

Effects of Behavior Change Communication Interventions on the Adoption of Contraceptive Methods in Urban and Peri-Urban Districts of Senegal

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Abstract: The Senegalese Urban Health Initiative (ISSU) was a six-year project (2009-2015) implemented by Intrahealth International, Senegal. This project aimed to improve the quality of life of the poorest urban populations in Senegal by increasing access, quality and use of FP services. The aim of this study is to determine the effects of behavior change communication interventions of the ISSU project on the adoption of modern contraceptive methods in 10 urban and semi-urban districts of Senegal. For the evaluation, we use quantitative methods. To do this, we use data from the baseline survey and the final survey in the project areas. A total of 9 614 women were included in the study. In this study we proceed to a descriptive study with an analytical aim. The evaluation showed an increase in the contraceptive prevalence of target FARs. Modern contraceptive use increased from 1154 users (16.7%) to 1727 (24.9%) users with an increase in the use of long-acting methods: IUDs: 448 (6.5%) to 583 (8.4%); Implants (0.8 to 1.8%); Injectable (5.7 to 5.9%). The study shows a decrease in unmet needs between the two surveys from 14.9% to 13.7%, especially among those with unmet needs in relation to birth spacing (10.6% to 8.4%). Several interventions in the FP generation project significantly impacted on the adoption of modern contraceptive methods ($p < 0.05$). These include PF information in health facilities, PF information from private pharmacies, community interventions (community niches, home visits to relays, etc.), the use of telephony with calls and the involvement of the religious. Multiple logistic regressions concludes that the adoption of modern method of contraception by women was linked with being exposed to PF messages through advertising spots ($ORa = 0.43$ [0.13-0.87]) and having participated in a community conversation on PF ($ORa = 0.43$ [0.23-0.80]). The ISSU project through its demand generation interventions (community activities, the use of mass media in FP promotion,) has significantly increased contraceptive prevalence in intervention sites.

Keywords: Family Planning, Behaviour Change Communication, ISSU

1. Introduction

There are an estimated 225 million women in developing countries who would like to delay childbearing or having no children but do not use any means of contraception. They are 214 million women of reproductive age in developing

countries who want to avoid pregnancy are not using a modern contraceptive method [1]. Contraceptive use has increased in many parts of the world, particularly in Asia and Latin America, but remains low in sub-Saharan Africa, where it has increased from 23.6% to 27.6%. In Senegal, it is estimated that 66% of women can be considered as potential

candidates for family planning because they no longer want children (21%) or want to space their next children for at least two Years (45%) according to the continuous DHS 2012-2013 [2]. In Senegal, 42% of the populations live in urban areas. The rate of contraceptive prevalence is high (17%), among the poor living with unmet need amounting to 34%. The Senegalese Urban Health Initiative (ISSU) is a six-year project (2009-2015) that has supported the national policy of Family Planning in Senegal. The ISSU project aimed to improve the quality of life of the poorest urban populations in Senegal by increasing access to, quality and use of FP services. The ISSU project had interventions for supply, advocacy and demand generation for modern contraceptive methods. Interventions of generations demand have involved community activities (home visits, community niches, forums, theaters etc.), the use of telephony to convey family planning messages through SMS and phone calls, the use of the internet, the implications of religious in the promotion of family planning, the use of private pharmacies in the provision of advice for the adoption of family planning method. Activities included the "Systematic Client Needs Identification" which is a strategy of providing FP counseling in the health facility at each contact with a client before and after childbirth. Studies showed the impact of behavior change communication interventions on the contraceptive Behavior of Women. Findings showed that complementary messages and interpersonal communication could help to create an environment where the practice of contraception is perceived as a social norm [3, 4]. Contraceptive utilization influenced by socio-economic and demographic factors [5]. Also, some findings illustrated the profound differences that exist in health and nutrition status between different income groups in cities of the developing world [6]. The objective of this study is to determine the effects of behavior change communication interventions of the ISSU project on the adoption of modern contraceptive methods in female populations living in 10 urban and semi-urban districts of Senegal in the cities of Dakar, Pikine, Guédiawaye, Mbour, Mbao, Kaolack.

2. Methodology

We will use as a methodology evaluation, a quasi-experimental assessment before and after.

For our evaluation, we used baseline and final survey databases. These surveys were carried out by the MLE project (Measurement Learning and Evaluation) under the design of the evaluation of the ISSU project. Field surveys were conducted for the first phase from April to August 2011 and for the second phase from April 2015 to August 2015.

The first field phase corresponds to the baseline survey. For this phase, a stratified two-stage area sampling approach was used to obtain a representative sample of eligible women in each city. In the first stage, a random sample of primary sampling units (PSUs) was selected in each city. At the second level, in each of the PSUs selected at the first level, a fixed number of 21 households were selected with a

systematic draw with equal probability. In total, 9614 women were surveyed in the baseline survey.

The second phase, which corresponded to the endline survey, consisted of two components: a tracking survey component and a household survey component (women and men). The survey was conducted on all project sites. Thus, all women who were interviewed successfully in the baseline survey were first revisited to update their household addresses and phone contacts.

Included were all women who were successfully surveyed in the baseline survey and who were regular members of the selected households and, for those found, household and individual female questionnaires were administered. At the end of the survey, 7674 women were found and 6927 women were interviewed (a response rate of 90%).

Information was collected on the socio-demographic characteristics of women, including education and marriage, knowledge and use of contraception, history of reproductive, health events, fertility preferences, exposure to media, migratory movements.

Data analysis consisted of two parts: a descriptive part and an analytical part. In the descriptive part, we described the variables studied by their frequency or mean. In the analytical part, we carried out a bi-varied analysis taking as a dependent variable the adoption of a modern method of contraception and as exposure variables participation in the different interventions of the ISSU project concerning the generation of the demand. All variables whose $p < 0.25$ had been integrated into the model with multi-varied logistic analysis. The data was entered and processed using CsPro software (Census and Survey Processing System). Data analysis was done using software R 3.1.3.

3. Results

3.1. Characteristics of the Study Population

In the study population 95% were Muslims. The average age of women is 28.56 years in the baseline survey, while it is 32.59 years in the end line survey. The proportion of educated women is higher in 2015 (decrease of uneducated women from 2442 to 1532 women). The number of married or couple women increases from 4042 to 4601 women. In the baseline survey, 7.6% of women had neither seen nor heard about FP versus 0.4% in the final survey. In the baseline survey, women aged 15 to 19 were the most likely to use contraception (20.2%). In the endline survey, women aged 25 to 29 use contraception (19.8%). We found in our study a percentage of lactating women of 16.7%.

3.2. Use of Contraception

Regardless of level of education, there is an increase in modern contraception at the endline survey. There was a decrease in unmet needs between the 2 surveys, particularly among those with unmet needs in relation to birth spacing (10.6% to 8.4%). On the other hand, unmet need in relation to birth control increased from 4.4% to 5.2%.

Table 1. Distribution of modern contraceptive users according to the individual characteristics of women.

	Use of modern contraception Baseline survey %	Use of modern contraception End line survey %
Education		
Uneducated	35.3	22.1
Primary class	35.1	33.4
Secondary class	26.6	24.9
Bachelor and university	3	5.6
Other	0	13.8
Matrimonial status		
Never married	35.5	25.8
Married /couple	58.4	66.6
Divorced/single	4.7	5.6
Widowed	1.2	2
Residential area		
Dakar	16.6	17.3
Guédiawaye	12.9	12.6
Pikine	11.8	11.4
Mbao	11	12.2
Mbour	22.8	22.7
Kaolack	24.8	23.8
Religion		
Muslim	94.9	95.1
Christian	4.6	4.6
No religion/other	0.2	0.2

The use of modern contraception increased between the baseline survey and the final survey. Women using modern contraception increased from 1154 users (16.7%) to 1727 (24.9%). Similarly, the proportion of women who had neither seen nor heard of FP decreased between the 2 surveys (7.6% in the baseline survey versus 0.4% in the final survey).

There is a gradual increase in the percentage of women using long-acting methods: IUD: 448 (6.5%) to 583 (8.4%); Implants (0.8 to 1.8%); Injectable (5.7 to 5.9%).

The study shows a decrease in unmet needs between the two surveys from 14.9% to 13.7%

Table 2. Distribution according to types of methods.

	Proportion of women using the contraceptive method Baseline survey %	Proportion of women using the contraceptive method Endline survey %
No contraception	81.7	73.3
Female sterilization	0.4	0.6
Male sterilization	1.4	7.1
Implant	0.8	1.8
IUD	6.5	8.4
Injectable	5.7	5.9
Contraceptive Pills	0.0	0.0
Emergency contraception	1.7	0.9
Male Condom	0.0	0.0
Female Condom	0.2	0.1
Lactational Amenorrhea Method (LAM)	1.3	1.3
Other modern contraceptive	0.4	0.5

3.3. Factors Associated with the Use of Modern Contraception

Sixteen percent (16.3%) of women received advice and information on family planning in a health facility prior to childbirth. Receiving advice from the pre-delivery health structure has a statistically significant relationship to the use of modern contraception ($p < 0.05$). Similarly, receiving post-partum FP counseling is statistically associated to the use of modern contraceptive methods ($p < 0.05$). Attendance of a health facility in the last 12 months is significantly associated to the use of modern contraception methods ($p < 0.05$).

The use of mass media (radio, television) was significantly

associated with the use of modern contraception ($p < 0.05$). At the same time, receiving information on FP by telephone is significantly related to the adoption of a modern method of contraception ($p < 0.05$). This is not the case for PF information received by sms.

PF information received in young areas over the past 12 months has a positive impact on the adoption of modern contraceptive methods. This is not the case with the use of the Internet to convey messages about FP (table 3). The awareness of FP by a religious leader is significantly associated to the adoption of modern FP methods (Table 3).

Table 3. Factors associated with the use of modern contraception among women in the final survey.

	Use of modern Contraception %	p
Has received Family planning counseling in health facility before delivery *	16,3	0.029
Has received Family planning counseling in health facilities after delivery ***	47	0.000
Has used a health facility within 12 months ***	58,5	< 2.221e-16
Has received PF advice from pharmacy ***	0,2	2.465e-08
Has met a community leader talking about FP within 12 months	35,6	0.142
Has read information about FP in a newspaper	34,2	0.223
Has heard family planning info on the radio *	70,4	0.014
Has seen a spot / advertisement on FP ***	69	0.009
Has seen information on FP on TV in the past 3 months **	80,3	0.004
Has received FP information in in youth space in past 12 months *	34,4	0.011
Received FP info by phone ***	1	6.885e-05
Received FP info by sms in last 3 months	0,01	0.726
Has seen PF information by internet	26,6	0.054
Has PF info through the meeting of a community organization ***	48,3	2.576e-08
Participated in a community conversation on FP ***	29,4	< 2.2e-16
Participated during the last 12 months in a niche animated by a community health worker ***	11,8	2.357e-08
Received a home visit from community health worker about FP in the past 12 months ***	18,9	< 2.2e-16
Participated in a community public activity on FP in the past 12 months *	0,7	0.01319
Has heard a religious leader on the FP ***	72,3	0.0001891

* Significant $p < 0.05$; **highly significant $p < 0.01$; *** Extremely significant $p < 0.001$

3.4. Multi-Varied Analysis

The adoption of modern method of contraception by women was linked with being exposed to PF messages through advertising spots (ORa = 0.43 [0.13-0.87]) and having participated in a community conversation on PF (ORa = 0.43 [0.23-0.80]).

Table 4. Multivariate logistic analysis of the use of modern contraceptive methods.

	OR	95% CI
Has received Family planning counseling in health facilities before delivery		
No	0.72	0.34-1.5
Yes	1	
Has received Family planning counseling in health facilities after delivery		
No	0.77	0.43-1.3
Yes	1	
Has used a health facility within 12 months		
No	1.84	0.43-1.30
Yes	1	
Has received PF advice from pharmacy		
No	1.81	0.13-48.71
Yes	1	
Has heard family planning info on the radio		
No	1.46	0.65-3.37
Yes	1	
Has seen a spot / advertisement on TV		
No	0.35	0.13-0.87
Yes	1	
Participated in a community conversation on FP		
No	0.43	0.23-0.8
Yes	1	
Participated during the last 12 months in a niche animated by a relay		
No	0.8	0.38-1.6
Yes	1	
Received a home visit from community health worker about FP in the past 12 months		
No	0.96	0.51-1.8
Yes	1	
Has heard a religious leader on the FP		
No	0.75	0.38-1.49
Yes	1	

4. Discussion

In Africa, the use of modern contraception is constrained by insufficient knowledge about contraceptive methods and insufficient information on family planning [7]. In Senegal, contraceptive prevalence among women in unions is 22%, all methods combined. The prevalence of modern methods is 20%. The main methods used are injectable followed by pills and implants. Significant disparities are noted between urban areas (53.4%) and rural areas (30.7%) [8]. In our study, the use of modern contraception increased between the baseline survey and the final survey. Women using modern contraception increased from 1154 users (16.7%) to 1727 (24.9%). The study shows also a decrease in unmet needs between the two surveys from 14.9% to 13.7%. This trend is in line with the increase in the contraceptive prevalence rate in Senegal. Despite the fact that the average annual growth rate of the contraceptive prevalence rate worldwide is 0.5%, Senegal has managed to make 4 points per year for three successive years [2]. The use of contraceptive methods by women in unions continues to increase: 22% for all methods combined, and 20% for modern methods, compared with 16% for the HDS-Continue 2012-2013 [2]. In our study, there was a decrease in unmet need between the two surveys, especially among those with unmet needs in relation to birth spacing (10.6% to 8.4%). On the other hand, unmet needs in relation to birth control remained substantially the same before and after the project (4.4% to 5.2%). In Senegal, unmet need for family planning among married women is still high: total unmet need - 29%, unmet need for birth spacing - 22% and unmet need for family planning of births - 8% according to the Demographic and Health Survey in Senegal (DHS), 2010-11 [9]. According to the STEP UP study by Machiyama K. & Cleland J. 2013, Senegalese women with an unmet need, based on an analysis of the 2010-2011 DHS data were classified into three main groups: a positive attitude; having access but not a positive attitude; and not having access [10]. Most of those without access did not intend to use family planning. The main self-reported reasons for non-use were respondent opposition (18.6%) and uncommon intercourse (17.7%), followed by breastfeeding and health concerns. According to the study, unmet needs were very high among lactating women. The main reason was that women breastfeeding a child two years of age or younger were significantly less likely to want another child in the near future than women who had weaned their child but were not more likely to use a contraceptive method. In the final survey, we found in our study a percentage of lactating women of 16.7%. Stopping fertility behavior is rarely observed in French-speaking sub-Saharan Africa, with the possible exception of Rwanda and Togo, where timely use of stop contraception begins. This result is to a certain extent similar to that of F. and E. Van de Walle: "In Africa, as much as spacing strategies are evident, strategies for arrest are rare" [11].

The increase in the percentage of women using long-acting

methods: IUD: 448 (6.5%) to 583 (8.4%); Implants (0.8 to 1.8%); Injectable (5.7 to 5.9%) mirrors the contraceptive prevalence rate among women in unions who increased (22%), all methods combined in Senegal, the prevalence of modern methods being 20% according to the DHS Continuous in 2014 [12]. The main methods used are injectable followed by pills and implants [13]. In Senegal, improving women's socioeconomic characteristics and raising public awareness of modern contraception would contribute to better use of modern contraceptive products [14]. The use of modern methods of contraception is progressing with the educational attainment of women, with the most educated women being the first to participate in a process of controlling their fertility through the use of modern contraception. In our study, both in the baseline survey and in the final survey, the use of modern contraception is higher in more educated women: primary (486) versus uneducated (381) in the baseline survey; Primary level 696 versus uneducated 408 in the final survey. However, it is also evident that between the two surveys there is an increase in the prevalence of modern contraceptive methods between women of the same educational level. Example: uneducated 408 in the final survey and 381 in the baseline survey; Primary (696-486); Secondary education (326-248). We link this increase to the interventions of the ISSU project, especially those related to communication activities for behavior change. In both small and large cities, active family-building strategies are widespread [15]. In our study, most women interviewed showed active family planning strategies to meet planning needs related to birth spacing desires (1110 women in the final survey).

When media are used to promote existing programs, they can familiarize audience members with health behavior change products and services, and encourage the audience to call, write, or participate in programs [16]. The ISSU program used different communication channels in these communication strategies. These are television, radio and newspapers. The analysis of the data showed that the use of television and radio had a significant impact on the adoption of the PF method by the woman (info on the PF on TV during the last 3 months $p = 0.004$; viewing / advertising on FP on TV $p = 0.009$; PF info on radio $p = 0.015$). On the other hand, the use of newspapers as a means of distributing PF news has no impact on the adoption of modern FP methods ($p = 0.224$). According to the Ministry of Health of Senegal, the majority of Senegalese women (82.46%) do not consult any newspaper or magazine [17]. Women have radio as their main media (70.39%), followed by television (56.12%) and newspapers (14.44%). The data show that the majority of women (82.46%) do not consult any newspaper or magazine. In addition, the belief in myths about family planning is much higher among married women. It is rooted in a lack of awareness of the side effects of family planning. Hence the recommendation by Gueye A. and col (2015) to include this aspect in the communication campaigns

concerning FP. The supremacy of radio on other types of mass media for the popularization of messages is partly explained by the fact that it is by far the most democratic medium [18]. This is because it plays with linguistic or physical barriers and the absence of an electrification network outside major urban areas, but also because it is the medium that can reach the greatest number of individuals, is in an area of civilization where orality occupies a central place [19]. In our study, multivariate analysis showed that adoption of modern contraceptive is linked to exposition in PF commercial spot on TV (ORa = 0.43 [0.13-0.87]). Other studies showed the positive impact on behavior of Health Communication Campaigns using TV [20, 21].

Various community activities were carried out during the program. The evaluation showed that the communities that were affected by these community activities were statistically sensitive at $p < 0.05$. Multivariate analysis showed that it exist association between participation in community conversation and adoption of modern method contraceptive ORa = 0.43 [0.23-0.80]. Community involvement is an important dimension of development strategies, of which it is both an element of the process and a goal. It has become a fundamental component of health interventions [22]. The study by Ilene S. (2009) showed a significant association between community activities promoting family planning and the adoption of modern methods of contraception by women [23]. In this study, several pathways of influence between the community and the individual were identified, which would explain the importance of community programs in behavior change. According to Kabore S. et al. (2016), the dual approach: "local culture and community participation" as a support for implementing health programs is effective in reducing cultural barriers to access to health services [24]. Thus activities involving community participation would increase the use of modern contraceptive methods in a particular African context where perceptions, beliefs and misconceptions constitute a real obstacle to the supply of contraceptive products

5. Conclusion

This work led to the conclusion that Community-based activities to promote family planning and Health communication campaigns using TV impact as behavior change communication strategies had a positive impact on the adoption of modern methods of contraception by women of reproductive age living in the urban and sub-urban localities in Senegal.

The limits of this evaluation are related to the methodology. A mixed estimate with a complementary qualitative approach would have made it possible to explore the change in behavior related to ISSU interventions. Furthermore, in the period of the implementation of the program of ISSU, Senegal launched the national FP plan, which resulted in the implementation of several other FP projects. All the results observed cannot therefore be attributed to the unique implementation of ISSU project.

Ethical committee approval: Ethical approval of this study was obtained from the National committee ethics of Health research in Senegal (CNERES).

Abbreviation

FP: Family planning

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