

Increasing Access to Family Planning Services in Rural Mali Through Community-Based Distribution

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Context: *Community-based contraceptive distribution (CBD) has been the subject of relatively few quantitative studies, despite the use of these programs in a number of areas where contraceptive prevalence is low.*

Methods: *A CBD program was incorporated into a nongovernmental organization's primary health care system in two subdistricts in rural southern Mali. In two other subdistricts, information and education alone were provided by primary health care workers. A fifth subdistrict served as a control group. Contraceptive knowledge, attitudes and practices were measured prior to program implementation in a pretest survey of 2,994 women and men. After 18 months, a posttest survey of 2,551 women and men was conducted.*

Results: *Women's knowledge of at least one modern contraceptive method was greater after the intervention than before for all three groups: 99% vs. 10% in the CBD group, 71% vs. 10% in the education-only group and 53% vs. 10% in the control group. Women's current use of a modern contraceptive method also increased, from 1% to 31% in the CBD group, from 1% to 10% in the education-only group, and from 2% to 14% in the control group. Oral contraceptives and spermicides were the most popular methods in the CBD group, while the pill accounted for almost all contraceptive use in the education-only and control groups. Similarly, men's ever-use of condoms increased from 9% to 35% in the CBD group and from 7% to 16% in the education-only group, compared with use levels of 6% vs. 10% in the control group.*

Conclusions: *The CBD approach tested in rural Mali raised contraceptive knowledge and practice through use of an existing health care framework, and may be a model for those working to expand and improve family planning programs elsewhere in Africa.*

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Providing effective and acceptable family planning services to sub-Saharan Africa's rural population is a challenge for health care providers and policymakers. Community-based distribution (CBD) is one method of family planning service provision that has been used to reach populations with limited access to services. This approach uses workers who live in or visit communities to provide services that a woman traditionally has had to travel to a clinic outside her community to obtain. In many areas of the world, this system has led to improved access to family planning and increased contraceptive prevalence.¹ In the 1980s, few African countries had CBD programs, but in more recent years such activities have expanded.

Numerous descriptive studies have examined CBD programs, but relatively few rigorous evaluations have been conduct-

ed on such programs in Africa. While descriptive studies provide an important contribution to the general understanding of these programs, research that employs quantifiable measures of impact remains essential.

In Zimbabwe, one of the first countries in Africa to significantly expand its national CBD activities, an analysis using data collected for the Zimbabwe Reproductive Health Survey (conducted in 1984) estimated that 25% of rural women had been visited by a CBD agent. Furthermore, approximately 43% of the couple-years of protection credited to the Zimbabwe family planning program could be attributed to the CBD program.² Such quantitative measures of CBD efforts are few, however.

For example, a review of African CBD programs concluded that further research is needed to identify successful CBD

strategies and to examine the reasons for their failure or success.³ An examination of 14 CBD programs in Kenya found that many evaluations tended to focus on the way in which the programs had been implemented and conducted, rather than on the programs' results.⁴ In Zaire, an impact evaluation of a pilot community project initiated in the 1980s used a quasi-experimental design and found the program to be an acceptable distribution system; it could not, however, establish if the increase in contraceptive prevalence was due to the program or to expanded clinic-based services.⁵

A program's effectiveness depends on how a number of organizational components—such as training, recruitment and supervision of workers, remuneration, the extent of community involvement,⁶ sustainability, cost-effectiveness and the link to formal services⁷—are addressed. Because different strategies can work for different communities, operations research has received increasing recognition as an important part of evaluating these projects.

Mali is one of several sub-Saharan African countries seeking the most appropriate rural distribution system for family planning. Mali's low national contraceptive prevalence level of 5% is compounded by a wide urban-rural disparity in contraceptive prevalence—12% vs. 2%, according to the 1995 Demographic and

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Health Survey (DHS).⁸ Though these figures represent an increase from levels of 5% and 0.1%, respectively, in the 1987 DHS,⁹ the gap is still apparent. These differences may be partly attributable to limitations in access to family planning services in the rural regions of the country.

An examination of CBD activities in Mali provides an opportunity to gain a better overall understanding of the impact of these programs on contraceptive use and of the characteristics of the programs that foster success. The purpose of our work was to determine whether integrating CBD services into a primary health care system can successfully increase contraceptive use. We also intend to illustrate the usefulness of a quasi-experimental research design to evaluate CBD programs.

Background

The first CBD project in Mali, sponsored by the Center for Development and Population Activities, was implemented in 1986 in the rural district of Katibougou. This successful program made use of local men and women to serve as village health teams and recruited more than 5,000 new clients in five years.¹⁰ Its main limitations were its high costs, particularly for transport, and the need for constant supervision of the village health workers.

In 1990–1991, a second CBD project was initiated under the sponsorship of the U.S. Agency for International Development (USAID) to further extend family planning service delivery in Mali. This program was implemented by the national health ministry in nine subdistricts in two regions of Mali, using village-level family planning promoters.¹¹ The promoters conducted educational activities on health and family planning topics, and provided condoms and spermicides in 54 villages.¹²

Because the USAID program was not integrated with other health services and focused exclusively on family planning activities, the nongovernmental organization Save the Children/USA proposed establishing a CBD project in the district of Kolondieba, the site of a primary health care system established in 1987 by Save the Children. By integrating family planning services with this existing primary health care framework, the organization sought to create an alternative to the national, nonintegrated program.

Integrated service delivery models have been identified as a way to offer more comprehensive health services to better meet clients' needs. These programs may also improve the efficiency and effectiveness of service delivery programs. Because inte-

grated programs use an existing health infrastructure and staff instead of duplicating resources, they also have the potential to be more cost-effective.¹³ Nevertheless, while the integration of reproductive health services could enhance program effectiveness, it might also weaken one program component at the expense of another.¹⁴

Save the Children's primary health system covers all five subdistricts in Kolondieba, and includes a network of community health agents (known as family trainers) and nurses who visit each village on a regular basis. In 1991, after intensive training, the trainers and nurses began providing family planning education, but not supplies, in selected villages.

Within two subdistricts, however, 11 villages that had a population of at least 800, had a village association and lacked access to the national program were selected to participate in the CBD program. With the local chiefs' support, each village was asked to select a man and woman to be trained as family planning promoters. These individuals were required to have the support of their village, to maintain confidentiality with their clients and to be literate.

The promoters were trained to provide family planning education through group talks and home visits, to sell contraceptives, and to keep track of their stock of contraceptives and the money they received from the sales. Since it is considered inappropriate in Mali for members of the opposite sex to discuss issues related to sexuality, and because spousal communication on these issues is low, promoters were to work only with villagers of the same sex. Consequently, male promoters were supplied only with condoms and female promoters only with spermicides.¹⁵ Each condom and spermicide was priced at the equivalent of US \$0.06, 20% of which could be kept by the village promoters. (The rest was to be used to purchase new supplies.)

The program became operational in June 1992 after the first supplies were delivered to the villages. Trainers and nurses continued to provide family planning education in the participating villages and in two subdistricts that were not participating in the program. In the participating villages, the promoters also provided education and sold condoms and spermicides. A fifth subdistrict received no family planning activities, thereby serving as a control.

Data and Methods

To evaluate the impact of the CBD program, pretest and posttest surveys were conducted to measure changes in family planning knowledge, attitudes and practices. Service

statistics, activity reports and interviews with trainers were used to monitor the effectiveness of the project's activities over time. The populations of the three study groups were similar—though not identical—which allowed for a quasi-experimental nonequivalent control group design.

The Surveys

The sampling frame for the pretest and posttest surveys was developed from family registration information that had been collected by Save the Children in 1991. (At that time, information on the entire population was recorded and every compound—a group of houses usually comprising a family unit—in each of the villages was numbered.) The sampling methodology was similar for both the pretest and the posttest surveys. In both cases, the population was stratified by sex, according to study group and village. Villages covered by the national CBD program and those that had fewer than 250 inhabitants were excluded from the sampling frame. A total of 81 villages were included in the sample.

To allow comparison between the surveys, the survey questionnaire was adapted from one used to evaluate the national CBD project.¹⁶ There were separate questionnaires for women and men. The results presented in this article compare the findings of the pretest and posttest surveys, using variables selected as representative measures of family planning knowledge, attitudes and practices. Chi-squared or t-tests were used to establish statistical significance of any differences.

The pretest baseline survey was conducted between December 1991 and February 1992.¹⁷ The first compound to be interviewed in each village was chosen through random selection, by having the village chief select a number from an urn containing the numbers of all compounds in the village. The interview team proceeded to the adjoining compound to the left of the first one selected and continued until the desired sample size for the village was obtained.

The anticipated sample size was calculated to provide reasonable estimates of contraceptive knowledge, attitudes and practices in the study population, with 95% confidence. The calculation took into account the fact that the sampling was clustered (with each village consisting of one or two clusters, depending on population size) and assumed that the response rate would be 67%. Women aged 15–49 and men aged 18–60 were eligible for inclusion in the survey; 1,495 women and 1,499 men were interviewed.

Table 1. Selected background characteristics at pretest and posttest among women and men participating in an evaluation of service delivery strategies, by study group membership, Kolondieba District, Mali, 1992 and 1994

Measure	CBD		Education only		Control	
	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest
Women	N=495	N=467	N=507	N=385	N=493	N=437
Mean age (years)	27 (7)	27 (5)	28 (8)	27 (6)	27 (7)	27 (8)
% currently married	99	97	97	95	98	96
Mean no. of children	3.0 (1.9)	3.1 (1.9)	3.1 (2.3)	3.2 (2.1)	3.2 (2.2)	3.1 (2.2)
% with some primary schooling	3	6	5	10	1	5
Men	N=522	N=426	N=514	N=420	N=463	N=416
Mean age (years)	36 (11)	33 (9)	38 (11)	34 (11)	37 (11)	39 (13)
% currently married	85	91	89	87	89	90
Mean no. of children	3.7 (3.6)	3.4 (3.2)	4.1 (3.8)	3.6 (3.8)	4.0 (3.6)	4.5 (3.9)
% with some primary schooling	7	10	8	18	6	7

Note: Numbers in parentheses denote standard deviation.

After 18 months of program activities, a posttest survey was conducted between December 1993 and January 1994. Because the response rate in the pretest was higher than anticipated (greater than 90%), we recalculated the sample size for the posttest survey, conservatively estimating an 80% response rate. A total of 1,289 women and 1,262 men were interviewed for the posttest sample.

Project Monitoring Data

The program’s effectiveness was monitored continually throughout the project. Program statistics (based on the monthly record of activities kept by each village promoter and collated by the non-governmental organization’s staff) provided information on the number of condoms and spermicides sold, the number of men and women making purchases and the number of education activities conducted. Quarterly activity reports written by the trainers documented all program activities and were used to identify problems and devise solutions. Finally, at the end of the program’s first 18 months (in December 1993), the program coordinator interviewed eight trainers and nurses about their impressions of the program and their perceptions of its impact on their other responsibilities.

Results

Characteristics of Samples

Table 1 shows few differences between women’s background characteristics in the three groups. On average, the women were 27 years old and had three children. More than 95% were in monogamous or polygamous marriages. The background characteristics of the posttest groups were also comparable to those interviewed in the pretest survey. Schooling was the only characteristic that varied, both between the pretest and posttest groups and among

the three study groups surveyed. At posttest, 6% of women in the CBD group and 10% of those in the education-only group had some primary schooling, compared with 3% and 5% in the pretest.

Among the men, other differences among the CBD and education-only groups were apparent. In the posttest, men in these two groups tended to be slightly younger and to have fewer children than their respective peers in the pretest, although these differences were not significant. This pattern was not reflected in the control group. As with the women, the proportion of men in all groups with at least some primary schooling was higher in the posttest than in the pretest.

This differential may be partially explained by the gradual increase in education over the past few years. It also may be a function of sampling error. Because pre-

liminary analysis showed that the effect of increased education levels might have a significant impact on the results, we stratified the analyses for all variables in both the men’s and women’s surveys into two groups: those who had had at least primary schooling and those who had not. For most variables, education did not significantly affect the results; we have noted those instances in which it had an impact.

Family Planning Knowledge

Respondents were asked to name all of the birthspacing methods (the term generally used to refer to family planning in Mali) with which they were familiar. Changes over time in the percentage of women and men who could name at least one modern contraceptive method were statistically significant in all three groups (Table 2). In the pretest, this percentage was similar for women in each group. In contrast, the posttest reveals significant increases in contraceptive knowledge in all groups (p<.001). The largest increase was found in the CBD group, followed by the group that received education only; although knowledge also rose significantly in the control group, the size of the increase was smaller. Each group also showed significant increases between surveys (p<.001) in their knowledge of each method (not shown).

The pill was the most widely known method in all three groups: At posttest, 75% of the CBD group mentioned this method, as did 67% of the education-only group, compared with 49% of the control group. More than half of those in the CBD

Table 2. Selected measures of contraceptive knowledge, attitudes and practices at pretest and posttest among women and men in Kolondieba District, by study group membership

Measure	CBD		Education only		Control	
	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest
Knowledge of ≥ 1 modern method	(N=496)	(N=467)	(N=507)	(N=385)	(N=493)	(N=437)
% women	10	99**	10	71**	10	53**
% men	43	91**	27	70**	43	49
Intention to use contraceptives when they become available†	(N=301)	(N=466)	(N=244)	(N=378)	(N=260)	(N=416)
% women	62	85**	51	80**	67	76**
Women’s current modern method use	(N=496)	(N=467)	(N=507)	(N=385)	(N=493)	(N=437)
% any modern method	1	31**	0‡	10**	2	14**
% pill	0‡	16**	0‡	7**	1	9**
% spermicide	0‡	14**	0	0‡	0	0
% other	0‡	2	0‡	2	0‡	5
Men’s condom use	(N=516)	(N=425)	(N=498)	(N=415)	(N=454)	(N=412)
% ever used	9	35*	7	16**	6	10
Discussion of family planning with partner	(N=497)	(N=472)	(N=509)	(N=385)	(N=493)	(N=443)
% women	17	67**	13	41**	16	37**
% men	14	77**	9	47**	17	38**

*p<.01. **p<.001. †Based only on women who know of modern or traditional methods or the term “birthspacing.” ‡Less than 0.5%.

group mentioned spermicides during the interview, probably reflecting their greater access to this method (not shown), while spermicides were virtually unknown in the education-only and control groups (cited by less than 10% of respondents).

Similar gains in contraceptive knowledge were seen among men in the groups receiving CBD and those receiving education only ($p < .001$). A smaller, non-significant increase was also observed in the control group (Table 2). During the pretest, the CBD and the control groups had similar contraceptive knowledge levels, while knowledge was significantly lower in the education-only group. In the posttest, the CBD group had the highest percentage of men naming at least one modern method, followed by the education group. The pill and the condom were the most widely known methods in all three groups—known among more than two-thirds of the CBD group, half of the education-only group and about one-third of the control group (not shown). The increase in knowledge for these two methods was significant for the CBD and education-only groups ($p < .001$). Knowledge of spermicides increased significantly only in the CBD group ($p < .001$), however.

Attitudes Toward Childbearing

To gauge changes in attitudes toward family planning, we analyzed changes from pretest to posttest surveys in ideal family size. (Since younger men and women are less likely than older couples to have already had unwanted births—and therefore less opportunity to report unwanted births as wanted—we used only data for respondents aged 30 or younger in this analysis.)

At pretest, women in each group desired at least seven children, on average, and there were no significant differences between groups (not shown). We observed a substantial change in ideal family size from pretest to posttest, however, for two groups: Both the CBD and the education-only groups reported wanting an average of two fewer children at posttest, bringing the mean ideal number down from eight to six for these two groups ($p < .001$). In contrast, among the men, no group showed any significant change in ideal family size: In all groups, the ideal family size remained between seven and eight children between pretest and posttest.

The percentage of women who intend to use family planning if it becomes readily available to them is another useful indicator of attitudes toward family planning.* At pretest, the education-only group had the lowest percentage of

women who were ready to use family planning (Table 2). While all three groups experienced significant gains by the posttest ($p < .001$), the education group showed the largest gain, followed by the CBD group. Thus, by the posttest, the control group reported the lowest level of intention to practice contraception.

Family Planning Use

Women's current use of a modern method of family planning increased significantly in all study groups ($p < .001$). The largest increase was in the CBD group: from 1% in the pretest to 31% in the posttest. The control group experienced the second-largest increase, from 2% to 14% (Table 2).

All three groups also showed significant increases in their use of the pill ($p < .001$). Again, the largest increase occurred in the CBD group (from less than 1% to 16%). This group was the only one to significantly increase its use of spermicides. There were no significant changes in any group's use of other methods (condoms, injectables or IUDs).

While men's reports of condom use were similar at pretest across the three groups, they differed significantly at posttest, with the CBD group showing the largest gain. In contrast, relatively few women reported using condoms as their contraceptive method. While it is possible that men are using condoms with non-marital partners, this finding may also reflect a misunderstanding of the question, since women may think that it is men, not women, who use condoms.

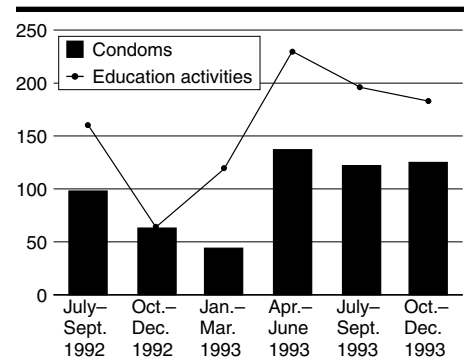
Communication

Most women and men in all groups (87–96%) believe that a woman should not decide to use a birthspacing method on her own. Therefore, the promotion of spousal communication regarding family planning matters is a necessary component to increasing contraceptive use. There was little difference between the women's groups at pretest regarding communication with their husbands about birthspacing. At posttest, increases in communication were significant for all groups of women, with the largest increase in the CBD group.

The results for men are similar. At pretest, there was little difference between the CBD and control groups, while men's communication with their marital partners in the education-only group was significantly lower. By the posttest, changes in communication were significant for all groups, with the largest increase found in the CBD group.

Changes in spousal communication in the CBD and the education-only groups

Figure 1. Number of men purchasing condoms and number of family planning education activities, by calendar period



Note: Condom purchases include both new acceptors and continuing users.

were significantly affected by education, however. While the change between pretest and posttest survey was still significant for these two groups, CBD and the education program had a greater impact on spousal communication among respondents who lacked primary schooling than among those with more schooling.

Project Monitoring Data

• *Program statistics.* Figure 1 shows the relationship in each quarter between the number of men who purchased condoms and the number of family planning education activities carried out by village promoters. (The number of women purchasing spermicides was similar to the number of men obtaining condoms in every quarter.) The purchasers include new acceptors as well as continuing users, since initially this information was not recorded separately.

During the first nine months of the intervention, the number of users decreased progressively. By April–June 1993, however, this number had increased substantially. While purchases decreased slightly over the following nine months, the number of users and acceptors always remained greater than the number during the initial nine months of the program.

With the exception of the period during January–March 1993, the pattern of education activities mirrors the numbers of acceptors and users. Again, education activities rose sharply in the second nine months of the program. The increase both in the number of education activities and in the number of acceptors during April–June 1993 may be attributed to the village pro-

*We measured this intention only among women who spontaneously mentioned a modern or traditional method or who indicated at least some knowledge of family planning through their familiarity with the term "birthspacing."

motors' retraining in April. This additional training occurred after the nongovernmental organization's staff became concerned about the low sales at the beginning of the program, and it was intended to upgrade the promoters' knowledge of family planning and their communication skills.

- *Program activity reports.* The quarterly reports documenting the program's activities showed that the Save the Children staff continually monitored the program's progress, identified problems and took steps to resolve them. Most of the problems encountered can be divided into two categories: those related to the village promoters and those related to community outreach.

The former included promoters who conducted too few education activities, promoters who were more comfortable with individual discussion than with group talks and promoters who had been away from the village or who were sick. Some of these problems were resolved through the April 1993 retraining session. Also, additional promoters were trained (or, in some cases, the remaining promoter was told to temporarily take over village promotion responsibilities) to make up for absent or sick promoters.

Problems related to community outreach included the community's reluctance to accept something new, insufficient funds during the winter months for purchasing contraceptives, difficulty in reaching community members who were working in the fields, hesitance on the part of some residents to allow their name to be recorded in the promoter's notebook, requests by many women for the pill and people who felt that contraceptive use is proscribed by Islam.

Some of these problems were more difficult to solve than others. To overcome community reluctance, more education activities were planned, and the themes of the talks were varied. To reach people who were busy in the fields, group talks were conducted in the fields during breaks. Residents were reassured that their names and personal information would be kept confidential by the promoters. Women requesting oral contraceptives had to be referred to the district health center, since promoters were allowed to distribute only condoms and spermicides. Influential people in the villages were enlisted to discuss the relationship between Islam and family planning and how use of birthspacing methods has always been accepted.

- *Interviews with staff.* One concern that the Save the Children staff expressed prior to initiation of the program was that the additional workload for trainers and nurses

would adversely affect their other responsibilities, such as immunizations and growth monitoring. The eight trainers and nurses interviewed felt that there was no adverse effect, however: They said that family planning activities were easily incorporated into their routine, and that their family planning and child survival activities were simple to coordinate. (Some interviewees mentioned that they passed on family planning messages during vaccination sessions, for example.) Since they were able to perform their supervisory duties during their normally scheduled visits, they did not feel that these placed an extra burden on them.

The trainers and nurses believed that family planning was generally welcomed at the village level. Nevertheless, they were confronted with many obstacles, particularly at the beginning of program activities. Among these was the taboo in many communities against discussing sexuality, as well as myths about family planning, such as the belief that it encourages prostitution.

By the beginning of the second year, however, the trainers and nurses felt that the villagers had begun to understand the principal goals of family planning. They said they had heard villagers state that family planning lessens the risk of closely spaced pregnancies and that it reduces family expenses. In particular, they said, women were asking more questions and young people were discussing contraception more frequently.

Discussion

The results of the pretest and posttest surveys demonstrate that the CBD program had an impact on the family planning knowledge, attitudes and practices in the villages where it was operating. While changes occurred in all three study groups, the CBD program had more of an effect on contraceptive knowledge and use than did education alone, while both were associated with more substantial changes than found in the control group.

This program differs from other similar efforts in Mali, in that it was integrated into an existing health care system, thereby allowing it to take advantage of a network of trained and dedicated health workers. This network also ensured that an effective mechanism existed for supervising village promoters, to allow problems to be identified and resolved quickly. The nongovernmental organization's established presence in Kolondieba and the involvement of the villagers in the selection of the village workers prob-

ably facilitated the acceptance of the CBD program. The program's consolidation into a fully established structure should also increase the likelihood that it will be sustainable, allowing services to be provided at little additional cost.

Potential Biases

While the CBD program and the education-only program achieved many of their original goals, some unexpected outcomes also occurred. These included significant changes in the control group's contraceptive knowledge, attitudes and use, differences in the relative impacts of the CBD program and the education-only program and differences in the program's effects on men and women.

There are several possible explanations for these differences. One is that family planning messages had been broadcast nationally on the radio. However, these messages would probably have had an equal impact in all three study areas.

Another outside influence that may account for changes seen in the control group is that the government's CBD program operated in three large villages located in the same subdistrict as the control group. While no villages participating in the government program were included in the control group, that program may have had an impact beyond its targeted villages. Moreover, a wide variety of contraceptives were also available from a maternity hospital and a dispensary, both located in this same subdistrict. Unfortunately, because Save the Children's operations were confined to a predetermined area, an alternative site could not be located for the control group.

Thus, combined with family planning radio messages, overlap from the national program may have generated additional demand for family planning in this district. The larger increase in contraceptive use in the control group than in the group receiving education alone is consistent with the control group's superior access to family planning services.

On the other hand, the influence of the national program on the CBD and education-only groups was probably minimal. Although the national program was operating in six villages in the subdistricts where Save the Children operated its CBD program, these villages were quite far from the study villages, so the impact of the national program on the nongovernmental organization's efforts was probably small. There are no known programs near the villages that participated in the education-only program.

Another potential source of bias concerns

our description of the project's operations, in that the staff members whom we interviewed may have had a positive bias and may have been reluctant to criticize. However, the information collected in the interviews corresponded with activity reports, and since the interviewees discussed both positive and negative findings, we believe this bias to have been minimal.

Despite these external influences and potential biases, the greatest gains in contraceptive knowledge and use usually occurred in the CBD group, followed by the education-only group. Thus, we conclude that Save the Children's CBD program contributed to the positive changes seen in both of these groups.

Contraceptive Education's Effect on Use

Since individuals in both intervention groups received family planning education, we predicted that changes in knowledge and attitudes on this topic would be similar. However, the changes seen in both groups were not always of the same magnitude. The CBD group showed the greatest increase in knowledge of contraceptive methods and in communication between men and women about family planning, for example. Both groups showed similar changes in their attitudes toward contraception, however, and the results of the posttest show that the attitudes of the two groups are comparable.

Although family planning education was provided to both groups, the two education programs differed in some respects. Members of both groups received periodic visits from nurses and trainers who provided education, and the information provided was identical (the advantages of birthspacing, the correct use and sources of modern contraceptive methods and the prevention of sexually transmitted diseases). However, the CBD group also received continuous education from resident family planning promoters, and women in this group may also have received more information about spermicides in particular, since the promoters supplied this method in the villages. We believe the more comprehensive level of contraceptive education in the CBD group may account for this group's greater contraceptive knowledge.

As expected, the CBD group had the highest usage of condoms and spermicides, as well as the largest overall number of modern contraceptive users. Although condoms and spermicides were the only methods distributed, we believe that the education programs may have generated additional demand for oral con-

traceptives. All of the groups showed an increase in pill use, with the largest increase occurring in the CBD group. Despite the ready availability of condoms and spermicides in this group, oral contraceptives were often requested, and many women made the effort to get them at a pharmacy or health center. While the group receiving education alone did not have easy access to any method, those in this group who made the effort to obtain a method were most likely to get the pill.

We observed that contraceptive education may take some time to show results. The sale of condoms and spermicides proceeded slowly during the first nine months in the villages taking part in CBD. After a retraining session for promoters, however, sales increased, and the number of educational activities was maintained at a higher level. Although sales may have increased over time regardless, this pattern suggests that more intensive education leads to higher method use.

Gender Differences in Program Impact

This CBD program may have had different impacts on men and women. The initial gap between men's and women's contraceptive knowledge had disappeared by the time of the posttest; indeed, the percentage of women in the CBD group who could name at least one method had caught up with and surpassed that of the men. On average, women wanted one child fewer at posttest than did men, also a reversal of the pretest pattern.

One possible explanation for men's greater knowledge of modern methods at pretest is that men had greater access to information. While both women and men have access to radio, men generally spend more time listening to it and are therefore more likely to hear messages about family planning. Also, men tend to travel more than women to the cities, where they may learn about family planning methods firsthand or through male friends and family. Since there is little communication about sexual matters between spouses, the men would be unlikely to share this information with their wives.

A greater change in knowledge and attitudes among women than among men should not be surprising. Women may feel they have more at stake in this issue than do men. For example, some women who participated in focus group discussions in rural Mali reported that men did not understand the true burden of childbirth and raising children, and felt that men viewed children only in terms of labor and as signs of virility.¹⁸

Conclusion

Because of the success of the CBD program, Save the Children expanded its coverage in January 1995. As of January 1997, the program was operating in more than half of the 220 villages in the district of Kolondieba. This expansion has resulted in an overlap in some villages with the national program. Where this has occurred, the two programs have coordinated efforts, with Save the Children taking the lead in education and community outreach and the national program taking responsibility for supplying contraceptives and training and supervising distributors.

In addition, the community-based distribution of oral contraceptives began in January 1995 in 42 villages, and the pill is now available in all CBD areas. As a result, the number of new contraceptive users continues to climb: In 1996, there were approximately 900 new oral contraceptive clients, 1,400 new spermicide clients and 1,800 new condom clients.

Adding a CBD program to an existing primary health care system significantly expanded the family planning knowledge, attitudes and practices of Malian women and men, at little additional cost to the nongovernmental organization that sponsored it, which was already operating a primary health care network in Mali. Since several CBD programs operate in Mali, an important future study would be to compare these programs, their relative impact and their cost-effectiveness. Other nongovernmental organizations may be able to implement such programs without additional funding. In addition, the program's effectiveness merits consideration by those working to improve and expand family planning programs in other francophone African countries.

References

1. Phillips J, Ndhlovu L and Sanogo D, Approaches to community-based family planning service delivery in Africa: two decades of operations research, paper presented at the annual meeting of the American Public Health Association, San Francisco, CA, USA, Oct. 24-28, 1993.
2. Boohene E and Dow TE, Jr., Contraceptive prevalence and family planning program effort in Zimbabwe, *International Family Planning Perspectives*, 1987, 13(1):1-6.
3. Phillips J and Greene W, *Community Based Distribution of Family Planning in Africa: Lessons from Operations Research*, New York: Population Council, 1993.
4. Lewis G, Keyonzo N and Mott P, Community-based family planning services: insights from the Kenyan experience, paper presented at the annual meeting of the Population Association of America, Denver, CO, USA, Apr. 28-May 2, 1992.
5. Bertrand J et al., Community-based distribution of contraceptives in Zaire, *International Family Planning Perspectives*, 1993, 19(3):84-91.

6. Phillips J and Greene W, 1993, op. cit. (see reference 3).
7. Lewis G, Kenyonzo N and Mott P, 1992, op. cit. (see reference 4).
8. Macro International, *Enquête Démographique et de Santé Mali 1995–1996*, Calverton, MD, USA: Macro International, 1996.
9. Traoré B, Konaté M and Stanton C, *Enquête Démographique et de Santé au Mali 1987*, Bamako, Mali: Centre d'Etudes et de Recherches sur la Population pour le Développement; and Columbia, MD, USA: Institute for Resource Development/Westinghouse, 1989.
10. Kak L and Signer M, *The Introduction of Community-Based Family Planning Services in Rural Mali: The Kati-bougou Family Health Project*, Working Paper No. 2, Washington, DC: The Centre for Development and Population Activities (CEDPA), 1993.
11. Huntington D et al., Attitudinal factors affecting women's intention to use family planning services in rural Mali, paper presented at the annual meeting of American Public Health Association, Atlanta, GA, USA, Nov. 10–14, 1991.
12. Population Council, OR project dramatically increases contraceptive prevalence in Mali, *African Alternatives*, 1995, II(1):7.
13. Ness GD, *Existing Patterns of Integrated Programmes—Their Strengths and Weaknesses*, Asian Population Studies Series No. 51, ST/ESCAP/161, New York: United Nations, 1981.
14. Hardee K and Yount K, From rhetoric to reality: delivering reproductive health promises through integrated services, Research Triangle Park, NC, USA: Family Health International (FHI), 1995.
15. Kak L and Signer M, 1993, op. cit. (see reference 10).
16. Ministère de la Santé Publique, de L'Action Sociale et de la Promotion Féminine and The Population Council, *CBD Project Baseline Survey of Men's and Women's Family Planning Knowledge, Attitudes and Practices: Final Report*, Bamako, Mali: Population Council, 1991.
17. Cissé B and Katz K, Increasing access to family planning services in rural Mali: development of a sustainable model of community-based distribution: results of a baseline KAP survey, final report, Research Triangle Park, NC: FHI, 1992.
18. Huntington D et al., 1991, op. cit. (see reference 11).

Resumen

Contexto: Los programas de distribución comunitaria de anticonceptivos (DCA) han sido examinados por un número relativamente limitado de estudios cuantitativos, a pesar del uso de estos programas en varios lugares donde es baja la prevalencia del uso anticonceptivo.

Métodos: Se incorporó un programa DCA al sistema no gubernamental de atención primaria de la salud en dos subdistritos de la región rural del sur de Malí. En otros dos subdistritos, trabajadores de atención primaria de salud ofrecieron solamente información y educación. Un quinto subdistrito fue utilizado como grupo de control. Antes de ejecutar el programa, se evaluaron el nivel de conocimiento de anticonceptivos y las actitudes y prácticas anticonceptivas, mediante el uso de una encuesta de 2.994 mujeres y hombres. Después de 18 meses, se realizó una prueba posterior a la intervención en la cual se entrevistó a 2.551 mujeres y hombres.

Resultados: En los tres grupos, entre las mujeres el conocimiento de por lo menos un método anticonceptivo moderno fue mayor después de realizar la intervención que antes de su realización: 99% contra 10% en el grupo de DCA, 71% contra 10% en el grupo que recibió solamente educación y 53% contra 10% en el grupo de control. También aumentó entre las mujeres el uso de anticonceptivos modernos, del 1% al 31% en el grupo DCA, del 1% al 10% en el grupo que recibió sólo educación y del 2% al 14% en el grupo de control. Los métodos más populares en el grupo DCA fueron la píldora y los espermicidas, en tanto que en los otros dos grupos se utilizó la píldora en forma casi exclusiva. En forma similar, el uso del condón entre los hombres aumentó del 9% al 35% en el grupo DCA, del 7% al 16% en el grupo que recibió sólo educación y del 6% al 10% en el grupo de control.

Conclusiones: El enfoque del programa DCA que se experimentó en zonas rurales de Malí incrementó el conocimiento y la práctica de anticonceptivos mediante el uso de una estructura establecida de atención de salud, y quizás este modelo podría ser beneficioso para expandir y mejorar los programas de planificación familiar en otras regiones del África.

Résumé

Contexte: La distribution communautaire de contraceptifs a fait l'objet de relativement peu d'études quantitatives, en dépit de la mise en œuvre de tels programmes dans plusieurs régions à faible prévalence contraceptive.

Méthode: Un programme de distribution communautaire de contraceptifs a été incorporé à un système de soins de santé primaires organisé par une organisation non gouvernementale dans deux sous-districts ruraux, au sud du Mali. Dans deux autres sous-districts, les prestataires de soins de santé primaires se sont limités à un effort d'offre de documentation et de sensibilisation. Un cinquième sous-district a servi de groupe de contrôle. La connaissance contraceptive, les attitudes et les pratiques ont été mesurées avant la mise en œuvre du programme à travers une enquête préliminaire menée sur 2.994 femmes et hommes. Au terme de 18 mois, une enquête de fin d'étude a été menée sur 2.551 femmes et hommes.

Résultats: Chez les femmes, la connaissance d'au moins une méthode de contraception moderne était plus répandue après l'intervention qu'avant dans les trois groupes: 99% par rapport à 10% dans le groupe de distribution communautaire; 71% par rapport à 10% dans le groupe soumis à une simple sensibilisation; et 53% par rapport à 10% dans le groupe de contrôle. Chez les femmes toujours, la pratique d'une méthode contraceptive moderne s'était également accrue, de 1% à 31% dans le groupe de distribution communautaire, de 1% à 10% dans le groupe sensibilisé, et de 2% à 14% dans le groupe de contrôle. Les contraceptifs oraux et les spermicides se sont révélés les méthodes les plus populaires dans le groupe de distribution communautaire, tandis que la pilule était presque exclusivement retenue dans les groupes de sensibilisation et de contrôle. De même, côté hommes, le recours au préservatif était passé de 9% à 35% dans le groupe de distribution communautaire et de 7% à 16% dans le groupe de sensibilisation, par rapport à un taux de pratique passé de 6% à 10% dans le groupe de contrôle.

Conclusions: L'approche de distribution communautaire testée dans les milieux ruraux du Mali aura accru la connaissance et la pratique de la contraception à travers un cadre de soins de santé existants et pourrait servir de modèle aux organismes désireux d'étendre et d'améliorer leurs programmes de planning familial dans d'autres régions d'Afrique.