

Promoting Birthspacing Among The Maya-Quiché of Guatemala

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Context: A key challenge of the 1990s is increasing the acceptance of family planning in hard-to-reach populations. The Mayan populations in Guatemala lag far behind the nation's primary ethnic group in terms of health indicators and contraceptive use.

Methods: An intervention project was conducted in 1993–1996 in the predominantly Mayan department of El Quiché to increase knowledge about and use of contraceptives, and to improve attitudes toward birthspacing. The effect of the intervention was assessed using program-based data (routine service statistics from the leading family planning organization) and population-based data (a 1992 baseline and a 1996 follow-up survey conducted in eight municipalities).

Results: Knowledge of at least one method and positive attitudes toward birthspacing increased dramatically over the period between surveys. For example, while only 42% of Mayan women in 1992 knew of a modern method, 95% of those interviewed in 1996 did so; moreover, the proportion who responded that birthspacing was "good" more than doubled over the period (from 43% in 1992 to 88% in 1996). Current contraceptive use similarly rose from 5% to 18% in the period between surveys. The number of volunteer promoters, who are able to reach Maya-Quiché women in remote rural areas, increased notably—from 79 in 1993 to 144 in 1995. The study design could not rule out confounding factors. However, logistic regression revealed that program-related variables (i.e., contact with the private family planning clinic and exposure to birthspacing messages in the mass media) and previous reproductive experience (i.e., having experienced a mistimed pregnancy) were important predictors of contraceptive use, once social and demographic factors were controlled for.

Conclusions: The three-percentage-point annual increase in prevalence among Mayan Guatemalans achieved during this intervention demonstrates that the pace of contraceptive adoption can be accelerated in this hard-to-reach population. However, the process requires an influx of resources and a long-term commitment on the part of program administrators and donors.

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Over the past three decades, family planning has evolved from a politically risky, culturally sensitive subject to a household word in much of Latin America. Couples of all socioeconomic levels have made the "quality-quantity trade-off"¹ (that is, they have adopted contraception to have fewer children, in hopes of giving those children better opportunities). The average contraceptive prevalence level in the region has increased from less than 15% of married couples in the early 1960s to 68% in 1999; moreover, the region's total fertility rate has dropped dramatically, from more than six lifetime births per woman during the 1960s to just under three as of 1999.²

Guatemala stands in stark contrast to most of Latin America with regard to fam-

ily planning, however. Although modest gains in prevalence were made over the past 15 years, as of 1998 only 38% of married women were practicing contraception,³ the lowest prevalence level of any Central American country.

This situation can be explained in large part by the marked differences in acceptance rates between the country's two major ethnic groups—Ladinos (Spanish-speakers with a more Westernized lifestyle, who are the dominant group economically, politically and socially) and Mayans (descendants of the ancient Mayan civilization, who still wear traditional clothes and speak an indigenous language at home). There are 23 major linguistic groups within the 40–50% of the Guatemalan population considered

"Mayan," as well as smaller linguistic groups with distinct dialects. Thus, language continues to constitute a major barrier to the greater use of health facilities among Mayan populations, given that most centers are staffed only by Spanish-speaking personnel.

The Mayans are proud of their culture and heritage, and strive to maintain the traditions and values of their ancestors. Because of a historical pattern of political and economic oppression, the different Mayan groups have remained closed to outsiders and skeptical of their motives. This tendency intensified during the period of political violence in the 1980s, when many Mayan communities in the western highlands were destroyed by the Guatemalan military, and in some instances, by guerilla forces.

The disparity between Ladinos and Mayans in both attitudes toward and use of family planning has been evident since studies conducted in the 1970s.⁴ While contraceptive prevalence among the majority Ladino population increased from 27% to 50% over the 20-year period from 1978 to 1998, it only rose from 4% to 13% among Mayans in Guatemala over this period.⁵

The Guatemalan government's lack of

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political will to promote family planning further explains the low contraceptive prevalence. Historically, the private family planning association, the Asociación Pro-Bienestar de la Familia Guatemalteca (known as APROFAM), has been the country's leading provider of contraceptive and other reproductive health services (such as gynecologic care, prenatal care, deliveries, well-baby clinics, and treatment for infertility and sexually transmitted diseases). APROFAM operates clinics in 38 cities and towns throughout Guatemala, as well as a network of community-based distributors (known as *promotores voluntarios*, or volunteer promoters).

APROFAM attempted several pilot projects to introduce family planning among different Mayan communities in the late 1970s and 1980s, with little demonstrable success. In the late 1980s, the organization sought to improve efforts to reach this population and selected an area in the primarily indigenous department of El Quiché to conduct a qualitative study for the purpose of designing a more appropriate intervention. The experience and insights gained could then be used to replicate a model program elsewhere, if it proved successful. This 1990 study consisted of focus groups with Mayan men and women. The discussions were designed to elicit material to better understand cultural values placed on fertility, attitudes toward birthspacing and contraceptive use, and impressions of APROFAM.⁶

Based on results from this qualitative study and on previous experience in the field, APROFAM designed a comprehensive intervention, called the Quiché Birthspacing Project, with the stated objectives of improving attitudes toward birthspacing and increasing knowledge and use of contraceptives. This article documents the extent to which key outcome variables changed between a 1992 preintervention baseline survey and a 1996 follow-up survey.

Intervention Strategies

The intervention, which was conducted by APROFAM as a pilot project in their larger portfolio of services, began in June 1993 and was still running when it was evaluated in 1996. The intervention consisted of the following four main strategies.

- *Improve access to services by increasing the number of volunteer promoters.* Prior to 1992, the main sources of family planning information and services in El Quiché were an APROFAM clinic (located in the department capital, Santa Cruz del Quiché)

and approximately 70 volunteer promoters. Even though Ministry of Health facilities in the department stocked some contraceptives, these government entities gave family planning a low priority. Because two of these three sources are fixed sites (the APROFAM clinic and Ministry of Health facilities), the major means of improving access was to increase the number of promoters, especially those who are bilingual and who reside in the same community as the target population.

- *Improve quality of services through training, supervisory visits and continuous supply of contraceptives.* APROFAM personnel, Ministry of Health personnel and promoters all received initial or refresher training; the number of supervisory visits was increased; and efforts were made to ensure a continuous supply of contraceptives to these facilities.

- *Improve the acceptability and image of APROFAM by forging ties to other development agencies that had gained the trust of the community.* The 1990 qualitative research indicated that Mayans viewed APROFAM negatively, in contrast to the positive, trusting attitude they held toward a number of other development agencies working in the department. The staff of the intervention project invested considerable time in developing strong collaborative ties with these other organizations, trained their staff in reproductive health and gave joint talks at the community level.

- *Increase awareness of the benefits of birthspacing through information, education and communication (IEC) activities.* While some radio and television messages disseminated at the national level reached the El Quiché area, no specialized communications were directed to this population. The intervention sought to target the area with messages through several channels. Given El Quiché's high levels of illiteracy, radio was expected to be the most effective channel; thus, two workshops were held for local radio announcers to familiarize them with issues of birthspacing and contraceptive use. They, in turn, produced two spots that were broadcast periodically on local stations during the project. Project personnel also used a loudspeaker mounted on a vehicle to reach marketplace or community settings. Finally, a video called *Juana*, produced by APROFAM in the Maya-Quiché language, was shown in the community and served to trigger discussions in meetings that followed.

In addition to the IEC activities generated specifically for this project, the population also was potentially exposed to national television messages promoting family plan-

ning that were developed by APROFAM and also happened to run during the project. (Although printed materials were also available at the APROFAM clinic, such material would have had a limited impact on this largely nonliterate audience.)

The intensity of the intervention's activities varied substantially over its duration. Due to start-up delays, the project did not officially begin until June 1993, when a Mayan physician with good leadership skills and a strong community orientation became director. However, in mid-1995, he accepted a position in an international agency and proved difficult to replace; his successor lasted just two months. After several months, APROFAM recognized the potential threat that this vacancy posed to the project and in early 1996 began closer supervision of activities (in the form of monthly supervisory visits) from its central offices.

Evaluation Design

The data used to evaluate the intervention come from two sources: program-based service statistics compiled by APROFAM and two population-based surveys. Although APROFAM tries to minimize the reporting burden for its clinic-based and community-based projects, program records are kept on the number of facilities in operation and the couple-years of protection they generate. For the Quiché Birthspacing Project, additional data were gathered on the characteristics of the volunteer promoters who participated in the program.

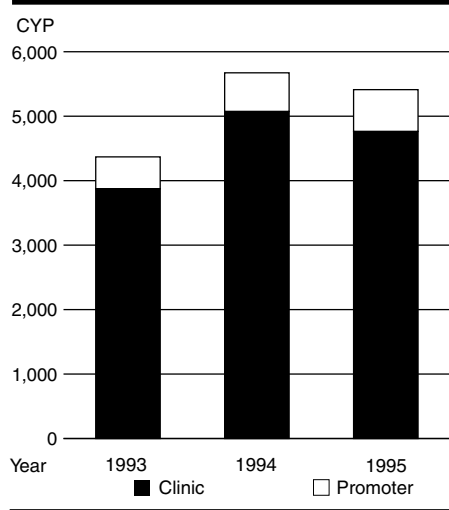
Change in the key outcome indicators was measured using a pretest-posttest separate sample design.⁷ The pretest (in 1992) and the posttest (1996) were conducted in eight municipalities* in the southern part of El Quiché, which were purposively selected for the intervention. (Due to civil unrest, areas in northern El Quiché were excluded.) In the baseline survey, all women in union (formal or consensual) aged 15–49 were eligible (Mayan and Ladino), but Ladinos were subsequently excluded from the analysis. The follow-up survey was limited to Mayan women in union. (Although men were also interviewed in the follow-up survey, they are not included in this analysis.)

Sampling

Two-stage sampling was used for both surveys. For the baseline survey, the first stage consisted of listing all sectors, based

*Chiché, Chichicastenango, Chinique, Joyabaj, Patzité, San Andrés Sajcabaja, Santa Cruz del Quiché and Zacuapa.

Figure 1. Number of couple-years of protection (CYP) generated by contraceptives provided by volunteer promoters and by the APROFAM clinic, 1993–1995



on the 1984 census, in the eight municipalities; these were then subdivided into segments of approximately 65 households each, which yielded a total of 113 segments for all eight municipalities. Thirty-four of these total segments were randomly selected for inclusion in the sample.

During the second stage, the research team mapped each segment and selected 30 households through systematic random sampling. If there was more than one eligible respondent in the household, one was randomly selected for the interview. The response rate for the baseline survey was 95%. The final sample size for the 1992 baseline survey was 846 married Mayan women aged 15–49.

The sampling approach was slightly modified for the follow-up survey.* In con-

*The sampling procedure changed because a different organization provided technical oversight with the follow-up survey, and these data were also intended for additional uses (i.e., to evaluate male involvement in family planning) that are not relevant to the current analysis.

†The ideal evaluation design would have been a true experimental design, involving pretest and posttest measurement in two randomly allocated groups. However, since this type of “true experiment” is virtually impossible to carry out (given the need to randomly allocate subjects to experimental and control populations), the next best alternative would have been a quasi-experimental design, with a pretest and posttest nonequivalent control group (see reference 7). The latter design could not be used in our study because we lacked an “equivalent population” that would not have been exposed to radio messages diffused as part of the intervention.

‡Pharmacies were yet another source of contraceptives. Six of the eight communities had at least one private pharmacy; in these six towns, the number of pharmacies ranged from three in the smaller towns to eight in the main city of El Quiché, Santa Cruz del Quiché. The large majority of these pharmacies carried pills, condoms, spermicides and (less frequently) injectables.

trast to the baseline survey (for which the sample in each municipality was proportional to size), for the follow-up survey, the sample size per municipality was fixed (120 women and 120 men per municipality). Men, however, are excluded from the current analysis. All follow-up data are weighted to accurately reflect prevalence levels in this population and to ensure comparability with the baseline data. The final sample size for the follow-up survey was 958 married Mayan women aged 15–49.

Data Collection

The baseline data were collected from May through August 1992, and the follow-up data, from October through December 1996. The questionnaire for the baseline survey was translated into Quiché, and then back-translated into Spanish for verification.

The follow-up questionnaire was nearly identical to that used at baseline (except for a concluding section with items on male involvement). For both surveys, interviewing was conducted by bilingual Mayan interviewers who were matched with respondents on gender. All interviewers underwent training and field practice, and they were supervised closely.

Multivariate Analyses

Since a pretest and posttest separate sample design does not allow for attribution of effects or permit confounding factors to be ruled out,[†] we conducted multivariate analyses to gain greater insight into the factors associated with the key outcome variable, contraceptive use.

It is widely recognized that contraceptive use is influenced by both supply and demand factors. Supply factors are those relating to the family planning supply environment (i.e., the number and type of sources of family planning, the range and quality of services available through those sources, and so on), while factors influencing demand (for both children and services) include social and demographic characteristics, exposure to modern ideas through the mass media and individual reproductive experiences. For this study, we conducted multivariate analyses using 12 independent variables—three supply (or contact) variables and nine demand variables—to identify the determinants of contraceptive use.

The variables for program contact were APROFAM clinic attendance, receipt of a promoter visit and attendance at a Ministry of Health facility. The demand factors included the respondent's age, education, comprehension of Spanish, employment outside the home, number of household amenities, exposure to birthspacing mes-

sages (through any of four channels—radio, television, loudspeaker and community health worker), experience of a mistimed pregnancy, number of living children and husband's education (not shown).

To determine the relative importance of each of the supply and demand factors in predicting contraceptive use, we tested a series of variables as predictors of current use at the 1992 baseline survey and at the 1996 follow-up survey; we also tested for interactions. If, for example, social and demographic factors were the only significant predictors of use at both points in time, one would have to question whether the Guatemalan family planning program had any role in influencing contraceptive use in this population.

Program-Based Results

Availability of Services

The routine service statistics compiled by APROFAM for the years corresponding to the project and data from the intervention records show several trends. First, the number of promoters grew from 79 in 1993 to 144 in 1995. There was relatively little change in the number of other service delivery points,[‡] either clinics or health centers or posts, over the period 1993–1995.

The proportion of volunteer promoters serving this area who were Mayan increased over the life of the project, from 24% in 1993 to 49% in 1995, thus increasing the number of service delivery points with personnel able to speak Quiché. Even so, by the end of the pilot project, fewer than three-fifths of the promoters (58% in 1995) were bilingual in Spanish and Quiché.

The number of methods the promoters (or the other service delivery outlets) provided changed very little from 1993 through 1995: The APROFAM clinic offered six methods in every year (pills, IUDs, injectables, condoms, female sterilization and vasectomy). While the promoters offered their clients three methods over the life of the project (pills, condoms and spermicides), the Ministry of Health delivery points provided these same three methods in 1993 and 1994, but only pills and condoms in 1995.

Use of Services

In terms of couple-years of protection generated by APROFAM over the three years, those delivered in a clinic setting accounted for the large majority (88–89%, see Figure 1). Also, although the volunteer promoters generated a far lower proportion of the total couple-years of protection each year (the remaining 11–12%), this source is still important for programmatic reasons, since promoters reach users in

Table 1. Selected personal and household characteristics of married Mayan women of reproductive age, by year of survey, El Quiché, Guatemala

Characteristic	1992 (N=846)	1996 (N=958)
Mean age (in yrs.)	28.7	28.2
% who speak a Mayan language at home/with friends	92.7	89.6*
% who speak/understand Spanish	12.4	17.4*
% who wear traditional dress	97.4	97.8
% who ever attended school	29.2	34.9**
% literate†	24.6	26.5
% who work outside home	20.0	27.3***
% currently pregnant	14.5	16.0
% distribution by religion***		
Catholic	41.0	45.2
Evangelical	20.7	27.1
Traditional	19.9	19.5
None	18.4	7.6
% with selected household amenities		
Electricity	11.5	45.5***
Radio	59.8	71.7***
Television	8.7	26.6***
Covered floors‡	6.0	19.4***
Bicycle	11.7	34.1***
Horse	7.4	4.5**
Car or pickup	1.7	4.7***
Motorcycle	0.5	0.7
Mean number of household amenities	1.1	2.1***
Contact with mass media		
% who listen to radio daily	45.5	62.5***
% who watch television daily	6.9	18.5***
% who read newspaper weekly	7.8	6.8
Mean no. of living children (by age)***		
15-19	0.9	0.9
20-24	2.0	2.6
25-29	3.5	3.3
30-34	4.6	4.7
35-39	5.8	6.0
40-44	5.9	6.7
45-49§	6.6	u

*Difference by year is statistically significant at $p \leq .05$. **Difference by year is statistically significant at $p \leq .01$. ***Difference by year is statistically significant at $p \leq .001$. †This response includes those who can read easily or with difficulty. ‡Wood, brick or cement floor. §There were 51 45-49-year-olds in the 1992 sample, but fewer than 10 women in that age-group in the 1996 sample. Thus, no data are available for that year. Notes: Some data are based on reduced sample sizes, including the mean age (Ns of 508 in 1992 and 834 in 1996), and the proportion who speak Spanish (Ns of 790 in 1992 and 849 in 1996). In this and subsequent tables, u=unavailable.

remote areas. Also, some of the increased use of the clinic presumably resulted from referrals by promoters.

The predominance of the clinic reflects the fact that it was the only provider of long-term methods, such as sterilization or the IUD; such methods get "full credit" for the lifetime protection they will give (for example, 10 years for sterilization) in the calendar year in which the service is delivered. In the clinic setting, the method responsible for the most couple-years of protection, by far, was tubal ligation, followed by the IUD, injectables, pills, and condoms or spermicides. The proportion of couple-years of protection accounted

for by sterilization dropped slightly from 1993 to 1995 (from 82% to 74%), whereas that corresponding to the IUD increased (from 8% to 15%), as did the proportion attributable to injectables (from 5% to 8%). Condoms and spermicides played a relatively minor role in the method mix (less than 1% in any given year).

In all three years, the method most widely distributed by the promoters was by far the pill, which accounted for 68-76% of the couple-years of protection generated by these providers, followed by the condom, which accounted for an increasing proportion of promoter-supplied couple-years of protection (from 19% in 1993 to 23% in 1995). Although the volunteer promoters did not originally provide injectables, they started to do so on a limited basis as of 1995; indeed, the service statistics suggest that many women may have switched from the pill to injectables in 1995. As useful as program-based data on couple-years of protection are for monitoring overall levels of program output, the method mix is more accurately reflected by the usage data collected in the population-based survey.

Population-Based Findings

Social and Demographic Characteristics

We begin by comparing the characteristics of the women in the baseline and follow-up samples (Table 1) to identify differences in social and demographic factors between the two samples that could affect outcome variables related to family planning. There were no significant differences between the two samples in terms of mean age (28-29 years), in the proportion who wore traditional dress (97-98%) and in the proportion who were literate (25-27%).

However, there were small, consistent and statistically significant differences in many variables that reflect social change. For example, the percentage speaking Quiché at home decreased slightly over the period (from 93% to 90%, $p < .02$), while the proportion who ever attended school rose (from 29% to 35%, $p < .01$), as did the percentage who were working outside the home (from 20% to 27%, $p < .001$). Nonetheless, we cannot determine whether these changes reflect the subtle influence of modernization or result from sampling error (i.e., that the second random sample just happened to tap a slightly different population).

The data on media exposure and number of household amenities are consistent with the "forces of modernization" argument, however, as there were significant increases in the proportions who reported having such modern conveniences as a radio (60%

vs. 72%), a television (9% vs. 27%), electricity for their home (12% vs. 46%), covered floors (6% vs. 19%) or a bicycle (12% vs. 34%). Ownership of a motorized vehicle (car, pickup truck or motorcycle) also edged upward. Moreover, the mean number of amenities improved from an average of one of the eight listed in the table among women in the baseline sample to two among those in the follow-up sample.

Respondents' exposure to mass media rose markedly over the period, with the percentage who listened to the radio every day increasing from 46% to 63% and that watching television growing from 7% to

Table 2. Percentage of married Mayan women of reproductive age, by views on issues related to pregnancy and childbirth, according to year of survey

Characteristic	1992 (N=846)	1996 (N=958)
% distribution by views on birthspacing***		
Good	42.9	88.0
Bad	31.0	8.9
Do not know	26.1	3.1
% distribution of women who had ever given birth, by wantedness of last pregnancy***		
Wanted at that time	14.6	30.0
Wanted, but later	78.3	53.9
Unwanted	0.3	14.6
Do not remember	6.7	1.5
% distribution of currently pregnant women, by attitude toward pregnancy***		
Happy/pleased	64.2	47.1
Displeased	18.7	34.0
Indifferent	16.3	8.5
Do not know	0.8	10.4
% distribution of nonpregnant women, by attitude toward a pregnancy in near future***		
Happy/pleased	27.5	19.0
Displeased	48.5	69.1
Indifferent	10.8	10.6
Do not know	13.1	1.3
% who want no more children, by no. of living children***		
All	23.3	51.6
0	6.0	4.9
1	8.3	29.7
2	17.3	38.5
3	15.9	56.5
4	18.5	64.8
5	33.3	65.0
≥6	42.8	70.6
% who would consider sterilization,† by no. of living children***		
All	5.5	29.1
0	2.0	22.0
1	2.3	27.5
2	4.8	28.7
3	6.6	36.7
4	4.1	42.3
5	6.8	25.5
≥6	8.8	23.5

***Difference by year is statistically significant at $p \leq .001$. †Excludes women already sterilized. Note: Some data are based on reduced sample sizes, including intendedness of last pregnancy (806 in 1992 and 913 in 1996); attitude toward current pregnancy (123 in 1992 and 153 in 1996); attitude toward a possible pregnancy (723 in 1992 and 793 in 1996); and percentage of nonsterilized women who would consider the procedure (831 in 1992 and 906 in 1996).

Table 3. Percentage of married Mayan women of reproductive age who knew of, had ever used and were currently using a contraceptive, by type of method, according to survey date

Method	Know		Ever used		Currently using	
	1992	1996	1992	1996	1992	1996
Any method	43.1	95.9***	7.3	24.9***	5.2	18.0***
Modern	41.5	94.5***	5.0	18.5***	3.7	13.5***
Pill	30.2	84.1***	2.6	7.5***	1.1	2.7
Tubal ligation	29.6	86.7***	0.2	4.2***	1.8	5.4
Injectable	16.0	72.4***	1.9	5.5***	0.0	2.5
Vasectomy	9.7	56.6***	0.5	0.4	0.5	0.4
Condom	5.3	33.2***	0.2	4.4***	0.2	0.5
IUD	4.8	35.1***	0.1	1.4**	0.1	0.1
Vaginal tablets	4.1	16.5***	0.1	0.5	0.0	1.8
Traditional	9.5	51.9***	2.7	14.1***	1.5	4.5***
Rhythm	5.2	34.3***	1.8	8.4***	1.1	4.2
Lactational amenorrhea	u	19.7	u	5.9	u	u
Natural teas, herbs	3.2	19.3***	0.5	0.9	0.4	0.3
Withdrawal	1.9	6.7***	0.0	2.4***	0.0	0.0

Difference by year is statistically significant at $p \leq .01$. *Difference by year is statistically significant at $p \leq .001$.

19%.* However, the percentage who reported reading a newspaper at least once a week remained constant at 7–8%.

The fertility data collected from women in the two samples reflect the high levels of childbearing reported among Mayan women in nationally representative Demographic and Health Surveys. Women aged 45–49, who have presumably completed their childbearing, had nearly seven living children at the time of the 1992 survey. (There were too few 45–49-year-olds interviewed in 1996 to provide comparable reliable data.)

Reproductive Attitudes

Data on attitudes toward birthspacing document several important changes between surveys. The proportion who believed “it is good to use a method to space births” increased dramatically, from 43% at baseline to 88% at follow-up (Table 2, page 163), while the proportions reporting a negative attitude correspondingly decreased (31% vs. 9%), as did the percentage who “did not know” (26% vs. 3%, $p < .001$). Moreover, among women who had ever given birth, fewer than 1% of those surveyed in 1992 said that their last pregnancy had been unwanted (because they had not wanted any more children at that time), compared with 15% of those surveyed in 1996. These results are ambiguous, however, since the percentage indicating that their last pregnancy had been wanted “at that time” in-

creased from 15% to 30%.

Responses on how women felt about a current pregnancy also demonstrate a shift in attitudes over time. A significantly higher proportion of pregnant women reported being happy or pleased with the timing of their pregnancy in 1992 than in 1996 (64% vs. 47%); conversely, the percentage who were displeased increased (19% vs. 34%).

Women’s receptivity to a possible pregnancy also changed significantly: Among those who were not pregnant, the proportion who indicated they would be happy or pleased with a pregnancy in the near future dropped from 28% in 1992 to 19% in 1996, whereas the percentage reporting they would be displeased increased from 49% to 69%. The decrease over time in the proportion who said they “did not know” how they would feel (from 13% to 1%) possibly reflects women’s greater clarity on these issues at the later survey date. There was no significant change from baseline to follow-up, however, in the proportion of women who were currently pregnant (15% vs. 16%, see Table 1).

Interest in female sterilization also increased significantly between the two surveys, as only 6% of women in the baseline sample said they would consider having the operation once they had had all the children they wanted, compared with 29% of those interviewed at follow-up.

Contraceptive Knowledge and Use

At the baseline survey, fewer than one-half of Mayan women (43%) spontaneously mentioned or recognized (when prompted) any contraceptive method, with knowledge of any modern method being considerably higher than that of a traditional one (42% vs. 10%, see Table 3). By the time of the follow-up survey, howev-

er, contraceptive knowledge had soared: Almost all (95%) knew of at least one modern method and 52% of any traditional method. Overall, 96% of the follow-up sample could spontaneously mention or recognize (when prompted) the name of at least one contraceptive.

The percentage of women who had ever used a method also increased over the period. Whereas only 7% had ever practiced contraception at baseline (5% had used a modern method, and 3% a traditional one), by follow-up, this proportion had increased to 25% (19% a modern method and 14% traditional). Several women reported that they had used both types of methods.

However, little progress was made in women’s knowledge of when they are most likely to conceive (data not shown). While only 5% in the baseline sample could correctly answer “halfway between one period and the next,” that percentage was even lower (2%) among women in the follow-up survey (a finding presumably explained by sampling error). This widespread ignorance about the fertile period is especially troubling, given the relative popularity of rhythm. Indeed, among the 40 rhythm users in the follow-up survey, only three could correctly identify their fertile period.

The prevalence of contraceptive use among married women of reproductive age, a key indicator for evaluating the effectiveness of a birthspacing intervention at the population level, increased significantly, from 5% to 18%. The gain in the use of a modern method (from 4% to 14%) explains most of this increase in use overall. The methods with the largest percentage-point increases were tubal ligation, rhythm and the injectable.

APROFAM was the main source of contraception in this population, with 37–45% of users of methods requiring some contact with a provider citing the APROFAM clinic at either baseline or follow-up (Table 4). Although fewer women obtained their method from a promoter than from a clinic, the proportion relying on a promoter increased fivefold over the period between the surveys.

Media Exposure and Program Contact

As noted earlier, there was a marked increase in the women’s exposure to mass media between 1992 and 1996. However, the study design cannot pinpoint which activities were responsible for changes in contraceptive knowledge, attitudes and practices; in addition, we cannot rule out confounding factors, including other interventions or programs. Nonetheless, it is useful to identify the extent to which re-

*These data on media exposure are fairly consistent with those from the 1995 Guatemalan Demographic and Health Survey—63% of indigenous women reported listening to radio daily in that survey, and 27% said they watched television daily. The respondents in our survey do not “represent” the larger Mayan population in Guatemala, but the consistency of findings lends further credibility to our data.

Table 4. Percentage distribution of current contraceptive users, by source of method, according to year of survey

Source	1992 (N=31)	1996 (N=129)
Private sector		
APROFAM		
Clinic	45.2	37.2
Volunteer promoter	3.2	14.7
Private hospital or clinic	6.5	7.0
Pharmacy	6.5	7.0
Other	0.0	6.2
Do not remember	6.5	13.2
Public sector		
Hospital	16.1	5.4
Health center	6.5	5.4
Health post	9.7	2.3
Social Security facility	0.0	1.6
Total	100.0	100.0

spondents had contact with different program interventions or activities.

As Table 5 shows, only 28% of married women in the 1992 study sample had seen or heard birthspacing messages through any channel. Radio was by far the most frequently cited source (22%), with no other channel mentioned by more than 4% in the baseline sample. By the 1996 follow-up survey, however, the percentage of Mayan women reached by one or more channels jumped to 49%, with the two most frequently cited sources being radio (24%) and loudspeaker (16%).

The responses to questions gauging actual contact with service providers indicate that the proportion who had ever visited a Ministry of Health facility remained constant over the period, but the proportion who had ever been to the APROFAM clinic increased markedly (from 4% to 14%).

Determinants of Contraceptive Use

What caused these significant—and in some cases dramatic—changes between 1992 and 1996? We used multivariate analysis to identify the factors associated with the key outcome variable—contraceptive use (Table 6, page 166). At the time of the 1992 baseline survey, when prevalence was only 5%, three of the contraceptive supply and demand factors emerged as significant predictors of use—having visited the APROFAM clinic, having had a mistimed pregnancy and having been exposed to birthspacing messages through any of the four channels (i.e., radio, television, loudspeaker or a

*It is impossible to determine the direction of causality, however. For example, while a woman may have been more likely to use contraception because she heard the message, it is equally plausible that she may have been more likely to remember hearing the message because she was a user.

community health worker). In addition, there was a significant interaction between visiting the APROFAM clinic and any exposure to birthspacing messages.

Thus, in 1992, the very few women who practiced contraception had a clear-cut motivation for doing so—the experience of a mistimed pregnancy. In addition, women who had seen or heard a message on family planning were more likely to be users than those who were not exposed to such messages.* The negative sign of the coefficient for the interaction between an APROFAM clinic visit and exposure to birthspacing messages indicates that women who went to the clinic were always more likely than those who did not to be users, but the effect was even more pronounced in the absence of media exposure. (That is, for these women, “the clinic was it.”)

By the time of the 1996 follow-up survey, contraceptive prevalence had increased to 18%, and of the 12 variables tested, five emerged as significant (as did one interaction). Three of the five predictors were the same as the determinants of use in 1992—an APROFAM clinic visit, a mistimed pregnancy and exposure to birthspacing messages. The two new independent factors in 1996 were the number of household amenities (a proxy for socioeconomic status) and the respondent’s number of living children. For example, women with 3–4 children were nearly three times as likely to be contraceptive users as were women with fewer children, although this effect was not seen among women who had more than four living children. This finding suggests that women in the middle parity and age range (3–4 children) may now be more aware of their alternatives to continued childbearing, while the oldest and highest parity women (five or more children) are less motivated to use a method.

The significant interaction involved having experienced a mistimed pregnancy and having visited the APROFAM clinic. Among women who had had a mistimed pregnancy, those who had been to the clinic were even more likely to be users than were those who had not, suggesting that the clinic provided women with the means

to act on desires to practice contraception. As noted earlier, the increased willingness to acknowledge that a birth did not occur at the most desirable time is, in itself, a sign of change in women’s desire to have control over their wishes and actions.

The multivariate analysis did not demonstrate effects that could be linked exclusively to the program intervention in El Quiché, such as contact with the promoters or exposure only to radio or loudspeaker messages. However, the effects of the larger APROFAM program are reflected in the two predictors that were significant at both baseline and follow-up—exposure to birthspacing messages via the mass media and having visited the APROFAM clinic.

Discussion and Conclusions

The Mayans in Guatemala represent one of the truly “hard-to-reach” populations of Latin America.⁸ Knowledge of contraceptive methods increased dramatically between 1992 and 1996 within this population of married Mayan women of reproductive age and their attitudes toward birthspacing became more positive. Consistent with the so-called “KAP gap,” contraceptive practice (despite significant gains) lagged behind knowledge and attitudes.

Historically, contraceptive prevalence among the Mayans has increased by about 0.5 percentage points per year (from 4% in 1982 to 10% in 1995), based on nationally representative surveys.⁹ By contrast, in this study, contraceptive use increased by three percentage points per year, going from 5% in 1992 to 18% in 1996.

There are two serious limitations to the

Table 5. Proportion of Mayan women who were exposed to family planning messages via communication channels or through direct contact with services

Source of messages or contact	1992 (N=846)	1996 (N=958)
Communication channel		
Total	27.9	49.0***
Radio	21.9	23.6
Home visit on children’s health	3.9	4.7
Home visit on birthspacing:		
from Ministry of Health worker	0.7	2.5***
from APROFAM promoter	0.6	4.7***
Traditional birth attendant	3.5	8.0***
Television	2.8	7.8***
Sex education class†	0.6	2.5***
Loudspeaker	0.5	16.1***
Contact with services		
% who ever visited Ministry of Health center or post	57.1	59.2
% who ever visited APROFAM clinic	3.8	13.7***
% who ever heard about volunteer promoter	0.7	40.4***
% who reported that promoter lived in their community	0.6	14.2

***Difference by year is statistically significant at $p < .001$. †Asked only of women who responded “yes” to the question “Have you heard about the family life education course taught in schools called *Aprendiendo a Vivir*?”

Table 6. Statistically significant regression coefficients, test statistics and odds ratios (with 95% confidence intervals) from multivariate logistic regression analyses predicting current contraceptive use in 1992 and 1996

Variable and year	Coefficient	Test statistic	Odds ratio
1992 (N=846)			
Visited APROFAM clinic	4.50	6.05	†
Mistimed pregnancy	1.74	2.29	5.68 (1.28–25.30)
Exposed to media	0.79	2.02	†
Interaction between APROFAM clinic and media exposure			
Impact of media exposure with clinic visit	na	na	0.17 (0.03–0.90)
Impact of media exposure without clinic visit	na	na	2.21 (1.02–4.80)
1996 (N=958)			
Visited APROFAM clinic	1.31	3.03	†
Number of living children			
3–4	1.08	4.49	2.95 (1.84–4.73)
>4	-0.15	-0.56	0.86 (0.51–1.45)
Amenities index	0.59	1.72	1.80(0.92–3.53)
Exposed to media	0.88	4.38	2.41(1.62–3.57)
Mistimed pregnancy	-0.64	-2.76	†
Interaction between APROFAM clinic visit and mistimed pregnancy			
Impact of mistimed pregnancy plus clinic visit	na	na	1.84 (0.71–4.73)
Impact of mistimed pregnancy without clinic visit	na	na	0.53 (0.33–0.83)

†Odds ratio not presented because of the existence of an interaction. Notes: For the regression predicting use in 1992, goodness of fit $\chi^2=1.66$, $df=3$, $p=.65$. For the regression predicting use in 1996, goodness of fit $\chi^2=30.04$, $df=26$, $p=.27$.

study design used. First, it does not control for selectivity. There may be some intangible factor (such as disposition to new ideas) that explains why certain persons both seek out media exposure and become users of contraceptives. Second, the study design does not allow one to attribute the observed changes to the intervention. Nonetheless, the analysis does provide useful insight into changes that occurred between the surveys. Access to services was critical; having visited the APROFAM clinic was the most important factor in both 1992 and 1996, and having experienced a mistimed pregnancy also explained use in both surveys. Exposure to media messages had an effect, even when different measures of socioeconomic status were controlled.

In short, this project was successful in achieving its objectives. Although the intervention involved multiple activities, the primary strategy for increasing contraceptive knowledge and use was the infusion

of bilingual volunteer promoters into the target area. Indeed, the overall number of promoters nearly doubled, and the proportion who were bilingual also increased dramatically. Consistent with this increase, the couple-years of protection provided by methods distributed by promoters rose steadily over the three calendar years studied.

The effects of the intervention were also evident in the increased proportions who had heard of an APROFAM promoter, who reported one living in their village, who obtained their method from a promoter and who received a home visit on birthspacing. These findings underscore the promise of this approach in future programs.

Several policy implications emerge from these results. First, they suggest that Mayans are open to the concepts of birthspacing and contraceptive use if these are presented in a culturally appropriate manner. Unfortunately,

the evaluation did not measure exposure to the video *Juana*, but anecdotal evidence suggests that it was effective in stimulating discussion on birthspacing in a community considered closed to outsiders.

In a related vein, programs should take advantage of the growing importance of television, for its ability both to bring information to isolated populations and to intrinsically convey what is “modern.” This medium’s potential for reinforcing birthspacing norms is still increasing in this population, as television ownership nearly tripled over the study period. Although television’s high production and diffusion costs limit the extent to which nonprofit organizations can use this medium, its potential reach and impact argue for investing in this strategy.

In addition, the results suggest that even with a substantial influx of resources, changes in actual practice will be slow at best. Despite dramatic differences in knowledge and attitudes, use changed rel-

atively little; levels of use are still very low compared with those in the majority of developing countries. Donors who are interested in assisting the poorest of the poor in Guatemala must recognize that results will take time, and that they must be in it for the long haul.

This project represented one of the first APROFAM activities to be headed by a Mayan. The organization recognized the need to bring greater ethnic diversity to its staff, especially at the managerial level. Although one cannot measure the extent to which the strong leadership of the Mayan physician from 1993 to 1995 accounted for the success of the project, it was unquestionably a factor. The director had immediate credibility among colleagues and community leaders because of his knowledge of the region and his ability to speak the language. His own conviction about the benefits of the program and about the importance of reaching the Mayan population greatly motivated his team of four supervisors.

However, the experience in trying to replace this first director underscores the difficulty of hiring Mayans to work in reproductive health. Because family planning is not widely accepted among the different Mayan groups in Guatemala, it is not surprising that Mayans with professional training opt for positions in other sectors (such as child health and agriculture, among others).

Finally, the project was designed in the pre-Cairo era and had a narrow focus on birthspacing (albeit for maternal and child health). The post-Cairo emphasis on offering a wider constellation of services may work to further destigmatize family planning for indigenous populations, since it would be included in a package of other services, some of which may have greater appeal.

Ironically, when this research project began, the key question was “Can we increase the acceptance of contraceptives among Mayans?” Now that the project results provide strong evidence that it is possible, the question has become “Can we afford it?” Population funding from international agencies is expected to remain stagnant in Guatemala in the near future (and has in fact declined from the 1997 level). At the same time, the population of women of reproductive age is growing. The government of Guatemala is not likely to make up the shortfall. APROFAM is quickly moving toward self-sufficiency in urban services to Ladino women, but cost recovery is not a viable option among Mayan women, where contraceptive de-

mand is fragile at best.

In the results-oriented climate of the donor community today, investment in projects directed to Mayan or other hard-to-reach populations is risky. Indeed, the challenge strongly resembles that of family planning promotion 30 years ago in agrarian, highly religious and strongly pronatalist populations. Donors should take satisfaction in the fact that family planning has become a household word in much of Latin America. At the same time, they should recognize the challenge of reaching those who still need their assistance, since results are slow in coming. Change is possible with the right approach, even among hard-to-reach populations.

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Resumen

Contexto: *Un desafío clave para los años 90 es elevar el nivel de aceptación de los programas de planificación familiar entre los sectores de población de difícil acceso. Las poblaciones maya de Guatemala están muy retrasadas con relación al grupo étnico principal en términos de indicadores de salud y uso de anticonceptivos.*

Métodos: *Se implantó un proyecto en 1993-1996 en el departamento de El Quiché, cuya población es predominantemente maya, con el objeto de incrementar el conocimiento y el uso de los métodos anticonceptivos, y mejorar la actitud de la gente con respecto al espaciamiento de los nacimientos. El efecto de esta intervención fue evaluado mediante el uso de datos del programa (estadísticas de servicios regulares ofrecidos por la principal organización de planificación familiar) y datos obtenidos de la propia población (mediante una encuesta de línea base realizada en 1992 y otra de seguimiento en 1996, ambas llevadas a cabo en ocho municipalidades).*

Resultados: *El conocimiento de las entrevistadas de por lo menos un método y las actitudes positivas con respecto al espaciamiento de los nacimientos aumentaron muchísimo durante el período comprendido entre las dos encuestas. Por ejemplo, en tanto que sólo el 42% de las mujeres mayas de la muestra en 1992 conocían un método anticonceptivo moderno, este nivel alcanzó al 95% en la encuesta de seguimiento; además, el porcentaje que respondió que el espaciamiento de los nacimientos era "bueno" dobló durante dicho período (del 43% en 1992 al 88% en 1996). El uso actual de anticonceptivos aumentó en forma similar, del 5% al 18% durante el período transcurrido entre las dos encuestas. Aumentó notablemente el número de promotores voluntarios con acceso a las mujeres maya-quiché en zonas rurales remotas—de 79 en 1993 a 144 en 1995. El diseño del estudio no pudo descartar los factores de confusión. Sin embargo, mediante análisis de regresión logística se reveló que las variables relacionadas con el programa (por ejemplo, el contacto con la clínica de APROFAM y haber escuchado mensajes en los medios de difusión sobre las ventajas del espaciamiento de los nacimientos) y la experiencia reproductiva previa (haber tenido un embarazo fuera del tiempo deseado) fueron importantes variables de predicción de uso de anticonceptivos, al ser controlados los factores sociales y demográficos.*

Conclusiones: *El aumento de tres puntos porcentuales en la prevalencia del uso de anticonceptivos entre esta población maya de Guatemala que se logró durante la ejecución de este proyecto demuestra que se puede acelerar el ritmo de adopción de métodos anticonceptivos en este tipo de población de difícil acceso. Sin*

embargo, el proceso requiere recursos y un compromiso a largo plazo por parte de los administradores de los programas y los donantes.

Résumé

Contexte: *Un grand défi des années 1990 aura porté sur l'accroissement de l'acceptation du planning familial dans les populations difficilement accessibles. Les populations mayas du Guatemala présentent un retard flagrant, par rapport au groupe ethnique principal du pays, en termes d'indicateurs de santé et de pratique contraceptive.*

Méthodes: *Un projet d'intervention a été mené en 1993-1996 dans le département principalement maya d'El Quiché, en vue d'y accroître la connaissance et la pratique de la contraception, ainsi que d'y améliorer les attitudes à l'égard de l'espacement des naissances. L'effet de l'intervention a été évalué sur la base de données de programme (statistiques de services de routine du principal organisme de planning familial) et de données démographiques (une enquête de référence et une de suivi menées, en 1992 et 1996, dans huit municipalités).*

Résultats: *La connaissance d'au moins une méthode contraceptive et les attitudes positives à l'égard de l'espacement des naissances ont enregistré une hausse spectaculaire, parmi les répondantes, entre les deux enquêtes. Ainsi, 42% seulement des femmes mayas de l'échantillon de référence de 1992 connaissaient une méthode moderne, par rapport à 95% de celles interviewées au suivi de 1996. Mieux encore, la proportion de répondantes favorables à l'espacement des naissances avait plus que doublé, de 43% en 1992 à 88% en 1996. La pratique courante de la contraception avait également augmenté, de 5% à 18%, pendant la période intermédiaire aux deux enquêtes. Le nombre de promoteurs bénévoles, capables d'accéder aux femmes mayas-quichés des milieux ruraux isolés, avait nettement augmenté, de 79 en 1993 à 144 en 1995. Le modèle de l'étude ne pouvait exclure les facteurs confondants. La régression logistique a toutefois révélé que les variables de programme (contact avec APROFAM et exposition aux messages médiatiques d'espacement des naissances) et l'expérience antérieure (grossesse survenue à un moment inopportun) étaient d'importants prédicteurs de pratique contraceptive, après contrôle des facteurs socio-démographiques.*

Conclusions: *L'accroissement de trois points de pourcentage de la prévalence contraceptive parmi les femmes mayas du Guatemala enregistré durant l'intervention démontre la possibilité d'accélération de la vitesse d'adoption de la contraception dans cette population difficile d'accès. Le processus requiert cependant un apport de ressources et un engagement à long terme de la part des administrateurs du programme et des organismes donateurs.*