

Working Paper No. **144**

Quality of Care, Client Satisfaction, and Contraceptive Use in Rural Bangladesh

Thomas T. Kane
Mian Bazle Hossain
Barkat-e-Khuda

*Operations Research Project
Health and Population Extension Division*

1998



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ACRONYMS

ANC	Antenatal Care
CPR	Contraceptive Prevalence Rate
FP	Family Planning
FWA	Family Welfare Assistant
FWV	Family Welfare Visitor
HARI	Helping individuals Achieve their Reproductive Intentions
H&FWC	Health and Family Welfare Centre
ICDDR,B	International Centre for Diarrhoeal Disease Research, Bangladesh
ICPD	International Conference on Population and Development
IEC	Information, Education, and Communication
IUD	Intrauterine Device
MCH	Maternal and Child Health
MWRA	Married Women of Reproductive Age
SC	Satellite Clinic
SRS	Sample Registration System

Abstract

This paper examines the relationship of quality of care and client satisfaction with contraceptive use behaviour in rural Bangladesh. Data from a 1994 baseline sample survey of 4,967 currently married women of reproductive age living in two rural thanas of Chittagong district have been examined, using both bivariate analysis and multivariate logistic regression analysis. The effects of quality of care provided by the fieldworkers and care provided at fixed-site clinics on two outcome variables, namely current use of modern contraceptives, and, intentions to use modern contraception in the future (among non-users) were examined. Specific elements of quality of care examined include: adequacy of information provided, method choice, provider-client interactions, referrals, constellation of services provided, and the continuity of services. A composite index of quality of provider-client interactions has been constructed. Results of the multivariate analysis indicate that women's perceptions of quality of care have a significant positive effect on the likelihood of current use and, among the current non-users, on the likelihood of intending to use modern methods in the future.

The specific findings include the following: (1) Of the 73 percent of the married women who were ever contacted by an FWA, 59 percent were fully satisfied with the FWA's work; (2) Of the 25 percent of the married women who had ever heard of the Satellite Clinic (SC), two-thirds thought that the quality of the SC was good or excellent (only eight percent of married women had ever visited the SC, however); (3) Of the 95 percent of the married women who had ever heard of the Health and Family Welfare Centre (H&FWC), only about half thought the quality of the H&FWC was good or excellent (only 50 percent of the married women had ever visited the H&FWC); (4) Quality care by the fieldworkers and at the H&FWCs were associated with higher current use of modern methods; (5) Quality care by fieldworkers and at H&FWCs were also positively associated with non-contraceptors' intention to use modern methods in the future; (6) More positive fieldworker-client interactions were associated with higher current use of modern methods; (7) Receiving antenatal care from the fieldworkers was associated with

higher intention among the current non-contraceptors to use modern methods in the future; (8) Women's social access to health care (e.g. woman has permission to visit health centre outside her village) was an important determinant of current modern contraceptive use and, among the non-users, on their intention to use modern methods in the future; and (9) Age; the number of living children, desire to space or limit births; education level and religion (non-Muslim) were also significantly and positively linked to current use of modern methods and, among the non-users, the intention to use modern methods in the future.

The main conclusions of this analysis are: (1) Efforts to improve the quality of provider-client interactions should have a significant positive effect on modern contraceptive prevalence; (2) Acceptance of modern contraception in the future can be increased through the provision of a broader constellation of reproductive health services (e.g. antenatal care) by FWA fieldworkers and by providing quality services at the H&FWCs.

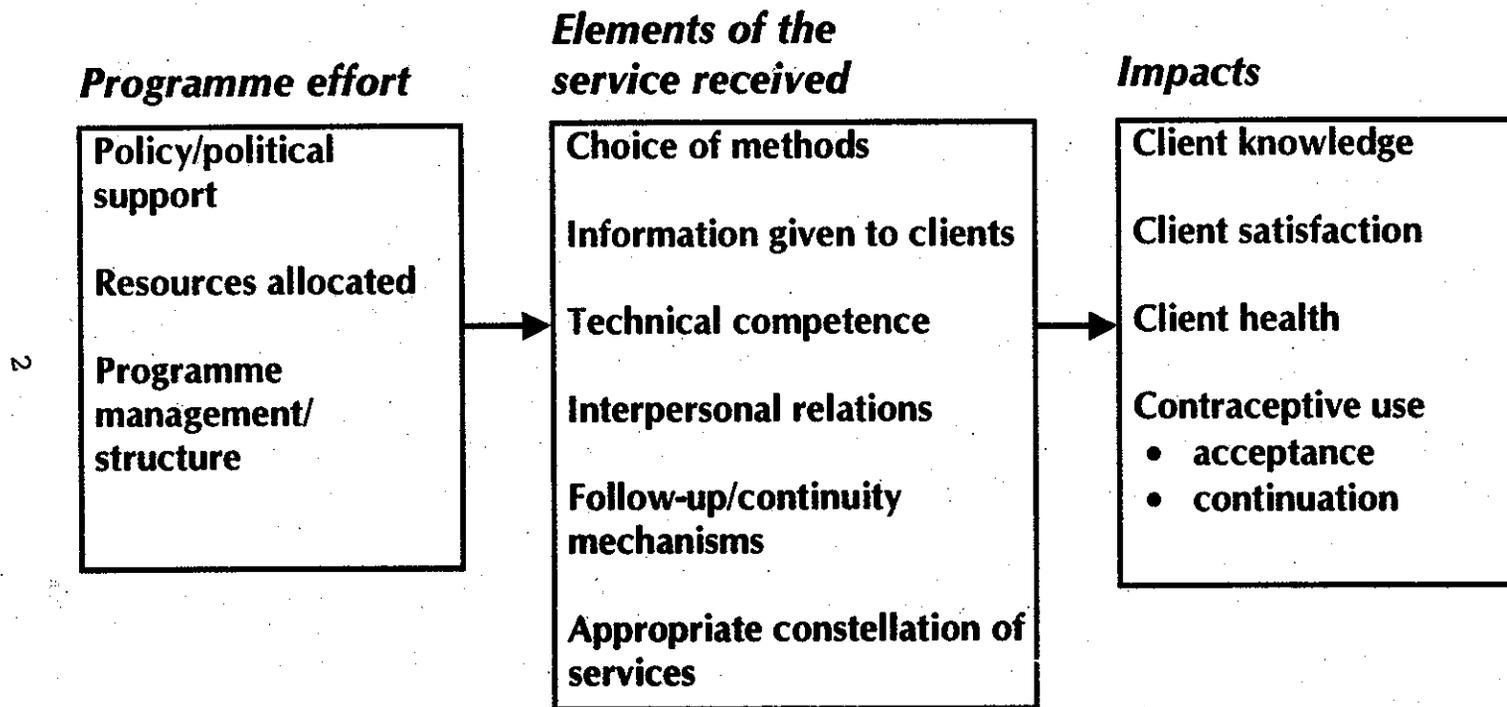
Introduction

Over the past decade, considerable attention has been devoted to the issue of quality of care in family planning programmes. To meet the reproductive health needs of women and men more effectively, the International Conference on Population and Development (ICPD), held in Cairo in 1994, clearly highlighted the need for more comprehensive and higher quality reproductive health services in national programmes.

The ICDDR,B's MCH-FP Extension Project (Rural) has been involved in operations research to improve the quality of care in the Government of Bangladesh's health and family planning programme in rural areas of Bangladesh since mid-1980s. In 1994, the Project started its operations in Chittagong, the lowest-performing division of the country, and opened a field site at Mirsarai thana. The same year, the Project undertook a two-stage sample survey of 4,967 currently married women of reproductive age (MWRA) in the new project site of Mirsarai thana and a comparison thana, Satkania. Information obtained covered: women's fertility, antenatal care, contraceptive use behaviour, women's reported use of health services and their perceptions of the quality of and satisfaction with those FP-MCH services, especially those provided by the family planning fieldworkers, known as Family Welfare Assistants (FWAs), the Satellite Clinics (SCs), and the Health and Family Welfare Centres (H&FWCs).

Jain [1], Bruce [2] and others have argued that improving the quality of care can have a positive impact on family planning programmes by increasing client's satisfaction, contraceptive acceptance and continuation rates, which result in reduced fertility by helping women meet their unmet need for safe and effective family planning methods (Fig. 1). Various attempts have been made to analyze the effects of quality of care on contraceptive use, using cross-sectional data. Some researchers have constructed composite indexes of quality of care [3-4], while others have examined the effects of various elements of quality separately. During 1990s, several researchers have examined various aspects of the quality of family planning and MCH services in Bangladesh, including the quality of fieldworker services [5-6], the quality of antenatal care services [7], clients' perspectives of service delivery at the H&FWCs [8], and the positive impact that fieldworker-client interactions have on contraceptive use and continuation [3,9-10]. Most studies, conducted to date, have generally shown a positive and sometimes significant association between

Figure 1. The quality of service experience: its origins and impacts



Source: Reprinted with the permission of the Population Council, from Judith Bruce, "Fundamental elements quality of care: a simple framework." *Studies in Family Planning* 21, no. 2 (March/April 1990) p. 64.

the quality of care and clients' knowledge of satisfaction, current use of modern contraception and/or contraceptive continuation. Fieldworkers' frequency of contact with clients and amount of time (in minutes) spent with them have also been linked to modern contraceptive use.

Perry [6], while reviewing the recent literature, pointed out that most studies, carried out to date, on the quality of fieldworker activities in Bangladesh have focused on: (1) knowledge of fieldworkers about basic family planning issues, such as method use, side-effects, and contraindications; (2) the amount and quality of information fieldworkers given to clients; (3) fieldworker-client interactions and the responsiveness of fieldworkers to clients' family planning needs; (4) management of contraceptive side-effects; (5) the frequency of fieldworker contacts and the content and length of visits; and (6) the impact of contacts on adoption [3] and/or continuity of contraceptive use [10].

This paper examines women's perceptions of the quality of family planning and MCH services provided by the fieldworkers and at the SCs and H&FWCs in two rural thanas of Chittagong district of Bangladesh, and assesses the effects of the quality of care on current use of modern contraception and, among non-users, on their intention to use modern contraception in the future.

Objectives of the Analysis

The main objectives of the study are to: (1) assess clients' satisfaction and perceptions of the quality of care offered by the FWAs, SCs, and H&FWCs in two rural thanas (Mirsarai and Satkania) of Chittagong district; (2) examine the linkages between clients' perceptions of the quality of care and the contraceptive use behaviour (current use of modern contraception and intention to use modern contraception in the future); and (3) consider policy implications of the analyses for improving the quality of care provided by the FWAs in the homes, and by other service providers at the SCs and H&FWCs.

Data and Methods

Using the essential elements of Bruce's [2] quality of care framework, this paper examines the relationship between the quality of care provided by

the fieldworkers or at the fixed-site clinics and current use of modern contraceptives or intention to use modern contraceptives in the future, from the clients' perspective. Various elements of the quality of care examined include: the information provided, method choice, provider-client interactions, referrals and continuity of services, and the appropriateness of the constellation of services provided. The effects on modern contraceptive use of geographic and social accessibility of services, and the frequency and duration of fieldworker contacts have also been examined as additional elements related to service quality in the study areas.

As a first step, we examined women's perceptions of the quality of care provided by the fieldworkers, and at the SCs and H&FWCs and the background sociodemographic characteristics of the respondents. Next, a bivariate analysis of sociodemographic, programmatic and quality of care co-variables of current use of modern contraceptives and, among non-users, of intentions to use modern contraception in the future is presented.

Multivariate logistic regression models have been used for determining the effects of the quality of care elements, clients' satisfaction, and socioeconomic, cultural, programmatic, and demographic factors on the dependent variables, namely (1) current use of modern contraception; and (2) intention to use modern contraception in the future, among non-users. The number of methods discussed by the FWA, and the provision of antenatal care by the fieldworker, as well as an overall measure of client satisfaction with the fieldworker services have been analyzed. A composite index of the quality of fieldworker-client interaction was constructed for the analysis, based on six elements of the interaction (helpfulness of the fieldworker; responsiveness to client questions; sympathy to client's needs and respect shown to client; privacy; adequacy of information; and provider's use of simple, understandable words and ideas). A multivariate analysis was also made of women's perceptions of the quality of services provided at the SCs and H&FWCs, and a woman's freedom to go to the health centre or hospital/clinic. The multivariate analysis is, however, restricted to women who were ever contacted by a fieldworker (73 percent of all respondents).

A second phase of the analysis will link non-users from the 1994 survey to the Project's bi-monthly longitudinal Sample Registration

System (SRS) to examine the subsequent adoption of modern contraception and contraceptive continuation rates over the two-year period from January 1995 to December 1996, according to the respondents' reported intention to use modern contraception in the future and their perceptions of the quality of care reported in the 1994 survey. The second phase includes a calculation of both first-method and all-method continuation rates and a multivariate analysis of the sociodemographic, quality of care, and other variables associated with subsequent contraceptive adoption and continuation. The second phase attempts to establish a causal link between the quality of care (X variable) and the adoption of modern contraception (Y variable), by demonstrating that X precedes Y, that Y co-varies with X, and that other plausible explanations for the relationship which are measurable have been ruled out.

For the second phase of the analysis, a proportional hazards model is being used for examining the quality of care effects on subsequent likelihood of adopting modern contraception and on contraceptive continuation rates, using bi-monthly SRS data for the 1995-1996 period. The results of the second phase of analysis will be reported in a subsequent paper.

Key variables in the preferred regression model

A number of models were tested. The variables included in the final model used in the multivariate analysis are provided below.

Independent variables

The Quality of Care and Programmatic Exposure Variables included are: Clients' satisfaction with FWA's services; clients' reports on various elements of the quality of FWA care (i.e. provider-client interactions, information provided, and the number of methods discussed); client exposure to the SC and perceptions of the quality of care at the SC; client exposure to the H&FWCs and perceptions of the quality of care of the H&FWCs; and the role of the FWA in antenatal care. Although client satisfaction with FWA services and direct measures of the quality of FWA services (quality of care) are linked to each other, they are not the same thing. Client satisfaction is often the result of receiving good quality care and services. Furthermore, both quality of care and client satisfaction

with the services provided by the FWA may affect contraceptive acceptance and continuation. Therefore, measures of both are included in the multivariate analysis.

The Sociodemographic Variables included are: Women's age; the number of living children; desire for more children and when; education; religion; thana; and social mobility (i.e. whether a woman has permission to visit a health centre outside her village).

Dependent variables

The **Dependent Variables** included are: (a) Current use of modern contraception; and (b) Intention to use modern contraception in the future.

Index of fieldworker-client interaction quality

Six elements of the index are whether the FWA:

- (a) provides privacy;
- (b) is responsive to client questions;
- (c) shows sympathy and respect to clients;
- (d) provides dependable help to client problems;
- (e) uses simple, understandable words/ideas; and
- (f) provides adequate information.

The response category values for each element of the index are:

Never - 1

Sometimes - 2

Usually - 3

Always - 4

The minimum index value is 6. This score indicated that a score of 1 for each of the six elements (i.e. FWA never did any of the activities) was given. The maximum index value is 24. This score indicated that a score of 4 for each of the six elements (i.e. respondents said that the FWA always did each of the six activities) was given.

Results

Although slightly more than half the women stated that they did not want any more children, 27 percent of all MWRA were currently using a modern method, while 64 percent of the current non-users said that they intended to use modern methods in the future. More than half the women had no education. About one in ten women was not permitted to go outside their village to visit a health centre (Table 1).

Although over 90 percent of the MWRA had at least one living child, and about 73 percent had ever been contacted by an FWA, only 12 percent of the entire sample of women said that an FWA had provided antenatal care during the last pregnancy. Of the women who had ever been contacted by an FWA, three-fifths said that they were definitely satisfied with the work of the FWA. Less than one-third of the women who had ever been contacted by an FWA said that the FWA had discussed three or more contraceptive methods with them.

The SCs provide pills, condoms, and sometimes injectable contraceptives, while the H&FWCs provide these same methods, also perform IUD insertions and provide other health services. Only 25 percent of the women had heard of the SCs, and only eight percent had ever visited a SC*. Ninety-five percent of the women had heard of the H&FWC, while only 50 percent had ever visited one. About one-quarter of the women who knew about the SCs thought that the quality was not good, and almost half of those who knew about the H&FWCs thought that the quality was not good.

With few exceptions, the measures of the quality of care were consistently and positively associated with the current use of modern methods and - among current non-users - with the intention to use modern methods in the future (Table 2). The frequency of contact with the FWA and the duration of time spent with the FWA were also positively associated with a woman's current use of modern methods and/or intention to use modern methods in the future.

* It should be pointed out that the low use of the SCs and low CPR observed in the 1994 survey were due to the fact that this was the pre-intervention baseline survey in a low-performing area of the country. Between the 1994 survey date and December 1996, the use rate of the SCs increased from 8 percent to 32 percent, and the CPR increased from 27 percent to 36 percent in the new Project intervention areas over the two-year period, as a result of the Project's intervention.

Table 1. Percent distribution of background characteristics of married women of reproductive age in Mirsarai and Satkania, sample survey: 1994

Age (years)	Percent (n=4967)	Desire for more children	
< 20	7.4	Desire more within 2 yrs	32
20-24	17.6	Desire more after 2 yrs	15.
25-29	20.0	Desire no more	<u>51.</u>
30-34	19.7	Total	100.
35-39	15.0	Permission to visit Health Centre	
40+	<u>20.4</u>	Yes	90.6
Total	100.0	No	<u>9.4</u>
Number of living children		Total	100.0
0	8.9	Radio/cassette in household	
1-2	32.4	Yes	32.8
3-4	31.5	No	<u>67.2</u>
5+	<u>27.2</u>	Total	100.0
Total	100.0	%Exposed to services % (n=4967)	
Education (years)		% ever contacted by FWA	73.4
None	55.8	% ever visited Satellite Clinic	7.8
1-4	13.9	% ever visited H&FWC	50.5
5	11.9	Satellite Clinic quality	
5 >	<u>18.4</u>	Excellent/good	16.7
Total	100.0	Not good/bad	6.4
Religion		Don't Know of SC	<u>76.8</u>
Muslim	80.3	Total	100.0
Hindu and others	<u>19.7</u>	H&FWC quality	
Total	100.0	Excellent/good	48.1
Thana		Not good/Bad	46.5
Mirsarai	70.4	Don't Know of H&FWC	<u>5.4</u>
Satkania	<u>29.6</u>	Total	100.0
Total	100.0	FWA satisfaction	
Woman's employment status		Yes	43.4
Work for income	27.2	Somewhat/No	29.9
Housewife only	<u>72.8</u>	Don't Know	<u>26.7</u>
Total	100.0	Total	100.0

Contd...

Table 1. (Contd.)

FWA provided antenatal care during last pregnancy	% (n=4967)	Number methods discussed (Women ever contacted by FWA)	% (n=3643)
Yes	12.0	3 or more methods	29.6
No	<u>88.0</u>	2 methods	42.0
Total	100.0	1 method	9.1
		No specific method	7.9
Current use of modern methods		Never discusses any	<u>11.4</u>
Yes	26.6	Total	100.0
No	<u>73.4</u>		
Total	100.0	FWA-client interaction index	% (n=3637)
		6-12	7.8
Intend to use modern method in future (non users only)	% (n=3646)	13-18	52.5
Yes	64.2	19-24	<u>39.7</u>
No	<u>35.8</u>	Total	100.0
Total	100.0	Mean FWA-client interaction score	17.6

One interesting and somewhat unexpected finding was that women who were never contacted by the FWA were as likely to intend to use modern methods in the future as were women who were satisfied with the FWA contacts (Table 2). One possible explanation for this pattern could be that the young women and the newly-weds generally have low contraceptive use, but have high intentions to use modern contraception in the future. These same women tend to be not contacted by the FWAs because of perceived lack of immediate demand for contraception, among other reasons. Another explanation for high intention to use modern contraception in the future among women who had never been contacted by an FWA is that women are now more exposed to many other sources of information about family planning (e.g. through mass media, satisfied users, etc.) than in the past, when fieldworkers may have been their only exposure. However, 49 percent of the non-using women who were contacted by the FWAs but not satisfied with the quality of contact intended to use modern contraceptives in the future.

Table 2. Current use and intended use of modern contraception in the future according to various measures of quality of care

	(N)	Percent currently using modern contraception ^a	Percent intending to use modern method in future ^{b,c}
Client satisfaction with FWA			
FWA never contacted	(1321)	10.3	64.6
Contacted, not satisfied	(1490)	27.0	49.3
Contacted, satisfied	(2154)	32.9	64.9
Client perception of SC quality			
Doesn't know SC	(3765)	24.6	63.1
Knows SC, says quality not good	(317)	30.6	62.7
Knows SC, says quality good	(826)	34.4	70.5
Client perception of H&FWC quality			
Doesn't know H&FWC	(265)	15.4	59.1
Knows H&FWC, says quality not good	(2278)	21.9	60.3
Knows H&FWC, says quality good	(2365)	32.0	68.9
Quality of FWA-client interaction			
FWA provides privacy			
Always	(1123)	40.8	72.1
Usually	(1227)	31.6	64.0
Sometimes	(776)	27.3	60.6
Never	(516)	25.2	55.1
FWA responsive to client questions			
Always	(1504)	37.0	69.6
Usually	(1554)	30.3	63.2
Sometimes	(509)	23.5	55.6
Never	(73)	13.9	43.6
FWA shows sympathy and respect to client			
Always	(1083)	40.5	69.3
Usually	(1596)	33.1	66.3
Sometimes	(793)	24.2	57.8
Never	(168)	16.8	48.2

Contd...

Table 2. (Contd.)

	(N)	Percent currently using modern contraception ^a	Percent intending to use modern method in future ^{b,c}
FWA provides dependable help for client problems			
Always	(486)	42.5	69.3
Usually	(1046)	39.3	68.8
Sometimes	(1142)	29.7	65.1
Never	(926)	23.5	56.3
FWA uses simple, understandable words/ideas			
Always	(2190)	35.0	66.8
Usually	(1173)	28.8	60.5
Sometimes	(250)	29.7	58.9
Never	(28)	7.1	42.3
FWA provides adequate information			
Always	(712)	42.8	70.7
Usually	(1438)	35.9	67.8
Sometimes	(1202)	25.1	61.0
Never	(287)	21.7	49.1
Number of contraceptive methods discussed by FWA			
Three or more methods	(1079)	37.0	73.9
Two methods	(1530)	31.4	65.3
One method	(331)	54.7	57.7
No specific methods	(289)	19.7	55.7
Never talks about methods	(409)	16.4	48.4
Has woman ever told anyone about good work of FWA?			
Yes	(1059)	43.5*	61.1*
No	(2583)	28.1	72.9
When FWA last contacted			
≤3 months	(2150)	37.7	68.5
4-6 months	(442)	27.0	67.5
6+ months	(1052)	27.9	56.5

Contd...

Table 2. (Contd.)

	(N)	Percent currently using modern contraception ^a	Percent intending to use modern method in future ^{b,c}
Amount of time spent by FWA with client (minutes)			
1-5 minutes	(2710)	30.2	62.0
6-10 minutes	(797)	38.9	71.0
11+ minutes	(131)	43.5	68.9
FWA provided antenatal care during last pregnancy			
Yes	(438)	31.4*	81.5*
No	(3208)	26.0	62.0
FWA-client interaction index			
Never contacted by FWA	(1311)	10.3	64.5
Low	(284)	17.5	50.0
Moderate	(1909)	28.9	61.7
High	(1444)	40.6	71.7

^a Chi-square analyses of trend in the proportions currently using modern methods are significant at the .001 level for all variables with three or more categories.

^b Includes only current non-users of modern methods

^c Chi-square analyses of trend in the proportions intending to use modern methods in the future (among non-users) are significant at the .001 level for all variables with three or more categories, except for the variables client satisfaction with FWA (not significant), and client perception SC quality and FWA-client interaction index (significant at the .01 level).

* Signifies that the proportions for the dichotomous variables are significantly different at the .05 level or better.

A graphic representation of the relationship of client satisfaction with the FWA, of perceived quality of the SCs and H&FWCs, and of the quality of fieldworker-client interactions, to current use of modern contraception, are shown in Fig. 2, 3, and 4 respectively.

A significant positive association between the clients' satisfaction and the current use of modern contraception is shown in Figure 2.

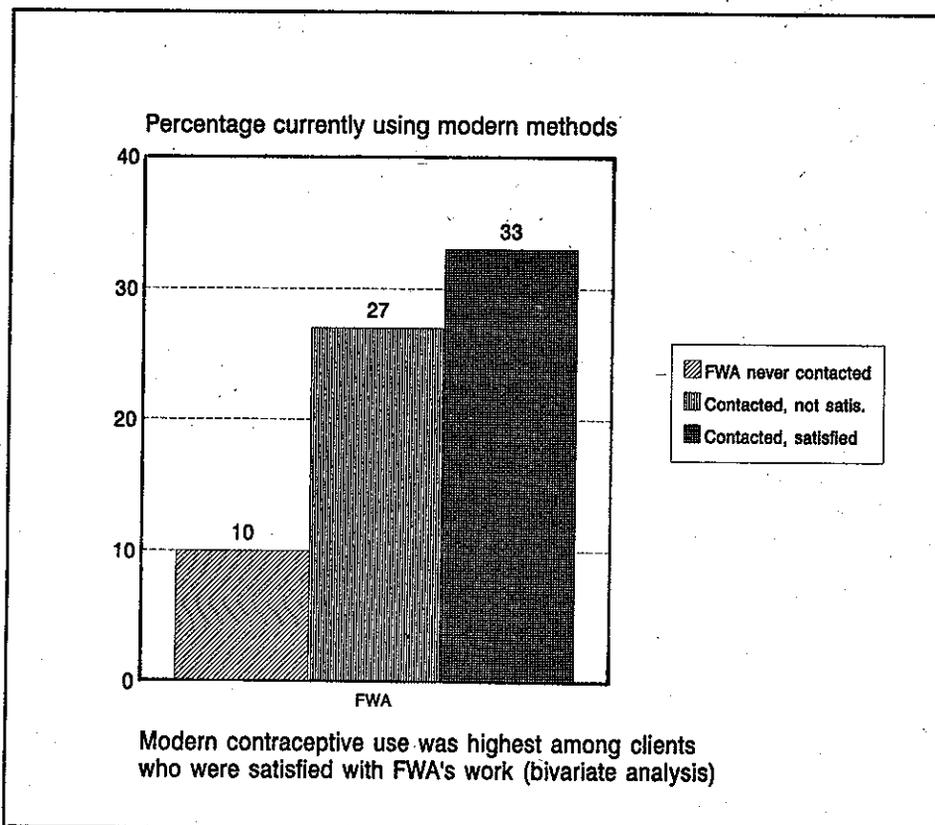


Figure 2. Client satisfaction with FWA and current use of modern contraception: Mirsarai and Satkania, 1994

A significant positive association was also found between the reported quality of care at the fixed-sites and the current use of modern methods in Figure 3.

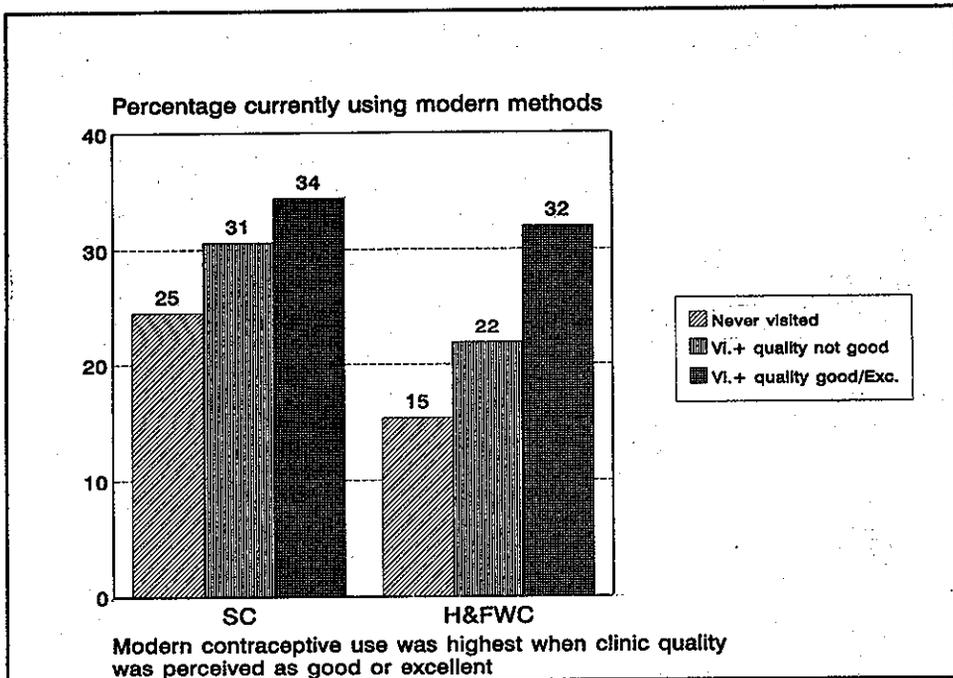


Figure 3. Client perception of SC and H&FWC quality of care and current use of contraception: Mirsarai and Satkania, 1994

Figure 4 shows a consistent pattern of higher contraceptive use with the increasing quality of FWA-client interaction.

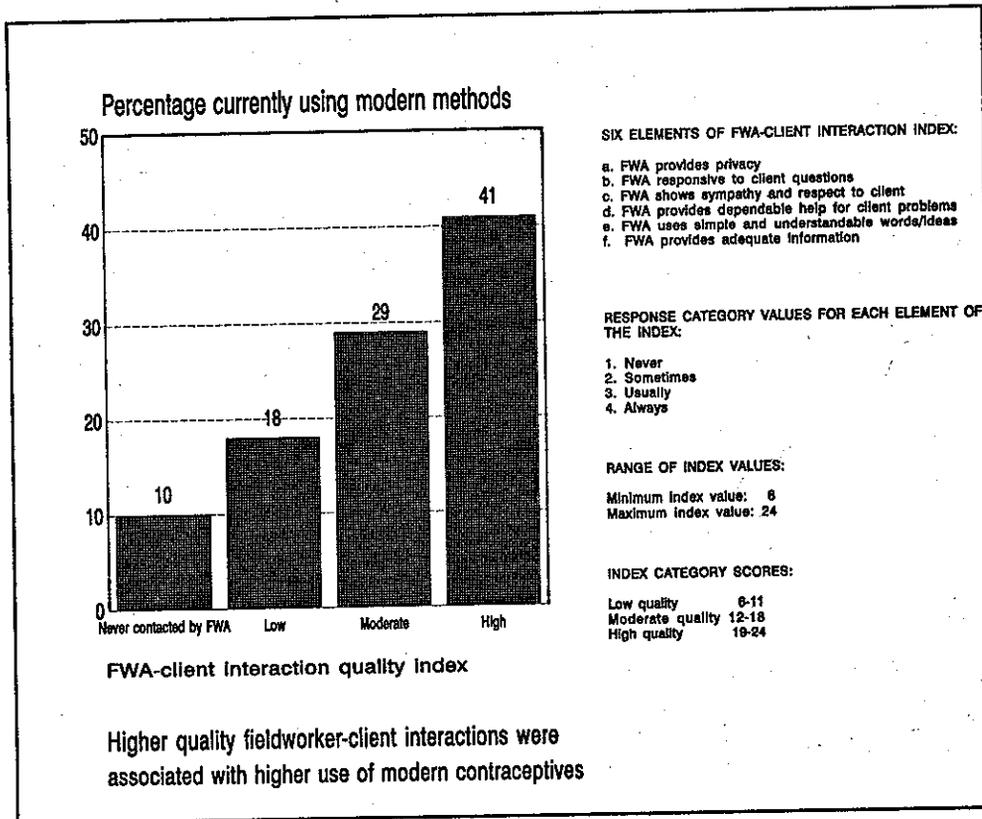


Figure 4. Current use of modern methods by quality of fieldworker-client interaction

The results of the multivariate regression analysis showed that, as might be expected, the current and intended future use of modern contraception were positively related to the woman's number of living children, her education, her desire to space or limit births, and her freedom to go outside the village to visit a health centre (Table 3). Also, the quality of FWA-client interactions, the perceived quality of the H&FWCs, and the number of modern contraceptive methods discussed by the FWA during contacts were all positively related to current contraceptive use.

Table 3. Logistic regression showing odds ratios of the effects of satisfaction with FWAs, Satellite Clinic and H&FWC quality of care, and women's sociodemographic characteristics on the likelihood of currently using or intending to use modern contraception among currently married women aged 15-49 years who were ever contacted by FWA: Mirsarai and Satkania, 1994

	Current use ^a Odds ratio	Intend to use ^b Odds ratio
Age (years)		
< 20	0.82	2.05*
20-24	0.72**	2.14***
25-29 (RC)†	1.00	1.00
30-34	0.83	0.29***
35-39	1.01	0.11***
40+	0.57***	0.02***
Number of living children		
None (RC)	1.00	1.00
1-2	6.06**	1.23
3-4	6.77***	1.83*
5+	5.77**	2.30***
Desire for more children		
Yes, within 2 years (RC)	1.00	1.00
Yes, after 2 years	4.96***	1.77***
No	8.85***	1.02
Religion		
Muslim	0.33***	1.12
Others (RC)	1.00	1.00
Education		
None (RC)	1.00	1.00
1-4 Primary	1.19	0.91
Completed primary	1.54***	0.97
More than primary	1.35***	1.59**
Thana		
Satkania (RC)	1.00	1.00
Mirsarai	1.16	1.03

Contd....

Table 3. (Contd.)

	Current use^a Odds ratio	Intend to use^b Odds ratio
Permission to visit Health Centre		
No (RC)	1.00	1.00
Yes	1.61***	2.19***
Satisfaction with FWA		
Contacted but not satisfied (RC)	1.00	1.00
Contacted and satisfied	0.92	1.36***
Number of methods discussed by FWA		
Never talks about any method (RC)	1.00	1.00
No specific methods discussed	1.09	1.58*
1 method discussed	3.29***	3.41***
2 methods discussed	1.49**	2.40***
3+ methods discussed	1.36*	3.06***
Index of FWA-client interaction quality		
6-24	1.08***	1.001
FWA provided antenatal care		
No (RC)	1.00	1.00
Yes	0.96	1.37*
Satellite Clinic quality		
Never visited	0.74*	0.90
Visited, quality not good (RC)	1.00	1.00
Visited, quality good	1.05	1.01
Health and Family Welfare Centre quality		
Never visited	0.77	0.72
Visited, quality not good (RC)	1.00	1.00
Visited, quality good	1.25***	1.31**
(Number of respondents)	(3644) ^a	(2469) ^b

†RC Signifies reference category

* Signifies significant at the .10 level

** Signifies significant at the .05 level

*** Signifies significant at the .01 level

a Excludes women who were never contacted by an FWA

b Includes only current non-users of modern methods who were ever contacted by an FWA

The quality of the H&FWCs and the number of modern contraceptive methods discussed by the FWA during contacts were also positively related to the intention of current non-users to use modern methods in the future (Table 3). Satisfaction with services received by the FWA and the provision of antenatal care by the FWA also appeared to predispose non-contracepting women to using modern contraception in the future.

The perceived quality of the SCs (which until 1996 primarily provided only family planning and limited MCH services) appeared not to have a significant effect on the likelihood of current use or intended future use of modern methods. Those who visited the SCs were more likely (significant at the .10 level) to be currently using modern contraception than women who had never visited the SC, regardless of the perceived quality of care received there. It could be that the relatively few women who went to the SCs were already highly motivated to use contraception and were, thus, less attentive to lapses in the quality of services. Furthermore, the paramedics (FWVs), who are usually trained in family planning methods and services, were always at the SCs. Of the few women who used the SCs, almost three-fourths said that the quality of care there was good, and it is likely to be better than that received from the FWAs.

The odds ratios of the likelihood of current use of modern methods and of the likelihood of intending to use modern methods in the future are shown in Table 3 for each of the quality of care variables examined in the multivariate analysis. For current use of modern methods, the odds ratios are positive and significant for the variables "number of methods discussed by the FWA," "index of FWA-client interaction quality," and "quality of H&FWC." It should be noted that the statistically significant odds ratio for the fieldworker-client index is a multiplicative increase in odds associated with each unit increase in the index scale. Thus, the odds of current use for a client who scores a maximum index value of 24 are 1.08 (=4.00) times higher than for a woman who scores a minimum index value of 6.

Although the odds ratio was positive and significant in the bivariate relationship between "satisfaction with FWA" and current use of modern methods, it was not significant in the multivariate analysis as shown in Table 3.

The model of intention to use modern methods in the future among the current non-users is also shown in Table 3. The odds ratios were found to be positive and significant for the variables "satisfaction with FWA," "number of methods discussed by the FWA," "quality of H&FWC," and if the "FWA provided antenatal care."

Summary of Main Findings

- (1) Of the 73 percent of the MWRA who had ever been contacted by an FWA, 59 percent were fully satisfied with the FWA's work.
- (2) Of the 25 percent of the MWRA who had ever heard of the SC, two-thirds thought the quality provided there were good or excellent. However, only eight percent of the MWRA had ever visited the SC.
- (3) Of the 95 percent of the MWRA who had ever heard of the H&FWC, only about half thought that the quality of the H&FWC was good or excellent. Only 50 percent of had ever visited the H&FWC.
- (4) Higher client ratings of quality of care by the fieldworkers and at the H&FWCs clinics were associated with higher current use of modern methods.
- (5) Client ratings of the quality of care of the fieldworkers and the quality of the H&FWCs clinics were positively associated with the non-contraceptors' intention to use modern methods in the future.
- (6) Client ratings of fieldworker-client interactions were associated with the higher current use of modern methods.
- (7) Receiving antenatal care from the fieldworkers was associated with higher intention among the current non-contraceptors to use modern methods in the future.

- (8) Women's social access to health care (e.g. woman has permission to visit a health centre outside her village) is an important factor of current use of modern contraceptives and, among the non-users, on their intention to use modern methods in the future.
- (9) Age, the number of living children, desire to space or limit births, education level and being non-Muslim were also positively associated with the current use of modern methods, and, among the non-users, with intention to use modern methods in the future.

Limitations of the Study

There are some methodological limitations of the study. Statistical associations are by themselves not conclusive of cause-effect relationships unless a strong conceptual case can be made. There is a potential bias that could account for some of these findings should be acknowledged. There is evidence that the fieldworkers appeared to be more predisposed to visiting those clients (and spending more time with clients) who are more likely to be currently using family planning (or intending to use family planning in the future). Such clients may also be more likely to rate the quality of fieldworkers services more positively since they are already more motivated to use contraception and, therefore, more inclined to be receptive to the services which the fieldworker is providing or promoting. Thus, the relationship of the "predictor variables" (e.g. client ratings of the quality of fieldworker services and client satisfaction with fieldworker services) with the dependent variables (CPR and intention to use family planning) could be, at least in part, due to the pre-existing disposition of the client to use (or intend to use) family planning services.

Similar arguments could be made concerning the relationship between the perceptions of the quality of service-sites (SCs and H&FWCs) and the dependent variables.

Furthermore, the client perceptions of quality are subjective and, therefore, likely to be more highly influenced by the empathetic aspects of the FW-client encounter than by the actual technical quality of the encounter.

Further Research

A prospective analysis of the impact of non-contracepting women's ratings of the quality of care in the 1994 survey on their subsequent contraceptive adoption and continuation of use over a two-year period is underway as a second phase of this analysis, using proportional hazards models and the MCH-FP Extension Project's longitudinal bi-monthly surveillance system.

More direct objective measures of the quality of family planning and other health-care services being provided will be collected in future work of the MCH-FP Extension Project (e.g. through direct observations of interactions and/or additional survey questions on what methods were discussed by the provider, what alternative methods were offered, whether the provider screened/examined the potential client about contraindications or told the potential client about method side-effects and how to use the method correctly). Survey information will be complemented by qualitative in-depth interviews and actual observations of services being provided at clinics and provider-client interactions.

Future research on the impact of the quality of care on contraceptive practice may need to examine the broader context within which the relationship between the quality of care and the contraceptive use applies. Family planning supply and demand factors are both linked to the contraceptive use and the quality of care in family planning programmes. Family planning supply factors relating to the organizational structure of the programme (e.g. the service infrastructure, sectoral integration, service-delivery strategies, and the public-private partnership), as well as the financial resources available affect the operations of the family planning programme (e.g. management and supervision, training, commodity acquisition and distribution, and IEC), which, in turn, affect the service outputs, such as quality of care, access to services, and image and acceptability of services [11]. Service outputs, such as quality of care, affect the demand for family planning services (both for spacing and limiting births). At the policy level, it may be essential to first assess the critical elements of the organizational structure, management system, or service sub-systems that influence the quality of care, and to then implement cost-effective policies affecting these areas that will help ensure the quality of services and reduce the unmet need for family planning.

More in-depth research is needed to understand the linkages between access to family planning, quality of care, and medical barriers to services, all of which are key factors in the adoption of contraceptive methods [12].

A final phase of research could be an evaluation of the impact of quality of care on fertility, using the HARI index developed by Jain [13].

The HARI index measures the extent to which a family planning programme has been successful in helping women achieve their reproductive intentions. Estimates of the HARI index could be obtained in the MCH-FP Extension Project sites through panel studies or follow-up surveys with the clients first interviewed in the 1994 survey reported here.

Conclusions

There are some potentially important policy implications of these findings for improving the quality and effectiveness of family planning and health services in Bangladesh. The results of the analysis suggest that acceptance of modern contraception can be increased through the provision of better quality care by the FWA fieldworkers, and at the health centres in rural Bangladesh. Improving client satisfaction and quality of care, particularly the quality of provider-client interactions, should contribute substantially to helping couples effectively and safely achieve their reproductive goals through the use of modern contraception.

This can be achieved by increasing women's social access to health and family planning services, improving the quality of fixed-site clinical services, and increasing client satisfaction with fieldworker services by having fieldworkers provide better counselling and information on a broader range of contraceptive methods, as well as providing a broader constellation of reproductive services, such as ANC.

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MCH-FP Extension Work at the Centre

An important lesson learned from the Matlab MCH-FP project is that a high CPR is attainable in a poor socioeconomic setting. The MCH-FP Extension Project (Rural) began in 1982 in two rural areas with funding from USAID to examine how elements of the Matlab programme could be transferred to Bangladesh's national family planning programme. In its first years, the Extension Project set out to replicate workplans, record-keeping and supervision, within the resource constraints of the government programme.

During 1986-89, the Centre helped the national programme to plan and implement recruitment and training, and ensure the integrity of the hiring process for an effective expansion of the work force of governmental Family Welfare Assistants. Other successful programme strategies scaled up or in the process of being scaled up to the national programme include doorstep delivery of injectable contraceptives, management action to improve quality of care, a management information system, and developing strategies to deal with problems encountered in collaborative work with local area family planning officials. In 1994, this project started family planning initiatives in Chittagong, the lowest performing division in the country.

The Centre and USAID, in consultation with the government through the project's National Steering Committees, concluded an agreement for new rural and urban Extension Projects for the period 1993-97. Salient features include: improving management, quality of care and sustainability of the MCH-FP programmes, and providing technical assistance to GoB and NGO partners. In 1994, the Centre began an MCH-FP Extension Project (Urban) in Dhaka (based on its decade long experience in urban health) to provide a coordinated, cost-effective and replicable system of delivering MCH-FP services for Dhaka urban population. This important event marked an expansion of the Centre's capacity to test interventions in both urban and rural settings. The urban and rural extension projects have both generated a wealth of research data and published papers.

In August 1997 the Centre established the Operations Research Project (ORP) by merging the two former MCH-FP Extension Projects. The ORP research agenda is focussed on increasing the availability and use of the high impact services included in the national Essential Services Package (ESP). In this context, ORP has begun to work with partners in government and NGOs on interventions seeking to increase coverage in low performing areas and among underserved groups, improve quality, strengthen support systems, enhance financial sustainability and involve the commercial sector.

ORP has also established appropriate linkages with service delivery partners to ensure that research findings are promptly used to assist policy formulation and improve programme performance.

The Division

The Health and Population Extension Division (HPED) has the primary mandate to conduct operations research, to disseminate research findings to program managers and policy makers and to provide technical assistance to GoB and NGOs in the process of scaling-up research findings to strengthen the national health and family planning programmes.

The Division has a long history of solid accomplishments in applied research which focuses on the application of simple, effective, appropriate and accessible health and family planning technologies to improve the health and well-being of underserved and population-in-need. There are various projects in the Division which specialize in operations research in health, family planning, environmental health and epidemic control measures. These cut across several Divisions and disciplines in the Centre. The Operations Research Project (ORP) is the result of merging the former MCH-FP Extension Project (Rural) and MCH-FP Extension Project (Urban). These projects built up a considerable body of research and constituted the established operations research element for child and reproductive health in the Centre. Together with the Environmental Health and Epidemic Control Programmes, the ORP provides the Division with a strong group of diverse expertise and disciplines to significantly consolidate and expand its operations research activities. There are several distinctive characteristics of these endeavors in relation to health services and policy research. For one, the public health research activities of these Projects are focused on improving programme performance which has policy implications at the national level and lessons for the international audience also. Secondly, these Projects incorporate the full cycle of conducting applied programmatic and policy relevant research in actual GoB and NGO service delivery infrastructure, dissemination of research findings to the highest levels of policy makers as well as recipients of the services at the community level; application of research findings to improve program performance through systematic provision of technical assistance; and scaling-up of applicable findings from pilot phase to the national program at Thana, Ward, District and Zonal levels both in the urban and rural settings.



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