Title:
The impact of franchising reproductive health services on client service use in Ethiopia, India and Pakistan

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Abstract

Clinic franchising is being implemented in several developing countries to improve access to and quality of reproductive health services. This study examines the impact of three franchise networks by focusing on the association between franchise membership and four client outcomes: franchise logo recognition, reproductive health as clinic visit reason, current family planning use status, and willingness to return for RH services at the same establishment. The analysis uses client data collected independently from probability samples of health facilities in Ethiopia, India (Bihar state) and Pakistan, with standardized questionnaires. Franchise services perform significantly better than non-franchised services on client logo recognition (4.2 times more likely in Ethiopia and India), attracting RH clients (30-38% more likely in India and Pakistan), and willingness to return in all three settings (43 to 71% more likely). They increase the likelihood of serving current contraceptive users by 13 to 15% in all sites but not significantly.

Significance

Clinic franchising, and other applications of social marketing and business models, are being implemented in a number of developing countries as a mechanism for improving access to reproductive health (RH), including family planning, services. Franchising programs drawn private practitioners with social welfare orientations into membership networks, provide updated clinical training, brand image, and technical support, with the intent of using existing capacities in the commercial health sector to increase access and quality of FP/RH services more efficiently. The number of different programs utilizing these social business models has grown and involves different ownership arrangements and different types and levels of providers. Little is known about which program components make for more or less successful initiatives in different contexts.

Three franchise programs called Biruh Tesfa in Ethiopia, Titli and Surya in Bihar, India, and Greenstar in urban Pakistan sponsored standardized and systematic survey data collection for a clustered evaluation requested by the David and Lucile Packard Foundation. The probability sample surveys of health facilities, providers and clients were conducted in two rounds, once between January-September 2001 and the second between January-June 2004. The franchise networks are implemented by Pathfinder International in Ethiopia, Janani/DKT International in Bihar, India, and Social Marketing Pakistan/Population Services International.

The present study examines the impact of franchise networks in the three countries by focusing on the association between franchise membership and four client outcomes that measure awareness (franchise logo recognition), service access (RH/FP reason for visit), quality (willingness to return) and service use (contraceptive practice).

Methods

This study uses probability samples of client interviews collected in the three study settings, using standardized questionnaires that allow for data comparability. To evaluate the effectiveness of the franchise

networks on client outcomes, the performance of member clinics was compared with those of non-member private clinics, as well as with those of other delivery sites in the public and non-governmental non-profit sectors. The overall evaluation design called for multistage cluster sample surveys of health facilities. Within health facilities, full staff counts and compositions were obtained, and staff providing RH services were selected for interviews. Depending on the setting, four to six clients per clinic were randomly selected from an intake list, using a random start and specified sampling interval, for interviews. Client eligibility criteria were a female of childbearing age or a male with a female partner of childbearing age. The surveys were conducted by private research organizations engaged by the franchise organizations. The total number of clients interviewed in the two rounds was 3,769 in Ethiopia, 10,640 in Bihar, India and 19,801 in urban Pakistan. This study analyzes only the female client data. The overall size and gender composition of client samples by franchise status are presented in **Table 1.** Characteristics of the franchise programs are given in **Table 2.**

Our analytic approach is a pooled cross-sectional time series multivariate regression analysis to estimate the effect of franchise membership on the four selected client outcomes, adjusted for year, facility type and individual factors. This provides the average effect of franchise membership across the three years for each country setting. The models are fitted adjusting for complex survey design and are reasonably comparable in their specifications.

The key covariates of interest in each of the models are client socioeconomic and demographic characteristics (age, gender, education, parity, household income, and urban-rural residence, except in Pakistan where the survey was only conducted in urban areas), facility related characteristics (franchise membership and facility type) and period (year 2001 or 2004). For Pakistan, where two networks operate, GreenStar and Key franchise members are grouped together, as are Surya and Titli members of Janani franchise networks in Bihar, India. Pakistan franchise membership is open to private doctors (of either gender) and private clinics of lady health visitors. Surya clinics are fewer in number and restricted to private qualified doctors, whereas Titli centres involve less formally trained rural medical practitioners. Biruh Tesfa (Ray of Hope) is the only franchise network for reproductive health services in Ethiopia and membership is limited to private qualified doctors.

Age categories are <35, 35-44, and 45+; education categories are none, 1-4 years, 5-8 years, 9-10 years, 11-12 years, and 13+ years. Parity is measured for 0, 1, 2-3 and 4+ births. The respondent's reported household income categorized by quartile levels was used in the models for Pakistan, whereas in Bihar and Ethiopia a factor analysis was conducted to construct an index of wealth that included both reported household income levels and possession of household assets. A quartile ranking of wealth was then created and used in all the models for India (Bihar) and Ethiopia.

Findings

Table 1 shows that the client sample in Ethiopia was predominantly female in 2001 (62.9%) and 2004 (68.4%), as compared to urban Pakistan (56.4% and 54.8%, respectively) and Bihar (48.2% and 51.2%, respectively). The female composition of the clients sampled from franchise locations in the two years was not significantly different from the overall sample in any of the three settings: Ethiopia (66.4% in 2001 and 73.9% in 2004), India (48.7% and 53.5%) and urban Pakistan (58.2% and 55.4%). There were slightly more females sampled in 2004 than 2001 in Ethiopia and Bihar, while fewer in urban Pakistan.

Table3 provides detail on the female client outcomes and sample composition in the three settings pooled for the two years. Franchise logo recognition ranges from 25.8% in Bihar to 32.9% in Ethiopia to 87.3% in urban Pakistan. The percent coming for an RH visit ranges from 30.7% in Bihar to 45.4% in Ethiopia to 62.4% in urban Pakistan. More than half the Ethiopian clients in the two years are current users of contraception (53.3%), compared to 34-36% for Bihar and urban Pakistan. More than one third of female clients in Ethiopia and Pakistan report they would return to the sample clinic site for RH services, compared to 18% in Bihar.

Ethiopian clients tend to be younger (40.8% under 35 years) than those of Bihar (23.5%) or urban Pakistan (18.4%). Bihari women are decidedly less educated (58.9% with no education) than their Pakistani

(37.3%) or Ethiopian (24.0%) counterparts. Nonetheless, the overall level of educational achievement among female health clients is low. Female clients seeking health care in Ethiopia tend to be low parity (52.3% 0 or 1 child), as compared to those in Pakistan (7.1% with 0 child and 12.4% with 1 child) and Bihar (22.0% 0-1 child). More than 11% of Pakistani female clients did not report household income. In the other countries, where a wealth index is constructed, the median value is imputed to those respondents who did not report income. While all female Pakistani clients are sampled from urban areas, 30% and 33% of those in Bihar and Ethiopia are.

Female clients of health facilities in Ethiopia are more likely to be found in government sites, where health services are free (30.4%) but also private providers (25.6%) and pharmacies (23.9%). Poor economic standing limits their use of private clinics (9.6%). In Bihar, on the other hand, rural health providers account for 41.5% of female health clients, private clinics or hospitals for 27.9% and government clinics only 17%. In urban Pakistan, private providers account for 59.3% of the female clients and government sites for 28.3%. The proportion of female clients sampled from franchised clinics in the two years ranged from 16% in Ethiopia to 27.7% in Bihar to 39.5% in urban Pakistan. Over the two years, in Ethiopia, the % of female clients sampled at franchise clinics increased from 16.1 to 19.8% and declined from 40 to 30% in urban Pakistan and did not change for India (27.5 to 27.7%).

In Table 4 we compare the four selected client outcomes reported at franchise outlets with those at private clinic/hospital or private providers, the pool from which members are recruited. Almost one third of clients at franchise clinics in Ethiopia report coming for RH services compared to 34.6% at private clinic/hospitals and 29.6% at private providers. Nonetheless, the government and NGO clinics tend to be the primary source of these services. Current contraceptors are more likely to be found among female clients at franchise (47.7%) than their private counterpart sites (43%), but not to the same extent as at NGO (76%) and government (68.7%) clinics. Logo recognition is considerably greater among clients at franchise clinics (58.4%) than any other site. Clients at franchise than non-franchise private clinics report a higher level of willingness to return (23% versus 13-16%), but those going to government and NGO clinics show even higher levels (67-68%).

In Bihar, the proportion of female clients coming for RH services are highest at private non-franchise sites (32-36%), while those at franchise and government clinics are comparable (26-28%). About half of clients recognize the Janani network logos, twice as much as those at non-franchise private clinics but are on par with clients seen at private non-franchise providers. Little logo recognition is found at the other sites. Female clients at franchise sites are more likely to be current contraceptors than at government, NGO and pharmacy sites but not as much as at private providers. Willingness to return to a private site, franchised or not, is higher than at any other site. In urban Pakistan a slightly different picture emerges, where female clients at franchise sites are more likely to cite RH as a reason for the visit than at any other site, except a non-franchised private site. However, for current contraceptive use, logo recognition and willingness to return, clients at franchise clinics report levels that exceed those at any other site. The statistical significance of these differences based on chi-square values varies and are noted in the table.

The results from the pooled cross-sectional time series multivariate regression are provided for the four client outcomes in Tables 5A and 5B. Both client samples from the 2001 and 2004 rounds are pooled, with common variables, including franchise membership, measured in each; the survey round year is additionally specified in the model. We are interested in the significance of the franchise membership variable on the four outcomes, adjusted for the effects of year, facility type, and client characteristics (age, education parity, wealth/income and residence). Here we will interpret only the adjusted odds ratios (ORs) which are bold-faced if statistically significant at $p<.01$ level of better. In the case of logo recognition, the ORs for franchise clients in Ethiopia and Bihar are 4.2 and statistically significant and 1.12 but non-significant in Pakistan. Reporting an RH reason for the visit is significantly influenced by franchise membership in Bihar (OR=1.30) and Pakistan (OR=1.38) but not in Ethiopia (OR=0.84). Although having a positive influence, female clients at franchise clinics are not significantly more likely to be a contraceptive user in any of the three settings (OR=1.20 in Ethiopia, 1.13 in Bihar and 1.15 in Pakistan). While not reported here, there was also no significant independent influence from franchise membership on the client's likelihood of adopting contraception for the first time at the time of visit. However, franchise membership significantly influences client recognition of service quality measured by their willingness to

return to the sample clinic for RH services in all three settings. The likelihood of returning is 43% higher for franchise versus non-franchise clinic clients in Ethiopia, 71% in Bihar, and 63% in urban Pakistan.

Discussion

Franchise membership provides clients an opportunity to access quality reproductive health services from private providers who might not otherwise be attentive or trained to respond to their health care needs. By recruiting private health practitioners as members of a franchise network, the sponsor program can apply business model practices by establishing a brand image, creating demand through advertising, providing state of the art clinical training and client-oriented counseling skills, and ensuring regular medical supplies and equipment. In this manner, franchise programs assist member clinics expand their client base and increase clinic revenues, as well as enable them to fulfill social responsibility goals.

The three franchise programs studied here vary in size, scale, maturity and geographic coverage. Janani and Greenstar/Key network members number more than 10,000 each, although Janani networks are largely situated in rural and Greenstar/Key in urban areas. The Biruh Tesfa network was launched during the observation period, reaching only 100 some members at the time of the final round. As such, the networks present an opportunity to assess in this operation interval their influences on client-level outcomes that measure network awareness, access to RH/FP care, use of contraception, and service satisfaction. We see that the only outcome they do not significantly influence is contraceptive practice. However, in all settings, the franchise significantly and independently influenced clients' willingness to return for RH services and in two of three settings, logo recognition and FP/RH reason for seeking care. These findings suggest the sponsorship and efforts to engage the commercial health sector in delivering reproductive health services is not misplaced in these impoverished settings. Focused efforts to ensure contraceptive services are prioritized by the providers may be warranted, even where no-fee government services exist.

Table 1. Distribution of client samples by year and clinic franchise status and gender

Number of clients interviewed/ Country	Year		Total N
	2001 N	2004 N	
Ethiopia			
# female clients at the Franchise	101	297	398
Total # clients at the Franchise	152	402	554
% of franchise clients female	66.4	73.9	71.8
Total female clients in the sample	965	1529	2494
Total sample	1534	2235	3769
% of total clients female	62.9	68.4	66.2
India (Bihar)			
# female clients at the Franchise	663	806	1469
Total # clients at the Franchise	1362	1506	2868
% of franchise clients female	48.7	53.5	51.2
Total female clients in the sample	2365	2934	5299
Total sample	4905	5735	10640
% of total clients female	48.2	51.2	49.8
Pakistan (urban)			
# female clients at the Franchise	1677	4968	6645
Total # clients at the Franchise	2883	8963	11846
% of franchise clients female	58.2	55.4	56.1
Total female clients in the sample	4192	6783	10975
Total sample	7431	12370	19801
% of total clients female	56.4	54.8	55.4

Table 2. Clinic franchise networks

Characteristics	Biruh Tesfa (Ray of Hope)	Titli Centers and Surya Clinics (Janani)	Sabz Sitara (Green Star Social Marketing)
Country/Region	Ethiopia; 4 zones in Amhara region and 1 zone in Oromiya region (rural) and Addis Ababa (urban)	India, Bihar state Predominantly rural	Pakistan 55 cities Exclusive urban
Population covered	10.374 million in Amhara, Oromiya and Addis Ababa regions	102 million (total Bihar state population)	50 million in urban areas, out of 130 million total
Contraceptive demand	8% of MWRA TFR 5.9 (Ethiopia DHS, 2000)	24.5 % of MWRA TFR 4.0 (NFHS, 1993 / Bihar)	18 % of MWRA TFR 5.6 (PCPS)
Organizational sponsorship	Pathfinder International	DKT International	Population Services International
Brand identity	Biruh Tesfa logo, bags, uniforms, market-place boxes	Titli Center and Surya Clinic logos Janani-packaged contraceptive products Surya clinic fee structure	Green Star logo Green Star packaged contraceptive and related products
Franchise objective	(1)Provide selected FP/RH services through selected clinics; (2) Increase CPR to 30% in project areas; improve quality of care; (3) Facilitate a favorable climate for private sector involvement; (4) Establish a network for private practitioners who can provide high-quality and affordable FP services.	(1) Consolidate initial gains; strengthen existing network; (2) Maintain quality of care through delivery of new products and services; (3) Expansion of market channel and number of retail outlets; (4) Delivery of other health products.	(1) Green Star Strengthening (Plus) will provide additional training and services in 100 GS1 clinics in 6 cities; (2) Plan to increase the scope of RH services; ensure a stringer franchise agreement.

Table 3. Distribution of client outcome variables and covariates, among female clients

Covariates	Distribution (%)		
	Ethiopia (N=965)	Bihar, India(N=5299)	Pakistan (N=10975)
Background characteristics			
Age			
≤34	40.8	23.5	18.4
35-44	41.0	44.2	48.8
≥45	18.2	32.3	32.8
Education			
None	24.0	58.9	37.3
1-4	9.0	6.3	7.7
5-8	20.1	16.2	17.8
9-10	15.6	12.2	21.0
11-12	25.4	3.9	10.8
≥13	6.0	2.5	5.4
Parity			
0	30.2	6.2	7.1
1	22.1	15.8	12.4
2-3	29.4	41.3	36.5
4+	18.3	36.7	44.0
Wealth index *			
1st quartile / 1	24.1	23.5	22.5
2nd quartile / 2	27.0	23.3	35.1
3rd quartile / 3	28.7	27.0	16.3
4th quartile / 4	20.1	26.2	7.1
5			7.6
6			11.4 *
Residence			
Urban	33.4	30.2	100.0
Rural	66.6	69.8	0.00
Facility related characteristics			
Year			
2001	37.7	44.6	38.2
2004	62.3	55.4	61.8
Facility type			
Government	30.4	17.0	28.3
NGO	10.4	1.9	2.8
Private clinic/hosp.	9.6	27.9	5.9
Private provider	25.6	41.5	59.3
Pharmacy	23.9	11.7	3.7
Franchise membership			
No	16.0	72.3	39.5
Yes	84.0	27.7	60.6
Client outcomes			
Reason for visit RH			
Yes	45.4	30.7	62.4
No	54.6	69.3	37.6
Status of current FP user			
Yes	53.3	36.3	34.5
No	46.7	63.7	65.5
Return for FP services at the same site			
Yes	34.9	18.3	39.9
No	65.1	72.3	60.1
Logo recognition			
Yes	32.9	25.8	87.3
No	67.1	74.2	12.7

Note: * The Pakistan wealth index is based on household income levels only. The categories are: (1) ≤3000 Rs; (2) 3001-5000 Rs; (3) 5001-7000 Rs; (4) 7001-9000 Rs; (5) ≥ 9000 Rs; (6) Don't know. The wealth categories for the other two settings are based on a factor score constructed from household income *and* household assets, using principal components analysis.

Table 4. Percent of female clients by franchise membership and facility type reporting on selected client outcomes

Client outcomes	Franchise membership	Facility type				
		Government	NGO	Private clinic/hospital	Private provider	Pharmacy
Ethiopia						
RH reason for visit	**32.9**	**79.7**	**86.5**	**34.6**	**29.6**	**8.6**
Current user	**47.7**	**68.7**	**76.0**	**43.3**	**42.6**	**42.1**
Return for services at the same site	**22.9**	**68.3**	**66.8**	**13.3**	**15.5**	**10.6**
Logo recognition	**58.4**	**21.4**	**39.4**	**49.0**	**41.5**	**29.0**
India (Bihar)						
RH reason for visit	28.3	**26.3**	**2.2**	**32.3**	**36.2**	**3.1**
Current user	28.3	**17.0**	**1.6**	**26.0**	**41.4**	**14.0**
Return for services at the same site	**34.6**	**21.4**	**1.3**	**30.5**	**42.3**	**4.4**
Logo recognition	**50.4**	**6.9**	**1.5**	**25.7**	**56.5**	**9.3**
Pakistan						
RH reason for visit	**56.8**	**32.7**	**2.9**	**5.5**	**57.8**	**1.2**
Current user	**58.9**	**39.5**	**3.4**	**3.4**	**51.4**	**2.4**
Return for services at the same site	61.6	**42.2**	**2.6**	**4.0**	**49.5**	**1.8**
Logo recognition	**61.3**	**27.8**	**2.8**	**5.8**	**30.7**	**3.4**

Note: Figures in bold are statistically significant at the $p < 0.01$ level or better.

Table 5A. Determinants of the purpose of visit and current FP use status among female clients in Ethiopia, Bihar (India) and Pakistan. The figures are odds ratios and 95 percent confidence intervals.

	Reason for visit RH			Current FP user status		
	Ethiopia	**Bihar**	**Pakistan**	**Ethiopia**	**Bihar**	**Pakistan**
Facility and franchise network characteristics						
Franchise membership						
No	ref.	ref.	ref.	ref.	ref.	ref.
Yes	0.84(0.60-1.18)	**1.30(1.04-1.63)**	**1.38(1.14-1.67)**	1.20(0.83-1.74)	1.13(0.93-1.36)	1.15(0.99-1.34)
Year						
2001	ref.	ref.	ref.	ref.	ref.	ref.
2004	0.88(0.49-1.57)	**0.68(0.55-0.85)**	**0.92(0.07-0.12)**	**1.51(1.08-2.10)**	0.86(0.68-1.08)	0.88(0.76-1.02)
Facility type						
Government	ref.	ref.	ref.	ref.	ref.	ref.
NGO	**1.82(1.17-2.83)**	**0.54(0.29-0.99)**	**0.44(0.23-0.82)**	1.55	0.73(0.37-1.43)	0.76(0.37-1.59)
Private clinic/hosp.	**0.15(0.09-0.25)**	**0.53(0.33-0.85)**	**0.52(0.39-0.69)**	**0.28(0.20-0.39)**	**0.75(0.60-0.93)**	**0.27(0.21-0.36)**
Private provider	**0.14(0.08-0.23)**	**0.40(0.25-0.63)**	**0.54(0.44-0.66)**	0.36(0.25-0.51)	0.89(0.67-1.18)	**0.44(0.33-0.58)**
Pharmacy	**0.03(0.01-0.06)**	**0.11(0.06-0.19)**	**0.05(0.21-0.11)**	0.40(0.31-0.51)	1.02(0.79-1.32)	**0.28(0.17-0.46)**
Background characteristics						
Age						
≤34	ref.	ref.	ref.	ref.	ref.	ref.
35-44	0.84(0.63-1.10)	**0.75(0.63-0.89)**	0.91(0.80-1.03)	0.94(0.63-1.43)	**2.17(1.81-2.60)**	0.95(0.79-1.14)
≥45	**0.49(0.33-0.74)**	**0.36(0.30-0.44)**	**0.59(0.49-0.71)**	0.53(0.26-1.07)	**2.95(2.23-3.90)**	**0.79(0.65-0.96)**
Education						
None	ref.	ref.	ref.	ref.	ref.	ref.
1-4	1.23(0.81-1.88)	1.05(0.82-1.35)	1.10(0.96-1.26)	**1.43(1.04-1.98)**	**1.47(1.16-1.86)**	1.23(0.96-1.58)
5-8	0.99(0.78-1.27)	1.00(0.84-1.20)	1.17(0.96-1.43)	**2.10(1.57-2.82)**	**1.42(1.15-1.78)**	**1.48(1.31-1.67)**
9-10	0.90(0.62-1.31)	1.11(0.87-1.40)	**1.23(1.02-1.49)**	**1.79(1.22-2.61)**	**2.03(1.60-2.57)**	**2.00(1.56-2.58)**
11-12	0.81(0.53-1.24)	**1.49(1.00-2.21)**	**1.32(1.07-1.62)**	**1.91(1.44-2.53)**	**2.52(1.65-3.86)**	**2.49(1.57-3.94)**
≥12	0.79(0.51-1.21)	0.99(0.65-1.53)	**1.47(1.17-1.82)**	**1.80(1.42-2.27)**	**2.80(1.49-5.26)**	**2.51(1.62-3.88)**
Parity						
0	ref.	ref.	ref.	ref.	ref.	ref.
1	**3.89(2.50-6.06)**	**1.56(1.11-2.18)**	**1.42(1.16-1.74)**	**3.63(2.90-4.54)**	**7.10(2.85-17.69)**	**24.6(10.77-56.2)**
2-3	**3.03(2.16-4.24)**	**1.49(1.04-2.12)**	1.12(0.92-1.36)	**6.65(3.92-11.31)**	**19.40(7.55-49.7)**	**56.3(24.0-131.9)**
4+	**4.05(2.13-7.70)**	1.43(0.99-2.08)	1.15(0.93-1.43)	**7.08(4.07-12.30)**	**22.18(8.42-58.4)**	**74.9(30.9-181.6)**
Wealth index *						
1st quartile / 1	ref.	ref.	ref.	ref.	ref.	ref.
2nd quartile / 2	0.88(0.61-1.27)	0.92(0.73-1.16)	0.88(0.70-1.12)	0.84(0.64-1.09)	**0.79(0.66-0.94)**	0.88(0.75-1.03)
3rd quartile / 3	0.94(0.62-1.40)	1.13(0.92-1.40)	**0.78(0.62-0.99)**	0.85(0.60-1.19)	**0.67(0.54-0.85)**	0.81(0.59-1.12)
4th quartile / 4	0.90(0.64-1.26)	1.56(0.97-1.43)	0.91(0.65-1.28)	**0.71(0.52-0.97)**	**0.49(0.40-0.61)**	0.83(0.53-1.28)
5			0.75(0.51-1.09)			0.68(0.44-1.03)
6			0.82(0.62-1.07)			**0.70(0.55-0.88)**
Residence						
Urban	ref.	ref.		ref.	ref.	
Rural	**0.59(0.44-0.80)**	0.88(0.64-1.20)		0.77(0.56-1.07)	0.90(0.66-1.24)	

Note: Figures in bold are statistically significant at p<0.05.

Table 5B. Determinants of returning for services at the same establishment and recognizing the franchise network logo among female clients in Ethiopia, Bihar (India) and Pakistan.
The figures are odds ratios and 95 percent confidence intervals.

	Return for services to the same site			Logo recognition		
	Ethiopia	**Bihar**	**Pakistan**	**Ethiopia**	**Bihar**	**Pakistan**
Facility and franchise network characteristics						
Franchise membership						
No	ref.	ref.	ref.	ref.	ref.	ref.
Yes	**1.43(1.09-1.88)**	**1.71(1.21-2.40)**	**1.63(1.37-1.96)**	**4.20(3.25-5.45)**	**4.2(3.33-5.31)**	1.12(0.82-1.55)
Year						
2001	ref.	ref.	ref.	ref.	ref.	ref.
2004	0.92(0.54-1.56)	1.06(0.79-1.41)	**0.79(0.68-0.91)**	**0.33(0.23-0.48)**	1.30(0.94-1.78)	1.07(0.84-1.37)
Facility type						
Government	ref.	ref.	ref.	ref.	ref.	ref.
NGO	1.11(0.58-2.11)	**0.34(0.14-0.86)**	**0.35(0.17-0.72)**	1.38(0.98-1.95)	**1.91(1.24-2.94)**	1.20(0.49-2.90)
Private clinic/hospital	**0.08(0.04-0.15)**	**0.62(0.39-0.99)**	**0.23(0.16-0.33)**	1.03(0.65-1.62)	1.09(0.81-1.45)	0.84(0.42-1.66)
Private provider	**0.08(0.04-0.15)**	**0.62(0.40-0.94)**	**0.29(0.21-0.39)**	1.46(0.98-2.18)	**2.55(1.80-3.61)**	1.11(0.66-1.87)
Pharmacy	**0.06(0.03-0.12)**	**0.24(0.16-0.35)**	**0.14(0.05-0.41)**	1.14(0.74-1.76)	**1.48(1.06-2.06)**	0.49(0.18-1.31)
Background characteristics						
Age						
≤34	ref.	ref.	ref.	ref.	ref.	ref.
35-44	0.92(0.73-1.17)	0.86(0.67-1.10)	0.90(0.78-1.05)	1.06(0.88-1.29)	0.99(0.81-1.21)	1.09(0.88-1.37)
≥45	**0.55(0.39-0.78)**	**0.43(0.30-0.61)**	**0.60(0.49-0.74)**	0.92(0.70-1.220	0.87(0.67-1.13)	0.88(0.68-1.14)
Education						
None	ref.	ref.	ref.	ref.	ref.	ref.
1-4	0.80(0.58-1.11)	**1.27(1.01-1.60)**	1.14(0.89-1.47)	1.55(0.67-3.57)	1.83(1.38-2.43)	**2.74(1.79-4.20)**
5-8	0.92(0.55-1.53)	0.99(0.77-1.30)	**1.42(1.18-1.72)**	**3.37(1.90-5.97)**	**1.97(1.51-2.56)**	**3.29(2.47-4.38)**
9-10	0.75(0.49-1.13)	**1.43(1.05-1.94)**	**1.47(1.21-1.80)**	**5.01(2.35-10.69)**	**4.12(2.86-5.93)**	**625(3.57-10.93)**
11-12	0.81(0.48-1.36)	**1.62(1.05-2.50)**	**1.54(1.04-2.29)**	**9.12(3.85-21.62)**	**6.27(4.03-9.73)**	**7.17(4.36-11.79)**
≥12	0.87(0.43-1.76)	**1.25(0.74-2.12)**	**1.56(1.12-2.17)**	**12.0(6.24-23.16)**	**5.49(3.31-9.06)**	**7.39(3.39-16.08)**
Parity						
0	ref.	ref.	ref.	ref.	ref.	ref.
1	1.42(0.83-2.42)	1.04(0.70-1.54)	**1.80(1.34-2.42)**	1.02(0.84-1.24)	1.03(0.75-1.41)	1.32(0.84-2.07)
2-3	**1.73(1.18-2.52)**	0.86(0.58-1.27)	**1.74(1.87-2.56)**	0.86(0.68-1.10)	1.29(0.97-1.70)	1.26(0.91-1.73)
4+	1.75(1.21-2.62)	0.99(0.64-1.54)	**1.94(1.23-3.05)**	0.78(0.52-1.17)	**1.42(1.06-1.91)**	1.32(0.93-1.88)
Wealth index *						
1st quartile / 1	ref.	ref.	ref.	ref.	ref.	ref.
2nd quartile / 2	0.94(0.82-1.08)	1.07(0.86-1.33)	0.87(0.70-1.07)	1.01(0.64-1.60)	**0.79(0.64-0.97)**	1.33(0.93-1.92)
3rd quartile / 3	1.07(0.80-1.43)	1.11(0.82-1.49)	0.75(0.55-1.02)	0.91(0.60-1.37)	**0.73(0.56-0.94)**	**2.63(1.85-3.73)**
4th quartile / 4	1.12(0.76-1.66)	**1.47(1.15-1.88)**	1.01(0.75-1.37)	0.72(0.32-1.59)	**0.59(0.45-0.77)**	**1.99(1.15-3.43)**
5			0.87(0.58-1.32)			**1.77(0.99-3.18)**
6			**0.69(0.50-0.95)**			0.79(0.54-1.16)
Residence						
Urban	ref.	ref.		ref.	ref.	
Rural	**1.34(1.05-1.70)**	0.77(0.47-1.27)		**0.58(0.43-0.79)**	**0.71(0.51-0.98)**	

Note: Figures in bold are statistically significant at p<0.05