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Source: *International Perspectives on Sexual and Reproductive Health*, Vol. 43, No. 2 (June 2017), pp. 51-65

Published by: Guttmacher Institute

Stable URL: <http://www.jstor.org/stable/10.1363/43e3717>

Accessed: 20-06-2018 13:08 UTC

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# Impact of Family Planning and Business Trainings on Private-Sector Health Care Providers in Nigeria

**CONTEXT:** Private health care providers are an important source of modern contraceptives in Sub-Saharan Africa, yet they face many challenges that might be addressed through targeted training.

**METHODS:** This study measures the impact of a package of trainings and supportive supervision activities targeted to private health care providers in Lagos State, Nigeria, on outcomes including range of contraceptive methods offered, providers' knowledge and quality of counseling, recordkeeping practices, access to credit and revenue. A total of 965 health care facilities were randomly assigned to treatment and control groups. Facilities in the treatment group—but not those in the control group—were offered a training package that included a contraceptive technology update and interventions to improve counseling and clinical skills and business practices. Multivariate regression analysis of data collected through facility and mystery client surveys was used to estimate effects.

**RESULTS:** The training program had a positive effect on the range of contraceptive methods offered, with facilities in the treatment group providing more methods than facilities in the control group. The training program also had a positive impact on the quality of counseling services, especially on the range of contraceptive methods discussed by providers, their interpersonal skills and overall knowledge. Facilities in the treatment group were more likely than facilities in the control group to have good recordkeeping practices and to have obtained loans. No effect was found on revenue generation.

**CONCLUSION:** Targeted training programs can be effective tools to improve the provision of family planning services through private providers.

*International Perspectives on Sexual and Reproductive Health*, 2017, 43(2):51–65, <https://doi.org/10.1363/43e3717>

By Jorge Ugaz, Anthony Leegwater, Minki Chatterji, Doug Johnson, Sikiru Baruwa, Modupe Toriola and Cynthia Kinnan

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Despite decades of international family planning programming, there is still a high level of unmet need for family planning in Sub-Saharan Africa.<sup>1</sup> The Family Planning 2020 (FP2020) initiative works to solve this problem through a wide range of approaches, including leveraging the private sector. Robust participation of the private sector can result in an expanded base of users, more efficient distribution networks and flexible partnerships that support new approaches. The private sector is already an important source of family planning in Sub-Saharan Africa: Approximately one-third of modern contraceptive users obtain their methods from a private-sector source.<sup>2</sup> Nigeria in particular has a large private health sector, covering about 60% of all health services received in the country.<sup>3</sup> Nevertheless, the modern contraceptive prevalence rate remains low, at 10%.<sup>4</sup> Specific challenges still confront private providers of modern contraceptives.

First, for-profit or commercial providers have limited access to appropriate training to help them improve their clinical skills in the provision of long-acting and reversible contraceptives, permanent methods and family planning counseling. Most such training is targeted to public-sector providers. Moreover, as business owners, for-profit providers forgo revenue when they participate in trainings.

Although private health workers do not have to report to a government authority,<sup>5,6</sup> they are subject to requirements for continued professional development for license renewal. Trainings that take these concerns into account can attract private-sector participants and enhance outreach and shared knowledge.<sup>7</sup>

Second, lack of access to credit impedes the ability of private providers in Sub-Saharan Africa to offer high-quality family planning services and avoid stockout problems. Providers often do not have the financial statements, business plans or business skills needed for a loan application. These issues make it difficult to allocate resources effectively or plan for expansion.<sup>8</sup>

Third, governments of most Sub-Saharan African countries are unaware of the size and scope of private-sector family planning service delivery because of inadequate reporting to health information systems by private providers. Although both public and private providers are expected to report data to the National Health Management Information System platform, reporting by private providers is often spotty. Private providers perceive data collection as onerous, and they lack a clear understanding of how the data will be used.<sup>9</sup> The lack of complete information makes it difficult for governments

to effectively manage the overall health system and fully harness the private sector.

To address these challenges, the USAID-funded Strengthening Health Outcomes through the Private Sector (SHOPS) project implemented a training and supportive supervision program targeted to for-profit private clinics, hospitals, medical centers and nursing homes in Lagos State, Nigeria, in 2013–2014. This program focused on topics such as clinical family planning issues, family planning counseling and business practices. We conducted an experimental evaluation to examine the impact of offering these interventions to for-profit health facilities on five key outcomes: the number (range) of modern contraceptive methods offered by the facilities, the quality of their family planning counseling sessions, the keeping of updated family planning service statistics for the Ministry of Health, the number of loan applications, and overall facility revenue. The assessment used a combination of mystery client surveys, facility surveys and proprietor surveys.

Our theory of change, based on prior literature, hypothesized that the family planning and business trainings would lead to improved knowledge, attitudes and practices among the targeted providers.<sup>5</sup> Trainings were expected to improve the quality of family planning counseling even for providers who did not attend the trainings, because the trained providers would be encouraged to share information with colleagues within their facility, and facility directors would apply the new standards. The intervention package was expected to encourage facilities to offer a larger range of family planning methods, to improve the quality of their monitoring and reporting of family planning service statistics, to increase their likelihood of applying for and obtaining a loan to expand service offerings and ultimately to increase facility revenue.

RamaRao and Mohanam summarize much of the literature concerning the impact of family planning training on service delivery.<sup>10</sup> In the public sector, they find, family planning training can have a positive impact in several areas: provider knowledge,<sup>11</sup> the quality of counseling and services received,<sup>11–13</sup> the number of family planning methods offered<sup>11,14</sup> and the length of the counseling sessions.<sup>15</sup> One study failed to detect any impact of training on provider behavior.<sup>16</sup> In the private sector, family planning training can improve provider knowledge and quality of services.<sup>17–20</sup> One study, in Uganda, assessed the impact of business training sessions on private-sector health workers, but it did not measure the effect on business outcomes.<sup>21</sup>

Our evaluation builds on this body of literature and makes several contributions. First, ours is one of the few impact evaluations of family planning trainings to focus on private for-profit providers, using a robust and well-powered experimental study design. (Only two prior studies used experimental study designs.<sup>16,22</sup>) Instead of relying only on client exit surveys or providers' reports, we

also use mystery client surveys to assess the quality of family planning counseling sessions. And unlike prior studies, our evaluation examines the combined impact of family planning training and business training on both family planning and business outcomes.

## INTERVENTION

The SHOPS project based the design of its multifaceted intervention on findings from an earlier assessment and a baseline survey.<sup>23,24</sup> The baseline survey found that providers not currently offering implants were interested in providing them in the future. It also detected gaps in the quality of family planning counseling, such as failures to ask about patient preferences, rule out pregnancy and check for contraindications to specific family planning methods. The assessment found that Nigerian private providers lacked business skills and were constrained by limited access to credit.

To address these issues, SHOPS developed an intervention that included different types of training, supportive supervision visits and other complementary services aimed at doctors, nurses and nurse midwives. Given the interest in provision of implants by providers, increasing the number of facilities providing implants was one of the main goals of the intervention, along with improving the general quality of services provided. The intervention also sought to improve business skills and access to credit among providers. This multifaceted intervention was offered only to the treatment group facilities. However, not all treatment facilities participated in all training sessions and other interventions. Individual facilities participated in different combinations of these trainings and complementary activities. Thus, our analysis employs an “intent-to-treat” approach to examine the impact of offering the multifaceted intervention, regardless of participation in the training sessions.<sup>25</sup>

The training activities fell into two general categories: family planning training and business training. As shown in Table 1, five types of family planning trainings were offered to the treatment group. Of these, three covered clinical issues, one focused on counseling practices and one addressed recordkeeping. Basic training sessions were required before a participant could attend the more advanced family planning clinical training. In addition, two business trainings were offered to the treatment group. Participants were not required to attend a family planning training before attending a business training.

During all of the trainings, providers were encouraged to share information with colleagues in their facilities after the training, although no written materials were distributed for sharing. This approach was a key facet of the intervention. Trainees did not receive incentives to share information. All of the trainings were classroom-based workshops conducted in centralized locations, with the exception of the infection prevention and control session, which was an on-site training held at individual facilities.

SHOPS Nigeria recruited facilities to participate in the intervention by sending them letters through courier services. The project followed up with structured reminders, including short text messages and telephone calls several days prior to the trainings. Some of the trainings provided an opportunity for doctors to earn continuing medical education credits as an incentive to attend the training. Nurses and nurse midwives were not eligible to earn these credits. No other incentives were provided to the trainees to attend.

The first family planning training was a three-day clinical session focused on contraceptive technology and was directed toward clinical staff (nurses, nurse midwives and doctors). The didactic aspect of this training allowed providers to practice inserting implants and IUDs on models. Participants were given a starter stock of contraceptives (50 packets of Combi-3 oral contraceptives and 30 injections of Depo-Provera). The clinical training was typically followed by a two-day training session on family planning counseling, which was aimed at doctors, nurses and midwives and was based on the balanced counseling strategy toolkit developed by the FRONTIERS project. Monthly follow-up text messages reinforced the training information. Following the balanced counseling strategy training, a one-day training session on recordkeeping focused on the collection of data to monitor family planning goods and services at the facility level; this session was to be attended by the person responsible for documentation of family planning services. Trainees were given the federal Ministry of Health family planning register and were taught how to properly maintain it. A monthly follow-up visit from a SHOPS project data collector implemented verification checks.

The recordkeeping training was followed by a four-day clinical training session focused on the practical experience of inserting IUDs and implants. This training used both didactic and practicum approaches. For the practicum component, trainees practiced IUD and implant insertion with real clients. Participants were given a starter stock of 10 implants and 12 IUDs at no cost and were referred to the Expanded Social Marketing Project in Nigeria to procure additional stock. (Tracking how much of that stock had been used at endline was not possible because in most cases the facility had already obtained more stock through other sources.) Supervisory monitoring visits were conducted within three months of the training to gauge compliance with protocols related to family planning, reproductive health, maternal and child health and infection prevention and control. SHOPS supervisors visited approximately 70% of the facilities in the treatment group.

This training was followed by a one-day clinical training aimed at all facility staff and focused on controlling and reducing potential infections. An assessment visit was conducted three months after the training, followed by monthly text messages sent to all facilities that belonged to the treatment group. The text messages were to reinforce

**TABLE 1. Characteristics of trainings offered as part of the SHOPS Nigeria project, Lagos State, Nigeria, 2012–2014**

Training	Content	Audience
<b>Family planning</b>		
Contraceptive technology update	Clinical (basic)	Doctors, nurses and nurse-midwives
Balanced counseling strategy	Counseling	Doctors, nurses and nurse-midwives
Recordkeeping	Recordkeeping	Staff member responsible for health information systems
Long-acting and reversible methods	Clinical (advanced)	Doctors, nurses and nurse-midwives
Infection prevention and control	Clinical (advanced)	All staff at facilities
<b>Business</b>		
Managing a healthy business	Basic management practices	Facility owners, proprietors and management/administrative personnel
Financing a healthy business	Financial management	Facility owners, proprietors and management/administrative personnel

knowledge by reminding staff about key eligibility criteria for patients seeking IUDs or implants.

The first business training, on managing a healthy business, focused on building capacity to apply fundamental business management practices. This two-day training was aimed at facility owners, proprietors, management personnel and administrative staff. Another two-day session, on financing a healthy business, was designed to help trainees understand the financial needs of their practices, deal with financial institutions and develop financing plans. No per diem was offered to staff attending the training sessions.

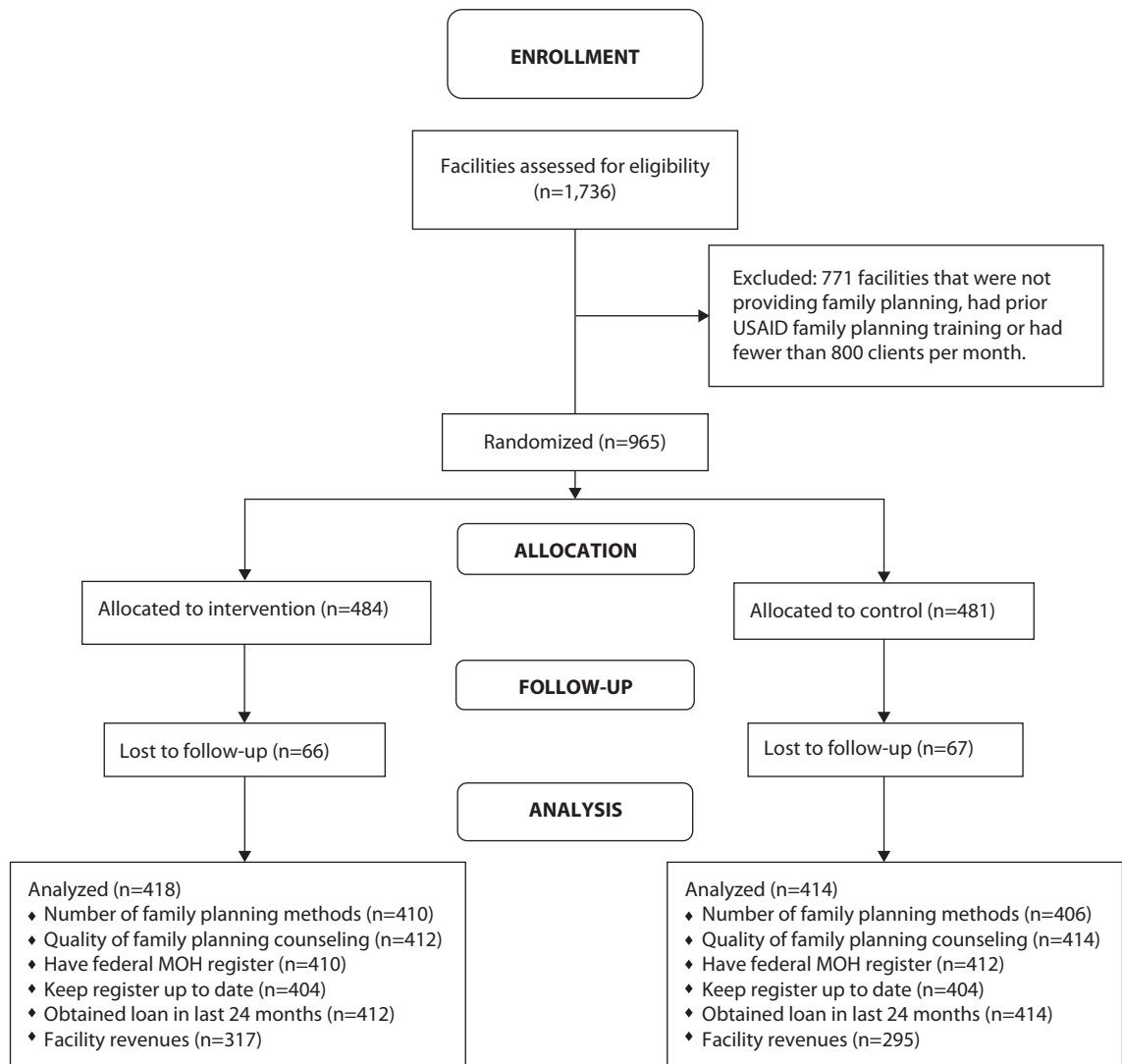
## METHODS

### Study Design

This study used an experimental study design, with a baseline survey (prior to randomization) and an endline survey. We implemented the following steps to obtain our final sample and conduct random assignment. First, we started with an overall list of 1,736 private health facilities in Lagos State. Of these, we eliminated facilities that did not offer family planning services, as well as those that had already received training from the SHOPS Nigeria project; we also excluded any clinics, medical centers and hospitals with fewer than 800 clients per month. Our final list before random assignment consisted of 965 facilities (Figure 1).

We then randomly assigned those 965 private health facilities into either the treatment group (484 facilities) or the control group (481 facilities), using the following steps for stratification. First, we created strata for each of the 20 local government areas. To avoid sparseness of population, we ensured that each contained at least four facilities.<sup>26</sup> Second, for strata with more than 16 facilities, we created substrata by splitting the primary strata into those above and below the median vignette score and, within each of the resulting substrata, splitting again into those above and below the median business score. (The vignette score was the total number of questions concerning knowledge of family planning methods and

**FIGURE 1. Flow chart of enrollment into two experimental groups, Lagos State, Nigeria, 2014**



Note: MOH=Ministry of Health.

counseling answered correctly by providers at baseline through vignette surveys; the business score was based on self-reported indicators, including use of recordkeeping, advertising, borrowing and profits). Thus, we created groupings of facilities that were from the same local government area and, if the sample size permitted, were similar in terms of the vignette score and business score. Finally, we randomly assigned all 965 facilities, one by one within each substratum, to either the control group or the treatment group. This stratification process was done to increase the likelihood that the random assignment of the facilities into treatment and control groups would result in two groups with similar distributions of facilities, thus increasing the precision of the evaluation of the effectiveness of the intervention.

We carried out power calculations to determine the minimum detectable effect on several key outcomes: an impact of nine percentage points in the average quality of a family planning counseling session, and an impact of 10 percentage points in the likelihood of a facility's

applying for and obtaining a loan, which required a total of 800 and 600 facilities, respectively. For these power calculations, we set alpha (the probability of type I error) to .05 and power to .8, and estimated that 75% of facilities in the treatment group would attend at least one of the training sessions. (It ended up being 85% of facilities, slightly improving our power relative to our calculations).

The facilities in the treatment group were offered the multifaceted intervention between January 2013 and April 2014; the facilities in the control group were not offered the intervention. Between June and September 2014, we conducted endline facility and mystery client surveys. The cumulative response rate for both groups was 86%. We also tested for baseline differences in observable characteristics between facilities that responded to both surveys and those that did not, in order to assess whether the final sample had been affected by nonresponse bias or selective attrition. No statistically significant differences were found using joint F-tests.



## Data

We conducted two rounds of data collection: a set of baseline surveys conducted in 2012 (before random assignment), and a set of endline surveys in 2014 (following the intervention). Each round of data collection comprised three surveys: facility, proprietor and mystery client.

Facility surveys were administered to facility managers and included questions concerning facility infrastructure, health services offered, staff employed, patient volume, pharmaceutical supply sources and recordkeeping. Proprietor surveys were administered to the individual who made major financial decisions for the facility, asking about revenue, expenses, business planning and access to credit.

We used mystery client surveys to collect impartial information about the family planning counseling sessions. Such surveys, which are more commonly used in developed countries, are considered a gold standard for measuring quality of service. Other methods typically measure inputs or show recall and courtesy biases.<sup>27</sup>

Schuler and colleagues demonstrated that mystery client surveys produce reliable results even in resource-constrained settings.<sup>28</sup> For this study, we trained 12 women between 28 and 35 years of age to assume the role of a mother with two young children who did not wish to have additional children for the next two or three years. They visited eligible facilities and requested counseling regarding family planning; no method was actually provided, nor were physical exams carried out. Following each visit, the surveyors recorded multiple metrics, including waiting time to see the provider; cost of services; whether the provider checked for contraindications; the types of contraceptive methods discussed; and whether the provider talked about the advantages, disadvantages, proper use and potential side effects of these methods.

Endline data collection was limited to the 927 facilities that had completed the surveys at baseline. A total of 832 facilities completed all surveys: 418 facilities from the treatment group and 414 from the control group. Overall, 85% of facilities in the treatment group attended at least one of the training sessions and 6% attended all seven sessions.

Ethical approval and review for the study were obtained from the institutional review boards of the Nigerian Institute of Medical Research, Abt Associates Inc. and Northwestern University. To prevent biasing the providers' behavior during our mystery client survey, we obtained institutional review board approval to waive the following obligations: to obtain the consent of providers, to provide immediate debriefing of providers and to send an introductory letter to accompany the mystery client. Human subjects rules allow for waiving informed consent in cases such as ours, in which obtaining consent would compromise the study, participants engage in standard activities and threat of harm to participants is nonexistent. This study was also submitted to the Registry for International Development Impact Evaluations, with three key family planning outcomes specified: number of family planning

methods, number of family planning patients and quality of family planning care.

## Outcome Measures

We examined the impact of the training intervention on five key outcomes. The first outcome was the number of family planning methods offered. This was measured as part of the endline facility survey, using a list of 15 methods of contraception,

The second outcome was the quality of family planning counseling sessions. This was assessed with data on provider's knowledge collected in the proprietor surveys, and with information on quality of counseling collected through mystery client surveys. From these two categories of data, we built an index of the quality of family planning service provision comprising 59 items according to six "pillars": range of family planning methods discussed or offered by provider; information given to or received from the client; technical competence; interpersonal relations; mechanisms to encourage continuity; and provider's knowledge of family planning in general.<sup>29</sup> We considered several methods for developing an overall quality index and ultimately selected the percentage of counseling-related items properly addressed by the provider during the family planning counseling session as a proxy for quality of care, adopting RamaRao's adaptation of the Bruce-Jain framework.<sup>\*10,11,30</sup> Thus, for each respondent, we summed up the individual number of correct responses and divided that by the total number of items in the index (59). This method also allowed us to assess the effect of the program on each of the six pillars.

The third outcome was facility recordkeeping and consisted of two measures: having the federal Ministry of Health family planning register and keeping it up to date. The first measure was a dichotomous variable equal to 1 if the facility had the federal Ministry of Health family planning register, and 0 otherwise. The second measure was a dichotomous variable equal to 1 if the facility had the register and the register was up to date, and 0 otherwise.

The fourth outcome was access to credit. We measured whether the facility had received a loan from any source in the previous 24 months, before the random assignment of facilities took place. To apply for a loan, private health facilities had to go through an initial screening phase, in which they provided the necessary documentation and the bank then decided the terms and conditions for the loan agreement. Loans carried interest rates of 25–50% per year and an average repayment period of 36 months.

The fifth outcome, total facility revenue, was defined as the revenue received in "any typical month at the facility" around the time of the endline survey, as estimated by the respondent. We expressed this variable in natural log

\*Other methods included using an average of standardized values for all questions in the mystery client survey and a standardized sum of the facilities' scores in that survey. Results were similar and are available on request.

terms. Appendix Table 1 provides the definition, instruments used and data sources for the five key outcomes.

We built a summary index defined as the equally weighted average of z-scores for all outcome variables, regressed it on a treatment indicator and the same vector of baseline covariates and present its average impact, standard error and standard p-value. The z-scores were estimated by normalizing the outcome variables after subtracting the mean in the control group and dividing by the standard deviation in the control group, following recent examples for randomized evaluations.<sup>31,32</sup> This summary index conveys the average impact across all outcomes measured in standard deviations on the five dependent variables.

### Analytic Methods

In theory, the use of random assignment creates virtually identical groups at baseline, and a basic method of estimating impacts would be to simply compare the mean outcomes of the treatment and control groups at follow-up. Even with random assignment, treatment and control groups may differ in one or more baseline characteristics by chance (as reflected in Table 2). To improve statistical precision and to adjust for any chance differences in characteristics across groups, we estimated impacts using multiple regression models controlling for covariates measured at baseline. The impact of the intervention package

was calculated as the difference in regression-adjusted average outcomes between the treatment and control groups after running ordinary least squares regressions and estimating regression-adjusted means. We used the coefficient estimates obtained in the regression for each covariate, multiplied them by their mean value, and obtained the regression-adjusted average outcome for facilities in the treatment group and for facilities in the control group. We used a general equation,<sup>\*</sup> in which  $y_{ie}$  represents one of the five key outcomes of interest for facility  $i$  measured at end-line. The variable  $Treatment_i$  is equal to 0 for facilities in the control group (those not invited to attend the trainings) and is equal to 1 for all facilities in the treatment group (those invited to the trainings). Thus, the coefficient  $\beta$  represents the impact of the intervention on the outcomes of interest.  $X_{ib}$  represents a vector of basic covariates at the facility level, measured at baseline, including number of patient beds and number of clients in a typical month for general services and for family planning services. These covariates were added to increase the precision of the regression estimates (i.e., to reduce their standard errors). The variable  $\tau_i$  represents a vector of month-fixed effects; this ensures that the estimated treatment effect is not confounded by seasonal differences in client caseload.  $Y_{ib}$  represents a measure of the dependent variable but is measured at baseline, when available, to improve precision of the key estimates by absorbing unexplained variation across facilities.  $W_{ib}$  represents a vector of indicator variables for the strata identified for random assignment, to properly account for the stratification design. Finally,  $\epsilon_i$  represents the random error. We ran separate regressions for each of the five key outcomes and estimated heteroskedasticity-robust standard errors.

In this study, the multifaceted intervention is defined as being offered the intervention package; we do not estimate the effect of actually receiving the intervention. The first effect is commonly referred to as the “intent-to-treat” effect; the second effect is known as the “treatment-on-the-treated” effect.<sup>25</sup> The intent-to-treat effect is particularly policy relevant for private-sector facilities because their staff cannot be compelled to attend trainings.

It is possible that the intervention itself might have influenced the characteristics of patients (e.g., health status, contraceptive method preference) seeking health services at particular facilities. In other words, the average patient visiting facilities in the treatment group could differ from the average patient in the control group by unobservable characteristics that arose from the intervention. However, because most of the intervention focused on providers, not on patients, this issue should not be of concern. More significantly, the mystery client could not choose a specific provider at the facility, so some of the providers who counseled mystery clients may not have personally attended the family planning trainings. However, our hypothesis

**TABLE 2. Mean characteristics of facilities and proprietors at baseline, by experimental group, Lagos State, Nigeria, 2012**

Characteristic	Treatment (N=484)	Control (N=481)	Difference
<b>Facility characteristics</b>			
Age/tenure of facility	14.2	14.1	-0.1
No. of beds	10.1	11.1	1.0
Total no. of clients on typical work day	21.1	20.4	-0.7
Total no. of family planning clients per month	9.3	9.4	0.1
Has piped water (%)	64.4	58.3	-6.1*
No. of doctors and nurses	6.7	6.1	-0.6
Type			
Clinic (%)	24.6	21.8	-2.8
Hospital (%)	44.0	44.7	0.6
Medical center (%)	14.1	16.4	2.3
Nursing home (%)	17.1	17.1	0.0
<b>Provider/proprietor characteristics</b>			
Proprietor-owned (%)	76.0	75.8	-0.2
Proprietor is male (%)	76.0	73.8	-2.2
Age of provider	48.2	47.2	-1.0
<b>Baseline outcomes</b>			
No. of family planning methods offered	4.7	4.7	0.0
Quality score, % correct	39.4	39.5	0.0
Updated federal MOH family planning register	na	na	na
Loan taken in last 12 mos. (%)	9.8	9.9	0.1
Revenue in typical month (in 000s of nairas)	2,221	1,789	-432

\*Difference between experimental groups significant at  $p < .05$ .

Notes: MOH=Ministry of Health. na=not applicable.

$$* y_{ie} = \alpha + \beta Treatment_i + \gamma X_{ib} + \tau_i + \delta y_{ib} + \theta W_{ib} + \epsilon_i$$

assumes that providers who attended the trainings would share the information and knowledge received with their colleagues who did not attend the trainings.

### Descriptive Statistics

The experimental study design was intended to ensure that facility characteristics were similar (i.e., balanced) between the treatment and control groups prior to the intervention (at baseline). Table 2 confirms this for three sets of variables, all measured at baseline. The first set shows characteristics at the facility level; the second displays characteristics at the provider level; and the third displays the key outcomes measured at baseline, confirming equivalence for all outcomes measured before the intervention. For each of the three panels, we conducted F-tests for joint significance and confirmed equivalence and overall balance at baseline.

Our final analytic sample consisted of 832 facilities that completed all three surveys at baseline and endline. We tested for balance across all facilities in the treatment and control groups separately and confirmed that no significant differences existed in observed characteristics measured at baseline except for access to piped water. Table 3 displays the values, for the initial survey sample and the final analytic sample, for the key outcomes that were measured at baseline. No statistically significant differences were found for individual variables or overall (F-test).

### RESULTS

The main results are summarized in Table 4. The first two columns of results display the regression-adjusted means for the treatment and control groups at endline. The third column shows the intent-to-treat estimate of impact, which is measured as the difference between the regression-adjusted means of the treatment and control groups and represents the effect of the intervention. (Complete regression-adjusted and regression-unadjusted results are available from the authors).

#### Number of Contraceptive Methods

We find that the intervention had an impact on the number of modern contraceptive methods provided by the health facilities in the treatment group, with a positive average effect of 0.6 methods, which is statistically significant and equivalent to a positive impact of 10% at endline. This

effect is driven primarily by greater provision of long-acting and reversible methods among facilities in the treatment group. Table 5 shows that the largest impact was on the provision of implants—offered by 74% of facilities in the treatment group, compared with 33% of control group facilities—and IUDs, showing a smaller but still statistically significant difference. For short-acting methods, we observe a small positive impact on the percentage of facilities offering pills. No impact was found for other short-acting methods or for permanent methods.

Figure 2 shows the percentage distribution of facilities in the treatment and control groups by number of methods offered at endline. The main difference between the two groups is seen on the left and in the middle of the distribution. Facilities in the control group were more likely than those in the treatment group to offer zero, one, three or four methods of contraception, and facilities in the treatment group were more likely than facilities in the control group to offer six, seven or eight methods. In other words, most of the positive effect pertains to facilities that progressed from providing fewer than five methods to more than five methods.

#### Quality of Family Planning Counseling Sessions

We scored the overall quality of the counseling visits against an “ideal” template of 59 items and measures. The intervention had a positive impact on the quality of family planning counseling sessions: Providers from the treatment group properly addressed 50% (an average of 29.4 items) of the 59 items, compared with 45% (26.3 items) for facilities in the control group (see Table 4). This difference is equivalent to 0.48 standard deviations and is statistically significant.

However, a 50% score indicates that important issues are still not being properly covered in counseling. Table 6 displays the regression-adjusted means of the percentage of items addressed correctly at endline for each of the pillars of quality of family planning service provision. The overall positive impact on scores pertaining to quality occurred mainly in information

**TABLE 3. Characteristics at baseline for full initial sample and final analytic sample, Lagos State, Nigeria, 2012–2014**

Characteristic	Full initial sample (N=965)	Analytic sample (N=832)
No. of family planning methods offered (mean)	4.7	4.7
Quality score (% correct)	39.2	40.1
Loan taken in last 12 mos. (%)	10.0	11.1
Revenue in typical month (in 000s of nairas)	2,006	2,025

Note: No significant differences between samples were found overall or for individual characteristics.

**TABLE 4. Regression-adjusted means (and robust standard errors), by outcome measure, according to experimental group**

Outcome measure	Treatment	Control	Difference	(N)
No. (range) of methods offered	6.541 (0.120)	5.940 (0.118)	0.600*** (0.173)	816
Quality of counseling session	0.499 (0.005)	0.447 (0.005)	0.052*** (0.007)	826
Having federal MOH register	0.767 (0.022)	0.491 (0.023)	0.276*** (0.032)	808
Keeping register up to date	0.556 (0.023)	0.293 (0.022)	0.262*** (0.033)	808
Obtained loan in last 24 mos.	0.237 (0.021)	0.179 (0.019)	0.058** (0.029)	827
Log of facility revenue	12.940 (0.054)	12.828 (0.056)	0.112 (0.082)	612
Index of z-scores of dependent variables			0.379*** (0.044)	612

\*\*p<.01. \*\*\*p<.001. Note: MOH=Ministry of Health.



**TABLE 5. Percentage of facilities, by methods offered at endline, according to experimental group, Lagos State, Nigeria, 2014**

Method	Treatment (n=405)	Control (n=411)
<b>Long-acting reversible</b>		
Implant	74***	33
IUD	96**	92
<b>Short-acting</b>		
Pill	87***	78
Injectable	93	90
Condom	55	59
Emergency contraception	41	42
Spermicide	5	4
<b>Permanent</b>		
Tubal ligation	49	44
Vasectomy	20	16

\*\*Difference from control group significant at  $p \leq .01$ . \*\*\*Difference from control group significant at  $p \leq .001$ . Pills include Microgynon and micropill; injectables include Depo-Provera and Noristerat; condoms include female and male condoms.

**TABLE 6. Percentage and robust standard errors of items properly addressed by providers at endline for each pillar of service quality, according to experimental group, Lagos State, Nigeria, 2014**

Pillar of service quality	Treatment (N=412)	Control (N=414)	Difference
Range of methods discussed	0.313 (0.010)	0.302 (0.010)	0.010 (0.014)
Information given/received	0.561 (0.009)	0.511 (0.009)	0.050*** (0.012)
Technical competence	0.229 (0.011)	0.213 (0.010)	0.016 (0.015)
Interpersonal relations	0.606 (0.008)	0.548 (0.007)	0.059*** (0.011)
Continuity	0.080 (0.013)	0.055 (0.012)	0.025 (0.011)
Readiness/family planning knowledge	0.553 (0.007)	0.485 (0.008)	0.068*** (0.011)

\*\*\* $p \leq .001$ .

given and received, interpersonal relations, and readiness/family planning knowledge. In contrast, we found no impact on range of methods covered, technical competence, or continuity.

Appendix Table 2 provides the details for each quality item. In regard to range of family planning methods, for example, a greater proportion of providers in the treatment group asked about the mystery clients' preferences, but nevertheless the proportion was low. No impact was found in the items regarding technical competence, a problem that must be addressed in future training sessions.

#### Facilities Updating the Federal Register

We explored the effect of the intervention on the likelihood that a facility possessed the federal Ministry of Health family planning register (intermediate outcome) and the likelihood that a facility was keeping the register updated (final outcome).

For the intermediate outcome, the intervention had a positive impact of 28 percentage points on the likelihood of possessing the federal register (see Table 4). For the final outcome, the intervention had a positive impact of 26

percentage points on the likelihood of facilities' keeping the register up to date.

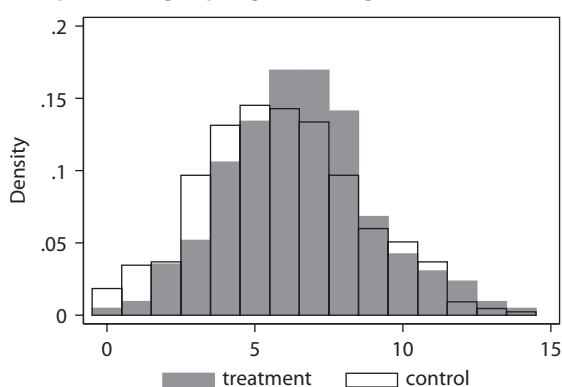
#### Obtaining a Loan, and Facility Revenue

The proportion of facilities that applied for and obtained a loan in the previous 24 months was six percentage points higher in the intervention group than in the control group, which represents an impact of 32% on the likelihood of applying for and obtaining a loan (Table 4). In the control group, 77 facilities reported obtaining a total of 112 loans in the previous 24 months; in the treatment group, 99 facilities requested and obtained a total of 170 loans (not shown). Most of the loans obtained by facilities were used to purchase hospital equipment, to expand working capital or to carry out renovation and expansion of the facility buildings. We did not find an effect of the intervention on facility revenue (Table 4).

Finally, as shown in the last row in Table 4, the intervention had a positive impact of 0.379 standard deviations on the dependent variables overall. This finding highlights the strong results from this multifaceted intervention across a wide and diverse set of outcomes at the facility level. This is a substantial impact; it implies that, averaged across all the key outcomes, the average treated facility performed at a level above 65% of all control-group facilities.

We performed a few robustness checks. To adjust for possible nonresponse bias in all the results, we first ran the same models using probability weights by accounting for differential nonresponse along observable characteristics measured at baseline. All the results remained essentially the same (not shown). Second, we introduced a new set of weights to adjust for the fact that some facilities in the treatment group did not attend any training at all, possibly for reasons correlated with nonresponse status. The magnitude and significance of the key coefficients remained the same (not shown). Third, for cases in which the key outcome was a binary variable, we ran the same equations

**FIGURE 2. Percentage distribution of facilities, by number of family planning methods offered at endline, according to experimental group, Lagos State, Nigeria, 2014**



using logistic models. The magnitude and significance of the odds ratios were consistent with the coefficient estimates from our linear probability model. Results are available from the authors on request.

## DISCUSSION

This evaluation illustrates that providing targeted training and supportive supervision to commercial health care providers in Sub-Saharan Africa can be effective in improving family planning service delivery. A combination of family planning and business methods training along with supportive supervision was offered to commercial providers in Lagos State, Nigeria, resulting in a positive impact on the number of family planning methods offered, on the overall quality of family planning counseling, on recordkeeping regarding family planning products and services provided and on the number of facilities applying for and obtaining loans.

Much of the impact on the number of family planning methods offered resulted from an increase in the number of facilities providing implants. This result coincides with a high level of interest in implants expressed by providers at baseline and points to the importance of aligning training with the interests expressed by providers and clients. In contrast, commercial providers in developing countries have generally focused on providing short-acting methods rather than long-acting reversible methods.<sup>2</sup> This focus may reflect limited access to commodities, provider bias, lack of training or confidence in provision of these services and perceived low client demand for long-acting reversible contraceptives.<sup>33-36</sup>

In Lagos State, the volume of clients interested in getting implants is still relatively low, giving providers limited opportunities to maintain and improve their technical skills in the insertion of implants. It is unclear whether these expanded family planning offerings can be sustained without complementary demand-creation efforts. Although the effect of 0.6 methods may not seem large at first glance, it came almost entirely from an increase in the number of facilities providing implants, so the effect on provision of LARCs, which was one of the main goals of the intervention, was quite large.

With regard to the quality of family planning counseling, we detected small impacts on information received and provided, interpersonal relations and knowledge about family planning. However, some of the impacts on quality scores were smaller than expected, particularly considering how low they were at baseline. We did not observe impacts in the range of methods discussed, technical competence or mechanisms to encourage continuity of use. The lack of any effect on the range of methods discussed appears somewhat incongruous with the effect we found on the number of family planning methods offered.

Regarding the lack of impacts on technical quality of care, we should add that our intervention was not very intensive. We introduced providers to some new methods and refreshed their information on other methods and on such

basic quality-of-care approaches as counseling and infection prevention. Substantial improvement in technical quality would require more intensive work at the facility level and more supportive supervision and coaching than was implemented by the project and evaluated in this study.

The results related to the positive impact of this intervention on updating the federal Ministry of Health family planning register have several implications. Persuading private providers in Sub-Saharan Africa to maintain accurate monitoring data and report those data to the national health information system has been a major challenge; private reporters have regularly complained about the lack of training, shortage of staff and reporting costs. This intervention demonstrated that recordkeeping training, combined with follow-up visits, can increase accuracy of reporting. These findings suggest that it might be helpful to consider implementing recordkeeping training elsewhere.

The intervention package also had a positive impact on health facilities' applying for and obtaining loans from financial institutions. This was a major accomplishment; providers had to first become aware of their expansion potential and then create a strong application. (A growing literature shows that it is generally difficult to induce small entrepreneurs in developing countries to take loans from formal sources.<sup>37</sup>) Still unknown is what these loans are being used for. Are these funds contributing directly to better family planning or other health outcomes? Or will they perhaps improve the viability of these businesses, thus indirectly increasing access to family planning services? Further research on this question is warranted.

The study did not detect an impact on total revenue, yet collecting accurate information about revenue from small or medium-size enterprises in developing countries is well known to be a difficult task because of measurement error and low response rates.<sup>38</sup> Indeed, 28% of respondents from the control group and 20% from the treatment group did not respond to the question concerning facility revenue, and we found that facilities with larger revenue at baseline were less likely to respond to the revenue question at endline. However, prior studies of business training for small or medium-size enterprises in developing countries did not find business training to be effective in increasing total revenue.<sup>39</sup>

## Study Limitations

A key analytic limitation of this study is that the treatment was an integrated, multifaceted training package, combining family planning training, business training, provision of starter stocks, monthly text-message reminders and supportive supervision. This made it difficult to assess which specific aspects of the intervention were having the greatest impact on key outcomes. The option of assigning multiple treatment arms for each training session was considered but was ultimately ruled out to avoid losing statistical power and increasing operating costs.

We did not examine the impact of the intervention on facilities' total monthly family planning client visits, as

originally intended. Because the project activities included recordkeeping training, treatment facilities should be able to measure client flow more accurately than control-group facilities; this could influence the measurement of client visits upward or downward.

Regarding external validity, we must consider that Nigeria is a diverse country and that Lagos State is markedly different from most other states in the country. The private health sector in Lagos State is larger and more competitive than in other states.<sup>40</sup> Lagos State is also more populous and has a higher contraceptive prevalence rate (26%) than the rest of Nigeria (15%), according to data from the latest Demographic and Health Survey.<sup>4</sup> Because contraceptive use is higher in Lagos, providers might be more receptive to improving the range of family planning methods offered and improving their family planning care. However, effects might be found to be similar in other settings or other countries where the private sector faces comparable restrictions and limitations, especially in other large urban areas of Sub-Saharan Africa with large, vibrant private health sectors.

Because the mystery client could not choose a specific provider at the facility, some of the providers scored by mystery clients likely were not the ones who attended the family planning trainings. If that is the case, our estimates remain conservative with respect to the effects on providers who were trained. Likewise, in some facilities, the provider who was assessed through the mystery client survey was not the one interviewed in the face-to-face provider survey. However, one of the assumptions in this study is that providers would share knowledge and information with their colleagues at the same facility. Moreover, our findings identify the overall impact on facilities, averaging over all providers. Given that most policies targeting medium-size health care facilities will involve targeting some but not all providers, this is a parameter of substantial policy interest.

## CONCLUSION

The private sector is an important source of family planning in Sub-Saharan Africa. However, for the private sector to reach its full potential to address gaps in provision of family planning services and products, private providers will need targeted training interventions and incentives that respond to their particular needs. This evaluation demonstrates the promise of such targeted training and supportive supervision to increase the effectiveness and quality of family planning services offered by private providers.

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## RESUMEN

**Contexto:** Los proveedores de servicios de salud del sector privado son una fuente importante de anticonceptivos modernos en África subsahariana, sin embargo, enfrentan muchos retos que podrían superarse a través de capacitación dirigida.

**Métodos:** Este estudio mide el impacto de un paquete de capacitaciones y actividades de supervisión asistida, dirigidas a proveedores de servicios de salud del sector privado en el Estado de Lagos, Nigeria. Se enfoca en resultados que incluyen

la variedad de métodos anticonceptivos ofrecidos, los conocimientos de los proveedores y la calidad de la consejería, las prácticas de registro, el acceso a crédito y los ingresos. Unas 965 instituciones de salud se asignaron aleatoriamente a grupos de tratamiento y de control. A las instituciones en el grupo de tratamiento—pero no aquellas en el grupo de control—se les ofreció un paquete de capacitación que incluyó una actualización en tecnología anticonceptiva e intervenciones para mejorar las habilidades de consejería y clínicas, así como prácticas de negocios. Se usó análisis de regresión multivariada de datos recolectados a través de encuestas a las instituciones y encuestas de cliente simulado para estimar los efectos.

**Resultados:** El programa de capacitación tuvo un efecto positivo en la variedad de métodos anticonceptivos ofrecidos, lo cual resultó en que las instituciones en el grupo de tratamiento proveyeron más métodos que las instituciones en el grupo de control. El programa de capacitación también tuvo un impacto positivo en la calidad de los servicios de consejería, especialmente en cuanto a la variedad de métodos anticonceptivos sobre los cuales los proveedores informan, sus habilidades interpersonales y sus conocimientos generales. Las instituciones en el grupo de tratamiento tuvieron más probabilidades que las del grupo de control de tener buenas prácticas de registro y de haber obtenido préstamos. No se encontró efecto alguno en la generación de ingresos.

**Conclusión:** Los programas de capacitación dirigida pueden ser herramientas efectivas para mejorar la provisión de servicios de planificación familiar a través de proveedores de servicios del sector privado.

## RÉSUMÉ

**Contexte:** Les prestataires de soins de santé privés constituent une source importante de contraceptifs modernes en Afrique subsaharienne. Les nombreux défis auxquels ils sont confrontés pourraient vraisemblablement être résolus par un effort de formation ciblée.

**Méthodes:** Cette étude mesure l'impact d'un ensemble de formations et d'activités d'accompagnement destiné à des prestataires de soins de santé privés de l'État de Lagos (Nigeria), sur les résultats relatifs, notamment, à la gamme de méthodes contraceptives proposées, aux connaissances des prestataires et à la qualité du conseil, à la pratique de tenue des dossiers, à l'accès au crédit et au revenu. Au total, 965 établissements de soins de santé ont été affectés aléatoirement à un groupe expérimental ou témoin. Ceux du groupe expérimental—contrairement à ceux du groupe témoin—ont bénéficié d'un ensemble de formations incluant une mise à jour sur la technologie contraceptive et des interventions visant l'amélioration du conseil, des compétences cliniques et des pratiques commerciales. Les effets ont été estimés par analyse de régression multivariée des données collectées dans le cadre d'enquêtes d'établissements et de clientes fictives.

**Résultats:** Le programme de formation a produit un effet positif sur la gamme de méthodes contraceptives proposées, les établissements du groupe expérimental en offrant davantage que ceux du groupe témoin. L'impact est également positif sur la qualité

des services de conseil, en particulier concernant la gamme de méthodes contraceptives discutées par les prestataires, leurs compétences interpersonnelles et leurs connaissances générales. Les établissements du groupe expérimental se sont avérés plus susceptibles que ceux du groupe témoin d'adopter de bonnes pratiques de tenue des dossiers et d'avoir obtenu des prêts. Aucun effet n'a été observé sur la génération de revenu.

**Conclusion:** Les programmes de formation ciblée peuvent être des ressources utiles à l'amélioration de la prestation de services de planification familiale à travers les prestataires du secteur privé.

#### **Acknowledgments**

The study was funded by the United States Agency for International Development (USAID) through the Strengthening Health Outcomes through the Private Sector (SHOPS) project, managed by Abt Associates, Inc., under Cooperative Agreement AID-620-LA-11-00001. The views and opinions expressed are

those of the authors and do not necessarily reflect the views or opinions of USAID or the government of the United States. The authors greatly appreciate the support provided by USAID Nigeria, in particular by Joseph Monehin, Michael Harvey, Kayode Morenikeji and Dr. Moriam Jagun. This study benefited from technical support from Matthew Griffith and Piotr Korynski of Banyan Global, from guidance and contributions from Jeffrey Barnes, Caroline Quijada, Ayodele Iroko, Ben Woodman and Robin Keeley, and from excellent reviews and technical input from May Post, Lauren Olsho and attendees of the Journal Author Support Group at Abt Associates, Inc. Clare Wolfowitz provided outstanding copy editing in preparation for submission. Jorge Ugaz is also grateful to Mathematica Policy Research, where he is currently a researcher, for generous support that led to the final submission of this manuscript.

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**APPENDIX TABLE 1. Study outcome measures, definitions and data sources, Lagos State, Nigeria 2012–2014**

Outcome measures	Definition	Data source
Number of family planning methods	Total number (range) of modern contraceptive methods offered in each facility	Proprietor survey (baseline and endline)
Quality of family planning counseling sessions	Quality score to measure quality of care during family planning counseling sessions. Data were collected on six “pillars” related to quality of care:	Mystery client survey (baseline and endline)
	1. Range of family planning methods offered	
	2. Information given to or received from client	
	3. Technical competence	
	4. Interpersonal relations	
	5. Mechanisms to encourage continuity	
	6. Provider’s readiness/family planning knowledge	
Updated federal MOH family planning register	Binary variable for whether the facility had an updated federal MOH family planning register.	Proprietor survey (endline)
Received loan(s)	Binary variable for whether the facility had received a loan from any source in the past 24 months	Proprietor survey (baseline and endline)
Total revenue	Revenue received in a typical month at the facility	Proprietor survey (baseline and endline)

Note: MOH=Ministry of Health.

**APPENDIX TABLE 2. Percentage of items related to quality of family planning service provision addressed by provider, by experimental group, Lagos State, Nigeria, 2014**

Quality item	Treatment	Control	Difference
<b>Range of family planning methods</b>			
Are there any methods you don't wish to use?	15.5	10.9	4.6*
Are there any methods your husband/partner doesn't wish to use?	10.5	7.1	3.4†
Provider recommended only one method	42.7	48.4	-5.7
If the provider recommended more than one method, did he/she give you guidance?	56.3	54.5	1.8
<b>Information given/received</b>			
Your age?	60.1	60.1	0.0
Are you married?	44.4	41.5	2.9
How long have you been married?	7.6	7.1	0.5
Do you have children?	94.2	87.9	6.3**
How old is your youngest child?	75.6	71.5	4.1
Are you currently using any form of contraception?	40.6	32.3	8.3*
Why did you stop using contraception?	10.6	8.0	2.6
Do you want to have more children in the future?	89.7	82.2	7.5**
Does your partner support you in family planning?	62.1	52.3	9.9**
Did the provider note side effects associated with any method discussed?	47.0	47.4	-0.4
Did the provider use charts/models/etc. to explain the method(s)?	39.4	19.0	20.4***
Did the provider give you information about advantages and disadvantages?	70.1	68.7	1.4
Did the provider explain how to use the method?	87.7	86.0	1.7
<b>Technical competence</b>			
Are you taking any medications currently or periodically?	5.6	6.5	-0.9
Are you allergic to any drugs?	9.8	7.9	1.9
Do you have any major health problems?	23.9	19.4	4.5

Do you have heavy periods?	24.6	26.7	-2.1
Are you pregnant?	19.9	17.1	2.8
When was your last menstrual period?	55.5	52.2	3.3
Have you had unprotected sex since your last menstrual period?	21.0	19.4	1.5
<b>Interpersonal relations</b>			
Did the provider introduce himself or herself?	75.0	71.3	3.7
Did the provider try to make you feel comfortable?	94.3	91.4	2.9†
Did the provider ask if you have any questions about the methods?	26.2	21.2	5.0†
Were you provided counseling in a private area with just you and the provider?	79.9	79.5	0.4
Was the counseling session interrupted for any reason?	29.3	25.6	3.8
Was the area in which you were provided counseling clean?	93.6	94.6	-1.0
Did the provider give brochures or informational sheets about the method(s)?	33.3	8.4	24.9***
Counseling session length (converted to 0–1 scale)	53.5	46.6	6.9**
<b>Continuity</b>			
Did the provider discuss or suggest a back-up method of contraception to use?	8.0	5.5	2.5

\*p<.05. \*\*p<.01. \*\*\*p<.001. †p<.10.