



Assessment of Barriers of Contraceptive Use in Rural Burundi: A Mixed Methods Study

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**ASSESSMENT OF BARRIERS OF CONTRACEPTIVE USE IN RURAL BURUNDI:
A MIXED METHODS STUDY**

by

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**Submitted in Partial Fulfillment of the Requirements
for the Master of Medical Sciences in Global Health Delivery**

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Assessment of Barriers of Contraceptive Use in Rural Burundi: A Mixed Methods Study

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Abstract

Background: *In Burundi, there is very high maternal and child mortality. One of the contributing factors is the high fertility rate, prompted by low rate of contraceptive use. Available sources report a contraceptive use of 18%, among married women in Burundi but this excludes a larger number of women of reproductive age who are sexually active.*

Methods: *A combination of quantitative and qualitative methods was employed to investigate the availability and use of contraceptives among women of reproductive age at health centers in two rural districts of Burundi. First, we administered a survey in 39 clinics to assess the availability and utilization of modern contraceptives and the association between uptake of family planning and availability of contraceptives, and other health facility factors. We then selected sites with different utilization rates and conducted 10 in depth individual interviews and 7 focus groups discussions to understand the issues affecting uptake of modern contraceptives. A total of 56 individuals participated including women, men, facility managers and community leaders.*

Results: *Uptake of family planning averaged 2.96%. Greater uptake was positively associated with the number of health professionals engaged and trained in family planning service provision as well as the number of different types of contraceptives available. Uptake was inversely associated with duration of stockouts and number of contraceptives stocked out. Qualitative data pointed to scarce resources, sociocultural factors, fear of disclosure and side effects, partner's disapproval, and lack of information on modern contraceptives as explanations of low uptake.*

Conclusions: *We found a low rate of uptake for contraceptive services in rural Burundi among a broad sample of women of reproductive age accessing care. By focusing on only married women, previously available data overestimates contraceptive use and underestimates need in these communities. There were many social and structural barriers to contraceptive uptake. These factors relate to the underlying extreme poverty in rural Burundi both at the state and individual level. Interventions would need to take into account one or more of these factors in order to improve uptake of family planning.*

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1. Introduction

Family planning services play an important role in managing fertility. In the least developed countries, the fertility rate declined from 6.55 births per woman in the early 1950s to 4.53 in 2010 [1]. Despite the global decline in birth rate, the world's population grows each year by approximately 80 million people. Nearly all of this growth is concentrated in developing nations of the world, where fertility remains high [2]. In sub-Saharan Africa, for example, the total fertility rate is reported at 5.39 children per woman [1].

Burundi's total fertility rate is 6.4 children per woman and its population growth rate is 2.4% per year [3]. Burundi has the third highest fertility in the world after Niger and Mali according to CIA 2014 estimates [4]. Early pregnancies and closely spaced births often contribute to higher fertility rates. The national modern contraceptive use prevalence among married women in Burundi is 18%. Burundians living in rural areas have even higher fertility and lower contraceptive use than Burundians living in urban areas. Furthermore, it is in the rural areas where maternal and child mortality is the highest [5].

Previous studies have shown that use of family planning is associated with lower rates of maternal and infant mortality and can positively influence economic growth [2] [6] [7]. Some studies show that increased utilization of family planning methods can also be associated with lower rates of unsafe abortions, which is another major contributor to maternal morbidity and mortality [8]. A study of the impact of child mortality and fertility preference on fertility status in rural Ethiopia has shown that high fertility status is strongly associated with child death [9]. At the macroeconomic level, controlled trials in Bangladesh and Ghana have shown that reductions in fertility enhance economic growth as a result of reduced child care and an increased number of women participating in paid labor [10].

Family planning programs in rural areas of Burundi are ineffective and underutilized, as very few women use modern contraceptive methods. Any effort to implement a family planning program with improved reproductive health outcomes in rural areas raises the following questions: What are the main barriers to modern contraceptive use for clients? How can uptake and compliance of modern contraceptive methods be increased? What are the best delivery approaches? What are the various factors that can be applied to change practices for providers, as well as users?

Most studies in the domain of family planning in Africa have used either quantitative or qualitative methods. This research used mixed methods to integrate quantitative and qualitative data together to gain a more complete understanding of our research problems and questions.

The overall goal of this mixed methods study is to identify and understand the barriers of contraceptive use in two rural districts in Burundi, and employ the findings to make recommendations for future development of interventions to increase uptake of family planning.

Given the high fertility and low contraceptive use in rural Burundi, the quantitative aims of the study were: (1) assess availability of contraceptive materials, utilization and frequency of stock outs for specific contraceptive supplies at the health facilities; (2) examine the association between availability of contraceptive materials and uptake; (3) assess the relationship between stock-outs and uptake of contraceptives. The qualitative aims were to: (1) describe adults' beliefs on contraception; (2) describe how economic dependence affects contraceptive use for women; and (3) explain the relationship between traditional beliefs about family size and religious beliefs on contraceptive behavior. The mixed methods aims were to: (1) estimate the utilization rate of contraceptives in two rural districts in Burundi and understand why rates are low and (2) describe how adults' beliefs may explain the utilization of contraceptive services.

2. Data and Methods

2.1. Overall approach: mixed methods

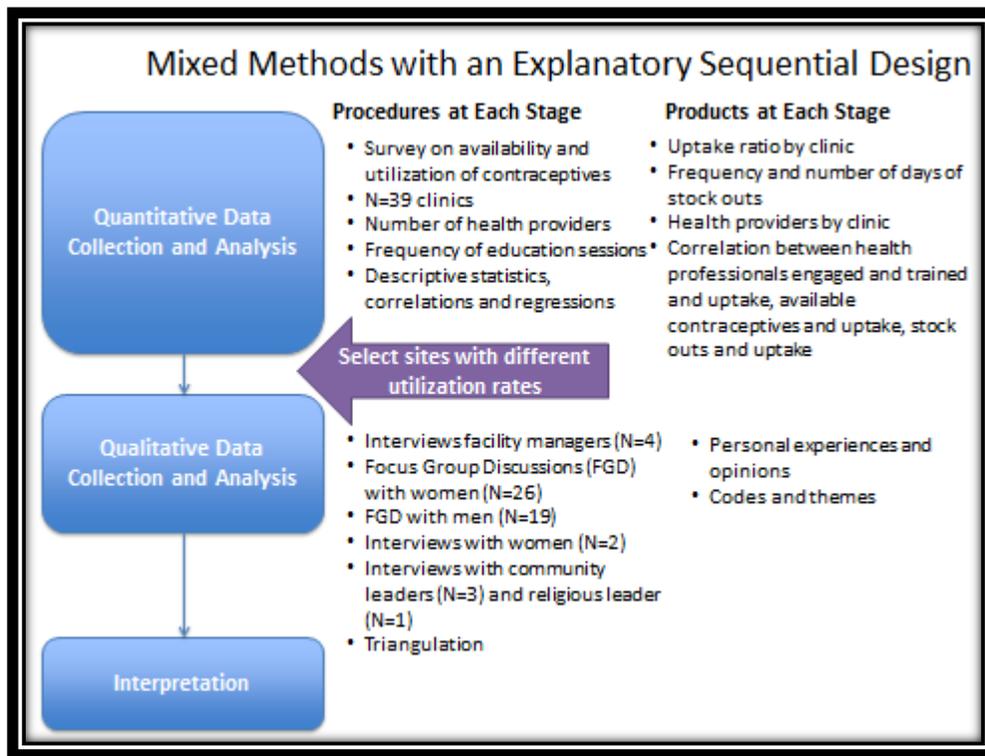
Definition of mixed methods research

Mixed methods research is defined as research in which the investigator collects and analyzes data, integrates the findings and draws inferences using both qualitative and quantitative approaches and methods in a single study or a program of inquiry [11].

Type of mixed methods design used: Explanatory sequential design

This research seeks to develop a broad understanding of the quantitative findings through the qualitative data by using an explanatory sequential design. For the explanatory sequential design, the researcher first collects quantitative data, and then gathers qualitative data to shed light on the initial quantitative results [11]. This study used a quantitative cross-sectional health facility survey from July 2012 to Jun 2013 followed by a qualitative study on the barriers of contraceptive use, as shown in Figure 1.

Figure 1. Diagram of study



2.2. Setting and study population

The study was done in Rumonge and Bururi rural health districts located in the southeastern part of Burundi. The two districts were highly affected by the two civil wars: one in that 1972 and another from 1993-2005. Rumonge and Bururi districts accommodated many Burundians repatriated from neighboring countries. These districts were selected for the study because they are among the most densely populated rural regions in Burundi, and need an effective family planning program.

The research was approved by both the Burundi Ethics Committee and the Institutional Review Board of Harvard Medical School prior to data collection. Permissions were also received from the medical directors of the health districts, the health facility managers and the local administrators.

2.3. Quantitative measures

All 39 health facilities providing family planning services in these two districts were assessed for availability and utilization of modern contraceptives from July 2012 to June 2013. The quantitative survey involved reviewing records kept by the health facilities. We assessed contraceptive availability by reviewing the stock inventory charts, and noting the number of different types of contraceptives available. We considered a contraceptive stocked out if it was offered by the clinic but not available for any part of one month. Each clinic must report the number of providers employed each month to the Ministry of Health (MOH). We used this report to count the number of health providers at that clinic. The researcher cross-checked the data on the number of women enrolled in family planning programs by reviewing both the monthly report submitted to the MOH and the logbooks for each clinic.

The quantitative data collection forms were structured and included items such as: availability and stock-outs of pills, Depo-Provera, IUD, implant male and female condoms, and others such as postinor; number of days of stock-outs; number of people in this hospital's or health center's catchment area; number of women 15-49 years of age; the number of women who came for the family planning program in the hospital or health center each month; number of health professionals at each health center; number of health professionals engaged and trained in family planning service provision when family planning services are available; and frequency of education sessions on family planning.

This study focused on women between 15-49 years old in the health districts of Rumonge and Bururi. For Rumonge district, the MOH estimates the total number of women in the target age range to be 23.7% of the total population according to national health statistical records. Using that percentage, the district office estimated the number of women of reproductive age in

Rumonge district was 67,989 women; and in Bururi district was 30,233 women. The numerator of our uptake ratio was assessed by counting the number of women who were enrolled in the family planning program at each clinic per month between July 2012 and June 2013. The denominator of our uptake ratio was the estimated number of women between 15-49 years old in each health facility's catchment area.

2.4. Qualitative assessment

Goal

The goal of the qualitative assessment was to use qualitative methods to explain the low uptake by identifying barriers to contraceptive use.

Purposeful sampling

Purposeful sampling is a qualitative sampling strategy designed to facilitate in-depth analysis by systematically representing a range of experiences and knowledgeable perspectives on a topic of study [12]. In this study, purposeful sampling was used to identify different kinds of barriers to contraceptive use. The strategy was applied at two levels:

1. At the level of sites, by selecting sites with low and high uptake of contraceptives;
2. At the level of individuals, by selecting study participants from the following groups: (a) pregnant women, (b) non-pregnant women, men, (d) community leaders, and (e) facility managers.

Recruitment

The researcher worked with a female research assistant and community health workers to recruit participants. Pregnant women were recruited by the research assistant while attending clinic for antenatal care. Non-pregnant women and men were recruited through community health workers. Community leaders were selected using the researcher's "insider" knowledge of the area to identify leaders with the greatest influence on health. The researcher contacted the community leaders and facility managers and invited them to participate in the study. Three people refused to participate in the focus groups and only one expressed her concerns about sharing her thoughts in a group.

Data collection

We had two kinds of data of data collection: focus group discussions (FGD) and in-depth interviews.

Both covered the following topics: (a) desired number of children, (b) knowledge of and thoughts about modern contraceptives, contraceptive preferences, influence of an individual on their partner's thoughts about contraception, (c) the impact of disagreement between partners on using contraceptive methods, (d) how religious beliefs influence contraception use, (e) the influence of the recent 13-year civil war on number of desired children, and (f) feedback on how to improve family planning services in this region.

Procedures

To collect the data, an interview guide was prepared in English and then translated into Kirundi, the local language. Slight modifications were made to the guide to fit each of the participant groups (women; men; health facility managers and community leaders). The

researcher pre-tested the interview guide by conducting one focus group discussion with women and one individual interview prior to the start of data collection.

Pregnant women, non-pregnant women and men took part in separate focus group discussions. Participants in in-depth interviews were facility managers and community leaders. The research assistant conducted the focus groups discussions and in-depth individual interviews with women. The researcher conducted interviews with men, facility managers and community leaders. The research assistant was supervised daily by the researcher/local principal investigator to ensure quality. Written consent to participate was obtained at the beginning of each focus group or interview. Subject participation consisted of a one-time individual interview or one focus group discussion. A total of 56 individuals participated. Seven focus groups and ten individual interviews were carried out. Data collection activities are specified by participant group in

Table 1.

Table 1: Qualitative Data Collection Activities by Participant Group

Participants	No. of focus groups	No. of in-depth Individual interviews
Pregnant women	2	
Non-pregnant women	2	
Men	3	
Facility managers		4
Community leaders		6

The interviews were done in the health care facilities and at a variety of private settings in the community where privacy could be assured. They were done in Kirundi, the local language and on average they lasted from 30 to 60 minutes.

Focus group discussions and individual interviews were audio-recorded with permission. Written notes were taken by the data collectors during the interviews to augment the digitally recorded data.

2.5. Data analysis

The study generated 3 data sets: (a) quantitative survey data set, (b) qualitative focus group discussion (FGD) data and (c) qualitative data from in-depth open-ended individual interviews. Interviews and focus groups were carried out in Kirundi, audio recorded, and then transcribed and translated into English to produce the qualitative data sets.

Quantitative data analysis used a deductive approach with descriptive statistics, including frequencies, means, and standard deviations. The unit of observation was the number of months assessed for all of the clinics visited (n=427 months). For the purpose of analysis, seven clinics were excluded because the numbers of people in catchment areas were not specified. Linear regression models were performed with STATA software SE 12.1 to test the association between the availability of contraceptives, the number of days of stock-outs, the number of contraceptives stocked out, and the number of health providers with the uptake ratio.

Qualitative analysis was performed using an inductive, content analytic approach, in which categories representing potential explanations of low contraceptive uptake were and developed from the data [13]. First, the transcripts were reviewed to identify relevant content. Content was coded manually using open coding as a technique. Triangulation, in which data

from FGDs and individual interviews were both used to generate codes, was used to strengthen validity. Open codes were subsequently grouped to identify themes and develop broader concepts. These concepts were labeled, operationally defined and elaborated, and illustrated with excerpts from the data to form explanatory categories. The categories are presented below. The qualitative data from the FGDs and the individual in-depth interviews were combined into one qualitative data set due to an iterative analysis strategy and the complementarity of the information provided by interviewees in both data sets. The two methods were mixed in the interpretation of the findings.

3. Results

3.1. Quantitative findings

Table 2 shows that the following methods were available at the health centers for more than half of the months (n=427): two long term contraceptive methods: Depo-Provera (99.8%) and IUD (82.7%); and three short term methods: oral contraceptives (98.8%), male condom (97.4%), and female condom (54.6%). The three long term methods all together were available in 40.0% of the time while at least one long term method was available in 99.8% of the time.

Table 2. Availability of contraceptive materials

Type of contraceptive	% (n=427)
Long term methods	
Depo-Provera	99.8
Implant	40.5
IUD	82.7
Short term methods	
Oral contraceptives	98.8
Condom (male)	97.4
Condom (female)	54.8
Postinor (emergency contraception)	31.1

The available long term methods were stocked out 0.9% of the time (n=426) for Depo-Provera, 10.9% of the time (n=173) for implant, 1.1% of the time (n=353) for IUD. The short term methods were reported stocked out for 1.7% of the time for oral contraceptives, 1.4% of the time (n=416) for male condom, and 2.6% of the time (n=333) for female condom. There were no stock outs for Postinor (n=133) (Table 3).

Table 3. Stock-outs for available contraceptive methods

Type of contraceptive	% (n=427)*
Long term methods	
Depo-Provera (n=426)	0.9
Implant (n=173)	10.9
IUD (n=353)	1.1
Short term methods	
Oral contraceptives (n=422)	1.7
Condom (male) (n=416)	1.4
Condom (female) (n=333)	2.6
Postinor (emergency contraception) (n=133)	0

*Sample size is less than 427 since some contraceptive methods were not available at all of the facilities.

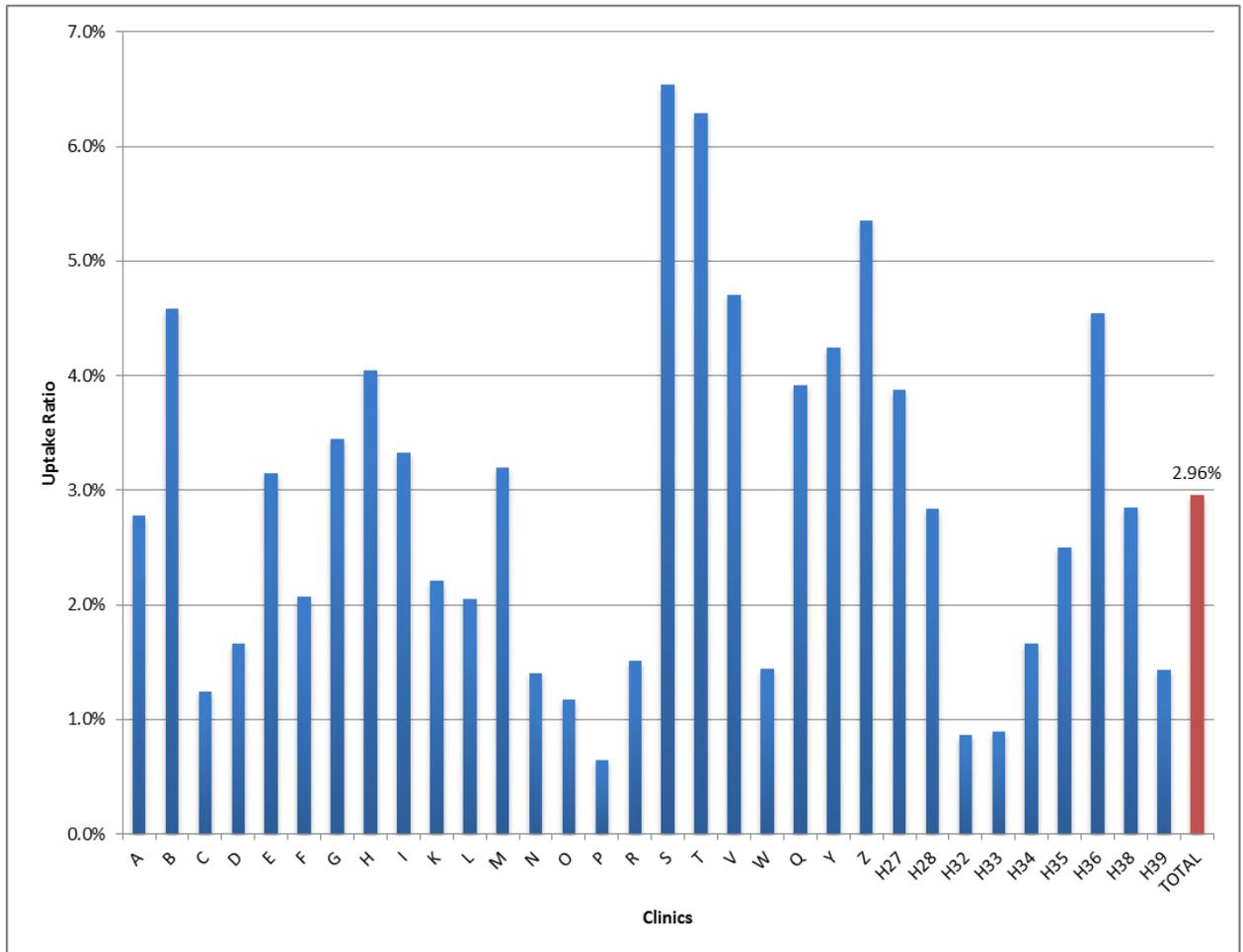
The average number of days of stock-outs on a monthly basis for the available contraceptives was 0.03 days (SD = 0.4) for Depo-Provera, 0.9 days (SD = 4.4) for implant, 0.2 (SD = 2.31) for IUD, 0.1 days (SD = 1.5) for oral contraceptives, 0.1 days (SD=1.6) for the male condom, and 0.6 days (SD = 3.8) for the female condom (Table 4).

Table 4: Average number of days of stock outs for the available contraceptives

Type of contraceptive	Mean	SD	Min	Max
Long term methods				
Depo-Provera (n=426)	.03	.4	0	6
Implant (n=173)	.9	4.3	0	29
IUD (n=353)	.2	2.3	0	30
Short term methods				
Oral contraceptives (n=422)	.1	1.5	0	23
Condom (male) (n=416)	.1	1.6	0	30
Condom (female) (n=333)	.5	3.8	0	31
Postinor (emergency contraception) (n=133)	0	0	0	0

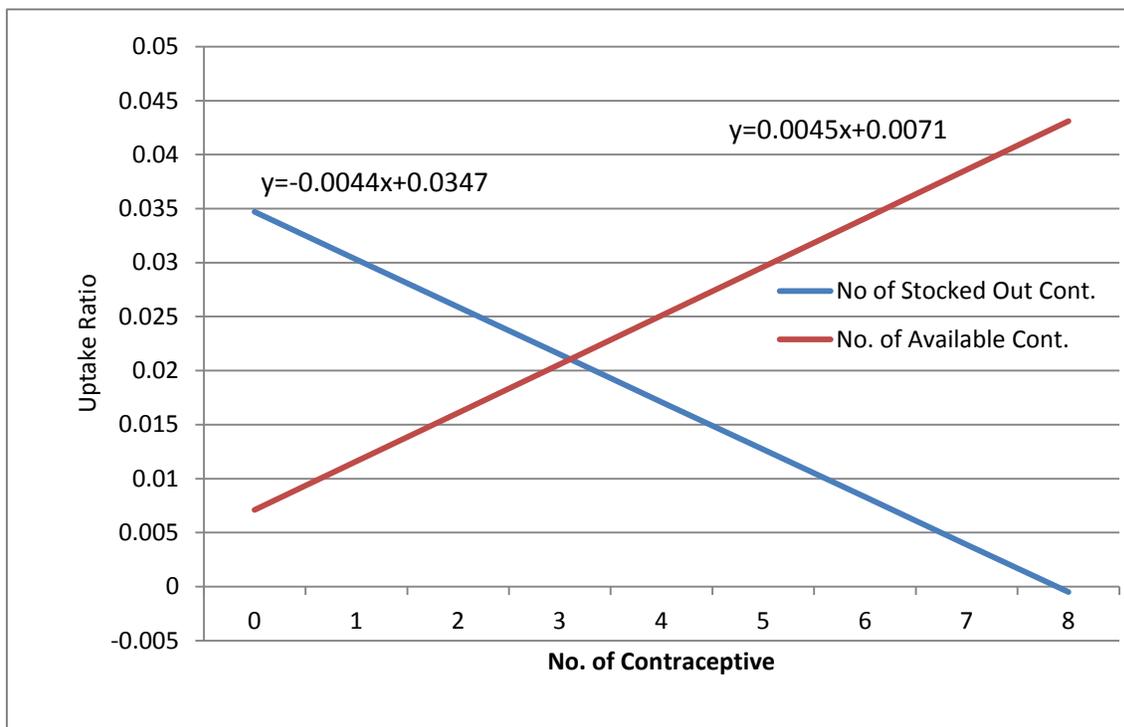
The uptake ratios varied across the health facilities from a low of 0.6% in clinic P to a high of 6.6% in clinic S. The mean uptake ratio was 2.96% for all facilities (Figure 2).

Figure 2: Uptake ratio by clinic



Increase of uptake ratio was associated with an increase in contraceptives available at the clinics and decrease of uptake of uptake ratio was associated with an increase in the number of different types of contraceptives stocked out (Figure 3). In a multivariate analysis, the uptake ratio increased by 0.0045 (95% CI: (0.0030, 0.0059) for every contraceptive added, adjusting for number of contraceptives stocked out ($p < 0.001$).

Figure 3: Relationship between availability and stock-outs of contraceptives and uptake



We conducted a linear regression of uptake ratio and availability of different types of contraceptives across all clinics from July 2012 to June 2013. Availability of implant, Postinor and female condom was significantly associated with uptake ratio ($p < 0.01$) (Table 5).

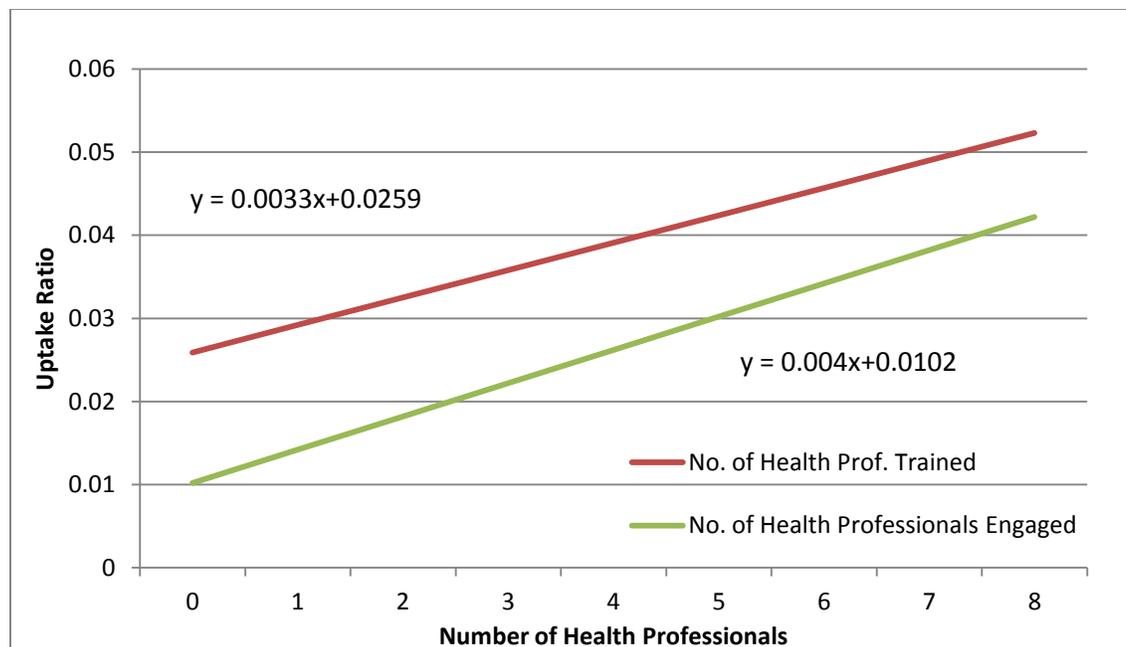
Table 5: Impact of availability of contraceptives on uptake ratio (linear regression of uptake ratio and the types of contraceptives available)

Type of contraceptive	Relation to uptake ratio
	Beta (95% CI); p-value
Long term methods	
Depo-Provera	.027076 (-.0103597, .0645121)
	0.156
Implant	.0079308 (.0039837, .0118779)
	0.000
IUD	.0027366 (-.0022348, .0077081)
	0.280
Short term methods	
Oral contraceptives	.0144832 (-.0023347, .0313011)
	0.091
Condom (male)	.0090043 (-.0064043, .0244128)
	0.251
Condom (female)	.0091711 (.0052831, .0130592)
	0.000
Postinor (emergency contraception)	.0151623 (.0107934, .0195311)
	0.000

On average, 5.6 health providers (SD=3.0) were available at the health centers and were serving an average population of 9,143.3 per health center's catchment area (SD=4,175.7). 86.7% of them (SD = 29.0) were engaged in family planning service provision. For 66.7% of the time fewer than 30% health providers were fully trained in all family planning methods, in 29.7% of the time between 30-60% of the health providers were trained and in only 3.51% of the time, greater than 60% of the health providers were fully trained. Overall, only 22.4% (SD = 19.34) of the health professionals were fully trained in family planning service delivery.

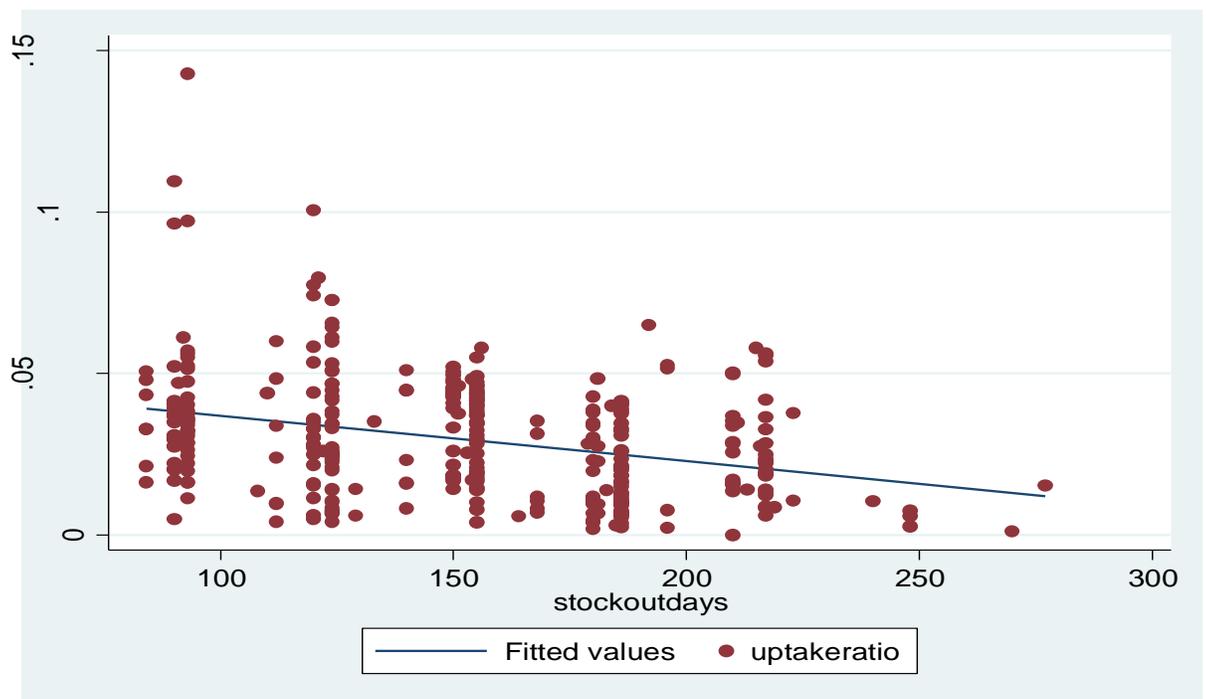
Increase of uptake ratio was associated with an increase in health providers engaged and health professionals fully trained in family planning service provision (Figure 4). In a bivariate analysis, the number of health professionals engaged was positively associated with high uptake of contraceptives ($p < 0.001$). In a multivariate analysis, the uptake ratio increased by 0.004 (95% CI: (0.0027, 0.0053) for every engaged health professional, adjusted for number of trained health professionals ($p < 0.001$).

Figure 4: Relationship between number of health professionals engaged and trained and uptake ratio



We conducted a regression of the uptake ratio across all study locations during the study period when different types of contraceptives were available for two conditions: 1) the clinics had at least one health professional trained in family planning; and 2) the clinics had no health professional trained in family planning. Availability of fully trained health professionals was positively associated with uptake of implant 0091191 CI= (.0044796, .0137585); p-value=0.000, IUD 0169338 CI= (.0036958, .0301718), p-value= 0.012, female condom .0083925 CI= (.0036532, .0131317), p-value= 0.001 and Postinor .0175418 CI= (.0126435, .0224401), p-value= 0.000. In addition, decrease of uptake ratio was associated with an increase in days of stock outs of contraceptives (Figure 5).

Figure 5: Relationship between number of days of stock outs of contraceptives and uptake



In a univariate linear regression, the number of health professionals engaged in family planning service provision, the number of health professionals fully trained in family planning methods and the number of available contraceptives were found to significantly increase uptake ratio. (Table 6)

In a multivariate analysis including all of the variables described above except for the number of stock out days, the number of health professionals engaged and the number of types of contraceptives available were found statistically significant in increase of uptake ratio ($p < 0.005$). (Table 6)

Table 6. Multivariate linear regression of uptake ratio onto number of health professional engaged in family planning services provision, number of health professionals fully trained in family planning service provision, types of contraceptives available and number of contraceptives stocked out (n= 427)

	Univariate analysis (95% CI); p-value	Multivariate analysis (95% CI); p-value
Number of health professionals engaged	.0040341 (.0028246, .0052435); <0.001	.002981 (.0016179, .0043441); <0.001
Number of health professionals trained	.0032803 (.000626, .0059347); 0.016	-.0028119 (-.0058121, .0001884); 0.066
Available contraceptives	.0045371 (.0030997, .0059746); <0.001	.0037303 (.0019481, .0055125); <0.001
Contraceptives stocked out	-.0044289 (-.0110464, .0021886); 0.187	-.0028839 (-.0068344, .0010665); 0.152

Education sessions

Education sessions on family planning were reported to be done 93.2% of the time (N=427). Only females were involved in 5.9%, only males were involved in 20.10% and both males and females were involved in 73.2% of these sessions. No data were collected on the number of attendants and quality of the sessions.

3.2. Qualitative findings

The qualitative component of the research yielded six thematic categories that help to explain low uptake of family planning services: (1) impact of religious teachings, (2) lack of privacy and trust at health centers, (3) scarce resources, (4) contraceptive users' fears of side effects, (5) lack of knowledge of modern contraceptives, and (6) partner disapproval. These categories are presented in more detail below.

Impact of religious teachings (Religious influences)

Religious teachings work against uptake of contraceptives. Religious leaders of Christian conservative churches openly condemn contraceptive use, referring to it as “a sin” and a way to kill an unborn person. They teach that the number of children is God’s decision. The teachings of religious authorities have a significant impact on potential contraceptive users, health providers and the larger community; many accept these teachings as “truth.” As result, women seeking contraceptives find themselves criticized by their church mates and neighbors. They feel ashamed and afraid. Some even fear potential social isolation and for their own safety. One woman describes her fear as follows:

“We are scared. And when you go, you don’t have to tell anybody. You cannot even say that you know him/her. Do you understand? In fact, there are some members of a church which is

opposed to that [contraceptive use]. If they hear that I use them, I will have problems. For my security, let me go secretly. This is a reality.”

Religious teachings also create conflicts among health providers. Some providers use their religious beliefs to justify their unwillingness to provide family planning services to those who seek them. Other providers who do not share these beliefs feel frustrated because patients do not receive important care. These providers feel their clinic gains a bad reputation because of a few providers who deny clients family planning services. These religious influences lower the uptake of family planning services and increase the workload at the clinics, which are already understaffed. One health provider explains how the religious beliefs of the staff impacts contraceptive use:

“Something more you can know is that here, figures [number of clients] have decreased. Actually, even among us, the staff, there is a problem. In fact, we are 5 [nurses] but 3 of us refuse to receive people who need these services because of the church teachings. I have to say that these teachings are bad. It happens that they send away clients who come for these services; and they go back home without receiving the methods. They tell others that this nurse or that one does not receive people who need contraceptives at that facility, and this is a big challenge we face here.”

Finally, conservative Christian church teachings have a significant impact on the community. People in rural areas strongly believe in them and may condemn users by stigmatizing and isolating them. Contraceptive users have to hide for fear of the repercussions from the community as well as the church leaders. In the excerpt below, a facility manager explains how contraceptive users can be ostracized by a community turned against family planning by church leaders:

“If it happens that you find a Protestant who trusts you, you [the health provider] need to explain to her so much and she needs to hide because, if they [church leaders] catch her, they can exclude her, or during social events, she will not have anybody from her church to support her. It is clear that churches forbid their adherents to use these methods.”

Religious teachings make some people in the community even believe that the number of children is predestined by God and God will be in charge of the given children. One pregnant woman shares her viewpoint and the uncertainty on the number of children she will have:

“I’ll accept all the children God will give me. I will give birth till the last. This one might even be the last or He may give me five. I’ll receive them the way He will offer them to me.”

Lack of privacy and trust at the health centers

Because of the stigma attached to contraceptive use, lack of private space in which to receive clients at health care centers becomes a concern. Most health centers are small and do not have separate waiting areas for women seeking family planning services. These women must wait in line with other people. As many of the other patients may be visibly sick, and they may suspect that these healthy-looking women are waiting for family planning services. The women feel embarrassed that others can guess the purpose of their visit. A provider explains how the health center layout causes some women to abandon their appointment for family planning services:

“The major causes [of low contraceptive use] are related to how this health center is built. Patients and people coming for contraception services meet in one place and clients coming for family planning methods don’t appreciate it [the women feel embarrassed]. There are some who

prefer to abandon [seeking family planning services] and others who accept to wait. This is why the number is low.”

Some patients do not trust health providers affiliated with conservative Christian churches to keep confidentiality. They fear staff may report their use of family planning methods. This type of lack of trust often happens when a health provider attends the same church as the clients and is involved in church activities. A health provider explains:

“Again, when they come and don’t find me here, they fear to be received by my colleagues who are their church mates and fear that they may talk about it.”

The issue of trust extends beyond losing confidentiality. Some people don’t trust the information they get from health professionals about contraceptives. They consider counseling on family planning as a way for providers to use their influence as trained health professionals to force clients into contraceptive use. People do not know if the providers use contraceptives themselves. This woman describes how her provider told her not to worry about side effects of contraceptives. However, she still does not trust the health professional’s advice.

“And you hear people saying: ‘You, people, you’re troubling yourselves, there is nothing to worry about, but these health care providers are forcing us, we will not resist. And you think: ‘Who can help me calculate my fertile period?’ They don’t use them themselves but they tell us: ‘Come and we provide them to you.’ That’s how it is.”

Scarce resources as structural barriers

Scarce resources were commonly cited by facility managers as structural barriers to use of services. As noted above, health centers lacked private rooms for contraceptive service provision. Scarce resources were seen in lack of skilled health professionals to provide the full

range of family planning services, and failure of health centers to stock a sufficient choice of family planning methods. This meant clients had to travel long distances if the nearby health center did not have their preferred contraceptive method. This distance was a structural barrier because these clients lacked money for transportation to reach the clinics that offer the preferred contraceptive.

This facility manager described how cost of transportation to family planning centers with full range of services impact contraceptive use:

“Many of them [women] like implant[s]. In that case, I advise them to go to Rumonge or Bururi. She can tell you that it is too far, it requires transportation fees, etc. and she abandons.”

Lack of knowledge of modern contraceptives

People in rural areas are not well informed about modern contraceptives. Rumors spread widely in the villages that contraceptives cause cancer and sterility. As a result, people fear using them. This fear is aggravated by the fact that rural Burundians lack treatment options for cancer; therefore they fear exposing themselves to an incurable disease using family planning methods. People fear infertility because they value the large families. One health provider mentions the effect of rumors:

“There is also a challenge related to rumors. People in the villages spread false information in regard to family planning methods. They say that a person using contraceptives can become sterile forever or can get cancer.”

Young people do not have adequate access to information on modern contraceptives. This lack of information causes teenagers to have unprotected sex and get pregnant at a young age. A young girl who becomes a mother may bring her child into an already large family of her

siblings, thus increasing the number of people her parents must support. A young boy who becomes a father can place a similar burden on his family. One woman leader expresses her belief that women can have large families, but that girls should wait to become mothers. She detailed her concerns about lack of education on family planning for youth:

“Now, we see that women bear children and so do young girls. What do you plan to do to educate young girls? For instance, here in our village, almost all young girls carry babies on their backs. That’s an additional number of children to those one already had. This is a big challenge. If women were the only ones to give birth, this would be acceptable. But there are such young girls in this vicinity. Boys also bring children at home. You see, problems are expanding. These family planning programs should be discussed with the youth. Yes. Giving birth at the age of 13 or 14 is a problem. I know a young girl in 7th form who is pregnant. You see, this is a problem. Yes!”

Fear of side effects

The lack of information about family planning methods can cause people to misunderstand potential side effects. Fear of side effects offers another reason for not using contraceptives. Interviewees repeatedly mentioned feeling terrified that modern contraceptives would cause heavy bleeding, headache, menstruation disorders, and feeling sick. People spread this fear by telling their friends that contraceptives cause these effects, though these effects might not occur for every client. Even though health facilities offer contraceptive services for free, women hesitate to use them because they might not have funds to treat the potential side effects.

This woman describes how fear of side effects can lead to hesitation of using modern contraceptives:

“When you look at it, family planning is good. But when you listen to someone who has used them, she tells you: ‘It happened to me like this or like that’ and another one tells you: ‘Things are like this.’ You become terrified. And you think: ‘And if they cause me some trouble, what would I do?’ And you hesitate though you are willing to use them. Yes.”

Partner’s disapproval

Two different situations often happen between the spouses in households. In one situation, a husband refuses to allow his wife to use contraceptives and the wife bears many closely spaced children or seeks contraceptives secretly. Alternatively, the wife doesn’t want to space or to limit the births, but the husband does want to use family planning. Both of these situations cause conflicts between the spouses and may result in threat of removal of financial support from women, who depend on their husbands’ monetary incomes. One woman shares her experience on how she has hid her use of family planning from her husband:

“I never told my husband. It was a secret between a nurse working in this health center and me. One day he saw pills I had put somewhere and asked me: ‘Where did you get these pills from?’ and I replied that I don’t know. I never told him. I was the one to get tired [of closely spaced pregnancies], it was my problem; I didn’t tell him.”

A man shares his experience facing his wife’s opposition to use contraceptives and the consequences in terms of the number of children they now have:

“Actually, there came a time – when I had reached five children – when I thought: ‘How will I raise these children?’ Because I had a limited wealth. I told my wife – ‘Madam, let’s reduce the number of children we will have! These children are enough’ – But she didn’t understand. Why?”

Because of churches [teachings]. For instance, I wished to do it but my wife didn't cooperate. Yes."

Constant conflict by spouses caused by disagreements over contraception can cause families to break up, as revealed by one religious leader:

"Yes, it happened here in our region. In this situation, a woman wanted to keep on having children but her husband refused it. 'Life is hard; it's difficult,' he said. There came a time when the family was nearly breaking up. Fortunately, as I said earlier, I am a catechist and with the light of the Gospel, I did my best to reconcile them."

Similarly, a father shared a story of a neighboring family driven apart over disagreements about whether to use family planning methods. This father describes hearing the arguments of the family. These arguments led to dire financial consequences when the father decided to leave. After the father left the mother had to take care of a large family on her own. The single mother could not adequately meet the needs of her children:

"There has been misunderstanding and quarreling in the family. Then, the husband decided to leave the family while [so] the wife wasn't able to provide children's demands."

4. Discussion

This mixed methods study assessed the uptake ratio of modern contraceptives and the barriers to contraceptive use among women of reproductive age (15-49 years) in two rural districts in Burundi. The Burundi government supplies the needs for family planning services to the health centers and incentivizes the health providers through a performance based financing system to improve family planning services [3]. At least four types of contraceptives (injectables, IUD, oral contraceptives, male condoms) were available at all the health facilities for more than 82% of the time. Education sessions on family planning were held in more than 90% of the health facilities. Yet the actual uptake ratio was very low. Our estimate indicated only 2.96% of women of reproductive age in the two Burundian districts studied used modern contraceptives. Low uptake ratio was not due to unavailability of contraceptives. Scarcity of health providers might be part of the explanation. On average, 5.6 health providers were available at the health facilities, but less than a quarter of them (22.4%) were trained to provide full range of family planning services. This shortage of trained health professionals could restrict potential users to fewer choices if the health facility does not employ any providers trained in family planning, or the few trained providers are unavailable.

Our qualitative findings brought more understanding of low utilization in these two rural districts. Religious influences on clients, health providers and the community commonly were cited as an important barrier by study participants. Structural barriers were also prominent. Structural barriers included lack of privacy and trust for the staff and the limited information they provide to patients at the health facilities; lack of skilled health providers, no availability of private rooms for family planning services; lack of materials and cost for transport to the clinics with a full range of services. In addition to the structural barriers, study participants indicated

that other considerations explaining low uptake in the region were sociocultural factors such as beliefs and the value of having large families; stigma and shame associated with contraceptive use; fear of side effects; lack of knowledge about modern contraceptives and partner disapproval.

The 2.96% uptake ratio that we found is much lower than the 18% prevalence of contraceptive use reported by DHS [5]. The difference between the DHS estimate and that of the current study is likely due to the fact that the DHS only included married women. We assumed that not only married women are in need of family planning services and reasons for low uptake could be found at the health facility level as well as the community level. This finding shows that there is a big need for a strong family planning program in this area.

Lack of human and other resources in rural Burundi impedes uptake of family planning services. These structural barriers affect contraceptive use in other rural African settings as well. A study conducted to assess the quality of family planning services in primary health centers of Jimma Zone, Southwest Ethiopia has shown that lack of critical resources such as trained personnel, information, education, communication materials and other supplies at the clinics hinder contraceptive use [14].

Religious beliefs also affected contraceptive use. This was demonstrated in the current study and in research carried out in other developing countries. For example in Zambia, a study showed that religious beliefs accounted for 50% of non-use of contraceptive methods [15]. The beliefs of providers as well as clients were important in Zambia. Provision of certain reproductive health services may run counter to individual provider's religious and moral beliefs and practices. Thus they may refuse to provide such services to clients on moral and/or religious grounds. Their refusal exposes clients to the risk of reproductive health morbidity as well as mortality. In Zambia, providers who refuse to provide reproductive services are required to refer

the clients to other equally qualified and experienced providers who do not hold similar conscientious objector beliefs [16]. Our study results suggest that in Burundi conscientious objector providers do not refer clients seeking family planning services to others. Instead, they turn the clients away. These clients then may discourage other potential clients from seeking family planning services at that health center, which reduces uptake.

However, several studies have shown that being affiliated with the church not does always prevent use of contraceptives. [17], [18]. For example an analysis of religious involvement in a study done in Mozambique revealed that frequent church attendance has a net positive association with modern contraceptive use regardless of denominational affiliation [19]. Our study found that rural Burundians hear contradictory information from the Christian conservative churches and the health professionals on family planning, with the religious being more influential. Our data from health facility managers show that very few people, especially women, attend education on reproductive health at the health facilities. However, most people in these rural areas attend regular church events. Very few sources of information exist in the area: many people do not read and most people do not have radios or access to other forms of media. Therefore, people might rely only on the information they get from churches.

In a univariate linear regression, the number of health professionals engaged in family planning service provision, the number of health professionals fully trained in family planning methods and the number of available contraceptives were found statistically significant to increase uptake of contraceptives. In a multivariate analysis, the number of health professionals engaged and available contraceptives were found to be significant to increase the uptake of contraceptives. The availability of many types of contraceptives was linked to the availability of trained health professionals to provide the services. The clinics which had not fully trained health

professionals had fewer contraceptives available and fewer family planning services and in turn low uptake. The quality of the education sessions and the family planning services provided at the health facilities may not be high enough. 86.7% of health providers were engaged in family planning service provision while only 22.6% were fully trained. In addition, the health facilities lacked other resources. Clients may not trust the staff and the information they provide to the patients. This indicates that the health providers lack skills for counseling and family service provision in this area. Effective counseling skills are critical here as sociocultural factors such as beliefs, stigma, shame associated with contraceptive use, fear of disclosure, and fear of side effects play a major role. Lack of basic knowledge about modern contraceptives in rural Burundi allows rumors to take hold, and drive down uptake of family planning services. Rumors and myths around contraceptives include concern that contraceptives cause infertility and cancer to spread in the communities. Similar myths were found in an assessment of Ugandan women's perceptions and knowledge of contraception [20].

Our study indicates that lack of knowledge about contraceptives affects uptake. Interviewees mentioned that youth do not have adequate information about reproductive health, and that they are exposed to early pregnancies. Our findings fit into the larger context of African countries as illustrated in a study on the impact of family planning on primary school enrolment in sub-national areas within 25 African countries. This study indicated that the number of births is negatively associated with acceptance, knowledge and actual use of contraceptives in the area [21]. Our findings are also comparable to the importance of information found in a literature review by Najafi-Sharjabad et al. on barriers of modern contraceptive practices among Asian women. The authors demonstrated that lack of knowledge is one of the main obstacles to modern contraceptive practice among Asian women, along with cultural attitudes, socio-demographic factors, and health service barriers [22].

Family planning is more effective when spouses agree on the use of contraceptives. A study done in Ethiopia revealed that women who discussed modern contraceptives with their husband more than three times were 7.32 times more likely to use modern contraceptive methods than women who did not discuss the topic. [23] Several studies in East Africa have also shown that the partner disapproval is one of the barriers to contraceptive use. [20], [24], [25], [26]

In this study, interviewees cited partner disapproval as one of the major barriers to the use of contraceptives. The consequences of the disagreement between spouses fall mostly on the women because of their social and economic status in the local context. The fact that most of rural women depend economically on their male partner's income makes them vulnerable to gender inequality. Interviewees mentioned that men often threaten to stop financial support when there is disagreement on contraceptive use. Farmer argues that improving women's social and economic status would improve their health [27]. Women who are not economically dependent on their spouse may feel more able to request use of contraceptives. Women who depend on their spouse economically do not have the power to leave and may also not feel they have the option to speak up for their desires to use family planning.

Some researchers emphasize ignorance and cultural beliefs as barriers to the use of family planning but Paul Farmer feels that this is a way of blaming the victim. He sees poverty as the main impediment to uptake of family planning [28]. The factors described above relate to the underlying extreme poverty in rural Burundi both at the state and individual level. State level poverty is manifested in infrastructure. For instance, there are few health clinics serving a large rural area, and these clinics are small and lack private space for family planning. There is poor availability of preferred contraceptive methods at these clinics and inadequate transportation

options to access these clinics. In addition, state level poverty is demonstrated by a lack of skilled health professionals to provide family planning services, to treat any side effects caused by contraceptive methods, and to educate people on the science of family planning. Individual level poverty is demonstrated by the low levels of education, which leads to poor literacy and an inability for Burundians to access objective information on family planning. Many Burundians are subsistence farmers with little outside income. They do not own radios or cell phones or have internet access that could provide a link to information beyond their local community. This “asset poverty” may help explain the influence that religious teachings and rumor have on many of the study participants: without other options for gathering objective information on family planning, they must rely on church leaders and neighbors. Poverty hampers women’s ability to make choices about family planning as they lack funds to travel to clinics for preferred family planning methods. If their spouse is not supportive of contraceptive use, poverty may mean these women are unable to assert their own will and are obliged to abandon family planning so they can stay in the relationship for financial support.

This research has demonstrated that there is a need to restructure family planning services in rural areas of Burundi. To increase uptake of family planning services, the interventions should be community based. This approach has been used in several African countries including Madagascar, Nigeria, Kenya and Uganda and has shown successful results. [29], [30] Contraceptive awareness and sexual and reproductive health-related information should be provided to the youth through school or after school programs in order to avoid early and unwanted pregnancies and other sexual and transmitted diseases such as HIV/AIDS. Health professionals should be well trained in counseling for family planning and family planning service provision to address the powerful sociocultural influences. To preserve confidentiality of clients, health facilities should have private areas for family planning appointments.

5. Limitations

This study has a number of limitations. The research was done in only two health districts of Burundi. The situation may be different in other districts. Future studies should be undertaken in other areas for comparison and to complete our findings. In addition, we could not capture the number of attendants to the education sessions so that we could look at the potential association between number of attendants to the family planning education session and the uptake of contraceptives. No data were collected on women enrolled on each contraceptive method. Future studies will assess uptake by methods and compare what women prefer most and what the health professionals recommend to them. Future studies may also assess how availability of specific methods such as implants affects women's satisfaction with the family planning services.

6. Conclusion

We observed a low rate of uptake for contraceptive services in rural Burundi among a broad sample of women of reproductive age. By focusing on only married women, previously available data overestimate contraceptive use and underestimate need in these communities. Our study found adequate supplies of contraceptives available, so other barriers affected demand for family planning services. These barriers included sociocultural factors such as fear of disclosure, stigma and shame associated with the contraceptive use, religious influences, partner disapproval, value of a large family and structural barriers such as lack of trained health professionals, lack of private rooms for family planning services, lack of materials and cost for transport to the health facilities, lack of trust of the health providers. Fear of side effects and lack of knowledge about contraceptives also affected uptake. These factors relate to the underlying extreme poverty in rural Burundi both at the state and individual level.

Interventions would need to address one or more of these factors in order to improve uptake of family planning. Possible interventions could include community-based family planning services, contraceptive use awareness campaigns, training providers in counseling and family planning service provision and youth education on reproductive health. Improving family planning services will help people to better plan their families and will improve maternal and child health in rural Burundi.

7. References

1. United Nations, Department of Economic and Social Affairs. Population Division, Population Estimates Projections Section. (2013) World population prospects: the 2012 revision. Available: <http://esa.un.org/wpp/>. Accessed 15 March 2014.
2. Ezeh AC, Bongaarts J, Mberu B (2012) Global population trends and policy options. *Lancet* 380: 142-148.
3. US Global Health Initiative (2011) Burundi global health initiative strategy 2011-2015. Available: <http://www.ghi.gov/whereWeWork/profiles/Burundi.html>. Accessed 18 January 2013.
4. Central Intelligence Agency. (2013) The World Factbook 2013-14. Available: <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2127rank.html>. Accessed 20 March 2014.
5. Institut de Statistiques et d'Études Économiques du Burundi (ISTEEBU), Ministère des Finances et de la Planification du Développement Économique, Institut National de Santé Publique (INSP), Ministère de la Santé Publique et de la Lutte contre le Sida, Bujumbura, Burundi et ICF International, Calverton, Maryland, USA. (2012) Burundi DHS, 2010 - final report (French) Burundi DHS, 2010 - final report (French). Available: <http://dhsprogram.com/publications/publication-FR253-DHS-Final-Reports.cfm>. Accessed 18 January 2013.
6. USAID. (2005) Strengthening family planning policies and program in developing countries an advocacy toolkit. 2014:84. Available: <http://www.policyproject.com/pubs/manuals/Family%20Planning%20Toolkit%20final.pdf>. Accessed 20 March 2014.
7. Cleland J, Bernstein S, Ezeh A, Faundes A, Glasier A, et al. (2006) Family planning: the unfinished agenda. *Lancet* 368: 1810-1827.
8. Marston C, Cleland J. (2003) Relationships between contraception and abortion: A review of the evidence. *Int Perspect Sex Reprod Health* 29: 6-13.
9. Fitaw Y, Berhane Y, Worku A. (2004) Impact of child mortality and fertility preferences on fertility status in rural Ethiopia. *East Afr Med J* 81: 300-306.
10. Canning D, Schultz TP. (2012) The economic consequences of reproductive health and family planning. *Lancet* 380: 165-171.
11. Creswell JW, Clark VLP. (2007) *Designing and Conducting Mixed Methods Research*. Thousand Oaks, Calif.: SAGE Publications. 275 p.

12. Patton MQ. (2002) *Designing Qualitative Studies*. In: *Qualitative Research & Evaluation Methods*. Thousand Oaks: Sage Publications. pp. 209-257.
13. Hsieh H, Shannon S. (2005) Three approaches to qualitative content analysis. *Qual Health Res* 15: 1277-88.
14. Tafese F, Woldie M, Megerssa B. (2013) Quality of family planning services in primary health centers of Jimma zone, southwest Ethiopia. *Ethiop J Health Sci* 23: 245-254.
15. Mubita-Ngoma C, Kadantu MC. (2010) Knowledge and use of modern family planning methods by rural women in Zambia. *Curationis* 33: 17-22.
16. Lema VM. (2012) Conscientious objection and reproductive health service delivery in sub-Saharan Africa. *Afr J Reprod Health* 16: 15-21.
17. Mosha IH, Ruben R. (2013) Communication, knowledge, social network and family planning utilization among couples in Mwanza, Tanzania. *Afr J Reprod Health* 17: 57-69.
18. Nketiah-Amponsah E, Arthur E, Abuosi A. (2012) Correlates of contraceptive use among Ghanaian women of reproductive age (15-49 years). *Afr J Reprod Health* 16.
19. Agadjanian V. (2013) Religious denomination, religious involvement, and modern contraceptive use in southern Mozambique. *Stud Fam Plann* 44: 259-274.
20. Anguzu R, Tweheyo R, Sekandi JN, Zalwango V, Muhumuza C, et al. (2014) Knowledge and attitudes towards use of long acting reversible contraceptives among women of reproductive age in Lubaga division, Kampala district, Uganda. *BMC research notes* 7.
21. Longwe A, Smits J. (2013) The impact of family planning on primary school enrolment in sub-national areas within 25 African countries. *Afr J Reprod Health* 17: 23-38.
22. Najafi-Sharjabad F, Yahya S, Zainiyah S, Abdul Rahman H, Hanafiah M, et al. (2013) Barriers of modern contraceptive practices among Asian women: A mini literature review. *Global Journal of Health Science* 5. 181-192.
23. Mohammed A, Woldeyohannes D, Feleke A, Megabiaw B. (2014) Determinants of modern contraceptive utilization among married women of reproductive age group in north Shoa zone, Amhara region, Ethiopia. *Reprod Health* 11: 1-7.
24. Wawire NHW, Mburu TK. (2011) Contraceptive use among women of reproductive age in Kenya's city slums. *International Journal of Business and Social Science* 2.
25. Lwelamira J, Mnyamagola G, Msaki M. (2009) Knowledge, attitude and practice (KAP) towards modern contraceptives among married women of reproductive age in Mpwapwa district, central Tanzania *Current Research Journal of Social Sciences*, 4: 235-245.

26. Ndaruhuye DM, Broekhuis A, Hooimeijer P. (2009) Demand and unmet need for means of family limitation in Rwanda. *International Perspectives on Sexual and Reproductive Health*, 35: 122–130
27. Farmer P, Connors M, Fox K, Furin J, Devine D, et al. (2011) Rereading social science. In: *Women, poverty and AIDS*. Farmer P, Connors M, Simmons J, editors. Monroe, ME: Common Courage Press. pp. 147-205.
28. Farmer P. (2006) Foreword: Unraveling fertility and power. In: *Maternowska C, editor. Reproducing inequalities: Poverty and the politics of population in Haiti*. New Brunswick, NJ: Rutgers University Press. pp. ix-xv.
29. Kaseje DC, Sempebwa EK, Spencer HC. (1987) Community-based distribution of family planning services in Saradidi, Kenya. *Ann Trop Med Parasitol* 81: 135-147.
30. Hoke T, Brunie A, Krueger K, Dreisbach C, Akol A, et al. (2012) Community-based distribution of injectable contraceptives: Introduction strategies in four Sub-Saharan African countries. *International Perspectives on Sexual and Reproductive Health* 38.

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