, whether they are women with children or those without. This issue is exacerbated by boundaries, religions, and the views of certain people who believe that having a large family is a sign of wealth. This issue is displayed in rural regions at 16.23% against the 13.95% for urban areas and generally confirm with the self-control method. This issue is more common in the rustic ranges since, in addition to the abovementioned reasons, the national programmes and awareness campaigns in health centres necessitate the nearness of volunteers at all levels of the cell.

Table VIII. Living apart together (LAT)

Area of residence	Women without children		Women with children		Both women	
	Count	%	Count	%	Count	%
South (Gisagara district)	1	1.16%	Na	Na	1	1.16%
Kigali (Gasabo district)	24	27.90%	Na	Na	24	27.90%
West (Karongi district)	13	15.66%	Na	Na	13	15.66%
North (Musanze district)	35	40.69%	Na	Na	35	40.69%
East (Bugesera district)	2	2.32%	Na	Na	2	2.32%
Total	75	17.56%	Na	Na	75	17.56%

Source: Researcher data collection September 2021

LAT is only suited for women without children, because, geographically, Rwanda is a small country where a man and a woman are more likely living together and common to work in a district or province and return home once a weekend. As a result, 17.56% of the country uses LAT on women without children, with urban areas being the most prevalent. For numerous reasons, as we mentioned on the subject of taboo and culture, and what we term societal values are still very much respected, this LAT is only applicable to young people in Musanze with 40.69% and Gasabo Districts with 27.90%. Based on study, many Rwandan couples now believe that no boy or girl may allow another to have sex in their parents' home. To

avoid being discovered by their families, young couples are more likely to have sexual relationships in lodges, motels, or at a friend's residence. This culture appears to be more common in cities than in rural regions today. Normally, in Europe, it is based on the geographical perspective, however in Rwanda, it is based on cultural behavior.

4.1 Results, Discussion, and Conclusion

Important general factors play a significant role in the trends in SDT in Rwanda. The results confirm that the indicators such as childbearing, preference to be single mothers, LAT, abortion, divorce, separation, and Kuza n'ijoro play a key role in changing the TFR in Rwanda, across rural and urban areas.

The results demonstrate that the attitude and perception on fertility is growing in both rural and urban areas.

In rural Rwanda, the prevalence of Kuza n'ijoro stands at 16.86%, unlike in the past when it was customary for rural adolescents to have intentions of having children at a young age. The people we interviewed, on the other hand, did not say it was different because they had effective conversations during their dating period when they decided that they did not aim to have children but would coordinate their efforts instead. Uwimana Diane, a resident of Gisagara District, said that having children was not the aim because *"at least if we build a house of any size, or if we have other assets, then we would think about giving birth."* Kuza n'ijoro appears to be akin to Western cohabitation in this regard. In comparison to the NISR DHS 2019-20 report, which shows that the national average age of first marriage for women aged 25 to 49 is 22.8 years, the rate has increased to 56.07% for having the first child before the age of 25 years.

Since its founding, abortion has been lawful with n°37 of 12/09/2016 (National Institute of Statistics of Rwanda (NISR). 2014). It now enables induced abortion for pregnancies caused by rape, incest, or forced marriage, as well as if the pregnancy poses a significant risk to the pregnant woman's health. Abortion rates have risen among both women with and without children, with a rate of 5.68% for women without children and 5.15% for women with children; in fact, there is no substantial difference between the two groups, with only 0.47% for women without children. There are no official NISR statistics on abortion in the country as of yet.

Marriage, sexual activity, reproduction, and family size for women without children; Although there is no comparison with the NISR figures, it is surprising to see that 1.4% of girls in Rwanda today do not want to have a single child in their lives.

"I like to remain nameless," she explained, "I don't have a problem with life, but I am concerned about the future; life is expensive, and I don't want to leave my children's lives in the same state as mine. Maybe my reason is not convincing, but I don't see why I should give a child in this worse world."

In the rural area, 2.74% women prefer only one child, while it is 5.81% in the urban areas; the rate of those who would like to have 2–3 children is 70.52% in the rural area and 79.06% in the urban area; and 20% of rural women and 15% of urban women would prefer more than three children. This is a good representation because the majority of our future mothers prefer 2–3 children. It is also true that the perception of having a first child at the age of 25 years is increasing, with 56.07% in rural areas and 37.79% in urban areas. We find the highest percentage in the 25–30 age group, with 41.96% in rural areas and 61.04% in urban areas. Therefore, it is demonstrated that the current situation leads to a decline the TFR, which has a favourable impact on Rwanda's SDT trends.

The preference for the last child at the age of 30 is also attested to by 12.85% women in rural areas and 13.85% in urban areas. The preference for it to be between the ages of 30 and 40 is at 79.51% and 80.12% in rural and urban areas, respectively. In urban areas, 8.03% women prefer to have their last child over the age of 40, while it is 8.31% in rural areas. These figures clearly suggest that more women between the ages of 25 and 30 years wish to start a family. As a result, most parents prefer to have their last child between the ages of 30 and 40, in order to work with their children while they are still energetic, rather than giving birth at an advanced age, when they are no longer able to fulfil the responsibilities of caring for those to whom they gave birth.

Divorce/separation is particularly common in rural areas due to the "Kuza n'ijoro" culture, which is currently at 13.78% in rural areas, while it is at 4.65% in the cities; NISR reported 6.4% of divorced separated women at the national level. Polygamy is not prevalent among women, with only 0.26% in rural areas and none in urban areas, whereas 8% of currently married women report that their husband has multiple wives (National Institute of Statistics of Rwanda (NISR), 2014). The choice to remain unmarried is slightly increasing, with 0.78% in rural areas and 3.48% in urban areas, compared to 4.2% of unmarried men as revealed in the DHS 2019-20 report,(Republic of Rwanda. (2016).

The preference for being a single mother after divorce/separation is also increasing marginally, with 1.57% in rural areas and 1.93% in urban areas. According to the Rwanda DHS 2019-20 report, this is because many of these divorced/separated women live with children and do not need to remarry. Furthermore, they view it as protection from infections such as AIDS.

The level of use of contraceptive methods among women without children is now at 41.17% in rural areas and 54.65% in urban areas; it is also increasing among women with children, with 82.72% in rural areas and 87.59% in urban areas. Compared to the statistical data in the national level DHS 2019-20 report, girls use any method which is 48% to 47.8% of the current research with slightly decline, and 85% has increased by 58% of the DHS 2019-20. Every day, it becomes evident that the number of Rwandan women who do not consider family planning as a religious taboo is increasing.

Today, we can confirm that there are trends in SDT in Rwanda because this qualitative research results shows that the concerned people (women) have already taken measures to ensure that they give birth at the appropriate time or avoid it in any way possible, including the use of contraceptive methods. Other indicators include the rise of divorce/separation, cohabitation, Kuza n'ijoro, and those who choose not to give birth at any time in their lives. The impact of our research is that it demonstrates the attitude of women with fewer children, and this qualitative data was compared to national level household statistical data collected by NISR for the DHS 2019-20.

5. Conclusion

In conclusion, the study investigates the actual discrepancy in these SDT trends by highlighting the importance of other variables such as health indicators, the economy, and attitude and perception of fertility among young women. It will be helpful to the government in future planning in order to close the gap and achieve the three-child objective by 2030.

It is evident that the fertility indicators impact the progression of Rwanda's TFR change. It corresponds to the increase in the level of perception of childless women on fertility, which can be construed as a positive sign as they are to be the future mothers.

Acknowledgment

This work paper is the product of a scientific Project, that received moral and financial.

The authors would like to thank the Pedagogical University of Cracow and the PROM Programme, as well as the Rwandan National Institute of Statistics (NISR) and the Ministry of Local Government (MINALOC) helped in collecting data.

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