The impact of a reproductive health franchise on client satisfaction in rural Nepal

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This study evaluates the impact of a nurse and paramedic reproductive health franchise in rural Nepal on client satisfaction and utilization of services. A quasi-experimental study design, with baseline and follow-up measurements on nonequivalent control groups, was used to assess the effects of the intervention. The study collected data from exit interviews with male and female clients at clinics and from household interviews with married women. Our assessment covers the project’s performance for about a year of actual implementation. Client satisfaction with the quality of services increased across a range of indicators at intervention clinics but not at control clinics. Overall satisfaction with services also increased only at intervention clinics but not at control clinics. Consistent with these changes, loyalty increased among clients of franchised clinics. The analysis showed a positive relationship between client satisfaction and loyalty. Although the project’s implementation was examined over a relatively short period of time, there appears to have been a net positive effect of the intervention on obtaining family planning products from medical stores/pharmacies. The study shows that franchising reproductive health services increases a provider’s interest in delivering better quality services in rural areas of a developing country.

Keywords Reproductive health, franchising, quality of care, client perception, rural

KEY MESSAGES
- Higher client satisfaction with services increases client loyalty to providers.
- Client perceptions of the quality of reproductive health services delivered through rural providers improve when these providers become part of a franchise network that emphasizes quality of care.

Introduction

Franchising of commercial sector health facilities is being implemented in developing countries to increase the quality and utilization of reproductive health services (Mills et al. 2002; Montagu 2002). Franchising existing health services is expected to lead to improved client perceptions of service quality and higher client satisfaction (Montagu 2002). Studies show that client satisfaction is an important determinant of the choice of health facility and utilization of health services (Bernhart et al. 1999).

The franchise model that has usually been used in developing countries has been that of the ‘fractional’ franchise. In this model, a franchiser establishes a clinic network in which providers are trained to deliver an additional package of reproductive health services under an umbrella franchise brand. The additional services are offered in accordance with the guidelines of the franchiser (Montagu 2002). These guidelines include processes to be used to maintain standards of quality. The combination of better quality services and marketing of the new services is expected to build equity in the
franchise brand and lead to higher utilization of reproductive health services.

There has been little systematic investigation of the effects of franchising on client satisfaction. In a study using cross-sectional data, Stephenson et al. (2004) found mixed effects of franchise membership on client satisfaction: although family planning client volumes were higher at franchised clinics, franchise membership was not always associated with higher client satisfaction in the three countries studied. Other studies that have examined the effects of franchising on client volumes or service utilization have not examined effects on client satisfaction (Agha et al. 1997; Hennink and Clements 2005). This study examines the performance of a nurse and paramedic network that was established to increase client satisfaction and utilization of reproductive health services in a predominantly rural district in Nepal. The study assesses the extent to which clinic participation in the franchise led to higher client satisfaction and increased utilization of services.

Background

In recent years, there has been considerable interest in the franchising of reproductive health services in developing countries. This model of service delivery consists of a network of providers that deliver a standard set of services under an umbrella brand. The controlling organization, the franchiser, permits the participating provider use of the umbrella brand as long as the franchisee provides care that conforms to expected quality standards (Commercial Market Strategies Project 2002; Montagu 2002). In the event of a provider’s failure to conform to expected standards of quality, the franchiser reserves the right to revoke that provider’s right to provide services under the franchise’s logo.

For the franchiser to exercise control over the quality of services being provided, providers must see it in their interest to be part of the network. Providers may be motivated to become part of a franchise for both monetary and non-monetary reasons: an increase in client volume may convince providers of the usefulness of network participation; opportunities for training and providers’ desire to interact with professionals in the same field may also be an important motivating factor (Montagu 2002). Private providers in developing countries tend to be quite isolated and usually have little or no contact with professional bodies (Ahmed R, June 2005, personal communication).

The awareness of new services is increased by franchiser-supported advertising and promotion. In addition, the provider markets the services directly to potential clients by informing clients of the new services offered (Foreit 1998). The approach emphasizes the importance of making the provider-client relationship an explicit part of the marketing mix. By providing good quality services and by building trusting and caring relationships with clients, providers can attract new clients and build loyalty among older clients. Both can lead to increases in reproductive health service utilization (Foreit 1998).

In spite of the interest in franchising, there is very little empirical evidence to demonstrate that franchising reproductive health services improves client satisfaction and utilization of services. This is one of the first studies to investigate the effects of franchising on these factors.

The intervention

Most private physicians in Nepal have their practices in and around Kathmandu Valley. In order to expand access to reproductive health services to districts outside Kathmandu, providers such as nurses and paramedics need to be involved. It is estimated that there are over 12 000 trained nurses and paramedics in Nepal (Jha 2000), a large number of whom have private clinics in addition to their public sector jobs. The services provided at nurse and paramedic clinics primarily include general medical consultation, treatment for minor illnesses and the sale of medicine. To a lesser extent, family planning services (except the IUD and sterilization) and other reproductive health services are also provided at most nurse and paramedic clinics.

A pilot fractional franchise network of 64 nurses and paramedics in the Rupandehi district was launched to improve the quality of reproductive health services. The brand name chosen for the network was Sewa, which means ‘service’ in Nepali.

Provider recruitment

There are approximately 400 trained nurses and paramedics in Rupandehi and 190 of these have private clinics. Sewa recruited 64 providers based on several criteria: presence of a physical facility, reasonable client volume, provider willingness to join the network and comply with the clinic monitoring protocols and baseline and follow-up surveys. Nurses and paramedics in Nepal go through formal training ranging from 3 years to 10 months. There are five types of providers included in the network: staff nurse, health assistant, auxiliary nurse midwife, auxiliary health worker, and community medical assistant.

Membership contract

A contractual agreement was developed between the franchiser (the Nepal Fertility Care Center or NFCC) and the franchisees (individual nurses and paramedics). The membership contract specified the roles and responsibilities of each party. The NFCC was responsible for providing training, monitoring of service quality, establishing a referral system and supporting marketing activities. They were expected to provide family planning and reproductive health services, to follow quality of care protocols and to maintain service statistics. To belong to the franchise, the franchisees paid a one-time registration fee of US$1.4 and an annual membership fee of US$9.00.

Training

All network members were given 7 days training in reproductive health, which included training in family planning service delivery. Training materials were adapted from existing curricula developed by Engender Health and JHPIEGO. The training addressed the following topics:

1. Infection prevention: decontamination procedures, waste disposal, proper handwashing, use of sterilized gloves, etc.;
2. **Availability of essential equipment**: emergency supplies, autoclave, reproductive health manual, weighing scale, examination table, IUD kit, etc.;
3. ** Provision of temporary contraceptive methods**: information about all contraceptive methods, referrals for IUD and permanent methods, techniques of counselling, screening for contraindications, management of side-effects, and infection prevention;
4. **Reproductive health**: antenatal care including identification of high-risk pregnancy (blood pressure, urine sugar/albumin, weight, anaemia assessment), referral of high-risk pregnancy, provision of tetanus toxoid immunization, nutritional counselling and iron supplements, antenatal family planning counselling and referral for safe delivery, post-natal care including breastfeeding, management and referral for common gynaecological problems such as vaginal discharge, menstruation problems, pelvic inflammation etc.;
5. **STIs**: identification of symptoms, syndromic management, counselling, couple-counselling, and counselling for AIDS prevention.

Two days training on services marketing was also conducted. This module used a combination of lecture, simulation and group exercises, and highlighted the importance of the client-provider interaction and its implication for client satisfaction and loyalty.

**Advertising and promotion**

The network was supported by marketing activities. These were aimed at creating awareness for the network services through radio advertisements, brochures, leaflets, door-to-door campaigns, hoarding boards, clinic open houses, promotional booths in local farmers’ markets and print advertisements. Signboards with the Seva logo were placed in front of the clinics. All network providers were given white coats/blouses printed with the network logo. A monthly newsletter was circulated to members to keep them informed of network activities and to reinforce their participation in the network.

**Referral linkages**

Two types of referral linkages were established. The internal referral system allowed providers to refer to trained female providers for IUD services. An external linkage was established with the private physicians and government health facilities in the district for the referral of more complicated health problems.

**Monitoring service quality**

A field coordinator was sent by the NFCC to all network clinics each month to monitor the quality of care provided. The field coordinator ensured that service quality protocols were being followed in line with the training provided. She observed service delivery at the clinic and administered a detailed quality checklist that addresses areas such as infection prevention, the availability of essential supplies and equipment, and client-provider interaction. The importance of client-provider interactions was further reinforced during these visits. Upon completing her assessment, the field coordinator shared the results with the service provider and suggested corrective action if necessary. She also checked the service statistics maintained at the clinic.

**Monitoring/evaluation of programme performance**

Programme monitoring relied on a review of service statistics during the field coordinator’s monthly visits. A formal evaluation was planned prior to the start of the programme. This report presents findings from the formal evaluation.

**Implementation timeframe**

Political and civic unrest in Nepal caused major delays in the implementation. Training and promotional activities were routinely interrupted and trainers and field staff had restricted mobility for prolonged periods of time. Provider recruitment started in early February 2001, but it was not until a year later that all the network components were operational. Most of the outreach activities began in February 2002.

**Data and methods**

**Study design**

A quasi-experimental design with baseline and follow-up measurements on nonequivalent control groups was used to assess the impact of the intervention on client satisfaction with the quality of care and on service utilization. Although this design is less robust to threats of validity than a true experimental design (Fisher et al. 1998), it is more practical in many field settings (Jemmott and Jemmott 1994; Fisher et al. 1998). A nonequivalent control group is particularly useful when an intervention is introduced into one district and the comparison of programme effects is made against a neighbouring district that is similar but not necessarily equivalent (Fisher et al. 1991). A quasi-experimental design is appropriate for this study since a) individuals in a district where the franchise intervention was implemented are compared with similar individuals in a neighbouring district where the intervention was not implemented, and b) client perceptions of a group of health providers who joined the franchise are compared with a similar group of providers who did not.

The intervention was implemented in Rupandehi district which has a population of 708,419, a literacy rate of 42% and a per capita income of US$125 (Central Bureau of Statistics 2001). The control district, Nawalparasi, is adjacent to Rupandehi and is fairly similar with a population of 562,870, a literacy rate of 38% and a per capita income of US$99. The contraceptive prevalence rate is 36% in Rupandehi and 42% in Nawalparasi (United Nations Development Programme 1998).

**Limitations of study design**

A limitation of a quasi-experimental design is the lack of random assignment of study participants to intervention and control groups. If intervention and control groups are not equivalent, factors other than the intervention may be responsible for observed changes. The standard statistical procedure employed to adjust for known differences may not take into account unobserved differences between intervention and control sites. For example, a potential unobserved difference that could influence the results of this study is that...
the level of client motivation to obtain family planning services was different in the two districts prior to the start of the intervention. Since the intervention district had a higher per capita income than the control district (US$125 vs. US$99), and higher income may be associated with greater use of reversible methods of contraception, it is possible that the study design could not fully take unobserved differences into account.

**Instruments**

Two instruments were used for this study: client exit interviews and household interviews. The exit survey instrument was used to collect information on client visits to nurse and paramedic clinics in the Sewa network. Client exit surveys are increasingly being used to monitor quality of care (Williams et al. 2000) and provide results that are consistent with observations of client–provider interactions (Bessinger and Bertrand 2001). Exit surveys are recommended as the most appropriate instrument for a programme that focuses on improving provider interpersonal skills in order to increase client satisfaction (Bessinger and Bertrand 2001). The exit survey instrument used in this study included questions on client satisfaction, use of specific reproductive health services from the clinic, fees paid for services, awareness of the Sewa network and the socio-demographic characteristics of clients. The household survey instrument was used to collect population-level data on the utilization and sources of reproductive health services, reproductive health-care-seeking behaviour, awareness of the Sewa network and on the socio-demographic characteristics of respondents.

**Measurements**

**Client satisfaction**

The exit interview respondents were asked how satisfied they were with the services they received with regard to each of the following aspects of the clinic’s quality: cleanliness, essential equipment, essential medicine, good handling of clients, service charges, physical look, range of services, and privacy. The response to the variables was recorded using a 4-point Likert-type scale (1 = very satisfied, 2 = satisfied, 3 = dissatisfied, 4 = very dissatisfied), and then converted to binary responses, with ‘1’ indicating very satisfied and ‘0’ indicating the other responses. Overall satisfaction with the quality of services was assessed by asking respondents whether they were very satisfied, satisfied, not satisfied or very dissatisfied with the overall quality of services received. This variable was converted to a binary response variable, with ‘1’ indicating very satisfied and ‘0’ indicating otherwise.

**Return visits**

Client loyalty was assessed by asking exit interview respondents whether they had visited the clinics before. Respondents were coded ‘1’ if they reported a repeat visit and ‘0’ otherwise.

**Reproductive health service utilization**

The use of reproductive health services was assessed by asking ever-pregnant married women in the household survey whether they received antenatal care (ANC) during their last pregnancy. Affirmative responses were coded ‘1’ and other responses ‘0’. Because information regarding the period in which the last pregnancy occurred was not collected, a limitation of this indicator is that it is not restricted to pregnancies that occurred during the intervention period. Use of family planning was determined by asking married women about current use of any method to avoid pregnancy. An affirmative response was coded ‘1’ and other responses ‘0’. Use of the nurse and paramedic network for reproductive health services was assessed by asking respondents about the source of antenatal care and family planning. If a respondent reported a medical store or a pharmacy as the source of the services, the response was coded as ‘1’, with other responses ‘0’.

**Socio-demographic characteristics**

Socio-demographic characteristics measured for exit interview respondents were age, sex, education and marital status. The age of the respondents was their reported age. Sex was coded ‘1’ for males and ‘0’ for females. Based on their education, respondents were categorized into three groups. The first group included respondents who had no education, the second group included respondents who had not completed secondary education, and the third group was those who completed secondary or higher education. For the household survey, respondent data was collected on age, education and place of residence. Marital status was coded as ‘1’ for respondents who were currently married and ‘0’ otherwise. Place of residence was coded ‘1’ for respondents who were living in urban areas and ‘0’ for those from rural areas.

**Data collection**

Service delivery statistics were available at franchised clinics. Baseline surveys were conducted during April and May 2001. Follow-up surveys were conducted during December 2002 and January 2003. A 10-day training of fieldworkers was conducted prior to baseline data collection, which included pre-testing and finalization of the instruments. An intensive 5-day training of fieldworkers was conducted prior to follow-up data collection. All interviews were conducted by females. Both sets of surveys were conducted by the Center for Research on Environment, Health and Population Activities (CREHPA), a research firm based in Nepal.

In the intervention district, the baseline provider survey gathered information from 35 out of 70 providers (50%) who were initially expected to be part of the network. The follow-up provider survey gathered information from 32 out of 64 providers (50%) who actually became part of the network. Providers were randomly selected within strata determined by geographic location and provider qualification (staff nurse, health assistant, auxiliary nurse midwife, auxiliary health worker and community medicine assistant). An identical number of providers were interviewed in the control district. Since a list of providers was not available for the control district, all nurse and paramedic clinics located in areas selected after geographic stratification were listed and providers were randomly selected within provider qualification strata.

For the client exit surveys in each district, 24 out of 35 providers (70%) at baseline and 22 out of 32 providers (70%) at follow-up were randomly selected from the nurses and paramedics that had been selected for the provider survey. Interviewers were
stationed at each clinic for a 2-day period, during which time they interviewed clients who exited clinics. All clients who visited nurse and paramedic clinics were eligible for the interview. Clients who did not have time to be interviewed because of prior appointments or those who were unwell were not interviewed. About 70% of clients who visited intervention and control clinics during the period of the exit survey were interviewed. Socio-demographic characteristics of respondents from the exit surveys showed that just over half the respondents at clinics were female, about eight out of ten were married and less than one in three had never attended school (not shown). The mean age of male and female exit clients was 33 years (not shown). To our knowledge, data from a census of facilities that would have helped determine the total number of nurse and paramedic clinics in Rupandehi or Nawalparsi districts was not available at the time of the survey. Hence, no weights were attached to the provider or the client data.

A multi-stage sampling design was used for the household survey. Married women of 15–45 years were eligible for the household interview. In the intervention district, nine Village Development Committees (VDC) and four urban municipality wards were randomly selected. In the control districts, nine VDCs were also randomly selected. Since there were only two urban municipality wards in the control district, both were selected. Voter lists were used for listing households in urban areas. In rural areas, household lists had to be developed with the assistance of local ward representatives. During the follow-up, one VDC in each district was not accessible due to political problems and was replaced. Households were selected through systematic random sampling. A sample size of 480 households each in the intervention and control districts was considered large enough to give reliable estimates and was permitted by project resources. We used unweighted data for the analyses. All analyses were adjusted for socio-demographic variables.

The socio-demographic characteristics of respondents from the household survey showed that the mean age of married women in the household surveys was about 29 years (not shown). Women in the control district had lower levels of education than women in the intervention district: more than half of women in the control district compared with four out of ten women in the intervention district had never attended school (not shown). About 80% of respondents in the intervention district and 90% in the control district lived in rural areas (not shown).

The socio-economic status (SES) of clients at clinics (as reflected by education) was higher than the SES of respondents from the household survey (not shown). This is consistent with findings from an earlier study which showed that franchised services are used by somewhat better-off people (Hennink and Clements 2005).

Data analysis

Multivariate analysis was used to control for differences between clients in the intervention and control districts. The outcome variables used in this analysis were dichotomous. The appropriate method for estimating the impact of the intervention on a binary outcome variable is the logit model. The impact of the intervention after controlling for background characteristics of the respondents (age, sex, education, marital status, etc.) can be obtained using the following equation for the logit model:

\[
\ln \left( \frac{P}{1-P} \right) = \beta_0 + \beta_1 T + \beta_2 G + \beta_3 T \times G + \beta_4 C + \epsilon \quad (1)
\]

In equation (1), \( P \) is the probability of a confirmatory reply on the outcome variable. The symbols \( T, G, C \) and \( \epsilon \) represent trend (follow-up versus baseline), group (intervention versus control), control (age, sex, education, marital status etc.) and the error terms, respectively. The logit model would estimate the coefficients \( \beta_0 \) (intercept), \( \beta_1 \) (trend effect), \( \beta_2 \) (group effect), \( \beta_3 \) (intervention impact) and \( \beta_4 \) (control variable age/education etc. effect).

However, the above approach does not take into account the cluster sampling designs of the exit and the household surveys. Due to unmeasured clinic-/cluster-level contextual factors, the responses to a particular outcome are likely to be similar among respondents who are interviewed from a given clinic (in the exit-interview) or a cluster (in the household survey). If the responses to a particular outcome among respondents within the clinics/clusters are significantly correlated, the equations would provide biased hypothesis tests (even though the coefficient/parameter estimates from equation (1) would be unbiased) (Angeles and Mroz 2001; StataCorp 2001; Brown et al. 2002). The appropriate model that accounts for the clinic-/cluster-level correlated responses can be specified using the following equation (2) for the binary outcome:

\[
\ln \left( \frac{P_y}{1-P_y} \right) = \beta_0 + \beta_1 T_y + \beta_2 G_y + \beta_3 T_y \times G_y + \beta_4 C_y + u_i + e_{ij} \quad (2)
\]

\( P_y \) is the probability of a confirmatory reply on the outcome variable for individual \( i \) from clinic/cluster \( j \). \( Y_{ij} \) is the mean value of the number of very satisfied responses for individual \( i \) from clinic \( j \), \( u_i \) is the clinic-/cluster-level random effect (variance), and \( e_{ij} \) is the individual-level error term. Two approaches were considered to estimate the multi-level equation (3). One approach is to use a robust method called Eicker-Huber-White, and the other approach was to use multi-level random effect models. The major advantage of the Eicker-Huber-White procedure is that little or no assumptions of the population distribution are required. However, the drawback of the robust procedure is that it is not efficient, and it fails to accurately estimate the clinic-/cluster-level correlation (StataCorp 2001; Brown et al. 2002).

Multi-level random effects models can efficiently estimate the clinic-/cluster-level variances \( u_i \) (the random parameters) and the coefficients \( \beta_0, \beta_1, \beta_2, \beta_3 \) and \( \beta_4 \) (the fixed parameters) of equation (2). The multi-level random effects logit model was estimated using the Gauss-Hermite (GH) quadrature approximation. For the GH approximation the clinic-/cluster-level correlation (\( \rho \) or \( \rho \)) was estimated using the formula \( \rho = u_i / (u_i + 1) \). The significance level \( (P < 0.05) \) of the rho was determined using \( \chi^2 \) statistics (StataCorp 2001). If the rho is not significant, then a simple logit or ordinary least squares (OLS) model is adequate for efficient and unbiased coefficient and variance estimates.
The major assumption of the random effects model is that the random effect ($\mu_i$) is independently normally distributed. The disadvantage of the random effect models is that if the random effect assumption fails to hold, it provides inconsistent coefficient and variance estimates. One way to test the independence assumption of the random effect is to use Hausman’s specification test (Hausman 1978). A non-significant ($P > 0.05$) Hausman’s test indicates that the assumption of the random effect is appropriate (Hausman 1978; StataCorp 2001).

Therefore, the steps for identifying the best-fit model for a particular outcome were: 1) estimate the multi-level random effect model; 2) test the random effect assumption using Hausman’s specification test; 3) if Hausman’s test indicates that the random effect assumption is adequate and the rho is significant (at $P < 0.05$), then the multi-level random effect model is identified as the best-fit; if the random effect assumption is adequate but the rho is not significant, then the ordinary logit is identified as the best-fit model. Finally, if the random effect assumption does not hold, the cluster-/clinic-level correlation is adjusted using the Eicker-Huber-White robust method of variance estimation. The best-fit models were used for all hypotheses tested, and the $P$-values of the tests are reported along with the adjusted probabilities for each outcome in the intervention and control areas at baseline and follow-up. The clinic-/cluster-level correlations are also reported when the random effect assumption is appropriate.

## Results

### Client satisfaction and return visits to clinics

Table 1 shows adjusted percentages of clinic clients who reported being very satisfied with different elements of service quality. There was an increase in the percentage of clients at intervention clinics who reported being very satisfied with cleanliness, from 37% to 65% ($P < 0.001$), while there was no significant change in this indicator at control clinics (17% at baseline and 20% at follow-up). The $P$-value indicates that trends on this indicator at intervention and control clinics were different at a marginally significant level ($P = 0.060$). The percentage of clients who reported being very satisfied with the availability of essential equipment increased from 35% to 62% at intervention clinics, while there was no significant change among clients at control clinics. Intervention and control clinic trends on this indicator were significantly different ($P = 0.002$). There was no significant change in the percentage of clients who reported an increase in satisfaction with the supply of essential medicine. Neither did clients at intervention or control clinics report greater satisfaction with client handling or with service charges. Satisfaction with the physical look of the clinic increased from 26% to 64% at intervention clinics, while there was no significant change at control clinics. The difference in trends was significant. Client satisfaction with the range of services offered increased from 40% to 71% at intervention clinics, while there was no significant change at control clinics. Clients at intervention clinics also reported greater satisfaction with privacy, an increase from 38% to 72%, while there was no change among clients in control clinics. $P$-values for trend differences between intervention and control clinics showed that client satisfaction with the physical look of the clinic, the range of services and privacy was significantly different between intervention and control clinics.

Overall satisfaction with the quality of services increased from 55% to 77% at intervention clinics. No significant change occurred in this indicator at control clinics. Moreover, trends in overall satisfaction at intervention and control clinics were significantly different from each other.

Figure 1 shows the adjusted percentage of returning clients, a measure of client loyalty. The percentage of returning clients increased from 83% to 93% at intervention clinics, while there was no change at control clinics. The difference in trends at intervention and control clinics was marginally

<table>
<thead>
<tr>
<th>% very satisfied with…</th>
<th>Intervention</th>
<th></th>
<th></th>
<th>Control</th>
<th></th>
<th></th>
<th></th>
<th>P-value of difference in trend</th>
<th>Clinic-level correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cleanliness</td>
<td>37.4</td>
<td>64.8</td>
<td>&lt;0.001</td>
<td></td>
<td>16.8</td>
<td>20.2</td>
<td>0.540</td>
<td>0.060</td>
<td>0.279</td>
</tr>
<tr>
<td>Essential equipment</td>
<td>35.3</td>
<td>62.2</td>
<td>0.001</td>
<td></td>
<td>12.7</td>
<td>7.7</td>
<td>0.183</td>
<td>0.002</td>
<td>0.303</td>
</tr>
<tr>
<td>Essential medicines</td>
<td>60.9</td>
<td>70.5</td>
<td>0.119</td>
<td></td>
<td>26.1</td>
<td>27.6</td>
<td>0.829</td>
<td>0.430</td>
<td>0.229</td>
</tr>
<tr>
<td>Good handling of clients</td>
<td>82.4</td>
<td>88.4</td>
<td>0.138</td>
<td></td>
<td>58.2</td>
<td>64.6</td>
<td>0.348</td>
<td>0.631</td>
<td>0.196</td>
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<tr>
<td>Service charge</td>
<td>74.6</td>
<td>68.6</td>
<td>0.381</td>
<td></td>
<td>22.1</td>
<td>25.1</td>
<td>0.654</td>
<td>0.360</td>
<td>n.a.</td>
</tr>
<tr>
<td>Physical look</td>
<td>25.6</td>
<td>64.0</td>
<td>&lt;0.001</td>
<td></td>
<td>13.6</td>
<td>14.8</td>
<td>0.810</td>
<td>0.007</td>
<td>0.270</td>
</tr>
<tr>
<td>Range of services</td>
<td>40.3</td>
<td>71.3</td>
<td>0.001</td>
<td></td>
<td>16.5</td>
<td>11.2</td>
<td>0.336</td>
<td>0.004</td>
<td>0.297</td>
</tr>
<tr>
<td>Privacy</td>
<td>37.6</td>
<td>72.2</td>
<td>&lt;0.001</td>
<td></td>
<td>13.7</td>
<td>11.4</td>
<td>0.657</td>
<td>0.008</td>
<td>0.311</td>
</tr>
<tr>
<td>% overall very satisfied</td>
<td>54.7</td>
<td>76.8</td>
<td>0.007</td>
<td></td>
<td>27.3</td>
<td>24.1</td>
<td>0.675</td>
<td>0.032</td>
<td>0.267</td>
</tr>
<tr>
<td>Sample size</td>
<td>491</td>
<td>435</td>
<td></td>
<td></td>
<td>394</td>
<td>298</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: All estimates are adjusted for age, sex, education level and marital status.

n.a.: not applicable; the multi-level model was not a good fit as indicated by the Hausman’s specification test. Hence, the Taylor-series linearization technique was used to account for clinic-level unobserved heterogeneity.
significant \((P = 0.053)\). These findings indicate that trends in client loyalty increased in intervention but not in control clinics. The analysis also showed that, after adjusting for other factors, a very satisfied client was more than twice as likely as another client to make a return visit (not shown).

**Service utilization**

**Clinic statistics**

Service delivery statistics for franchised services show the uptake of reproductive health services in Figure 2. Nearly 14,000 clients received reproductive health services from the 64 franchised clinics during the 9 month period for which data are available. Nearly three-quarters of these clients received family planning services with 6,800 clients receiving injectables and 3,500 receiving oral contraceptives or condoms. About 3,500 received other reproductive health services, including about 1,800 who received antenatal care.

**Population-based data**

Table 2 shows adjusted percentages of household survey respondents who reported use of reproductive health services and obtained these services from a medical store/pharmacy.

At the population level, there were no significant changes in current use of family planning among married women aged 15–45 in either intervention or control districts. However, the data suggest a tendency for current use to increase in the intervention (from 45% to 50%, \(P = 0.279\)) and to decline in the control districts (from 56% to 48%, \(P = 0.134\)). As a consequence there appears to have been a marginally significant net positive effect of the intervention on current use of family planning \((P = 0.067)\).

At baseline, about 5% of reproductive age women (or 9% of current family planning users) in the intervention district obtained modern methods from medical stores/pharmacies. At follow-up, about 7% of women (or 14% of current family planning users) obtained modern methods from medical stores/pharmacies. The change in the percentage of married women who obtained family planning from a medical store/pharmacy was not statistically significant. While this proportion did not change in the control districts either, the trends in intervention and control districts were significantly different from each other \((P = 0.036)\), indicating that the franchise intervention had a net positive effect on women obtaining family planning from medical stores/pharmacies.

There was no significant change in the use of antenatal care services during the last pregnancy in either intervention or control districts, although there appeared to be a tendency for use of antenatal care services to increase in both districts. There was also no significant change in the percentage of women who received antenatal care from a medical store/pharmacy in the intervention district \((1\% \text{ at baseline, } 3\% \text{ at follow-up})\) or in the control district \((2\% \text{ at follow-up, } 0\% \text{ at baseline})\).

**Table 2** Random effects logit models showing adjusted percentages for women’s use of family planning and antenatal care services (during the last pregnancy)

<table>
<thead>
<tr>
<th></th>
<th>Intervention</th>
<th>Control</th>
<th>(P)-value of difference in trend</th>
<th>(P)-value</th>
<th>(P)-value of difference in trend</th>
<th>(P)-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Family planning</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current use</td>
<td></td>
<td>44.7</td>
<td>0.279</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From medical store/pharmacy</td>
<td>5.4</td>
<td>7.0</td>
<td>0.262</td>
<td>2.8</td>
<td>1.2</td>
<td>0.113</td>
</tr>
<tr>
<td><strong>Antenatal care</strong></td>
<td></td>
<td>57.5</td>
<td>0.314</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any use during last pregnancy</td>
<td>2.8</td>
<td>1.2</td>
<td>0.113</td>
<td>0.036</td>
<td>n.a.</td>
<td></td>
</tr>
<tr>
<td>From medical store/pharmacy</td>
<td>1.4</td>
<td>3.3</td>
<td>0.175</td>
<td>2.4</td>
<td>0.9</td>
<td>0.147</td>
</tr>
<tr>
<td><strong>Sample size</strong></td>
<td></td>
<td>461</td>
<td>495</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: All estimates are adjusted for age, education level, urban/rural location and complex survey design.

n.a.: not applicable; the multi-level model was not a good fit as indicated by the Hausman’s specification test. Hence, the Taylor-series linearization technique was used to account for clinic-level unobserved heterogeneity.
Discussion

In spite of considerable interest in their effects, there is a dearth of assessments of the impact of franchise programmes in developing country settings. This is the first study that used a quasi-experimental design to assess the impact of a reproductive health franchise on client satisfaction with services, and adds to a small but growing literature on franchise experiences in developing countries.

Substantial increases in client satisfaction were observed across a range of elements of quality at intervention clinics but not at control clinics. Moreover, trends in client satisfaction were significantly different between intervention and control clinics. Indicators for client satisfaction measured cleanliness of the clinic, availability of essential equipment, the physical outlook of the clinic, the range of services offered and privacy. Consistent with the finding of increased satisfaction with a range of elements of quality, a measure of overall client satisfaction also showed a significant increase in the intervention area. Client satisfaction is an important determinant of choice of facility and utilization of services. That the intervention was able to motivate providers to improve client perceptions of the services they delivered indicates provider interest in providing better services to clients living in rural areas.

Consistent with increases in client satisfaction, the proportion of return visits to clinics—a proxy for client loyalty to the clinic—also increased at intervention clinics. There was no increase in client loyalty at control clinics. It seems that franchisees understood that providing better quality services would increase in client loyalty at control clinics. It seems that the services offered by nurses and paramedics entered into a medical store/pharmacy. A more regular supply of injectables became available at clinics after they became part of the franchise network.

It seems that the services offered by nurses and paramedics were not compatible with a substantial expansion of reproductive health services. Exit surveys showed that, at baseline, the vast majority of visits to these providers were illness related: 87% of client visits to intervention clinics and 93% to control visits were not related to reproductive health. Population-level data showed that 10–12% of the population in the intervention district went to a medical store/pharmacy for reproductive health services. This suggests that other sources of reproductive health are available to clients. The extent to which the nurse and paramedic network could have had an effect may have been constrained by the degree to which there were other sources of reproductive health services.

Acknowledgements

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Endnotes

1 The Eicker-Huber-White method is conservative, and produces upward biased variance estimates and decreases the statistical power of the hypothesis tests (StataCorp 2001).

References


