Perceived Quality of Care and Contraceptive Use among Social Marketed and Commercial Health Establishments Clientele in Urban Pakistan

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Abstract

Objective: To examine predictors of perceived quality of care and contraceptive use. And to provide more information on the influences of social marketing program on quality of care and contraceptive use by comparing Greenstar and commercial health establishments.

Methods: This study is based on an urban exit survey of 5321 clients conducted in May-June, 2001. Quality of care was measured as features that clients liked at the outlets that they visited. Predictors of contraceptive use include indicators of quality of care, social environment, exposure to channels of communication, exposure to Greenstar information, and background characteristics. Analysis involved descriptive statistics, and logistic regression.

Results: A majority of the clients interviewed were males (51%), aged at least 25 years (89%), had at least a child (93%), and had some schooling (72%). The results show that perceived quality of care varies according to sex, years of schooling, and how often clients listened to the radio or watched TV. Significant predictors of contraceptive use are; years of schooling, number of living children, how often clients listened to the radio or watched TV, awareness of the Greenstar logo, and what it represent, and perceived quality of care—nearness of outlet to home or work, affordable fees, availability of doctor at the outlet, and knowledge of the provider. Results suggest that social marketing programs have an impact both on quality of care and on creating demand for contraceptive use.

Conclusions: Program intervention that increases quality of care based on clients' assessment indicators may attract more FP clientele and increase contraceptive use among couples in Pakistan.

Background

After over 40 years of Pakistan national family planning (FP) program's existence, contraceptive prevalence rate for any method still remains low, and unmet need is one of the highest in the world. In 2000/01, contraceptive prevalence was 27.6%, and unmet need was 33% (National Institute of Population Studies [NIPS], 2001). The proportion of women who have unmet need for spacing (12%) is about half those who have unmet need for limiting (21%). These statistics present a scenario of untapped potential for reducing the rapid population growth (currently 2.7%) in the country. Some of the major factors responsible for the low contraceptive use in the country are poor quality of care, socio-cultural constraints, and weak program efforts (Casterline et al., 2001; Fikree et al., 2001).

Socio-cultural Constraints

Socio-cultural constraints are of many dimensions ranging from living arrangements and social institutions (e.g. religion), to attitudes and behavior. The living arrangement of most families in Pakistan affects independent decisions of couples on fertility preferences and family planning. Most couples live within the extended family house of the husband (Fikree, et. al., 2001). The power structure of society creates this type of living arrangement which enables mother-in-laws and father-in-laws to have influence on the fertility and FP decisions of their sons, and daughter-in-laws.

The complex dynamics of social interactions that evolve from living together with extended families makes it difficult to clearly understand the role of husbands in FP decisions (Fikree, et al., 2001; Casterline, et. al., 2001). Despite the difficulty in understanding husband's role in FP decisions, it is likely to be important considering the

social institutions favoring male dominance in Pakistan. A key indicator of male dominance is communication between couples, which is currently low in Pakistan. Studies show that Pakistani couples rarely discuss important issues like fertility preferences and FP (Shelton et al., 1999). Poor communications among couples may leads to misunderstanding, a lack of clear consensus, or mistaken representation of partner's opinion on FP (Mahmood and Ringheim, 1997).

The literature shows that religion is an important factor affecting the views of many Pakistani couples on FP (Fikree, et al., 2001, Population Council, 1997 cited in Creel, et al., 2002). Closely linked to religion and culture is the practice of *purdah*, which limits the movement of married women to within their household. This practice makes it difficult for women to take independent actions like visiting an FP outlet without prior approval from their husband/relatives or the escort of a chaperone (Fikree, et al., 2001).

Evaluating Quality of Care

The importance of quality of care in contraceptive use, client satisfaction and continued use is well discussed in the literature (Heerey et al., 2003; RamaRao et al., 2003; Casterline et al., 2001; Shelton et al., 1999; Koenig et al., 1997; and Bruce, 1990). While the effects of quality of care on contraceptive use are not in doubt, the challenge has always been how to efficiently evaluate quality of care in health establishments.

Judith Bruce (1990) is one of the foremost to provide a framework for evaluating quality of care. The framework measures quality using six key elements: range of methods choice at an outlet, clients well informed about methods, technical knowledge of the provider, relations of provider with clients, well-planned follow-up mechanisms, and appropriate constellation of services. The framework is useful for evaluating quality of

care by program implementers themselves who are able to provide information on the six elements.

Of recent there has been a growing body of literature on other approaches to evaluating quality of care based on clients own indicators. The two main arguments for clients approach are key weaknesses of the program approach to quality of care evaluation. First, program perspective presents key measurement challenges in some developing countries contexts. For example, doubts have been expressed about clients' ability to provide adequate information on range of methods at the outlet since this is subject to the information that they receive from the provider. And providers are often biased in explaining all available methods. Second, some clients make up their minds prior to visiting the outlet on the method that they want based on prior information from friends or relatives (Creel et al., 2002).

The question often asked is: who is best suited to talk about quality—beneficiaries, providers, or both? To attain a holistic evaluation of quality of care, it is better to consider both perspectives; but financial and time constraints may not permit the use of both approaches. The client approach to evaluating quality of care is premised on the assumption that it is more efficient to obtain information on quality mainly from those who are the beneficiaries of FP programs. The fact that clients provide the measures for the evaluation of quality makes this approach more appealing to policy makers and program implementers. Clients' perceived quality of care evaluates quality through the "eyes" of those who benefit from FP services. Some of clients' perceived quality of care indicators are: respectful, friendly, and knowledgeable provider, time spent during outlet visit, convenience of outlet schedule, privacy, confidentiality, cleanliness and

environmental hygiene (Heerey et al., 2003; Creel et al., 2002; and Govender et al., 2000).

Our paper provides more empirical evidence on the understanding of quality of care, and contraceptive use in Pakistan. We examined quality of care using clients' perceived measures, and how these impact on contraceptive use controlling for selected socio-cultural, media exposure, and background predictors. And we examined the influences of private sector social marketing programs on quality of care, and contraceptive use.

The private sector has the largest and the oldest social marketing operations in the country. We compared two private sector outlets, Greenstar social marketed outlets and commercial outlets not involved in social marketing. Comparison of these two health establishments is ideal. Most Greenstar outlets started as commercial outlets before joining social marketing program. Because the two outlets have similar origin, the main difference between them is social marketing. Thus, the two are best suited for evaluating the impact of social marketing on quality of care and contraceptive use.

Greenstar Social Marketing

Greenstar Social Marketing is one of the leading private sector health care providers in Pakistan. Private sector health care providers control over 70% of health care in Pakistan (McBride and Ahmed, 2001). Greenstar was founded in 1986 by Population Services International (PSI), headquartered in Washington DC (USA). In 1995 soon after it became an NGO Greenstar rapidly expanded from about 300 outlets to over 11,000 outlets in 2002 (McBride and Ahmed, 2001). Most of these outlets are located in the low income neighborhoods in the urban areas.

Greenstar operates mainly in the urban areas to increase the proportion of couples using FP and reproductive health services, and to improve clients' access, and satisfaction. It uses marketing strategies and techniques to provide FP to lower income population in Pakistan. The Greenstar outlets are continuously evaluated and graded based on available facilities, and the length, and content of FP and reproductive health training of the provider who may be a doctor, nurse, pharmacist, junior paramedic or lady health visitor (LHV). A detailed description of Greenstar outlets according to types are in appendix one.

Commercial health establishments

The commercial providers account for a large proportion of private sector health care providers in Pakistan. These are private doctors, nurses, pharmacists, and paramedics who manage private clinics, hospitals, pharmacies and local health outlets. Their main emphasis is on curative services with minimal FP and reproductive health preventive services. Few commercial outlets offer FP products and services because of lack of knowledge and expertise in this area (McBride and Ahmed, 2001)[1].

[1] We have used health establishments and outlets interchangeably throughout this paper.

Methodology

Objectives

The major objective of this study is to examine clients' perceived quality of care and influences on contraceptive use controlling for other predictors. Our study also contributes to a growing body of evidence on the effects of private sector social marketing on quality of care and contraceptive use. We compared Greenstar social marketing with commercial outlets which is not involved in social marketing.

Sampling Design

This study was based on an exit survey conducted in May/June 2001. The exit survey was part of a major three-country study examining alternative models of health service delivery conducted by the University of North Carolina, School of Public Health. The study included a clients exit survey, FP provider survey, and health establishment survey. The main objective of the study in Pakistan was to measure the "performance level of Greenstar outlets" compared to other outlet types in Pakistan (PSI, 2000).

The client evaluation survey was conducted only in the urban areas were the Greenstar outlets were concentrated at the time. A sub-sample of 5321 clients who were interviewed at the Greenstar (2881) and the commercial outlets (2440) were extracted from the total sample of 7423 clients. Although clients were interviewed at the Greenstar, commercial, government, and other NGOs health establishments, we have limited our analysis to only the 5321 clients of Greenstar and the commercial outlets.

The sampling for the exit survey was conducted at three levels; cities, health establishments, and clients. All 466 cities in Pakistan were grouped into three main strata: stratum one included big cities i.e. those with more than a million people; stratum two

had medium cities i.e. those with between 100,000 and a million people; and stratum three included small cities, i.e. those with less than 100,000 people. The size of each city was determined using updated census figures. In each stratum, cities were classified into the three strata and listed according to size, from the largest to the smallest. Using systematic sampling 26 cities were selected from the three strata across the four provinces in Pakistan using.

Most Greenstar outlets were concentrated in and around the large cities at the time of the survey. And most of the 26 cities selected were from large cities. All seven cities that had over one million people in the first stratum were included in the sample-- five in Punjab, and two in Sindh provinces. Seven of the 43 cities that had between 100,000 to one million people (second stratum) also was selected systematically; three from Punjab, two from Sindh, and one each from Baluchistan, and North West Frontier Province [NWFP]). Also, 12 cities were selected from the 416 cities with less than 100,000 people; four each from Punjab, and Sindh, and two each from Baluchistan, and NWFP.

The number of cities selected per stratum compared to the total number of cities per province irrespective of the size of the cities are: Punjab, 12 (46%) vs. 232 (50%); Sindh, 8 (30%) vs. 150 (32%); Baluchistan, 3 (11.5%) vs. 45 (10%); and NWFP, 3 (11.5%) vs. 39 (8%).

The second level of sampling involved the selection of wards/units i.e. delineated electoral constituencies for local governments in each of the selected cities. This was done with probability proportional to the number of wards in the city. In total, 267 wards/units were selected, 145 from selected cities in stratum one, 51 from stratum two, and 71 from stratum three. A census of all outlets by type was conducted in the selected

wards. A sample of 1000 outlets was selected, 400 Greenstar, 300 commercial, 200 public and 100 NGOs with probability proportional to the total number of outlets by type.

Data Collection

The third level of sampling involved the systematic selection, and on the spot interviewing of clients as they left the selected outlets. ACNielsen Aftab[2] of Pakistan was contracted to administer the fieldwork with technical assistance from the University of North Carolina, and PSI research team. The cluster evaluation survey field team estimated the volume of clients that visited each of the outlets selected, and this was used to determine the number of clients to be interviewed per outlet. The volume of clients per outlet was estimated by stationing a male and a female interviewer at each of the selected outlet for one to two days prior to the actual interview dates. They recorded the number of clients who came out of the outlet, their gender, and purpose of visit. The two interviewers also obtained information from the provider on the daily schedule of outlets, and the average number of clients that visit the outlet daily. The average number of clients that visited each outlet daily was determined by considering all the information obtained from the provider and recorded observations of the interviewers. The number of clients who came to each outlet daily was divided by 8 the desired number of interview per outlet to determine the sampling interval (k) for selecting clients on the day of interview.

Eligible respondents were male and female clients who came to the outlets on the day of interview. A pair of interviewers, male and female administered a semi-structured questionnaire in Urdu to selected and interview clients as they left the outlets. The male interviewer administered questionnaire to the male clients while the female interviewer

administered to the female clients. After a random start, every kth client coming out of the clinic was interviewed until the desired number of interviews was obtained.

Sampling limitations

A common criticism against exit surveys is overrepresentation of clients in the medium to high income brackets. Clients in this sub-group tend to visit outlets more because they are able to afford products and services. The income distribution in Table 2 shows that the majority of clients in our sample (68%) earned below 5000 rupees a fairly low income in Pakistan. This income distribution suggests that our sample captures a fairly good proportion of low income and perhaps, a smaller proportion of the very poor sub-group.

(Figure 1 about here)

Conceptual Framework

Figure 1 shows the conceptual and analytical framework of this study. The conceptual framework provides a unique understanding of the dynamics between contraceptive use, quality of care, controlling for selected predictors. In Figure 1, the box on the right contains the main dependent variable, contraceptive use. All predictors in the boxes to the left directly or indirectly influence contraceptive use. The indicators of perceived quality of care are in the middle box referred to as intervening predictors of contraceptive use, and they are also serving as dependent variable to: channels of communications, exposure to Greenstar information, social environment, and background characteristics.

For the purpose of this study, our analyses focused on only the relationship between predictors of quality of care and those of contraceptive use. Relationships between indicators in boxes showing dotted arrows are not examined in this study.

Nielson Aftab is a marketing research organization based in Pakistan.

Also, we did not model prior perceived quality of care based on the information that clients received from the media, friends, and relatives before visiting the clinic. These additional information may have strengthened the predictive power of the indicators of perceived quality of care in Figure 1.

(Table 1 about here)

Dependent Variables

Table 1 shows the two dependent variables in this study, contraceptive use, and quality of care. Contraceptive use was measured by a question that asked whether clients or their spouse were using contraceptive methods at the time of interview. Quality of care was assessed by clients' own perceptions of various dimensions of care. Perceived quality of care is measured as those features that clients liked at the outlet where they were interviewed. This study assumes that features that clients liked at the outlets are what they perceive as quality. During the interview clients were asked to mention features that they liked at the outlets, those mentioned were ticked off on a list of features in the questionnaire. Clients where then probed on features on the list that were not mentioned just to make sure that no feature was overlooked or forgotten. Responses were recoded and classified into four main types; staff, facility, accessibility, and affordability features liked at the outlet (Table 1).

Explanatory Indicators

Table 1 presents all explanatory indicators of contraceptive use and quality of care, their definitions, categorization, and codes. We examined exposure to two mass communication channels, radio, and TV. Exposure is defined as the number of times that clients listened to radio, and the number of times that they watched TV per day.

Aside exposure to channels of communication, we were interested in whether clients were exposed to information about Greenstar, whether they have ever heard or seen the logo and whether they know what it represent. The literature suggests that what logos represent influence clients use of products and services carrying the same (Heerey, et al., 2003).

The social environment of clients has significant influences on their use of contraceptives. Social environment is defined as the attitudes of spouse, relatives, and friends towards FP and whether they use contraceptives or not. Categories for the three indicators of social environment examined are presented in Table 1.

Selected background characteristics used as predictors of quality of care, and contraceptive use are: type of outlet, sex of client, age, highest years of schooling, and number of living children. Re-coded background characteristics are presented in Table 1.

Data analysis

Descriptive statistics are presented in Table 2. The effects of explanatory factors on perceived quality of care were determined using logistic regression, and results are presented in Table 3. Also, logistic regression technique was employed to understand the relationship between contraceptive use and its predictors in Tables 4.

Results

Characteristics of clients

Table 2 shows the characteristics of clients interviewed. We assumed that respondents are clients of the outlet where they were interviewed. Over 80 percent of respondents had been to the same outlet in the past. The results in Table 2 show that more Greenstar than commercial clients were females (58% vs. 37%), while more commercial than Greenstar clients were males (63% vs. 42%). And overall, more males than females were interviewed (51% vs. 49%).

Greenstar clients especially those below age 35, were younger than commercial clients (58% vs. 50%). More Greenstar than commercial clients had at least 10 years of schooling (49% vs. 46%). And commercial clients had more living children than Greenstar clients (94% vs. 91%). The majority of clients at both outlets had similar income, about 5000 Rupees or less per month (68%).

Table 2 about here

Table 2 also shows descriptive statistics on exposure to channels of information. More commercial than Greenstar clients listened to the radio at least once a week (31% vs. 27%), and overall 29% listened. More Greenstar than commercial clients watched TV

at least once a week (87% vs. 80%), and the majority of all clients watched (84%). As expected, more Greenstar than commercial clients have ever heard or seen the Greenstar logo (88% vs. 76%), and more Greenstar than commercial clients said the logo represent FP services (70% vs. 59%).

The results in Table 2 show that more Greenstar than commercial clients discussed with their spouse about FP in the past year (40% vs. 34%), and more Greenstar than commercial clients had friends or neighbors who approved of couples use of FP (55% vs. 47%). Also, more Greenstar than commercial clients had friends or neighbors who used FP services (43% vs. 34%). A smaller proportion of friends or neighbors used FP compared to those who approve of it (39% vs. 51%), and the smallest proportion of clients discussed FP with their spouse in the past year (37%).

In general, percentage distributions of most indicators of perceived quality of care are similar for Greenstar and commercial clients. The results show that similar proportion of both Greenstar and commercial clients rated the services received at the outlets as satisfactory or very satisfactory (65% vs. 64%). This result may have been affected by client's pre-conceived notion about the quality of care at the outlet. The most common feature liked by both Greenstar and commercial clients is nearness of outlet to home or work (both 59%). The second feature liked by less than one-fifth of Greenstar and commercial clients is availability of a doctor at the outlet (18% vs. 17%), followed by short waiting time (both 15%), and friendly provider (14% vs. 16%, respectively). Smaller proportions of Greenstar and commercial clients liked affordable fees (13% vs.12%), and medication in stock (9% vs. 11%), and clean facilities at the outlet (both 9%).

The proportion of Greenstar and commercial clients who reported using contraceptive was low (31% vs. 28%), and only 29% of all clients used.

Perceived quality of care and explanatory factors

Table 3 shows the relationship between perceived quality of care and selected predictors presented as odd ratios (OR). Models 1 to 5 show the odds that clients liked nearness of outlet to home or work, affordable fees, and availability of a doctor, knowledgeable provider, and friendly provider, at the outlet according to predictors namely, background characteristics, exposure to channels of communication, and exposure to Greenstar information. All odd ratios compare to the reference category (ref.) = 1. A ratio greater than 1 implies increased odds, a ratio less than 1 means decreased odds, and a ratio equals to 1 indicates no change.

(Table 3 about here)

The results in Table 3 show that perceived quality is influenced by the sex of clients. The odds that clients liked nearness of outlets to their home or work, doctor's availability at the outlet, and short waiting time decreased for males than for females (OR = .90, $p < .1$; OR = .52, $p < .001$; and OR = .67, $p < .001$, respectively). But the odds that clients liked provider's knowledge, provider's friendliness, and medication in stock increased for males than for females (OR = 1.3, $p < .05$; OR = 1.32, $p < .001$; and OR = 2.52, $p < .001$, respectively).

Age of clients has effects on quality of care. Clients who were aged 35 or older had lower odds of liking short waiting time at the outlet than those aged 24 or younger (OR = .76, $p < .1$).

Years of schooling has significant influence on perceived quality of care. Clients who had 9 or less years of schooling had increased odds of liking friendly provider, clean facilities, and medication in stock at the outlet than those with no education (OR = 1.23, $p < .05$; OR = 1.33, $p < .1$; OR = 1.31, $p < .1$, respectively). Clients who had 10 to 12 years of schooling had increased odds of liking provider's knowledge, clean facilities, and medication in stock at the outlet compared to those with none (OR = 1.38, $p < .05$; OR = 1.47, $p < .001$; and OR = 1.64, $p < .001$, respectively). Similar results were obtained for clients who had 13 or more years of schooling.

Quality of care is associated with number of living children that clients had. The odds that clients liked doctor's presence at the outlet increased for those who had 1 to 3 children compared to those who had none (OR = 1.43, $p < .05$). Similar results were reported for clients who had more than three children.

The results in Table 3 show that client's perceived quality of care depends on exposure to channels of communication. The odds that clients liked nearness of outlet to home or work, and affordable fees features at the outlet decreased for those who listened to the radio at least once a week compared to the reference category (OR = .79, $p < .001$; OR = .77. $p < .01$, respectively). Results were positive for clients who watched TV often. Clients who watched TV at least once a week had increased odds of liking nearness of outlet to home or work, doctor's availability, and clean facilities of outlets compared to the reference category (OR = 1.47, $p < .001$; OR = 1.57, $p < .001$; and OR = 1.42, $p < .05$, respectively).

An important aspect of this study is to understand how clients perceive Greenstar logo and what it represents. Results show that exposure to Greenstar information has

influence on perceived quality of care. The odds that clients liked affordable fees, doctor's availability, and provider's knowledge features decreased for clients who had ever heard or seen the Greenstar logo compared to those who have not (OR = .73, $p < .05$; OR = .49, $p < .001$; and OR = .71, $p < .1$, respectively). Interestingly, the odds of liking medication in stock feature increased for clients who had ever heard or seen Greenstar logo compared to the reference category (OR = 1.38, $p < .1$). These results suggest that the appearance of Greenstar logo on a product and services may signify quality to clients (Heerey, et al., 2003).

In general, perceived quality of care has positive relationship with what Greenstar logo represent. Clients who thought that the logo represent FP services had increased odds of liking nearness to home or work, doctor's availability, and provider's knowledge features at the outlet compared to the reference category (OR = 1.55, $p < .001$; OR = 1.26, $p < .05$; and OR = 1.33, $p < .1$, respectively). However, the same clients had decreased odds of liking medication in stock feature compared to the reference category (OR = .74, $p < .01$).

Factors influencing contraceptive use among clientele

In this section, we considered all predictors of contraceptive use including perceived quality of care. In Table 4 Models 1 to 4 show results on the relationship between contraceptive use and selected predictors. Each successive model from 1 to 4 in the table produced better results than the preceding. Model 4 is the best fit of all having the smallest -2 log-likelihood (4656.36), the highest chi-square (1800.32) and the highest explained variance (41%). Computed odd ratios were compared to the reference category

(ref.) = 1. A ratio greater than 1 implies increased odds, a ratio less than 1 means decreased odds, and a ratio equals to 1 indicates no change.

(Table 4 about here)

The results in Table 4 show that the odds of using a contraceptive method increased for Greenstar clients than for commercial clients in Model 1 (OR = 1.15, $p < .05$). But this relationship was not sustained in subsequent models.

Contraceptive use has direct relationship with years of schooling. The odds that educated clients used contraceptives increased in Model 1, and persisted after controlling for other predictors in subsequent models. In all models (1 to 4), the odds of using contraceptives increased for clients who had 9 or fewer years of schooling compared to those who had none (OR = 1.85, $p < .001$; OR = 1.49, $p < .001$; OR = 1.23, $p < .1$; and OR = 1.23, $p < .1$, respectively). Similar results were obtained for clients who had 10 or more years of schooling.

Contraceptive use has positive relationship with the number of living children. The likelihood of using contraceptives increased for clients who had 1 to 3 children compared to those who had none in Model 1, and this relationship persisted in all four models (OR = 16.8, $p < .001$; OR = 17.01, $p < .001$; OR = 8.81, $p < .001$; OR = 8.99, $p < .001$, respectively). Results for clients who had more than 3 children were in the same direction.

Contraceptive use is related to exposure to channels of communication. Whereas the odds of using contraceptives decreased for clients who often listened to radio, it increased for those who often watched TV. Models 3 and 4 of table 4 show that the odds of using contraceptives decreased for clients who listened to radio at least once a week

compared to the reference category (OR = .84, $p < .05$; OR = .85, $p < .05$, respectively). But the odds increased for clients who watched TV at least once a week in Models 2, 3 and 4 (OR = 1.67, $p < .001$; OR = 1.33, $p < .05$; and OR = 1.35, $p < .05$, respectively). These results suggest that TV is likely to be a more efficient channel of communicating information about FP to clients and perhaps, the general population.

Contraceptive use is associated with exposure to Greenstar information as the results in Table 4 shows. In Model 2, the odds of using contraceptives increased for clients who had ever heard or seen the Greenstar logo compared to those who did not, and this results persisted in all models (OR = 1.69, $p < .001$; OR = 1.46, $p < .01$; and OR = 1.45, $p < .05$, respectively). Although the odds of using contraceptives increased for clients who knew that the Greenstar logo represent FP in Model 2 (OR = 1.47, $p < .001$), this relationship was not significant in Model 4 after controlling for other predictors including quality of care. The results in Table 4 corroborate those in Table 3 that the relationship between what the logo represent and contraceptive use may be through predictors such as quality of care.

The social environment is an important predictor of contraceptive use. Table 4 shows that the odds of using contraceptives increased for clients who discussed FP with their spouse in Models 3 and 4 compared to the reference category (OR = 8.97, $p < .001$, OR = 9.05, $p < .001$). Results on other social environment predictors, attitudes of friends and relatives to FP, and friends and neighbor's use of FP are similar.

The results in Table 4 show that contraceptive use is related to quality of care. The odds of using contraceptives increased for clients who liked nearness of outlet to home or work, affordable fees, and knowledgeable provider, and it decreased for those

who liked doctor's availability compared to the reference category. Of the nine indicators of quality of care included in Model 4, only four of them had significant net effect on contraceptive use. The odds of using contraceptives were higher for clients who reported that nearness to home/work, affordable fees, and provider's knowledge are the features that they liked at the outlet, but those who liked doctor's availability had decreased odds compared to the reference categories (OR = 1.14, $p < .1$; OR = 1.37, $p < .01$; OR = 1.39, $p < .05$; and OR = .84, $p < .1$, respectively).

Conclusions and Policy Implications

This study examined the predictors of perceived quality of care and contraceptive use. Quality of care was evaluated through the "eyes" of clients who are the main beneficiaries of FP and reproductive health programs. Quality of care was evaluated using the features that clients liked at the outlets. We also examined the performance of Greenstar social marketing by comparing with commercial health establishments which are not involved in social marketing.

Our findings show that perceived quality of care varies according to background characteristics of clients, exposure to channels of communication, and exposure to Greenstar information. The results show that perceived quality of care is influenced by sex of client. The knowledge of provider, friendliness of provider, and medication in stock were significant indicators of quality of care for male clients, while nearness of outlet to work or home, and doctor's availability at the outlet were significant indicators for female clients. Clients in younger age group liked short waiting time feature more than older clients.

Findings also show that knowledge and friendliness of provider, clean facilities, and medication in stock are significant indicators of quality for educated clients. Interestingly, clients who have children liked doctor's presence at the outlet more than those who did not have children. In order to improve quality of care at the outlets it may be necessary to ensure that doctors are available to take care of other health needs that clients may have. Clearly, demographic characteristics of clients influence how they perceive quality of care and should be taken into account in strengthening program performance.

In general, our findings show that clients' exposure to TV has positive influence on quality of care while exposure to the radio has negative effects. The reasons for these differences in results are not clear. We suspect that visual impressions and other unique characteristics of TV may contribute to the reasons for the differences.

Being aware of the Greenstar logo and knowing what it represent influence have opposing effects on perceived quality of care. While awareness of Greenstar logo had significant negative effect on indicators of quality of care (positive effect on only medication in stock), what the logo represent had significant positive effects on indicators of quality of care. These results suggest that social marketing messages may be influencing clients' perception of quality irrespective of the type of outlet that they visit. A caveat from these findings is that health establishments in Pakistan may succeed in increasing overall quality of care and clients satisfaction by improving on the features that clients liked at the outlets.

Findings show that contraceptive use is influenced by background characteristics of clients. Years of schooling and number of living children have positive effects on

contraceptive use. In order to broaden the clientele of FP in the country, program intervention may need to specifically target the uneducated and single sub-groups of the population.

It is clear from our findings that contraceptive use is associated with exposure to channels of communication, and exposure to Greenstar information. Listening to the radio at least once a week decreased clients' likelihood of using contraceptives, but the likelihood increased for those who watched TV at least once a week. These results suggest that TV is a more effective means of reaching clients with FP information than radio. The reasons for these differences in results are not clear from our findings. But we suspect that the visual impressions (and other characteristics) of TV may have contributed to explaining the difference. Further research is needed to tease out the differences in the effectiveness of the two channels of communication and perhaps, examine other effective channels. Program intervention that increases communication of FP information through the TV is more likely to increase demand for the services.

The results of this study show that awareness of the Greenstar logo, and what it represent, may be creating the motivation and demand to use contraceptives. Studies have showed that logos, especially those designed to convey specific massages, have lasting impressions on their target population (Mahmood and Ringheim, 1997). The evidence in this study show that social marketing programs may be contributing to the demand for FP in Pakistan. Further research is necessary to examine the extent of clients' understanding, and the impact of social marketing messages.

The influence of social environment on contraceptive use is evident from our results. Discussion with spouse, friends/neighbors' attitudes to FP, friends/neighbor's use of FP have positive influence on contraceptives use (Fikree et al. 2001).

The findings of this study corroborate the literature on the influence of quality of care on contraceptive use (RamaRao, et al., 2003; Koeng, et al., 1997). The most significant indicators of quality of care influencing conceptive use are nearness of outlet to home or work, affordable fees, provider's knowledge, and doctor's availability at the outlet. Two key implications from these results are: (1) Clients may have evaluated quality of care for FP along with other heath services received. For instance, doctor's availability did not have positive relationship with contraceptive use, but it is a positive indicator of quality of care for clients who have children, (2) knowledge of providers (irrespective of their designation) is a key factor influencing clients to use contraceptives. These results support anecdotal evidence that the Greenstar Lady Health Visitors (LHV) have made considerable progress in providing low income sub-groups with contraceptives (PSI, 2001). Findings also suggest that contraceptive use can be increased by locating outlets close to where clients live or work, and by providing products and services at affordable price.

Perhaps, the main bias with our use of the clients approach to evaluate quality of care is the difficulty of knowing whether clients' evaluation of FP services were influenced by perceived quality of other services received from the same outlet. We did not control for this bias in our study design, and this is worth examining in future research.

This study is also limited by insufficient indicators of social environment in our models. Notable social environmental factors that were not included are: living arrangements, measures of direct influence of mother-in-laws, and father-in-laws in FP decision making, and degree of religious devotion. Our models may have been improved by these indicators of social environment, and perhaps provided more useful information for program intervention.

Lastly it is pertinent to note that further research is needed to examine program efforts especially on how to improve quality of care based on client's indicators with particular attention to internal program constraints to achieving this goal. This study has showed that improved performance on clients' indicators of quality at the outlets may encourage more continued users of contraceptives and elicit new users as well.

References

Bruce, J. (1990). Fundamental elements of the quality of care: A simple framework. *Studies in Family Planning*, 21 (2), 61-91.

Casterline, J. B., Sathar, A. Z., & Ul Haque, M. (2001). Obstacles to Contraceptive Use in Pakistan: A Study in Punjab. *Studies in Family Planning*, 32 (2), 95-110.

Creel, L. C., Sass, J. V., & Yinger, N. V. (2002). Clients-Centered Quality: Clients' Perspectives and Barriers to Receiving Care. *New Perspective on Quality of Care :No 2.* Population Council and Population Reference Bureau.

Fikree, F. F., Khan, A., Kadir, M. M., Sajan, F., & Rahbar, M. H. (2001). What influences Contraceptive Use Among Young Women In Urban Squatter Settlements of Karachi, Pakistan? *International Family Planning Perspectives*, 27(3), 130-136.

Govender, V., McIntyre, D., Grimwood, A., & Maartens, G. (2000). The Costs and Perceived Quality of Care for People Living with HIV/AIDS in the Western Cape Province in South Africa. *Partnerships for Health Reform*. *Small Applied Research* No. 14.

Heerey, M., Merritt, A. P., & Kols, A. J. (2003). Improving the Quality of Care. Center for Communication Programs, Bloomberg School of Public health, John Hopkins University. *Center Publication* No 101.

Koenig, M. A., Hossain, M. B. & Whittaker, M. (1997). The Influence of Quality of care upon Contraceptive Use in Rural Bangladesh. *Studies in Family Planning*, 28(4), 278-289.

Mahmood N. & Ringhim, K. (1997). Knowledge, Approval and Communication About Family Planning as Correlates of Desired Fertility Among Spouses in Pakistan. *International Family Planning Perspectives*, 23 (3), 122 – 129 & 145.

McBride, J. & Ahmed, R. (2001). Social Franchising as a Strategy for Expanding Access to Reproductive health Services. *Commercial Market Strategies (CMS)* Technical Paper.

National Institute of Population Studies [NIPS]. (2001). Pakistan Reproductive Health and Family Planning Survey (2000-01). *Preliminary Report*, July.

Population Services International (PSI). (2000). Packard Green Star Strengthening and Enhancing the Green Star Clinic Network in Pakistan. *First Annual Progress Report, January - December*.

RamaRao, S., Lacuesta, M., Costello, M., Pangolibay, B., & Jones, H. (2003). The link between quality of care and contraceptive use. *International Family Planning*

Perspectives, 29 (2), 76-83.

Shelton, J. D., Bradshaw, L., Hussein, B., Zubair, Z., Drexler, T., & McKenna, M. R. (1999). Putting Unmet Need to the Test: Community-Based Distribution of Family Planning in Pakistan. *International Family Planning Perspectives*, 25(4), 191-195.

Figure 1: Conceptual Framework on Perceived Quality of Care and Use of Modern Contraceptives

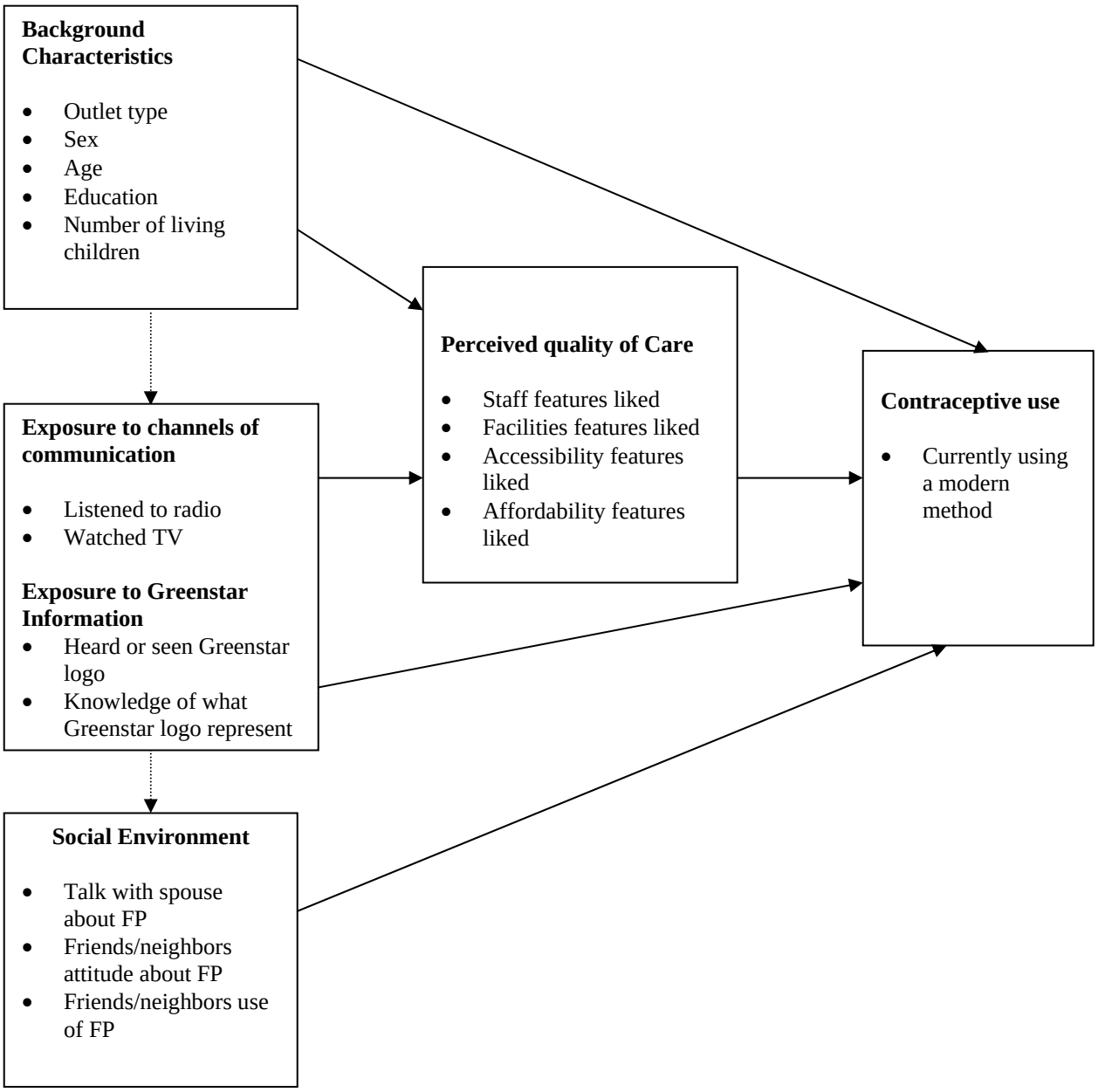

Table1: Showing dependent and explanatory indicators, their definitions, Categories and codes

Indicators	Operational Definition	Categories and Codes
Dependent: Contraceptive use Perceived quality of care	Clients or spouse currently doing something or using a method to delay or avoid getting pregnant Features liked in the outlet (likeness is taken as an indicator of quality)	Currently using a method Yes = 1 vs. No = 2 Staff features (a) Doctor available = 1 vs. Otherwise = 0 (b) Provider seemed knowledgeable = 1 vs. Otherwise = 0 (c) Provider is friendly = 1 vs. Otherwise = 0 Facility features (d) Clean facilities = 1 vs. Otherwise = 0 (e) Medications in stock = 1 vs. Otherwise = 0 (f) Short waiting time = 1 vs. Otherwise = 0 Accessibility features (g) Nearness to home or work = 1 vs. Otherwise = 0 Affordability features (i) I can afford the fees = 1 vs. Otherwise = 0
Explanatory Factors		
Exposure to channels of communication	Frequency of exposure to channels of communication	(a) How often listen to the radio At least once a week = 1 vs. Otherwise = 0 (b) How often watch TV At least once a week = 1 vs. Less than once a week or never = 0
Exposure to Greenstar information	Know the Greenstar logo and what it represent	(c) Ever heard of Greenstar or seen its logo Yes = 1 vs. No = 2 (d) What Greenstar logo represent FP services = 1 vs. Otherwise = 0

(Table1, Continued)

Indicators	**Operational Definition**	**Categories and Codes**
Explanatory Factors continued		
Social Environment	Attitudes of spouse, relatives and friends about FP	(a) Talked with spouse about FP in the last year Yes = 1 vs. No/do not remember = 0 (b) Attitudes of friends, and neighbors about FP Approve = 1 vs. Disapprove/do not know = 0 (c) Friends and neighbors use FP Yes = 1 vs. No/do not know = 0
Background Characteristics	1. Type of outlet that clients visited 2. Sex 3. Age 4. Highest years of schooling 5. Number of living children	(a) Type of outlet Greenstar = 1 vs. Commercial = 0 (b) Male = 1 vs. Female = 2 (c) Single age grouped into; 24 or less, 25-34, and 35 or older Single years grouped into; no education, 9 years or less, 10 to 12 years, and 13 years or more Single number grouped into; none, 1 to 3, and 4 or more

Notice: All 0, 1 codes shows recoded variables, and all “otherwise” categories indicate dummy categories.

Table 2: Sample characteristics by type of health establishment (in percents)

	Greenstar	Commercial	Combined
Total (N)	(2883)	(2442)	(5325)
Background characteristics			
Sex			
Male	42	63	51
Female	58	37	49
Age			
24 or less	13	9	11
25-34	45	41	43
35+	42	50	46
Number of living children			
0	9	6	7
1-3	50	51	51
4 or more	41	43	42
Highest years of schooling			
No education	27	28	28
9 yrs or less	24	26	25
10 – 12 yrs	39	35	37
13 or more	10	11	10
Monthly family income (Rupees)			
Less than 3000	29	29	29
3001-5000	39	39	39
5001+	32	32	32
Exposure to channels of communication			
% listened to radio at least once a week	27	31	29
% watched TV at least once a week	87	81	84
Exposure to Greenstar Information			
% ever heard or seen greenstar logo	88	76	83
% Greenstar logo represent FP services	70	59	65
Social Environment			
% talked with spouse about FP	40	34	37
% most friends/neighbors approve FP	55	47	51
% friends/neighbors use FP	43	34	39
Perceived quality of care			
% overall quality satisfactory/very satisfactory	65	64	65
Accessibility feature liked			
% outlet near to home or work	59	59	59
Affordability feature liked			
% can afford fees	13	12	13
Staff features liked			
% doctor available	18	17	17
% provider seemed knowledgeable	7	7	7
% provider friendly	14	16	15
Facilities features liked			
% clean facilities	9	9	9
% medication in stock	9	11	10
% short waiting time	15	15	15
Contraceptive use			
% currently using any modern method	31	28	29

Table 3: Relative odds of perceived quality of care according to clients' background characteristics, exposure to information, and social support on Family Planning

	Accessibility feature	**Affordability feature**	**Staff features**		
	Outlet near home or work	Can afford fees	Doctor available	Provider seem knowledgeable	Provider friendly
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Background characteristics					
Type of outlet					
Commercial (ref)†	1.00	1.00	1.00	1.00	1.00
Greenstar	0.91	1.13	0.94	0.96	0.92
Sex					
Female (ref)	1.00	1.00	1.00	1.00	1.00
Male	0.90*	1.07	0.52****	1.30**	1.32****
Age					
24 or less (ref)	1.00	1.00	1.00	1.00	1.00
25-34	1.06	1.02	0.86	1.01	1.19
35+	1.09	1.01	0.84	1.18	1.15
Highest years of schooling					
No education (ref)	1.00	1.00	1.00	1.00	1.00
9 yrs or less	1.04	1.02	1.04	1.17	1.23*
10 – 12 yrs	1.07	0.93	0.98	1.38**	0.99
13 or more	1.07	1.05	1.22	1.66**	1.25
Number of living children					
0 (ref)	1.00	1.00	1.00	1.00	1.00
1-3	1.10	1.15	1.43**	0.99	1.06
4 or more	1.13	1.00	1.51**	0.94	1.09
Exposure to channels of communication					
How often listened to radio					
Less than once a week/never (ref)	1.00	1.00	1.00	1.00	1.00
At least once a week	0.79****	0.77***	0.98	0.93	0.99
How often watched TV					
Less than once a week/never (ref)	1.00	1.00	1.00	1.00	1.00
At least once a week	1.47****	0.86	1.57****	0.95	0.98
Exposure to Greenstar Information					
Ever heard or seen Greenstar logo					
No (ref)	1.00	1.00	1.00	1.00	1.00
Yes	0.86	0.73**	0.49****	0.71*	0.86
What Greenstar logo represent					
Otherwise = 0 (ref)	1.00	1.00	1.00	1.00	1.00
FP services = 1	1.55****	1.14	1.26**	1.33*	1.16
Deviance (-2*log-likelihood)	7110.84	4025.85	4776.94	2641.58	4493.01
Pearson χ^2	101.87	23.09	130.99	24.62	30.47

* = p < .1, ** = p < .05, *** = p < .01, **** = p < .001, † = reference category

(Table 3, continued)

	Facility features		
	Clean facilities	Medication in stock	Short waiting time
	Model 6	**Model 7**	**Model 8**
Background characteristics			
Type of outlet			
Commercial (ref) †	1.00	1.00	1.00
Greenstar	1.02	0.90	0.91
Sex			
Female (ref)	1.00	1.00	1.00
Male	0.97	2.52****	0.67****
Age			
24 or less (ref)	1.00	1.00	1.00
25-34	1.03	1.24	0.82
35+	1.04	1.23	0.76*
Highest years of schooling			
No education (ref)	1.00	1.00	1.00
9 yrs or less	1.33*	1.31*	1.01
10 – 12 yrs	1.47***	1.64****	1.07
13 or more	1.71***	1.81****	1.03
Number of living children			
0 (ref)	1.00	1.00	1.00
1-3	1.04	1.16	1.25
4 or more	1.29	1.37	1.33
Exposure to channels of communication			
How often listened to radio			
Less than once a week/never (ref)	1.00	1.00	1.00
At least once a week	0.97	1.09	0.96
How often watched TV			
Less than once a week/never (ref)	1.00	1.00	1.00
At least once a week	1.42**	0.94	1.03
Exposure to Greenstar Information			
Ever heard or seen Greenstar logo			
No (ref)	1.00	1.00	1.00
Yes	0.80	1.38*	1.02
What Greenstar logo represent			
Otherwise = 0 (ref)	1.00	1.00	1.00
FP services = 1	0.89	0.74***	0.99
Deviance (-2*log-likelihood)	3146.42	3252.54	4508.14
Pearson χ^2	23.25	145.43	35.98

* = p < .1, ** = p < .05, *** = p < .01, **** = p < .001, † = reference category

Table 4: Relative odds that clients use of contraceptives according to background characteristics, exposure to information, availability and accessibility of services, social support on FP, and perceived quality of care indicators

	Model 1	Model 2	Model 3	Model 4
Background characteristics				
Type of outlet				
Commercial (ref) †	1.00	1.00	1.00	1.00
Greenstar	1.15**	1.04	0.91	0.90
Sex				
Male (ref)	1.00	1.00	1.00	1.00
Female	0.91	0.96	0.99	0.95
Age				
24 or less (ref)	1.00	1.00	1.00	1.00
25-34	0.97	0.96	1.07	1.05
35+	0.94	0.93	1.17	1.15
Highest years of schooling				
No education (ref)	1.00	1.00	1.00	1.00
9 yrs or less	1.85****	1.49****	1.23*	1.23*
10 – 12 yrs	2.44****	1.80****	1.27**	1.26**
13 or more	2.93****	2.12****	1.28*	1.27*
Number of living children				
0 (ref)	1.00	1.00	1.00	1.00
1-3	16.80****	17.01****	8.81****	8.99****
4 or more	25.80****	27.04****	13.64****	14.08****
Exposure to channels of communication				
How often listened to radio				
Less than once a week/never (ref)	na	1.00	1.00	1.00
At least once a week	na	0.90	0.84**	0.85**
How often watched TV				
Less than once a week/never (ref)	na	1.00	1.00	1.00
At least once a week	na	1.67****	1.33**	1.35**
Exposure to Greenstar Information				
Ever heard or seen Greenstar logo				
No (ref)	na	1.00	1.00	1.00
Yes	na	1.69****	1.46***	1.45**
What Greenstar logo represent				
Otherwise = 0 (ref)	na	1.00	1.00	1.00
FP services = 1	na	1.47****	1.07	1.06

* = p < .1, ** = p < .05, *** = p < .01, **** = p < .001, † = reference category, and na = not applicable

(Table 4, continued)

	Model 1	Model 2	Model 3	Model 4
Social Environment				
Talked with spouse about FP				
No/do not remember (ref)	na	na	1.00	1.00
Yes	na	na	8.97****	9.05****
Friends/neighbors attitudes about FP				
Disapprove/do not know (ref)	na	na	1.00	1.00
Approve	na	na	1.44****	1.44****
Friends/neighbors used FP				
No/do not know (ref)	na	na	1.00	1.00
Yes	na	na	1.58****	1.57****
Perceived quality of care				
Accessibility feature				
Otherwise = 0 (ref) †	na	na	na	1.00
Near to home or work = 1	na	na	na	1.14*
Affordability feature				
Otherwise = 0 (ref)	na	na	na	1.00
Can afford the fees = 1	na	na	na	1.37***
Staff features				
Otherwise = 0 (ref)	na	na	na	1.00
Doctor available = 1	na	na	na	0.84*
Otherwise = 0 (ref)	na	na	na	1.00
Provider seemed knowledgeable = 1	na	na	na	1.39**
Otherwise = 0 (ref)	na	na	na	1.00
provider friendly = 1	na	na	na	0.99
Facility features				
0 = otherwise (ref)	na	na	na	1.00
1 = clean facilities	na	na	na	1.05
0 = otherwise (ref)	na	na	na	1.00
1 = medication in stock	na	na	na	1.20
0 = otherwise (ref)	na	na	na	1.00
1 = short waiting time	na	na	na	0.88
Deviance (-2*log-likelihood)	6084.98	5943.12	4678.83	4656.36
Pearson χ^2	371.70	513.56	1777.85	1800.32
Nagelkerke R^2	0.10	0.13	0.40	0.41

* = p < .1, ** = p < .05, *** = p < .01, **** = p < .001, † = reference category, and na = not applicable

Appendix One

Eligibility Criteria for Outlets in Greenstar Social Marketing Program

Green Star One (GS1)

Private commercial female doctors and paramedics who have attended 10 days comprehensive FP training organized by Greenstar trainers operate GS1. The GS1 providers are usually the best trained of all providers in the Greenstar franchise network. They can insert and remove Intra Uterine Contraceptive Device (IUCD), provide follow-up services including management of side effects. There are over 2000 female GS1 providers to date. GS1 providers must meet the following criteria:

- must have operated a clinic on a regular bases for at least a year
- must be accessible and focused reproductive and FP services provision to low socioeconomic class
- must have examination rooms or private compartments for providing intra uterine contraceptive devise (IUCD)
- has sufficient space for client's privacy
- must be clean, well maintained, with electricity and running water

Green Star Two (GS2)

The GS2 providers are mainly male doctors, about 20-30% female doctors. To qualify, they must attend one-day training on FP. The only difference between GS1 and GS2 is that GS2 are not able to provide IUCD services. Currently, over 4,500 doctors have been trained. All GS2 providers are required to have the following:

- must have a clinic that has been in operation on a regular bases for at least a year
- must have a clinic committed to providing health care to people of lower socioeconomic class
- has sufficient space for client's privacy
- clinic environment must be clean, and well-maintained

Green Star Three (GS3)

The GS3 providers are pharmacists who have attended half-day training on FP. They are able to provide hormonal contraceptives, and manage side effects. To date, over 2,500 GS3 providers have been trained. GS3 providers have the following requirements:

- must owned or be a senior staff of a pharmacy or medical store (chemist shop)
- outlets must be located in lower socioeconomic area
- has sufficient space for client's privacy

Green Star Four (GS4)

GS4 providers are nurses, either junior paramedics, or lady health visitors (LHVs). The GS4 providers receive one-day training similar to that of GS2 providers, except that they cannot provide IUCD services. GS4 providers are upgraded to GS1 after attending training in IUCD provision. To date, over 2,200 GS4 outlets are in the country (PSI, 2000). GS4 must have the following requirements:

- must have a clinic in operation on a regular bases for at least 6 months
- focuses on reproductive health and FP service provision
- outlet accessible to lower socioeconomic segments of the population
- open at convenient hours
- clean and well maintained with electricity, running water
- has sufficient space for client's privacy