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Impact of Family Planning on Household's Socioeconomic Development in Rwanda

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ABSTRACT: The current research aimed to assess the impact of family planning on household's socio-economic development. A sample of 384 households was selected in Byumba Sector, Northern Rwanda and the utilized data ranged from 2017 to 2021. The structured questionnaire was used to collect data analyzed by using descriptive and inferential statistics as correlation and regression analysis as methods. The results on family planning services scored contraceptive use and education and mobilization health at 4.45, respectively. And both improvement of women, and availability and affordability of family planning cost scored 4.64 each. The socio-economic benefits of family planning were similarly ranked where income and savings scored 4.40; access to health care services recorded 4.53; and 4.28 for the access to education services. In addition, 51.6% of respondents asserted that after using family planning, their monthly savings range between 50,001 and 100,000 Rwfs. The contraceptive security services; education and mobilization services health improvement of women, children programs have significant positive impact on socio-economic development of households at (β_1= 0.118, p-value=0.001<0.05, t=3.576; β_2= 0.259, p-value=0.000<0.05, t=9.250; β_3= 0.573, p-value=.000<0.05, t=4.548; β_4= -0.161, respectively. However, the cost family planning services has negative significant impact on socio-economic development at p-value=0.000<0.05, t=-7.666), respectively. Thus, it is concluded that family planning contributes to socio-economic development and that policy makers can ensure the easy access to these services for the community well-being.

Key words: Byumba Sector, Family planning programs, Rwanda, Socio-economic development

I. INTRODUCTION

Global evidences suggest that voluntary family planning programs improve the health and survival of mothers and children and empower women and their families to escape poverty (Zosa-Feranil et al., 2016). As argued by Oladeji (2015), Family planning equally plays a significant role in controlling overwhelming levels of population growth thus improving the quality of life, escalating human capital, and reducing poverty and hunger (Nangendo, 2019).

In African counties like Ghana, its 1970 National Family Planning Program was established as a fundamental human right that couples should have the opportunity to decide freely the number and spacing of their children (Solo, 2018). In Kenya, the trend of family planning use among married women in the reproductive age between 15-24 years has gradually been increasing from 7% in 1978 to 46% in 2015.This has resulted to decline in fertility rate over the years from 8.1 births per woman in 1977/8 to 4.7 in 1998, 4.9 in 2003 and 4.6 in 2015 (UNDP, 2013).

In Rwanda, since 1981, there has been introduction of birth control, and various methods, both traditional and modern, have been under use (Niwemahoro, 2015). Government of Rwanda, non-governmental organizations, and donors are dedicated to promoting and improving easily accessible, affordable, acceptable, and effective family planning methods (Nangendo, 2019). These efforts have apparently led to the fact that over 90% of men and women are aware of at least one family planning method. However, the country remains one of among the most densely populated countries in sub-Sahara Africa. Many families still have a large family size, with total fertility rates (TFR) ranging from 3.6 in urban to 4.3 in rural areas (MOH, 2020).

In 2018, about 1.4 million people adopted the modern contraceptives as strategies to reduce poverty among Rwandan population and improve livelihoods of household members. However, the rate of unemployment in Rwanda remains high compared to the rest of the EAC economies (MOH,2018). For

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example, the labor force survey published by the National Institute of Statistics of Rwanda (NISR, 2021) shows that Rwanda's unemployment rate is estimated to be 19.6% nationally, with 20.8% poor in urban areas and 18.6% of the poor population concentrated in rural areas.

Moreover, it is speculated that Gicumbi District is still suffering from food insecurity and poor livelihoods in general (DDP Gicumbi District, 2018). The question raised is the extent to which these changes have contributed to socio-economic development in Rwanda. Hence, this study aimed to investigate the impact assessment of family planning on household's socioeconomic development in Rwanda with reference of Byumba Sector, Gicumbi District.

II. METHODS AND MATERIALS

2.1 Description of study area

This study considered Byumba sector (Figure 1), one of 21 sectors of Gicumbi District composed by 8 cells such as Gisuna, Kibali, Kivugiza, Murama, Ngondore, Nyakabungo, Nyamabuye and Nyarutarama cell. Byumba sector is delimited in North by Manyagiro Sector, in South is delimited by Kageyo Sector. In the East, the Sector is delimited by Shangasha Sector while in West is delimited by Nyankeke Sector of Gicumbi District. The total population of Byumba Sector is 36,401 composed by 17,445 male and 18,956 female. The total surface of Byumba Sector is 48.25 km² and Density: 754.4/km². The major economic activity is agriculture of bean-based products, mines and quarries, wood processing, livestock and commerce (Byumba Sector reports, 2019).

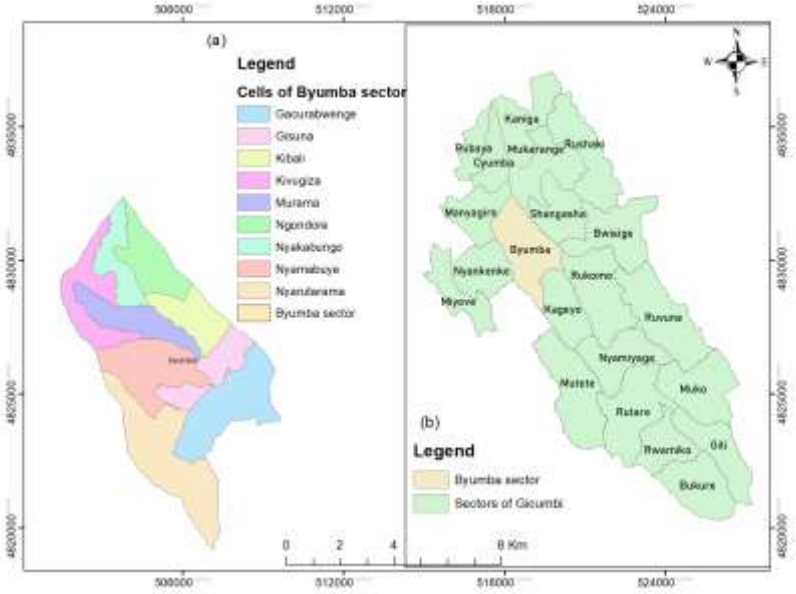

Figure 1: Location of the study area

2.2 Data collection and analysis

2.2.1 Population and sampling

For this study, the population of the study is total households of Byumba Sector in Gicumbi District whose total is 9457 households in Byumba Sector composed by 36,401 people among them 17,445 are males and 18,956 are females (NISR, 2020). In order to obtain the study sample size, the study used simple random sampling techniques as sampling techniques because each heads of households have equal chance of being selected by researcher. The authors used the Yamane (1967) which provides a simplified formula to calculate sample sizes. This formula is used to calculate the sample size to be questionable in the research.

$$n = \frac{N}{1 + N(e)^2} \quad (1)$$

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Where n is the sample size, N is the population size=9457, and e is the level of precision= 5%.

All those $n = \frac{9,457}{1+9,457\ (0.05)^2} = 383.76$ ≈384 heads of households (2)

This study collected data on 384 heads of households in cells of Byumba sector as detailed in Table 1.

Table 1: Sample size

Cell of Byumba Sector	Population size	Sample size: $ni = \frac{Ni * n}{N}$
Gisuna	1,502	61
Kibali	850	35
Kivugiza	916	37
Murama	1,020	41
Ngondore	1,085	44
Nyakabungo	1,802	73
Nyamabuye	1,007	41
Nyarutarama	1,275	52
Total	9,457	384

Source: Byumba Sector, 2022

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2.2.2 Data collection tools

For this study, a questionnaire is designed and pre-tested before administering it to all selected respondents. The questionnaire was administered to heads of households in Byumba Sector in Gicumbi District. It consisted of closed-questions and Likert scale questions. In close-ended questions, the respondents are limited to specific answers to choose from the list on the contribution played by family planning on improving their lives. In order to ensure the questionnaire's validity and reliability as well, the authors used the validity index (Sekaran, 2016) stating that the content validity index should not be less than 0.7. This implies that applied questionnaire had an internal validity because, the computed CVI was great than 0.7.

$$CVI = \frac{\text{No. of items regarded relevant by judges}}{\text{Total No. of items}}$$

$$= \frac{72}{82} = 0.87\ 8 \quad (3)$$

For the study reliability, the authors used referred to Sekaran (2010) Alpha values which states that each variable under study should not be less than 0.7 for the statements in the instruments to be deemed reliable (Table 2). The computed Cronbach's Alpha for each questionnaire is greater than 0.7. This being greater than 0.7, it indicates that there is greater internal consistency of the items in the scale, and that the instrument used was very reliable

Table 2: Reliability Statistics

Cronbach's Alpha	N of Items
.788	72

Source: Primary data, 2022

2.2.3 Data analysis

This study used Descriptive statistics to describe the basic features of the data in the study in the tendencies and then replicated in tabular manner. It involves the use of percentages, frequencies, mean and standard deviation. The authors also used the Multiple regression models to find out the effect of each predictor as follow:

The equation ($Y = \beta 0+\beta_1 x_1+\beta_2 x_2+\beta_3 x_3+\beta_4 x_4 + e$)

Where B_o = constant

$\{\beta_1,\beta_2\beta_3, \beta_4, \beta_5$ and $\beta_6\}$= coefficients of independent variables and μ = error term

Y= Social-economic development of households in Byumba Sector

X_1= Contraceptive security services

X_2= Education and mobilization services

X_3= Health improvement of women, children

X_4= Cost of contraceptive methods services

Finally, all the information collected from participants was kept completely confidential and

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was only used for the research purpose only. Besides, in order to avoid practicing any deceptive activities in this research study, the true purpose and aim of this study was stated to every participant in the initial contact.

III. RESULTS AND DISCUSSION

3.1 Profile of respondents

The results in Table 2 show that the majority 73.2% of respondents were females while 26.8% of respondents were male. The reason why the maximum percentage of respondents is female was because they were mostly available and very responsive to the questions. For the education, the results in Table 2 shows that 44% of respondents have attained primary level of education, followed by 41.1% of respondents who have not even gone to school at all.

The results of this study, supports Ismet (2000) study that found that the use of modern method of family planning tended to increase with educational level of a woman. Moreover, Clement and Nyovani (2004) also established that modern contraceptive use increased with the educational level of a woman in Tanzania.

Table 2: Gender and Education of respondents

		Frequency	Percent
Valid	Males	103	26.8
	Females	281	73.2
	Total	384	100.0

		Frequency	Percent
Valid	Non-formal education	158	41.1
	Primary level	169	44.0
	Secondary level	40	10.4
	University level	17	4.4
	Total	384	100.0

Source: Primary data, 2022

The results in Table 3 reveals that 41.7% the respondents were aged between 31 – 40 years, implying that they are within the reproductive age of their life, and therefore the age has an implication on the use of family planning services. This finding is supported by Clements and Nyovani (2004) study which found the use of modern method of contraception to be lowest for women aged between 15 - 19 years as compared to those aged between 30-39 years in Tanzania. In addition, the results in Table 3 shows the majority of respondents as married people shown by the highest percentage of 75.8%, followed by widow(er) with 10.4% and also followed by single people with 4.9% and finally 8.9% of respondents were divorced.

It is reported that the use of contraceptives could be aimed at helping to space children and prevent unwanted pregnancy. The finding is supported by Clements and Nyovani (2004) studies which found that the married women were the most likely to be using a modern method.

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Table 3: Age group of respondents

		Frequency	Percent
Valid	Between 20 and 30 years	123	32.0
	Between 31and 40 years	160	41.7
	Between 41and 50 years	98	25.5
	Age above 50 years	3	0.8
	Total	384	100.0

		Frequency	Percent
Valid	Single	19	4.9
	Married	291	75.8
	Divorced	34	8.9
	Widow(er)	40	10.4
	Total	384	100.0

Source: Primary data, 2022

3.2 Access and use of family planning services

The findings in Table 4 show that 0.5% of respondents strongly disagreed, 6.2% of respondents disagreed and 18.2% agreed and the majority 71.4% of respondents strongly agreed that contraceptives are always available when needed with very high mean =4.54 and standard deviation of 0.87 which implies that there is strong existing evidence and heterogeneity responses. In addition, Table 4 shows that 0.5% of respondents strongly disagreed, 24% disagreed and 50.3% strongly agreed that contraceptive methods can protect the health of family and community with very high mean =3.84 and standard deviation of 1.29 which implies that there is strong existing evidence and heterogeneity responses.

The findings in Table 5 indicate that 1.3% of respondents strongly disagreed, 7.6% of respondents disagreed and 4.9% of respondents were neutral whereas 5.7% of respondents agreed and the majority 80.5% of respondents strongly agreed that few advertisements on family planning are shown on T.V with very high mean =4.57 and standard deviation of 0.98 which implies that there is strong existing evidence and heterogeneity responses.

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Table 4: Contraceptive security services

	SD		D		N		A		SA		Mean	St. dev
	fi	%	Fi	%	fi	%	Fi	%	fi	%		
Contraceptives are always available when needed.	2	.5	24	6.1	14	3.6	70	18.2	274	71.4	4.54	.87
I use contraceptives to avoid unwanted pregnancies	4	1.0	14	3.4	4	1.0	49	12.8	313	81.5	4.70	.76
Contraceptives are used by couples who want to control their birth rates only	4	1.0	4	1.2	2	.5	185	48.2	189	49.2	4.43	.67
Contraceptive methods can protect the health of family and community	7	1.8	27	6.9	9	2.3	50	13.0	291	75.8	4.54	.97
Birth control pills are effective even if a woman misses taking them for two or three days in a row.	18	4.7	42	10.9	26	6.8	15	3.9	283	73.7	4.31	1.25
Contraceptive methods can protect the health of family and community	2	.5	92	23.9	64	16.7	33	8.6	193	50.3	3.84	1.29
Contraceptives provide a sense of safety.	2	.5	6	1.6	2	.5	44	11.5	330	85.9	4.81	.57
Overall mean											**4.45**	**0.91**

Source: Primary data, 2022

Table 5: Education and mobilization services

	SD		D		N		A		SA		Mean	St. dev
	fi	%	Fi	%	fi	%	Fi	%	fi	%		
Few advertisements on family planning are shown on T.V	5	1.3	29	7.6	19	4.9	22	5.7	309	80.5	4.57	.98
I have listened to family planning messages on the Radio and seen them in the news paper	4	1.0	34	8.9	21	5.5	36	9.4	289	75.3	4.49	1.01

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Family planning program educate individuals and families about reproductive health	5	1.3	16	4.2	13	3.4	36	9.4	314	81.8	4.66	.84
Drama activities often pass on the radio and for example Urunana and BBC talking about behavioral change.	4	1.0	28	7.3	16	4.2	66	17.2	270	70.3	4.48	.95
Medical doctors encourage people to use wide range of modern contraceptive methods	17	4.4	17	4.4	12	3.1	51	13.3	287	74.7	4.49	1.05
Program of family planning provide reproductive information to adolescents to protect themselves from unwanted pregnancies	52	13.5	35	9.1	8	2.1	26	6.8	263	68.5	4.08	1.51
Many entertainment programs with the aim of communicating behavioral change messages are there, and I have attended them	24	6.2	23	6.0	5	1.3	48	12.5	284	74.0	4.42	1.18
Overall mean											**4.45**	**1.07**

Source: Primary data, 2022

The results in Table 6 indicate that 4.4% of respondents strongly disagreed, 6.8% of respondents disagreed and 74.2% of respondents strongly agreed that family planning program raise the level of maternal and child health by teaching modern and medical ways of protecting the parents from pregnancy. The overall view of respondents on the health improvement of women, children program in Byumba Sector was at very high extent with very high mean 4.29 and standard deviation of 1.25 which implies that there is strong evidence of exist fact and heterogeneity responses.

The results from the Table 7, indicate that that 1% of respondents strongly disagreed, 5.7% of respondents disagreed and 86.2% strongly agreed that many public health facilities family planning services are free.

Contrary findings were made in Uganda (Asiimwe, et al., 2014) and Zambia (Mutombo & Bakibinga, 2014) which found that women poorer households had a lower likelihood of using modern FP methods in comparison to women from wealthier households. Modern FP methods were believed to cause temporary infertility or reduce one's childbearing capacity, limiting the number of children they were able to conceive in their lifetime. It was also believed that modern FP methods predisposed women to giving birth to twins who were considered culturally unacceptable. This finding reveals that the cost of family planning service is an important

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Table 6: Health improvement of women, children program

	SD		D		N		A		SA		Mean	St. dev
	fi	%	Fi	%	%		Fi	%	fi	%		
Family planning program raise the level of maternal and child health by teaching modern and medical ways of protecting the parents from pregnancy	17	4.4	26	6.8	11	2.9	45	11.7	285	74.2	4.45	1.12
Family planning program helping our household in birth control	53	13.8	41	10.7	6	1.6	33	8.6	251	65.4	4.01	1.53
Family planning program ensure that babies are born and live well	65	16.9	23	6.0	13	3.4	29	7.6	254	66.1	4.00	1.57
Family planning program preventing maternal deaths and protecting their health	53	13.8	41	10.7	6	1.6	33	8.6	251	65.4	4.01	1.53
Family planning program prevent high-risk and unwanted pregnancies	25	6.5	59	15.4	2	.5	24	6.2	274	71.4	4.21	1.37
The services of pregnancy test help me to protect my unborn children	15	3.9	19	4.9	4	1.0	46	12.0	300	78.1	4.55	1.02
Family planning testing HIV for women pregnancies	18	4.7	24	6.2	26	6.8	57	14.8	259	67.4	4.34	1.14
Family planning services reduce people to exposes to the risks of sexual transmitted diseases	5	1.3	18	4.7	19	4.9	72	18.8	270	70.3	4.52	.89
Family planning program providing medical assistance to those who want to have	20	5.2	21	5.5	13	3.4	12	3.1	318	82.8	4.53	1.13
Overall mean											**4.29**	**1.25**

Source: Primary data, 2022

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determinant of the use of family planning services.

Table 7: Cost of family planning services

	SD		D		N		A		SA		Mean	St. dev
	fi	%	Fi	%	fi	%	Fi	%	fi	%		
Many public health facilities family planning services are free	4	1.0	22	5.7	5	1.3	22	5.7	331	86.2	4.70	.84
Consultation fees charged by the doctor/clinician are affordable	2	.5	12	3.1	10	2.6	89	23.2	271	70.6	4.60	.74
Prices are similar at all places everywhere I go	4	1.0	13	3.4	4	1.0	60	15.6	303	78.9	4.68	.75
The cost of buying contraceptive pills is very high compared to my capacity	6	1.6	22	5.7	11	2.9	17	4.4	328	85.4	4.66	.90
It is easy to get family products in Pharmacies and shops	1	.3	11	2.9	10	2.6	32	8.3	330	85.9	4.77	.66
Some people fear to sell contraceptives in the public	2	.5	27	7.0	22	5.7	37	9.6	296	77.1	4.56	.92
Distributors are shy to demonstrate how condom is used to those don't know	2	.5	29	7.6	24	6.2	46	12.0	283	73.7	4.51	.94
Overall mean											**4.64**	**0.82**

Source: Primary data, 2022

3.3 Level of socio-economic development

The results in Table 8 show that 47.9% of respondents reported that their monthly savings before using family planning were ranging between 5,001 and 20,000 Rwfs while after using family planning services, the majority 45.3% reported that their monthly savings ranging Between 50,001 and 100,000 Rwfs while before using family planning services none of respondents have their monthly savings are ranging between 50,001 and 100,000 Rwfs.

Table 8: Monthly savings before and after using family planning

Monthly savings	Before		After	
	Frequency	Percent	Frequency	Percent
Less than 5,000 Rwfs	174	45.3	0	.0

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Between 5,001 and 20,000 Rwfs	184	47.9	53	13.8
Between 20,001 and 50,000 Rwfs	26	6.8	23	6.0
Between 50,001 and 100,000 Rwfs	0	.0	174	45.3
Above 100,000 Rwfs	0	.0	134	34.9
Total	384	100.0	384	100.0

Source: Primary data, 2022

The findings in Table 9 showed that 0.3% of respondents strongly disagreed, 4.4% of respondents disagreed and 4.2% of respondents were neutral while 19% of respondents agreed and the majority 72.1% of respondents strongly agreed that they are able to pay health insurance of their family and their relatives with very high mean =4.58 and standard deviation of 0.79 which implies that there is strong existing evidence and homogeneity responses.

Table 9: Access to health care of households using family planning

	SD		D		N		A		SA		Mean	St. dev
	fi	%	Fi	%	fi	%	Fi	%	fi	%		
I'm able to pay health insurance of my family and my relatives	1	.3	17	4.4	16	4.2	73	19.0	277	72.1	4.58	.79
I'm able to settle my medical bills with the income over the last 5 years	19	4.9	14	3.6	8	2.1	9	2.3	334	87.0	4.63	1.04
I always secure my children when they fall ill	15	3.9	44	11.5	6	1.6	25	6.5	294	76.6	4.40	1.20
Overall mean											**4.53**	**1.01**

Source: Primary data, 2022

As provided in Table 10, showed that 10.9% of respondents strongly disagreed, 9.1% of respondents disagreed and 1% of respondents were neutral while 6.2% of respondents agreed and the majority 72.7% of respondents strongly agreed that they are able to pay school fees for their children with very high mean =4.21 and standard deviation of 1.43 which implies that there is strong existing evidence and homogeneity responses.

Table 10: Access to education of households using family planning

	SD		D		N		A		SA		Mean	St. dev
	fi	%	Fi	%	fi	%	Fi	%	fi	%		
I'm able to pay school fees for my children	42	10.9	35	9.1	4	1.0	24	6.2	279	72.7	4.21	1.43
I'm able to pay school material of my children over the last 5 years	5	1.3	61	15.9	13	3.4	20	5.2	285	74.2	4.35	1.19

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Overall mean	**4.28**	**1.31**

Source: Primary data, 2022

Table 11 show that 7.6% of respondents disagreed and 4.7% of respondents were neutral while 8.9% of respondents agreed and the majority 78.9% of respondents strongly agreed that they started business over the last 5 years with very high mean = 4.59 and standard deviation of 0.89 which implies that there is strong existing evidence and heterogeneity responses.

Table 11: Employment of households using family planning

	SD		D		N		A		SA		Mean	St. dev
	fi	%	Fi	%	fi	%	Fi	%	fi	%		
I started business over the last 50 years	0	.0	29	7.6	18	4.7	34	8.9	303	78.9	4.59	.89
I used more employee in my business over the last 5 years	0	.0	39	10.2	25	6.5	112	29.2	208	54.2	4.27	.97
I started and expanded my business over the last 5 years	0	.0	25	6.5	12	3.1	12	3.1	335	87.2	4.71	.81
I have been able to open more branches for this business	11	2.9	25	6.5	25	6.5	15	3.9	308	80.2	4.52	1.06
I have added more capital for investment over the last 5 years	3	.8	7	1.8	34	8.9	39	10.2	301	78.4	4.64	.78
Overall mean											**4.54**	**0.90**

Source: Primary data, 2022

The findings in Table 12 show that 1.3% of respondents strongly disagreed, 6.5% of respondents disagreed and 1.3% of respondents were neutral whereas 2.6% of respondents agreed and the majority 88.3% of respondents strongly agreed that they have rehabilitated and build their own house with very high mean =4.70 and standard deviation of 0.89 which implies that there is strong existing evidence and heterogeneity responses.

The finding also agrees with the earlier findings of Abonge (2012) that women entrepreneurs reported the use of income earned from their enterprises to meet basic survival needs of food, oil, salt, soap and other basic daily household needs. The study findings reinforced previous studies that entrepreneurial oriented firms tend to be more willing to take risks, are more innovative and proactive that leads to increased performance (Zimmerman and Brouthers, 2012).

Table 12: Household assets using family planning

	SD		D		N		A		SA		Mean	St. dev
	fi	%	Fi	%	fi	%	Fi	%	fi	%		

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I have rehabilitated and build my own house	5	1.3	25	6.5	5	1.3	10	2.6	339	88.3	4.70	.89
I bought plot to of land	5	1.3	188	49.0	14	3.6	51	13.3	126	32.8	3.27	1.38
I bought domestic livestock	0	.0	32	8.3	8	2.1	58	15.1	286	74.5	4.56	.89
I'm able to buy household materials like television and mattress	30	7.8	22	5.7	36	9.4	59	15.4	237	61.7	4.17	1.27
I'm able to buy clothes to my families and relatives	30	7.8	42	10.9	12	3.1	60	15.6	240	62.5	4.14	1.33
Overall mean											**4.36**	**1.07**

Source: Primary data, 2022

Table 13 show that 3.6% of respondents strongly disagreed, 5.7% of respondents disagreed whereas 7.6% of respondents agreed and the majority 83.1% of respondents strongly agreed that they are able to afford nutrition my family at least three meals per day with very high mean = 4.61 and standard deviation of 1.01 which implies that there is strong existing evidence and heterogeneity responses.

Table 13: Nutrition status of households using family planning

	SD		D		N		A		SA		Mean	St. dev
	fi	%	Fi	%	fi	%	Fi	%	fi	%		
I able to afford nutrition my family at least three meals per day	14	3.6	22	5.7	0	.0	29	7.6	319	83.1	4.61	1.01
I was enabled to eat balanced diet with my family	2	.5	20	5.2	0	.0	12	3.1	350	91.1	4.79	.74
Overall mean											**4.70**	**0.87**

Source: Primary data,2022

3.4 Relationship between family planning and socio-economic development

The regression results in Table 14 revealed that contraceptive security services have significance positive effect on socio-economic development of household as indicated by β_1= 0.118, p-value=0.001<0.05, t=3.576. The implication is that an increase of one unit in contraceptive security services would lead to an increase in socio-economic development of household by 0.118 units. The education and mobilization services have significance positive effect on socio-economic development of Household as indicated by β_2= 0.259, p-value=0.000<0.05, t=9.250. The implication is that an increase of one unit in education and mobilization services would lead to an increase in socio-economic development of household by 0.259 units.

The use of family planning methods also improves maternal and child health status through the negative relationship between contraceptive use and frequency of pregnancy as well as its positive effect on child spacing (Rahman, 2018). All these relationships promote healthy living of women and children which is critical to poverty reduction

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(Ashford, 2007). The implication of this finding is that the higher the levels of modern contraceptive use among women the higher their wealth status. Furthermore, it is a truism that reproductive age women who adopt modern contraception would experience improved living condition. This provides an important explanation for why women are the most affected by the chronic level of poverty in Rwanda.

Table 14: Regression coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.006	0.332		6.042	.000
	Contraceptive security services	0.118	0.033	.126	3.576	.001
	Education and mobilization services	0.259	0.028	.314	9.250	.000
	Health improvement of women, children	0.573	0.126	.507	4.548	.000
	Cost of family planning services	-0.161	.021	.096	-7.666	.000

a. Dependent Variable: Socio-economic development of Household

The equation ($Y = \beta 0+\beta_1 X_1+\beta_2 X_2+\beta_3 X_3+ \beta_4 X_4 + \varepsilon$) becomes:

Reduction of malaria in Gasabo district = $2.006+0.118X_1+0.259X_2+0.573X_3-0.161X_4$

IV. CONCLUSION

This study analyzed how family planning contribute stop socio-economic development of households in Gicumbi district, northern Rwanda. The authors employed questionnaire to collect the data among the selected households. The results show that family planning services such as contraceptive security services, education and mobilization services, health improvement of women, children and cost of family planning services has positive impact on household's socio-economic development. It is noted that family planning practice, people are able to improve their household income, able to pay school fees and material of their children, medicines, construct houses, starting business and expand existing ones which can increase human capital. Finally, it would be appropriate to subsidize the provision of such family planning methods to enable women to have control over their reproductive lives and reduce their reproductive burden. This in turn would improve income and better well-being and women and children would definitely benefit from such improvement as well.

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APPENDICES

Appendix I: Questionnaire for beneficiaries of family planning in Byumba Sector

Dear respondent,

My name is UWAMUNGU Olivier; I am conducting a research on "**Family planning contribution to the household's socioeconomic development in Rwanda (2017-2021)"** as a partial fulfillment of the requirement for the award of a Master's of International Development Studies. The questionnaire items are about the study and I kindly request you to participate in responding to the questions below to help me getting the information needed in my research. The information given will be treated as confidential and the results of the study will be used for academic research purposes only.

Section A: Profile of respondents

1. Gender of respondents: Female ☐
   Male ☐
2. Age group of respondents: Between 20 and 30 years ☐
   Between 31 and 40 years ☐
   Between 41 and 50 years ☐
   Above 50 years ☐
3. Education level: Non formal education ☐
   Primary level ☐
   Secondary level ☐
   University level ☐
4. Marital status: Single ☐
   Married ☐
   Widower ☐
   Divorced ☐
5. Experience in using Family Planning: Below 5 years
   Between 5 and 10 years
   Above 10 years

Section B: Family planning services in Byumba Sector, Gicumbi District

5. Please indicate your degree of agreement or disagreement to the following statements on family planning services in Byumba Sector. Likert scale ranging from strongly disagree to strongly agree where 1 = strongly disagree; 2 = disagree; 3 = not sure; 4= agree; and 5= strongly agree.

Contraceptive security services	**SD**	**D**	**N**	**A**	**SA**
Contraceptives are always available when needed.	1	2	3	4	5
I use contraceptives to avoid unwanted pregnancies	1	2	3	4	5

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Contraceptives are used by couples who want to control their birth rates only	1	2	3	4	5
Discussion about contraception with spouse is embarrassing	1	2	3	4	5
Contraceptive methods can protect the health of family and community	1	2	3	4	5
Contraceptives provide a sense of safety.	1	2	3	4	5
Education and mobilization services	**SD**	**D**	**N**	**A**	**SA**
Few advertisements on family planning are shown on T.V	1	2	3	4	5
I have listened to family planning messages on the Radio and seen them in the news paper	1	2	3	4	5
Family planning program educate individuals and families about reproductive health	1	2	3	4	5
I have seen messages on different health programs like Hiv, food nutrition, family planning.	1	2	3	4	5
Drama activities often pass on the radio and for example Urunana and BBC talking about behavioral change.	1	2	3	4	5
Medical doctors encourage people to use wide range of modern contraceptive methods	1	2	3	4	5
Program of family planning provide reproductive information to adolescents to protect themselves from unwanted pregnancies	1	2	3	4	5
Many entertainment programs with the aim of communicating behavioral change messages are there, and I have attended them	1	2	3	4	5
Health improvement of women, children	**SD**	**D**	**N**	**A**	**SA**
Family planning program raise the level of maternal and child health by teaching modern and medical ways of protecting the parents from pregnancy	1	2	3	4	5
Family planning program helping our household in birth control	1	2	3	4	5
Family planning program ensure that babies are born and live well	1	2	3	4	5
Family planning program preventing maternal deaths and protecting their health	1	2	3	4	5
Family planning program prevent high-risk and unwanted pregnancies	1	2	3	4	5
The services of pregnancy test help me to protect my unborn children	1	2	3	4	5
Family planning testing HIV for women pregnancies	1	2	3	4	5
Family planning services reduce people to exposes to the risks of sexual transmitted diseases	1	2	3	4	5

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Family planning program providing medical assistance to those who want to have	1	2	3	4	5
Cost of Family Planning services	**SD**	**D**	**N**	**A**	**SA**
Many public health facilities family planning services are free	1	2	3	4	5
Consultation fees charged by the doctor/clinician are affordable	1	2	3	4	5
Prices are similar at all places everywhere I go	1	2	3	4	5
The cost of buying contraceptive pills is very high compared to my capacity	1	2	3	4	5
It is easy to get family products in Pharmacies and shops	1	2	3	4	5
Some people fear to sell contraceptives in the public	1	2	3	4	5
Distributors are shy to demonstrate how condom is used to those don't know	1	2	3	4	5

Section C: Level of socio-economic development among households using family planning

8. Please indicate your degree of agreement or disagreement to the following statements on level of socio-economic development among households using family planning. Rank employee motivation factors statements on Likert scale ranging from strongly disagree to strongly agree where 1 = strongly disagree; 2 = disagree; 3 = not sure; 4= agree; and 5= strongly agree.

Household income and savings	**SD**	**D**	**N**	**A**	**SA**
My household savings has been increased in the last 5 years	1	2	3	4	5
My household income as also increased in the last 5 years	1	2	3	4	5
I'm in good position in term of finance over the last 5 years	1	2	3	4	5
My source of income has been increased over the last 5 years	1	2	3	4	5
Health facilities	**SD**	**D**	**N**	**A**	**SA**
I'm able to pay health insurance of my family and my relatives	1	2	3	4	5
I'm able to settle my medical bills with the income over the last 5 years	1	2	3	4	5
I always secure my children when they fall ill	1	2	3	4	5
Food security	**SD**	**D**	**N**	**A**	**SA**
I able to afford nutrition my family at least three meals per day	1	2	3	4	5
I was enabled to eat balanced diet with my family	1	2	3	4	5
Employment creation	**SD**	**D**	**N**	**A**	**SA**
I started business over the last 5 years	1	2	3	4	5
I used more employee in my business over the last 5 years	1	2	3	4	5
I started and expanded my business over the last 5 years	1	2	3	4	5
I have added more capital for investment over the last 5 years	1	2	3	4	5

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I have been able to open more branches for this business	1	2	3	4	5
Every day I got interest of money from my business	1	2	3	4	5
Access to education facilities	**SD**	**D**	**N**	**A**	**SA**
My children get access to education	1	2	3	4	5
I myself complete my studies	1	2	3	4	5
Household assets	**SD**	**D**	**N**	**A**	**SA**
I have rehabilitated and build my own house	1	2	3	4	5
I bought plot to of land	1	2	3	4	5
I bought domestic animals	1	2	3	4	5
I'm able to buy household materials like television and mattress	1	2	3	4	5
I'm able to buy clothes to my families and relatives	1	2	3	4	5

Section E: Comparison of level of socio-economic development before and after using family planning

1. What is your monthly income before and after using family planning

	Before	After
Less than 30,000 Rwfs		
Between 30,000 and 50,000 Rwfs		
Between 50,001 and 100,000 Rwfs		
Between 100,001 and 200,000 Rwfs		
Above 200,000 Rwfs		

2. How much did you monthly save before and after using family planning

	Before	After
Less than 5,000 Rwfs		
Between 5,001 and 20,000 Rwfs		
Between 20,001 and 50,000 Rwfs		
Between 50,001 and 100,000 Rwfs		
Above 100,000 Rwfs		

3. Compare health insurance coverage before and after using family planning

Health insurance coverage/	Before	After
Mutuelle de Santé		
Other health insurance		
No health insurance		

4. Compare times of meals per day by household before and after using family planning

Times	Before	After
One meals per day		
Two meals per day		
Three meals per day		

5. Compare your accommodation before and after using family planning?

State of houses	Before using family planning	After using family planning
Mud bricks		
Burnt bricks		
Wood		
Cemented		
Iron sheet		
Tiles roofing		

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6. What type of investment did you acquired before and after using family planning?

Type of assets	Before	After
House equipments		
Bicycle		
Motorcycle		
Nothing		

Section D: Relationship between family planning and socio-economic development

9. Please indicate your degree of agreement or disagreement to the following statements on relationship between family planning on poverty reduction. Rank employee motivation factors statements on Likert scale ranging from strongly disagree to strongly agree where 1 = strongly disagree; 2 = disagree; 3 = not sure; 4= agree; and 5= strongly agree.

Statements	SD	D	N	A	SA
Family planning helps to have an ideal life					
Family planning makes the conditions of my life excellent					
Family planning increases family income					
Family planning improves better access to the education					
Family planning improves better health care for me and my family					
Family planning minimizes health problems such as diseases					

Thank you for your participation!