

Impact of contraception use among women seeking tubal ligation in the rural Democratic Republic of the Congo



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Introduction. Investing in health is recommended for economic growth and the reduction of inequity in developing countries. Family planning is one such investment that benefits women and children. But resource-constrained environments, such as countries in conflict, present logistical and other challenges to the implementation of health programmes. For this reason even a proven cost-effective health intervention still needs to be contextualised to assess the actual benefit or impact in resource-constrained settings.

Objectives. To describe user characteristics and analyse the impact of reversible contraception use among women who underwent tubal ligation in a rural health district of the Democratic Republic of Congo over a 4-year period.

Methods. A retrospective analysis of family planning programme registers for 4 years (1990 - 1994). During the study period, 400 women underwent tubal ligation. All records except for 76 that were incomplete were included in the study.

Results. A sample of 324 women was analysed. Most of the subjects (96%) were older than 30 years and of the Christian protestant faith (85%). Most had an education level less than secondary. Of the participants 99% were married; 98% of participants did not work outside the home. There was no significant difference in the average birth interval between contraceptive users and non-users ($p = 0.246$), but small families of less than 5 children were significantly more common ($p = 0.006$) in the small group of contraception users compared with non-users (10.1% and 2.8% respectively).

Conclusions. The demand for surgical contraception comes mainly from married women with low education and economic status. Previous use of contraception did not make a difference in terms of birth spacing, suggesting a high prevalence of inconsistent or incorrect use of contraception.

Strategic investments in health-related interventions are likely to impact on economic growth and equity in developing countries. This connection between growth and development prompted the creation of the Commission on Macroeconomics and Health, a body mandated by the World Health Organization among other things to find evidence of such interventions in developing countries.¹ When effective, family planning programmes can have a significant impact on the reduction of population growth, as demonstrated in Cuba and the Federal Republic of Korea.² There are also positive spin-offs in the improved health status of women and children. The cost-effectiveness of health interventions are often premised on the availability of all inputs and processes required to make them work.

Reversible contraceptive methods require high levels of access and continuity. However, different types of barriers to the implementation of family planning programmes such as financial cost, geographical distance, shortages of stock and misinformation prevail in the developing world.³ These barriers are magnified in countries affected by armed conflict, such as the Democratic Republic of the Congo (DRC). Family planning programmes, although proven successful in other settings, still have to be contextualised to objectively evaluate their benefit to the population in resource-poor environments. Four decades of family planning policy and programmes in the DRC have not succeeded in curbing population growth. Similar concerns about the introduction of antiretroviral

therapy have raised debates on the readiness of health systems in developing countries to benefit from such interventions.^{4,5} The DRC has experienced chronic disruption of livelihood and social services since the late 1980s, and the country has many competing needs. The health sector and family planning in particular are not given high priority by government agencies, as reflected in the absence of the Congolese states' input in the health sector.^{6,7} The general unreliability of the drug supply system and poor access to health care services in the DRC⁸ therefore represent real threats to the effectiveness of the fertility control objective of any family planning programme.

This paper seeks to establish the actual impact of reversible contraception use among women who underwent tubal ligation in a rural health district of the DRC over a 4-year period in the early 1990s. It discusses and contrasts the characteristics of contraception acceptors and non-acceptors in this context, with the intention of suggesting measures to improve the effectiveness of the programme.

Site

The study was conducted in the rural district of Kimpese, Western DRC, which has only one district hospital, established by protestant missionaries. The population of the district at the time of the study was estimated to be 143 181.⁶ The district hospital, which has 400 acute and chronic beds, is the only referral centre in the area. It also has an important outpatient section where reproductive health services are located. A donor-funded family planning programme was established at Kimpese Hospital in 1990, and the hospital in fact offers the bulk of family planning services in the district.

Methods

The registers of the family planning programme over a 4-year period between 1990 and 1994 were retrospectively analysed. During this period, the donors required that detailed clinical information be kept in the registers for the purposes of reporting and programme evaluation. The information captured related to patients' attitude to contraception, motivating factors, and knowledge and use of different contraceptive methods. Family size and parity were also recorded. The sample frame was constructed from the maternity registers in which all women undergoing tubal ligation are recorded. In total 400 women were operated on during the study period. All cases were initially included in the study, but 76 (19%) were excluded because data were incomplete. The remaining 324 records were available for analysis. The following variables were analysed:

- Age of the patient as recorded in the register. The usual practice at Kimpese Hospital is to verify patients' age from their identity documents. Alternatively, health workers rely on the age as reported by the patient or the accompanying relatives.

- Marital status, recorded in the same manner as age. Traditional marriage, the most common status, is included under this variable, even though there is no written document. Here health workers also rely on the testimony of patients and relatives.
- Parity as an indicator of family size refers to the total number of children the patient had in her entire life, living or dead. Abortions and stillbirths are not included.
- Birth interval refers to the number of years or months between successive pregnancies.
- Use of contraception refers to the recorded patient's account of the contraception methods used since menarche.

Data were collected from the registers on a pre-printed form, which was later captured on an Excel spreadsheet. For the purposes of comparison, the above variables were collated for two different groups of participants: (i) those who reported use of contraception between pregnancies; and (ii) those who reported no use of contraception at all from menarche to the date they requested tubal ligation. The data were analysed using the Statistical Package for Social Sciences (SPSS) version 10.0. Differences between the different groups within the sample were assessed using the Pearson chi-square test for categorical data. Ethical approval was obtained from the Medical University of Southern Africa.

Results

Participant characteristics

The two groups of participants (users and non-users of contraceptives) were similar in size. Slightly more than half (54%) of the participants reported having not used contraception at all in their reproductive lives. There was no statistically significant difference between the two groups with regard to education level, religious affiliation, marital status, age distribution or profession. The majority of participants were aged over 30 years (96%) and of the protestant Christian faith (85%). Almost all were married (99%), and 98% of participants were not formally employed. Only 3 participants had had tertiary education. The few who were employed had jobs ranging from street vendor to teacher (Table I).

Association between contraception use and outcome

There was no statistically significant difference in the average birth interval between women who used contraception (46%) and those who did not (54%). The majority of participants had unfavourable birth intervals (less than 3 years), with figures of 85% and 80% for non-users and users of contraception, respectively. Similarly, about 90% of subjects had more than 5 children (grand multipara). There was, however, a significant difference between the two groups in terms of family size ($p =$

0.006), suggesting that contraceptive use is associated with smaller family units (Table II).

Discussion

This study is limited by the fact that the women were included in the sample on the basis of their demand for tubal ligation; this is not representative of the general population. Also the consistency of contraception use could not be established retrospectively with accuracy. However, the outcome measures of birth space and family size are a good outcome indicator of contraception use since menarche in this subgroup.

Women seeking surgical contraception in rural Kimpese are mostly poorly educated, unemployed housewives of the protestant faith. This finding indirectly supports the proposition that more educated and employed women are likely to use contraception effectively, have smaller families, and by inference would not request surgical contraception.^{9,10} It would follow that the availability of a wide choice of contraceptive methods alone is insufficient to improve population growth control in settings such as the rural DRC where the education system has totally collapsed (demand-induced utilisation). A recent review of literature from the developing world, however, argues to the contrary,

	Did not use contraception (N = 176)		Used contraception (N = 148)		p-value
	N	%	N	%	
Age group (yrs)					
20 - 30	18	64	10	36	0.736
31 - 40	137	53	120	47	
41 - 45	18	55	15	45	
> 46	3	50	3	50	
Occupation					
Housewives	172	54	145	46	0.407
Street vendor	2	100	0	0	
Teacher	2	50	2	50	
Tailor	0	0	1	100	
Education					
None	24	52	22	48	0.428
Primary	71	55	57	45	
Secondary	78	53	69	47	
Tertiary	3	100	0	0	
Religion					
Protestant	148	54	128	46	0.918
Catholic	25	58	18	42	
Other	3	60	2	40	
Marital status					
Married	174	54	147	46	0.238
Single	2	100	0	0	
Divorced	0	0	1	100	

	Did not use contraception		Used contraception		p-value
	N	%	N	%	
Birth interval					
< 3 years	149	84.7	118	79.7	0.246
> 3 years	27	15.3	30	20.3	
Total	176	100	148	100	
Family size					
< 5 children	5	2.8	15	10.1	0.006
> 5 children	171	97.2	133	89.9	
Total	176	100	148	100	

suggesting that the availability of contraceptives is a critical factor influencing contraceptive decisions (supply-induced utilisation).³

The sub-Saharan region of Africa has the highest average total fertility rate in the world, but there are signs that smaller family sizes are gradually becoming tolerated in several African countries.^{11,12} While demand for family planning services might be increasing, access to the whole range of methods is still limited.^{13,14}

The lack of a significant difference between users and non-users of contraception in Kimpese suggests a high prevalence of inconsistent and incorrect use of contraception during the subjects' reproductive lives. The overall average family size of 6.9 in the study group is comparable with those in other developing countries. Contraception also had no significant impact on family spacing, as only a small proportion of those women who had used contraception previously had an interval of more than 3 years between consecutive pregnancies.

Committing resources to the provision of contraception to populations of women in highly constrained settings carries a risk that it will have no impact because of the many barriers resulting in suboptimal use of the services. The high rates of under-5 mortality in the DRC, estimated at 205/1 000 in 2005,¹⁵ is among the important factors inhibiting optimal use of contraception. It has been demonstrated, for example, that parents change their reproductive behaviour and are more likely to have their next child sooner if a newborn dies than if it survives.^{16,17} Unless contraceptives are made widely available in the foreseeable future, Congolese couples are likely to opt for family sizes of more than 5 children for social and cultural reasons and because of high infant mortality.

Conclusion

To reverse contextual challenges in the DRC will require significant investment and long-term health system interventions. Until then, investment in a family planning programme with a limited choice and unreliable supply chain poses a risk of wastage, as the final outcome compared with non-users is not significantly different. The popularity of surgical contraception elsewhere in Africa raises hope that a similar trend will reach the DRC. This method is accepted mostly for economic reasons but also because of an acceptable complication profile.^{18,19}

Policy makers should understand the nature of barriers to contraception uptake, endeavour to invest more in a sustained supply chain, and prioritise a package that includes long-acting reversible contraceptives (e.g. injectables, implants and intrauterine contraceptive devices) as well as surgical contraception.

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Nzapfurundi Chabikuli supervised the design, planning, and reporting of the work. He had the idea for the article, performed the literature search and wrote the article. As such he is the guarantor of the paper.

Phillipe Lukanu was the principal investigator of the research on which this article is based. Under supervision, he was involved in the conception, design, analysis and interpretation of data. He critically revised the article with important intellectual input and is to offer final approval of the version to be published.

1. Commission on Macroeconomics and Health. *Improving Health Outcomes of the Poor: The Report of Working Group 5 of the Commission for Macroeconomics and Health*. Geneva: World Health Organization, 2002.
2. Noble J, Potts M. The fertility transition in Cuba and the Federal Republic of Korea: the impact of organized family planning. *J Biosoc Sci* 1996; 28: 211-225.
3. Campbell M. Consumer behaviour and contraceptive decisions: resolving a decades-long puzzle. *J Fam Plann Reprod Health Care* 2006; 32(4): 241-244.
4. Adler MW. Antiretrovirals for the developing world. *Lancet* 1998; 351: 232.
5. Colebunders R, Karita E, Taelman H, Mugenyi P. Antiretroviral treatment in Africa. *AIDS* 1997; 11: suppl B, 5107-5113.
6. National Ministry of Health, Democratic Republic of Congo. *Annuaire Sanitaire, Exercice 2001*. Kinshasa: Ministry of Health, 2003.
7. Central Bank of Zaire. *Rapport Annuel*. Kinshasa: Banque du Zaire, 1992.
8. Oxfam UK, Save the Children Fund, Christian Aid. No End in Sight: The Human Tragedy of the Conflict in the Democratic Republic of Congo. 2001. A technical report, accessed on http://www.oxfam.org.uk/what_we_do/issues/conflict_disasters/noend_drc.htm (accessed 4 February 2007).
9. Uchudi JM. Spouses' socioeconomic characteristics and fertility differences in sub-Saharan Africa: does spouse's education matter? *J Biosoc Sci* 2001; 33(4): 481-502.
10. Oheneba-Sakyi Y, Takyi BK. Effects of couples' characteristics on contraceptive use in sub-Saharan Africa: the Ghanaian example. *J Biosoc Sci* 1997; 29(1): 33-49.
11. Gould WT, Brown MS. A fertility transition in Sub-Saharan Africa? *Int J Popul Geogr* 1996; 2(1): 1-22.
12. Kirk D, Pillet B. Fertility levels, trends, and differentials in sub Sahara Africa in the 1980s and 1990s. *Stud Fam Plann* 1998; 29(1): 1-22.
13. Lucas D. Fertility and family planning in Southern and Central Africa. *Stud Fam Plann* 1992; 23(3): 145-158.
14. Kakande HW. Vasectomy. The men are willing but facilities are inadequate. *Afr Women Health* 1993; 1(4): 8-12.
15. UNICEF. At a glance: Democratic Republic of the Congo, Statistics. 2002. http://www.unicef.org/infobycountry/drcongo_statistics.html (accessed 6 February 2007).
16. Kimani M. Behavioural effects of infant and child mortality on fertility in Kenya. *Afr J Reprod Health* 2001; 5(3): 63-72.
17. Ronsmans C. Birth spacing and child survival in rural Senegal. *Int J Epidemiol* 1996; 25(5): 989-997.
18. Ruminjo JK, Ngugi F. Safety issues in voluntary female surgical contraception: peri-operative complications. *J Obstet Gynaecol East Cent Africa* 1993; 11(1): 24-28.
19. Ruminjo JK, Lynam PF. A fifteen-year review of female sterilization by minilaparotomy under local anesthesia in Kenya. *Contraception* 1997; 55(4): 249-260.