

REPRODUCTIVE HEALTH IN RURAL BANGLADESH

Policy and Programmatic Implications

Editors

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Volume 1



**CENTRE
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FOREWORD

The final decade of the 20th century has seen dramatic changes in the major issues and priorities in the field of health and population. The International Conference on Population and Development (ICPD) in Cairo in 1994 highlighted the clear shift in emphasis away from narrowly focussed vertical family planning programmes to a much broader reproductive health agenda. This has been an important and necessary step for ensuring quality services and reproductive health for both men and women, particularly as the various areas of reproductive health such as contraception, pregnancy, maternal mortality, sexual behaviour, RTI/STDs, HIV/AIDS, abortion, and infertility are so inextricably linked to each other.

The need has never been greater for fundamental research to understand the current situation and to assess the determinants of reproductive health behaviour in Bangladesh. There is also the critical need to conduct operations research to test client-oriented and cost-effective programme interventions that are designed to improve reproductive health services. The ICDDR,B's MCH-FP Extension Project (Rural) deserves our sincerest appreciation in producing an impressive body of high quality applied research on many important reproductive health issues. The results of these analyses are presented in the published two volumes entitled **Reproductive Health in Rural Bangladesh: Policy and Programmatic Implications**, a compendium of 21 research papers.

The contents of these volumes have enormous policy relevance to the Ministry of Health and Family Welfare, and inform us on many of the reproductive health issues and problems facing the National Health and Population Programme. The volumes offer invaluable concrete suggestions concerning what appropriate programmatic actions and changes may be needed in the future.

In synthesizing the study findings across the five thematic areas, a number of important cross-cutting programmatic issues in reproductive health have been identified.

Several of the studies have shown that quality of care issues such as expanded choice of services, access to information, provider skills and competence, provider-client interactions, continuity of services, referrals and linkages between service-delivery levels and between types of reproductive health services, and the need for service standards protocols, and quality facilities are cross-cutting quality issues affecting all areas of reproductive health.

Costs and sustainability issues addressed in some of the chapters are also important for the different types of reproductive health services. The studies suggest there are some advantages of providing combined services over the vertical service-delivery approach, providing services at fixed sites versus doorstep delivery, and charging fees for commodities and for various reproductive health services.

Improving women's access to reproductive health services was found to be another key cross-cutting issue. The studies indicate that improving women's status through education and membership in credit unions, for example, can increase their access to both reproductive health information and services.

Increasing male participation in reproductive health services is also an issue that needs to be addressed more thoroughly by the programme. The research has shown that men's participation in choosing methods led to reduced concerns about side-effects among women. Males were generally not seeking STD services at health clinics, and little effort has been made to treat male partners of female RTI/STD clients.

And finally, informing adolescents and young adults about different reproductive health risks and services is needed, particularly on the topics of family planning, maternal health and the risks of pregnancy, RTIs, and the health advantages of delayed childbearing and birth spacing.

The research points out the strong interrelationships between the various areas of reproductive health. These various reproductive health problems can no longer be considered separately as isolated and unlinked issues in vertical programmatic strategies and service systems, if high quality and sustainable reproductive health services are to be provided to all in need of such services.

The Government of Bangladesh and its health partners are moving in the right direction by adopting the client-oriented, combined service-delivery approach in the new National Integrated Population and Health Program (NIPHP), funded by USAID, and in the Fifth Health and Population Project (HAPP-V) to be funded by the World Bank and the donor consortium. Through these projects, the Bangladesh Health and Family Planning Programme will provide an essential services package, covering a full range of reproductive health needs.

The research has demonstrated the need for improving coverage and utilization of appropriate combined service sites and trained providers. The research has shown that women tend to first use untrained village practitioners for RTI/STD and abortion services, and also sometimes for maternal care.

I thank the ICDDR,B MCH-FP Extension Project (Rural) for taking on the formidable task of producing this monograph, and commend Professor Demissie Habte, Director, ICDDR,B, and Syed Shamim Ahsan, Division Director, Health and Population Extension Division, ICDDR,B for their leadership and guidance to the authors and editors who prepared this monograph. My special thanks are due to Dr. Thomas T. Kane, Professor Barkat-e-Khuda and Dr. James F. Phillips, editors of this volume, and to their colleagues and co-authors for this valuable two-volume body of policy and programme-relevant research, which will be of great use to the national programme.

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The authors of the various papers gratefully acknowledge the useful substantive comments provided by numerous colleagues at the centre, as well the feedback received from anonymous reviewers of the papers. Many of these papers have recently been presented at professional meetings, such as the 1996 APHA meetings held in New York, the IUSSP meetings held in Islamabad in December 1996 and May 1997, the ICDDR,B's Sixth Annual Scientific Conference (ASCON VI) held in March 1997 in Dhaka, and the Annual PAA meetings held in Washington DC in March 1997. Some of these papers have been published as Working Papers of ICDDR,B, and two of the papers have also been published in international journals, namely, *International Journal of STD and AIDS* and *Journal of Biosocial Science*.

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ACRONYMS

AHI	Assistant Health Inspector
AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal Care
ARI	Acute Respiratory Infection
AVSC	AVSC International, Bangladesh
BAPSA	Bangladesh Association for Prevention of Septic Abortion
BDHS	Bangladesh Demographic and Health Survey
CAR	Contraceptive Acceptance Rate
CARE	Cooperative for Assistance Relief Everywhere
CBD	Community-based Distribution
CCP	Center for Communications Programs
CHW	Community Health Worker
CI	Confidence Interval
CMR	Child Mortality Rate
CPR	Contraceptive Prevalence Rate
CPS	Contraceptive Prevalence Survey
CS	Cluster Spot
'CS'	Civil Surgeon
"CS"	Cluster Sampling approach
CSW	Commercial Sex Worker
CYP	Couple-years of Protection
DA	District Approach
DDS	Drug and Dietary Supplement
DMA	Data Management Assistant
DMPA	Depo Medroxy Progesterone Acetate
DPT	Diphtheria, Pertussis, Tetanus
EOC	Emergency Obstetric Care
EPI	Expanded Programme on Immunization
ESP	Essential Service Package

Acronyms continued . . .

FGD	Focus Group Discussion
FHI	Family Health International
FP	Family Planning
FPI	Family Planning Inspector
FPMD	Family Planning Management Development
FRO	Field Research Officer
FWA	Family Welfare Assistant
FWV	Family Welfare Visitor
GoB	Government of Bangladesh
GR	Geographic Reconnaissance
HA	Health Assistant
HAPP-V	Health and Population Program fifth five-year plan
HI	Health Inspector
HIU	Health Information Unit
HIV	Human Immuno-Deficiency Virus
HPSS	Health and Population Sector Strategy
HYV	High Yielding Variety
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
IMR	Infant Mortality Rate
IUD	Intrauterine Device
JHU	Johns Hopkins University
JSI	John Snow International
KAP	Knowledge, Attitude, and Practices
LCH	Living Children
LFPVs	Lady Family Planning Visitors
LIP	Local Initiatives Program

Acronyms continued . . .

MA	Medical Assistant
MCH	Maternal and Child Health
MIS	Management Information System
MO	Medical Officer
MOHFW	Ministry of Health and Family Welfare
MR	Menstrual Regulation
MWRA	Married Women of Reproductive Age
NAC	National AIDS Committee
NET-EN	Norethindrone Enanthate
NGO	Non-governmental Organization
NID	National Immunization Day
NIPHP	National Integrated Population and Health Program
NNMR	Neonatal Mortality Rate
OLS	Ordinary Least Squares
OR	Operations Research
ORS	Oral Rehydration Saline
PHC	Primary Health Care
PIC	Project Implementation Committee
PIV	Pelvic Inflammatory Disease
POA	Programme of Action
RAP	Rapid Assessment Procedure
RC	Reference Risk
RD	Rural Dispensary
RKB	Record-Keeping Book
RTI	Reproductive Tract Infection
RR	Relative Risk
SAS	Statistical Analysis Software
SC	Satellite Clinic
SFRA	Senior Field Research Assistant

Acronyms continued . . .

SFWV	Senior Family Welfare Visitor
SHA	Senior Health Assistant
SMC	Social Marketing Company
SRS	Sample Registration System
STD	Sexually Transmitted Disease
STI	Sexually Transmitted Illness
TAF	The Asia Foundation
TBA	Traditional Birth Attendant
TFR	Total Fertility Rate
TFPO	Thana Family Planning Officer
THC	Thana Health Complex
THFPO	Thana Health and Family Planning Officer
TMFR	Total Marital Fertility Rate
TTBA	Trained Traditional Birth Attendant
TOT	Training of Trainers
UNDP	United Nations Development Programme
UNICEF	United Nations Children Emergency Fund
USAID	United States Agency for International Development
U5MR	Under Five Mortality Rate
WHO	World Health Organization

EXECUTIVE SUMMARY

Following the International Conference on Population and Development (ICPD) in Cairo in 1994, the MCH-FP Extension Project (Rural) has continued to broaden its scope of research on reproductive health issues beyond family planning. Some key issues in reproductive health that continue to challenge the Bangladesh Health and Family Planning Programme are in the following areas: contraception, abortion, fertility/infertility, RTI/STD/HIV/AIDS, maternal mortality and morbidity, and infant and child mortality.

This last category is added because of the particular interest in how reproductive dynamics, such as length of birth interval, birth order, gender, and number of siblings impact infant and child mortality. There is also a unique dynamic between maternal reproductive health and its affect on infant health. For example, pregnant women having STDs and HIV/AIDS can have potentially serious health consequences for the fetus and infants.

In each of these key areas of reproductive health, important research and programmatic work is underway. More research is still needed, however, concerning men and women's awareness and knowledge of reproductive health issues; their sexual practices and health-seeking behaviour; provider knowledge and practices; current prevalence and trends in RTIs/STDs; determinants and health consequences of various reproductive health behaviours; and on the issues of quality of care and sustainability of various reproductive health services in Bangladesh.

The Project staff worked hard over a period of a year and a half conducting research that addresses some of these reproductive health issues. The result of this effort is 21 priority research papers on reproductive health topics which have policy and programme relevance to the Bangladesh health and family planning programme and have potential importance internationally as well.

This research complements some of the Project's intervention-related operations research. The reproductive health research papers more fully exploit the rich body of data produced by the Project in its field sites. The culmination of this effort is the two volume monograph entitled "Reproductive Health in Rural Bangladesh: Policy and Programmatic Implications". The principal authors are senior national and international staff of the MCH-FP Extension Project (Rural) and several colleagues of the Population Council and Australian National University. The research presented here includes the efforts of researchers from a number of disciplines, including public health, economics, management science, demography, sociology, medicine, anthropology, and statistics. The research papers are primarily based on data from the Extension Project's sites in Abhoynagar, Sirajganj, and Mirsarai thanas, and selected other thanas. Data sources include information from the longitudinal sample registration system for the 1983-1996 period, as well as several population-based sample surveys. Qualitative data (including focus

group discussions, observations of client-provider interactions, and in-depth interviews with key informants, clients and providers) have also been used. Methods of analysis were: cross-tabulations, qualitative data analysis, life table methods, and multivariate statistical procedures, including logistic regression and proportional hazards models.

The papers have been grouped into five thematic areas. These are:

VOLUME-1

Theme - I: Reproductive Health Knowledge and Behaviour (5 papers)

Theme - II: Contraceptive Use Dynamics (6 papers)

VOLUME-2

Theme - III: Demand, Cost and Utilization of MCH-FP Services (4 papers)

Theme - IV: Determinants of Fertility Decline in Rural Bangladesh (4 papers)

Theme - V: Determinants of Infant and Child Malnutrition and Mortality (2 papers).

Theme I on **Reproductive Health Knowledge and Behaviour** includes analyses of the determinants of antenatal care-seeking behaviour; patterns and trends in induced and spontaneous abortion; levels of awareness and knowledge of STDs; and health-seeking behaviour and practices in the management of RTIs. Some of these papers also touch on the demographic and health consequences of these reproductive health behaviours. For example, induced abortion and RTIs/STDs may lead to infertility, maternal mortality and morbidity, or increased risk of HIV/AIDS transmission and other health problems.

Several papers in Theme II on **Contraceptive Use Dynamics** examine the sociodemographic and programmatic factors affecting the acceptance and continuation of contraceptive use, choice of provider, method-choice, reporting of side-effects, discontinuation and method switching. The effects of cultural factors such as gender preference, and programmatic factors such as fieldworker contact and quality of care on contraceptive behaviour are also examined.

Papers included under Theme III on **Demand, Cost, and Utilization of FP-MCH Services** examine several issues, including the determinants of demand for FP-MCH services and the effects of cash prices and access on demand. Also included is an analysis of the cost-effectiveness of alternative service delivery strategies, and a multivariate analysis of the effects of fieldworkers' contact on fertility preferences and desired family size. There is also a paper describing a rapid assessment methodology for assessing awareness of, accessibility to, and utilization of health services at the subdistrict (thana) level.

Four papers included in Theme IV on **Determinants of Fertility Decline in Rural Bangladesh** examine the socioeconomic, demographic, and programmatic factors associated with fertility decline in Bangladesh from different theoretical perspectives and methodological approaches. One paper assesses the impact of the Project's Operations Research (OR) on the national programme and policy.

Under Theme V on **Determinants of Infant and Child Malnutrition and Mortality**, the impact of length of birth intervals and number of siblings on infant and child malnutrition and mortality are assessed.

Key Findings and Programmatic Implications

About 80 distinct findings and over 50 programmatic implications were identified from the 21 papers. Selected key findings and implications are provided below according to thematic area.

THEME I: REPRODUCTIVE HEALTH KNOWLEDGE AND BEHAVIOUR

Key Findings on RTI/STDs:

Awareness of RTI/STDs, including HIV/AIDS was low among rural women, with only about a quarter of married women of reproductive age having heard of any STD, including HIV/AIDS. Knowledge of modes of transmission and means of prevention was even lower among rural women. Of the women who had heard of gonorrhea or syphilis, less than half of these women knew how these diseases were transmitted. Awareness of STDs was moderately high among clinic providers, although their knowledge of specific modes of transmission and means of prevention was weak.

In the clinic-based RTI study it was found that: 6 percent of clients attending Health and Family Welfare Centres (H&FWCs) and Satellite Clinics (SCs) sought services for RTI symptoms (e.g. white discharge, genital itching/burning, etc.); half of the RTI clients did not know the causes, modes of transmission, or means of prevention of RTIs; and one-third of the female RTI clients reported that their husband had some kind of genital problem.

RTI clients and their husbands generally go to village practitioners first, and then, when not properly treated, go to SC, H&FWC or the pharmacy. Half of clients seeking RTI services at SCs and H&FWCs reported that they had first visited an unqualified village practitioner for the problem.

In the treatment of RTIs, paramedics commonly: did not do a physical examination of clients complaining of unusual or painful discharges or other symptoms of RTIs/STDs; used substandard dosages of drugs for treatment of RTIs/STDs; and made no attempt to notify or treat male partners.

Programmatic Implications for RTI/STDs:

There is a need for increased awareness of RTIs, especially STDs/HIV/AIDS, in culturally acceptable and affordable ways.

Increased RTI/STDs services for men in the programme are needed (men are more likely to be symptomatic, are probably easier to treat, and male client partner notification and treatment may be less difficult).

Training of health care providers in STD diagnostics, treatment and referrals is essential.

Key Findings on Abortion:

The probability of having an induced abortion increases with mother's age, number of living children, and education.

The abortion rate has been increasing over time from 1982 to 1995.

One third of abortions occur in the second trimester.

Illiterate women are twice as likely as educated women to have their induced abortions at home.

Many abortions are self-induced.

Women with children under age two are more likely to have induced abortion than those with older children.

Contraceptive use increased after an induced abortion, although less than one percent adopted sterilization.

A large proportion of women having induced abortions sought treatment services from untrained providers, despite the availability of trained government providers. Use of untrained providers for abortion was due to: greater familiarity with village practitioners; inadequate information about safer alternative; perceived low-quality of government services; and concerns over high charges in the GoB system for services that are intended to be free.

There is a substantial unmet need for quality family planning services for women having induced abortions because:

- (a) these women are willing to take great risks to avoid unplanned births by induced abortion from untrained providers or through self-induction;
- (b) the majority of these women desired no more children;
- (c) many of these women did not adopt contraception after the abortion;
- (d) almost none accepted sterilization after the abortion;
- (e) some of the induced abortions were the result of contraceptive failure or discontinuation due to side-effects; and the fact that
- (f) 15 percent of women having induced abortions had multiple or repeat induced abortions.

Programmatic Implications on Abortion:

The high proportion of women having repeat abortions highlights the importance of, and missed opportunities for, post-abortion contraceptive counselling.

The programme needs to address the substantial unmet need for high quality family planning services among women having induced abortions.

Key Findings on Maternal Health/Antenatal Care (ANC):

Over 90% of all deliveries were at homes by untrained attendants, often under unsafe and unhygienic conditions.

One-third of women reported delivery-related complications.

Older, poor, and less educated women are less likely to seek antenatal care, and less likely to have births attended by a trained provider.

Programmatic Implications on Maternal Health/ANC:

More emphasis should be given to IEC (Information, Education, and Communication) activities to educate the community on the need for regular antenatal check-ups and delivery by qualified providers.

Training is needed for fieldworkers/providers in ANC, in identifying warning signs of pregnancy complications and the need for appropriate referrals to higher level care.

Access to and availability of trained providers and facilities for safe delivery needs to be improved.

THEME II: CONTRACEPTIVE USE DYNAMICS

Key Findings:

Contraceptive use and fieldworker contact is lowest among teenaged married women and newly-weds. Although the 1996-1997 BDHS shows that the modern contraceptive use rate increased from 21 percent to 28 percent among teenaged married women, reported fertility also increased by 5 percent in the 15-19 age group between 1993-94 and 1996-97. More research is needed to determine whether the increase in teenage fertility is an artifact of the survey sample or is due to high contraceptive failure rates, dropouts, or changing marriage patterns among teenaged women.

Method-mix is skewed toward temporary and non-clinical methods.

Use of contraceptive fixed-site services is very low.

Gender preference and women's socioeconomic status have significant impacts on use of modern methods.

Quality of care is significantly and positively associated with use of modern contraception and the likelihood of future use among non-users.

About half of pill and injectable users discontinue during the first year of use, and the majority discontinue due to side-effects and health reasons.

Reporting of side-effects is higher among: women of lower socioeconomic status; those reporting lower quality contact with fieldworkers; and women whose husbands were not involved in choosing the method.

Method switching is prevalent: about half of the married women of reproductive age (MWRA) switch methods, one third of whom switch multiple times; switching was most common between pill and injectables; side-effects and the need for more appropriate methods were the main reasons for switching methods; and husband's objection was an important reason for switching from male methods to other methods.

Programmatic Implications:

More emphasis should be placed on: the special reproductive health needs of young and newly-weds; advising young newly-weds of some of the health and social advantages of delaying childbearing; and providing quality clinical methods and services at fixed sites-promotion of male participation in family planning.

Further efforts are needed to improve the status of women and reduce parents gender preference for their children.

To increase contraceptive acceptance and reduce discontinuation and unnecessary switching, the programme needs to: provide a broader method choice and constellation of services; improve provider-client interactions; and improve side-effects counselling.

THEME III: DEMAND, COST, AND UTILIZATION OF MCH-FP SERVICES

Key Findings:

Price of contraceptives did not adversely affect contraceptive use.

Prices, to some extent, affected the type of method chosen and the type of provider used.

Contraceptive prevalence has been maintained or increased in areas where the cluster service-delivery approach has been introduced.

Increasing the number of Satellite Clinics from 8 to 20/24 and combining them with EPI Spots was more cost-effective than offering only Satellite Clinics.

Programmatic Implications:

Cost recovery for contraceptives is a feasible strategy, provided there is a safety net for the poor.

Improving accessibility to fixed sites services will increase the demand for and use of contraception.

Shifting from doorstep to fixed site services should lead to the increased use of long-term methods.

Increasing women's economic power (e.g. through membership in credit unions) will lead to increased use of fixed site services.

Increasing the frequency of satellite clinics combined with EPI services was more cost-effective. Policy-makers should consider scaling-up the intervention.

The cluster approach needs to be refined to make it more cost-effective. To increase the cost-effectiveness, efforts are needed to: increase IEC; increase the catchment area for services; and offer additional services.

THEME IV: DETERMINANTS OF FERTILITY DECLINE IN RURAL BANGLADESH

There are a number of important findings and implications in theme IV concerning the positive impact of socioeconomic development, ideational change and the family planning programme on fertility decline.

Key Findings:

Women's education, employment and access to the media have a significant and negative effect on fertility.

The national family planning programme has not only facilitated access to family planning but above all, legitimated the practice of family planning.

A satisfactory theory of fertility transition will have to incorporate both socioeconomic and ideational change as well as the critical role of the family planning programme.

Programmatic Implications:

The GoB should further strengthen its family planning efforts to accelerate the rate of fertility decline.

The GoB should also attach higher priority to development in the social sector.

THEME V: DETERMINANTS OF INFANT AND CHILD MALNUTRITION AND MORTALITY

Key Findings:

Children were more likely to be moderate-to-severely malnourished if: previous or subsequent birth intervals were less than two years; there was a larger number of siblings; they were female; their mothers were less educated; and if they came from a poor family.

Infant and child mortality have been declining, slightly more rapidly in the Project sites than nationally.

Reduced infant and child mortality is associated with: longer birth intervals; higher maternal education; childhood immunization; and access to tubewell water.

Programmatic Implications:

The programme should emphasize the potential importance of longer birth intervals and other factors for reducing child malnutrition and child mortality

Cross-cutting Programmatic Issues in Reproductive Health

In synthesizing the study findings across the five thematic areas, a number of cross-cutting programmatic issues in reproductive health were identified. These include:

Improving coverage/utilization of appropriate combined service sites and trained providers. The research showed that women tend to first use untrained village practitioners for RTI/STD and abortion services, and also sometimes for maternal care.

Quality of care. The issues of expanded choice of services, access to information, provider skills and competence, provider-client interactions, continuity of services, referrals and linkages between service-delivery levels and between types of reproductive health services, and the need for service standards protocols, and quality facilities are cross-cutting quality issues affecting all areas of reproductive health.

Costs and sustainability issues. These are also important for the different types of reproductive health services. The studies suggest there are some advantages of providing combined services over the vertical service-delivery approach, providing at fixed sites versus doorstep delivery, and charging fees for commodities and for various reproductive health services.

Improving women's access to Reproductive Health Services. This is another key cross-cutting issue. The studies indicate that improving women's status through education and membership in credit unions, for example, can increase their access to both reproductive health information and services.

Increasing male participation in Reproductive Health Services. This is an issue that needs to be addressed more thoroughly by the programme. The research showed that men's participation in choosing methods led to reduced concerns about side-effects among women. Males were generally not seeking STD services at health clinics, and little effort has been made to treat male partners of female RTI/STD clients.

Informing adolescents and young adults about different Reproductive Health Risks and Services. This is needed, particularly on the topics of family planning, maternal health and the risks of pregnancy, RTIs, and the health advantages of delayed childbearing and birth spacing.

Conclusions

Although the papers have been grouped in specific thematic areas it is important to note there are strong interrelationships between the various areas of reproductive health. It is clear that these various reproductive health problems can no longer be considered separately as isolated and unlinked issues in vertical programmatic strategies and service systems. The programmatic costs are likely to be prohibitive and the results of vertical and unlinked services would be less effective in meeting all of women's and men's reproductive health needs.

It is therefore, most encouraging that the GoB and its health partners are adopting the client-oriented, combined service approach in the new National Integrated Population and Health Program (NIPHP), funded by USAID, and in the fifth Health and Population Project (HAPP-V) to be funded by the World Bank and the donor consortium. Through these projects, the Bangladesh Health and Family Planning Programme will provide an essential package of services, covering a full range of reproductive health needs.

Both women and men must be further empowered with the information and services necessary for ensuring reproductive health. It is hoped that the most compelling findings and implications of the research presented here will contribute to effective national policies and programmes for improving reproductive health in Bangladesh¹.

¹. An earlier version of this text summary of the key findings of the research papers included in these two volumes was presented at the Dissemination Seminar of MCH-FP Extension Project (Rural), International Centre for Diarrhoeal Disease Research, Bangladesh, held on June 30 - July 1, 1997.

THEME I

REPRODUCTIVE HEALTH KNOWLEDGE AND BEHAVIOUR

CHAPTER 1

Awareness of Sexually Transmitted Disease Among Women and Service Providers in Rural Bangladesh

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Awareness of Sexually Transmitted Disease Among Women and Service Providers in Rural Bangladesh

Mehrab Ali Khan, Mizanur Rahman, Parveen Akhter, Barkat-e-Khuda, Thomas T. Kane, and Ali Ashraf

Abstract

Sexually transmitted disease (STD) in rural Bangladesh is currently a topic of great concern. To date, little information is available in the literature regarding its prevalence. The current level of STD awareness among the rural population with regard to modes of transmission and means of prevention is inadequate. In 1994, the MCH-FP Extension Project (Rural) of ICDDR,B surveyed 8,674 married women of reproductive age (MWRA) in four rural thanas to examine their awareness of STDs. The association between sociodemographic and programmatic factors (variables which affect access to and availability of STD information) and awareness of STDs was examined by both bivariate and multivariate analyses. Seven focus group discussions were conducted among groups of government health and family planning workers and paramedics to assess their knowledge of STDs.

Only 12 percent of the women surveyed had even a basic understanding of STDs and how to protect themselves from them. About one-fourth of the women surveyed had ever heard of any STD, including syphilis, gonorrhea and HIV/AIDS. Of these women, less than half could mention specific mechanisms involved in the transmission of these diseases. Seven percent reported that syphilis and gonorrhea are transmitted through sexual intercourse. Thirteen percent reported that the infections are transmitted from spouses to their partners. Four percent reported that STDs can be spread by having multiple sexual partners.

The results of logistic regression analysis indicates that awareness of STDs was higher among relatively older women than among younger women. Awareness of STDs was most strongly and positively associated with the education of both women and their husbands. Awareness of STDs was also found to be higher among women who were more socially mobile (e.g. those who frequent cinemas or mothers' clubs).

The findings of focus group discussions with providers indicate that family planning and health care service providers have a moderate level of STD awareness. Knowledge of modes of transmission and means of prevention, however, were areas of weakness.

In order to prevent a potential STD epidemic and combat current STD prevalence, a culturally acceptable and affordable means of disseminating information on STDs in rural areas of Bangladesh needs to be implemented. Training of health care providers is an essential first step.

Introduction

Sexually transmitted diseases (STDs), particularly HIV/AIDS, are increasingly becoming a major public health concern in many developed and developing countries. The incidence of STDs is increasing at an alarming rate all over the world, and the situation has climaxed with the emergence of the HIV epidemic (ICPD Conference, 1994). Asia is now considered to be the new epicentre of the STD epidemic. Several other STDs have been found to be significant co-factors in the transmission of HIV. In view of the dramatic increase in internal and international migration, along with an increase in high-risk sexual behavior, it would be reasonable to assume that STDs are on the rise in Bangladesh.

Unfortunately, data on STDs in this country are rarely available. One anthropological study reported that people are generally aware of STDs, and they believe that STDs are transmitted through extramarital intercourse, and from prostitutes (Aziz and Maloney, 1985). The prevalence of syphilis, gonorrhoea, and both syphilis and gonorrhea were found to be less than one, four, and less than one percent respectively among urban MCH-FP clinic attendees (Chowdhury *et al.*, 1995). A study in Matlab, Bangladesh showed that reproductive tract infections (RTIs), not all of which are sexually transmitted, were found in approximately 22 percent of the symptomatic women studied. Of these women, 68 percent had clinical or laboratory evidence of infection, of which STDs were almost eight percent (gonorrhea 0.4%, chlamydia 2%, trichomonas 5%) (Wasserheit *et al.*, 1989). Preliminary results of an urban-based study showed that syphilis was found in five percent of the 1,550 women (Sabin *et al.*, 1996). The preliminary report of a study conducted among rural men and women indicate a prevalence of 0.5 - 0.9 percent for syphilis, 0.5 percent for gonorrhea, and 1.4 - 5.0 percent for chlamydia (Hawkes *et al.*, 1996).

A recent study revealed a high prevalence of STDs due to low educational levels and low-condom use among commercial sex workers (CSWs). Gonorrhea, syphilis, and trichomonas were found to be the leading STDs among them (Mian and Karim, 1993). In a recent Social Marketing Company survey among CSWs in six urban brothels (outside Dhaka City, the capital of Bangladesh), one quarter to one-third reported that they have suffered from STDs at least once (Mittra, 1996). A clinic-based study finds that over four-fifths of CSWs who came for health services reported having STDs (Update AIDS - VHSS Newsletter, 1993).

The large number of CSWs in urban and port areas, increasing rates of intravenous (I.V.) drug use, and the widespread use of unscreened blood for transfusion could potentially contribute to the spread of HIV/AIDS and other STDs. Recent studies indicate that the risk of contracting STDs and HIV/AIDS is increasing for people who have sex with CSWs or have multiple partners (National AIDS Committee - KAPB Survey, 1990). Clients of CSWs are often businessmen, illegal traders, military, paramilitary, police personnel, students, labourers, and

rickshawpullers (Khan and Arefeen, 1989). The number of CSWs in Bangladesh is not precisely known, however, Khan and Arefeen estimate that there are about 30,000 to 45,000 CSWs in Dhaka City and Narayanganj, a neighboring large commercial city (Khan and Arefeen, 1989). There are also registered brothels in many urban areas of the country.

The prevalence of AIDS is believed to be low in Bangladesh, with an estimated 20,000 HIV-positive persons, based on 68 confirmed HIV-positive cases from various population groups (Chin, Dunlop, and Pyne, 1994). However, epidemics have started during the last ten years in many countries in the region, including India and Burma, which border Bangladesh (Mian and Karim, 1993). Although relatively few HIV-positive cases have been identified by the Government of Bangladesh, many more are likely to exist. The sexual behavior patterns of young adults and adolescents are also changing in this country. Social factors, such as increased urbanization, persistent unemployment and economic problems among different population groups, are resulting in a greater risk of STDs (Mian and Karim, 1993). Furthermore, due to poor medical facilities, lack of sufficient screening practices for blood transfusion, widespread use of unsterilized needles and syringes, and unsafe sexual behavior among some segments of the population, HIV/AIDS in Bangladesh is a disaster waiting to happen. The situation, therefore, calls for immediate precautionary steps.

To date, the current study is the only one which has examined awareness of STDs and knowledge of STD transmission mechanisms in rural Bangladesh. As with all communicable diseases, knowledge and awareness of STDs are essential elements of prevention. It is our hope that programme managers and policy-makers will use these findings to help develop strategies to create STD awareness and preventive mechanisms among rural Bangladeshi men and women.

The best strategy for controlling the spread of infectious diseases, such as STDs and HIV/AIDS, is prevention, or avoiding exposure. Avoiding exposure can mean extramarital abstinence, but it can also mean condom use, when abstinence is not possible. Prevention of one case of STD can result in the prevention of many subsequent cases. Recent studies suggest that condom use for STD prevention is increasing in selected populations, but is still infrequent (Mian and Karim, 1993).

Objective

The objective of this study was to examine the general awareness¹ of STDs and knowledge of modes of transmission and means of prevention among rural women and health and family planning (FP) fieldworkers in rural Bangladesh.

¹ By "awareness" we mean whether or not the respondent has heard about specific STDs by name.

Methodology

A survey of 8,674 married women of reproductive age (MWRA) was conducted in 1994 in four rural thanas (Abhoynagar, Bagherpara, Keshobpur, and Sirajganj) of Bangladesh. The same women are included in the longitudinal surveillance of demographic, health, and FP behavior of the Sample Registration System (SRS) of the MCH-FP Extension Project (Rural) of ICDDR,B. SRS has been described elsewhere (Mozumder *et al.*, 1990). The Project conducts operations research to increase the use of health and FP services and contraceptive prevalence through improved strategies for programme management, quality of care, and the sustainability of the health and FP programmes of the Government of Bangladesh. This particular survey collected relevant information on STDs through a variety of questions. These included an open-ended question on awareness of STDs²; a question inquiring whether or not the respondents had specifically heard of syphilis and gonorrhea; for those who had heard of gonorrhea and/or syphilis, a question asking how these diseases are transmitted³; and a question asking about how to prevent STDs⁴.

Qualitative information was also collected from 31 MCH-FP workers in the same thanas through focus group discussions by experienced ICDDR,B field staff to assess their knowledge of STDs and their attitudes about the prevention of these diseases. Qualitative focus groups were used for health and FP workers instead of a sample survey because of the small number of providers and the need to identify the full range of issues, beliefs, concerns, perspectives, knowledge, practices, and misconceptions concerning STDs among the workers. The workers were Family Welfare Assistants (FWA), Family Planning Inspectors (FPI), Family Welfare Visitors (FWV), and Medical Assistants (MA). A brief description of the workers is given in a subsequent section.

Key Independent and Dependent Variables

Awareness of any disease that is transmitted through sexual intercourse and knowledge about syphilis and/or gonorrhea were treated as dependent variables in this study.

Table 1 gives a list of the independent variables that were considered in the analysis. Maternal age, parity, education, husband's education and occupation, and religion of the respondent were the sociodemographic variables included in the analysis. Two variables that represented the

² Do you know any disease(s) which is/are transmitted through sexual intercourse?

³ Have you heard about gonorrhea or syphilis diseases and how these diseases are spread?

⁴ Do you know any contraceptive method which can prevent sexually transmitted diseases?

degree of mobility of women, whether or not the woman frequented (a) the cinema, and/or (b) a mother's club, were also included in the analysis. The following programme-related variables were considered: whether or not the woman ever visited: (a) a Satellite Clinic (SC); (b) a Health and Family Welfare Centre (H&FWC); (c) the Thana Health Complex (THC); and (d) whether or not the woman had been visited by a FWA at her home in the previous three months. One contraceptive use-related variable was used for describing the type of contraceptive method used by the woman or her husband.

A brief description of FWAs, H&FWCs, SCs, and THC follows. FWAs are the grassroots-level FP workers who visit each MWRA every two months to provide counselling on MCH and FP and deliver oral pills and condoms. FWAs are supervised by FPIs. An H&FWC is a fixed health and MCH-FP service centre, which serves about 4,000 MWRA and their family members, totalling about 25,000 people. Services at H&FWC are provided by female paramedics, FWVs, and a male paramedic, MA. At H&FWC, villagers can receive MCH-FP and primary health-care services three days a week. SCs are held twice a week by FWVs at eight spots, scattered in the catchment area of the H&FWC. MWRA can visit SCs and receive FP and primary health-care and limited MCH care services. Pills, injectables, IUDs, and management of contraceptive side-effects are all provided at SCs. FWAs refer clients to the service centres for these services. A THC is a full-fledged health centre with several physicians, a hospital, pathology and limited diagnosis facilities, and some facilities for health education. A THC serves an entire thana (averaging 200,000 population).

Analysis

Both bivariate and multivariate analyses were carried out to examine the association between the independent variables and the dependent variables. A logistic regression model was used for examining the association between the independent variables and the awareness of syphilis/gonorrhea.

Results

Table 1 shows the distribution of the sample MWRA, according to categories of the independent variables. The levels of awareness of STDs (specifically syphilis and/or gonorrhea) by categories of the independent variables are also shown in Table 1.

The mean age of the sample MWRA was 30 years, and more than 50 percent of the women had three or more children. Slightly less than two-fifths of the MWRA and about 50 percent of their husbands had some education. Over two-fifths of the husbands were farmers and two-fifths were labourers. Traders and businessmen made up the next largest group (11%), and the remaining men were either service-workers or professionals. Over four-fifths were Muslims. About one-

third of MWRA reported that they frequented the cinema, and about half reported that they belonged to a mothers' club. Over 90 percent reported that they had been to a THC. About one-third reported that they had been to a SC, and one half reported that they had been to an H&FWC. Over three-fifths reported that they had been visited by a FWA during the previous three months.

According to the findings, awareness varied with the age of a woman, parity, the education of both the woman and her husband, the occupation of husband, religion, mobility, and contraceptive use. Awareness of syphilis/gonorrhea varied from 12 percent among teenagers to over 30 percent among women aged 30 years or older. Similarly, 15 percent of MWRA without children had awareness of STDs, compared to 30 percent of women who had three or more children. Of MWRA who were uneducated, compared to those who had completed in excess of primary level education, 21 percent and 40 percent had awareness of STDs respectively. About 50 percent of MWRA had awareness if both they and their husbands had completed primary-level or higher education. Awareness of STDs varied with occupation of husbands, with professionals having the highest and labourers the lowest levels. Muslims had greater awareness of STDs than non-Muslims. MWRA who frequented the cinema or a mothers' club, or thana headquarters tended to have higher awareness of STDs than those who did not go outside their homes. MWRA who had visited an H&FWC had greater awareness than those who had not. Contraceptive users had greater awareness of STDs than non-users. Condom users and traditional method users had the highest level of awareness, followed by pill-users. In the bivariate analysis, MWRA at Sirajganj were almost twice as likely to be aware of syphilis/gonorrhea than MWRA at other thanas.

Table 2 shows the distribution of MWRA, according to their STD awareness. Slightly more than one quarter were aware of some diseases that are transmitted through sexual intercourse.

The distribution of MWRA according to whether or not they had heard of syphilis and/or gonorrhea is shown in Table 3. One quarter of MWRA reported that they had heard of syphilis and/or gonorrhea; with seven percent mentioning the disease(s) spontaneously and another 18 percent acknowledging awareness only after prompting.

Table 4 shows the distribution of knowledge of the transmitting mechanisms of syphilis/gonorrhea. Of the 2,202 MWRA who reported that they had heard of syphilis/gonorrhea, slightly over one quarter mentioned that these diseases are spread through sexual intercourse and one-eighth also mentioned that they are spread by an infected spouse. Three percent mentioned that these diseases are spread through sexual intercourse by those who have multiple sexual partners. However, over half of MWRA who had heard of syphilis/gonorrhea did not know the exact mechanism(s) of transmission of the diseases.

Logistic Regression Results

Table 5 presents odds ratios and 95 percent confidence intervals (95% CI). The odds ratios, an approximation of relative risk, are derived from the logistic regression coefficient (an exponent of the coefficient). For example, awareness of syphilis and/or gonorrhea was 1.36 [exp (0.3078)] times higher for Muslims than non-Muslims. Similarly, awareness of syphilis and/or gonorrhea was 1.32 [exp (0.2772)] times higher for women who had visited an H&FWC than women who had not.

The association between the independent variables and awareness of syphilis/gonorrhea is shown in Table 5. In general, the association is in the same direction and strength as was found in the bivariate analyses shown in Table 1, with the exception of one case. In the bivariate analysis, the association between FWA visitation and awareness of syphilis/gonorrhea was significant. The reverse is true for the multivariate logistic regression analysis.

Qualitative Analysis

Seven focus group discussions (FGDs) were conducted separately with the ICDDR,B Extension Project staff acting as facilitators and moderators. Two of FGDs were made up of 14 FWAs; one with 7 FWVs; one with two FPIs; and one with eight MAs. To assess awareness, knowledge regarding transmission mechanisms, and means of prevention, workers were asked a set of pre-determined questions. The health and FP workers were first asked if they had heard of diseases that are transmitted through sexual intercourse. Then they were asked about their knowledge of syphilis and gonorrhea, and whether they were knowledgeable about the ways in which these diseases are transmitted. The workers were also asked whether they knew about diseases that are transmitted sexually among rural men or women. Then, they were asked about health visits and complaints made to them by rural men or women suffering from STDs. Workers were also asked whether they knew about the means of prevention and treatment of STDs. They were asked whether they knew about HIV/AIDS and the mechanisms which can be used for preventing STDs, including HIV/AIDS. The analysis for each group is summarized below.

The FGDs revealed that most FWAs, FWVs, MAs, and FPIs did know about STDs. Most had heard about syphilis/gonorrhea, but they had some misconceptions. Some reported that wearing the clothes of an infected person was a means of STD transmission. Some of the FWAs reported that the use of a dirty napkin during menstruation can cause itching, which, in turn, can lead to an STD infection. Some FWVs and MAs reported that an injury during a hair cut or shave in a saloon, with an infected blade, is one means of STD transmission. FWVs and MAs also reported that blood transfusion from an infected person and use of unsterile syringes are other ways STDs can be transmitted.

Some FWAs and most FWVs and MAs, however, reported that STDs are transmitted through sexual intercourse with an infected spouse or partner. They also reported that males or females who have multiple sex partners are at risk for such diseases.

Some FWAs, FWVs, and MAs stated that both men and women infected with STDs tend to hide this fact, and usually do not seek care. FPIs also reported that unless the condition becomes advanced, rural men and women do not seek the treatment of qualified medical professionals. They reported that, generally, infected people first go to homeopathic doctors or unqualified medical practitioners (*kabiraj*) for treatment and only seek the help of qualified practitioners in extreme cases. FWAs usually refer STD cases to a clinic or THC when they are approached for advice or treatment. FWVs and MAs reported that they provide STD information to clients who come to them for treatment.

In general, FWAs, FWVs, and MAs were also knowledgeable about AIDS. Some of them reported that AIDS is an incurable and fatal disease. FWVs and MAs generally knew that AIDS is spread through sexual intercourse with infected persons. Several FPIs reported that AIDS is spread only through sexual intercourse.

Most FWAs reported that STDs can be prevented through condom use. All of them knew that condoms serve a double purpose: birth control and STD prevention. FWAs said that strict adherence to religious codes also helps prevent STDs. All of the health workers believed that rural men and women should be given counselling on STDs and their modes of transmission. They said that couples should be told to use condoms and be warned against having multiple sex partners and going to brothels. They also expressed the idea that village leaders should enforce social rules, and that religious codes of life should be strictly followed (i.e. abstinence from pre-marital or extramarital sexual activity) for the prevention of STDs.

Discussion

The findings of the present study suggest that women in rural areas of Bangladesh are not sufficiently aware of STDs and their modes of transmission. Even after probing, only one quarter of them were aware of the STDs, syphilis, and gonorrhea. Similarly, only one quarter of women spontaneously reported knowledge about any STD. Furthermore, less than 12 percent could specify any transmission mechanisms. Very few were aware of AIDS and its modes of transmission. In fact, less than one percent of the respondents with minimal awareness were aware that AIDS is an STD.

Health and FP workers had some awareness of STDs, including AIDS, but there were misconceptions about the modes of transmission. Both the male and female paramedics, and the majority of the male workers had better knowledge of STDs than the other female workers.

Infected clients tended to contact paramedics or physicians only when their diseases were in advanced stages. Some workers believed that strict adherence to religious codes, which discourage extramarital sexual relationships, can help prevent STDs. Most paramedics and FP workers knew that condoms prevent STDs and stated that condoms should be promoted as a means of preventing STDs as well as a method of contraception. Three percent of couples in the study population were currently using condoms as a primary method of contraception at the time of the survey.

One factor that the survey could not address was condom use as a secondary method for the control of STDs. Promotion of condom use, in this capacity, in fact, runs contrary to very strong cultural and religious attitudes. Although the workers gave lip service to the idea of condom promotion, full-scale campaigns on the use of condoms during extramarital intercourse or intercourse with prostitutes may pose a serious challenge to most, if not all, of the health and FP workers.

Among rural women, the strongest positive association was between the awareness of STDs and the woman's education. Awareness of STDs was also higher among relatively older women than among others, probably reflecting a longer exposure to sexual relationships, and the corresponding risk of diseases. In contrast, lower awareness among women with higher parity probably indicates a process of selectivity. It is possible that women who were aware of STDs and other diseases were also more aware of the availability of health, FP and other resources. Our findings indicate that contraceptive users are more likely to know about STDs than non-users. It follows, then, that women with greater STD awareness would be more likely to use contraception and, thus, have fewer births.

The positive association between attendance at SCs or H&FWCs and awareness of STDs could also be a reflection of the selection process rather than the effect of education or counselling by the paramedics on STDs. Women who had higher awareness of STDs were more likely to attend SC or H&FWC to receive MCH-FP services. As much as we would like to believe otherwise, health and FP programmes have not yet developed educational or counselling programmes on STDs. Moreover, considering the limited knowledge of the FP health workers, it is not probable that this relationship is causal. The higher awareness of STDs among those who had better mobility also seems to be a selective result, since women with greater mobility were also more likely to visit SCs and H&FWCs.

Women in the Sirajganj area were more aware of STDs than those in other areas. One logical reason for this could be a higher prevalence of STDs in the Sirajganj area, resulting from the history of a registered brothel there. Another possible explanation could be that because of the brothel, increased public health efforts have been implemented there to raise STD awareness. Practicing physicians in Sirajganj reported that they currently receive a sizeable number of STD

cases. In an inquiry at a private diagnostic laboratory in Sirajganj, we found 114 blood samples were tested. Twenty-eight of those tested positive for venereal diseases. Physicians commented that males who are involved in businesses which require frequent travel to distant areas are at higher risk of contracting these diseases.

Policy Implications and Recommendations

These findings have strong policy implications. The Bangladesh Health and FP Programme should take steps immediately to prevent an impending epidemic of STDs and HIV/AIDS. As condoms play a major role in most strategies for preventing STDs, including HIV/AIDS, health planners and policy-makers should consider the wide promotion of condom use. Improved facilities for condom distribution will be needed. People should be educated not only on the effectiveness of condoms in preventing STDs but also on how to use them, who should use them, how to store and dispose of them and where to procure them. Strategies which influence men should be particularly advocated. An important step would be to provide messages through information, education, and communication (IEC) on STD prevention activities at the brothels themselves. One encouraging sign is that familiarity with condoms and their use seem to be increasing in urban areas (Akhter, 1996). Although STD IEC is not being provided by FWAs, condoms are being distributed at the household level for FP purposes in rural areas.

IEC activities will need to offer (provide) of extensive education on sexual behavior (both acceptable and unacceptable) for rural men and women, in addition to the current FP messages. IEC messages should be developed for FWAs, so that they can be delivered to the homes of high-risk men and women. Although it is unlikely that FWAs will discuss these issues directly men who practice high-risk sexual behavior, these issues should be discussed with their wives, so that they can be made aware of what they can do to protect themselves from STDs.

Health and FP workers should be trained on the actual mechanisms of transmission and prevention of STDs, so that they can provide education and counselling to their clients. Service providers need to be informed that STDs, such as syphilis, gonorrhea, and HIV/AIDS, are transmitted through blood transfusions, and in the case of HIV/AIDS, through reused needles and syringes. It is also crucial that the FP workers be made aware of the level and variety of high-risk sexual behavior that is actually occurring in Bangladesh, since their moralistic reaction may have been provoked, in part, by the denial that such activity is occurring.

Mass media public health awareness campaigns about STDs and HIV/AIDS are needed as well as school-based family life education classes, which include these topics. Considering the education level of much of the target population, information on STD awareness and transmission mechanisms should be made available in the appropriate form (i.e. especially catering to those who cannot read). Educational programmes which are culturally acceptable,

affordable, and suitable for exhibition at cinemas and mother's clubs should be developed to help disseminate information about the transmission of STDs and the use of condoms in the prevention of STDs. Further studies, therefore, are needed to investigate the prevalence of STDs among rural men and women in Bangladesh.

Currently the Government of Bangladesh (GoB) has no extensive programme for dealing with STD/HIV. However, in the Fifth Five Year Plan (FFYP) for 1996-2001, the Government has emphasized the need for assessing the extent of the problem and the development of a surveillance system. There is a National AIDS Committee (NAC), which has been assisting the Ministry of Health and Family Welfare (MOHFW) in developing a national STD/AIDS control programme (Akhter, 1996). Moreover, the Bangladesh national committee for the implementation of the recommendations of the ICPD has suggested a plan of action for prevention and management of STDs. This includes: education and counselling through IEC; training of health and FP service providers for detection and management of STDs; and introduction of STD services at all levels of health facilities. The findings of the present study will enrich the database needed to successfully implement the above activities.

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Table 1. Distribution of sample MWRA and percent reporting awareness of syphilis and/or gonorrhea by sociodemographic, cultural, programmatic and other variables

Independent variable	% of women aware of syphilis/gonorrhea	No. of respondents
Total	25.4	8,674
Age (years)		
<19	12.5	1,720
20-24	21.4	1,720
25-29	28.0	1,609
30-34	33.3	1,323
35-39	31.2	1,079
40+	32.0	1,223
	[$\chi^2=261.93$, $p < .001$]	
Parity		
0	14.8	1,325
1	20.1	1,460
2	28.1	1,452
3+	29.4	4,429
	[$\chi^2=143.88$, $p < .001$]	
Maternal education		
None	21.5	5,288
Primary	27.8	2,331
Above primary	40.7	1,000
	[$\chi^2=173.82$, $p < .001$]	
Husband's education		
None	21.5	3,748
Primary	25.5	1,986
Above primary	38.6	1,839
	[$\chi^2=186.47$, $p < .001$]	
Wife's and husband's combined education		
Wife no and husband no	20.7	3,099
Wife no and husband primary	23.8	1,201
Wife primary and husband no	25.0	584
Wife primary+ and husband no	24.6	65
Wife no and husband primary+	27.4	489
Wife primary and husband primary	27.0	649
Wife primary+ and husband primary	33.3	135
Wife primary and husband primary+	37.3	762
Wife primary+ and husband primary+	49.5	588
	[$\chi^2=265.76$, $p > .001$]	

Continued...

Table 1. Distribution of sample MWRA and percent reporting awareness of syphilis and/or gonorrhea by sociodemographic, cultural, programmatic and other variables

Independent variable	% of women aware of syphilis/gonorrhea	No. of respondents
Total	25.4	8,674
Husband's occupation		
Farmers or self-employed	26.2	3,141
Labourers	23.4	3,184
Traders/businessman	30.2	842
Service-holders	45.4	258
Professionals	53.4	148
	[$\chi^2=123.03$, $p < .001$]	
Religious group		
Muslims	26.1	7,485
Hindus and others	20.9	1,189
	[$\chi^2=14.37$, $p < .001$]	
Women's mobility		
<i>Cinema</i>		
Does not go to cinema	24.3	5,230
goes to cinema	32.0	2,343
	[$\chi^2=48.87$, $p < .001$]	
Mother's club		
Does not go to club	24.2	3,728
Goes to club	29.1	3,845
	[$\chi^2=23.32$, $p < .001$]	
Ever visited Thana Head quarter		
No	24.1	1,576
Visited	27.4	5,997
	[$\chi^2=6.95$, $p < .01$]	
Ever visited SC		
No	26.3	5,112
Visited	27.4	2,461
	[$\chi^2=0.88$, NS]	
Ever visited H&FWC		
No	23.9	3,778
Visited	29.5	3,795
	[$\chi^2=30.49$, $p < .001$]	

Continued...

Table 1. Distribution of sample MWRA and percent reporting awareness of syphilis and/or gonorrhea by sociodemographic, cultural, programmatic and other variables

Independent variable	% of women aware of syphilis/gonorrhea	No. of respondents
Total	25.4	8,674
Ever visited THC		
No	25.1	533
Been to THC	26.8	7,040
	[$\chi^2=0.68$, NS]	
Visited by FWA in previous 3 months		
No	23.7	3,295
Yes	26.4	5,379
	[$\chi^2=7.95$, $p < .01$]	
Current use of FP method		
Non-users	21.6	4,965
Currently using FP methods	30.4	3,709
Condoms	38.1	257
Pills	32.2	1,349
Injectables	24.8	904
Permanent and IUDs	27.9	870
Traditional methods	39.0	328
	[$\chi^2=130.09$, $p < .001$]	
Area		
Sirajganj	34.9	3,070
Other areas	20.2	5,604
	[$\chi^2=226.40$, $p < .001$]	

Table 2. Distribution of MWRA who know about disease(s) that is/are transmitted through sexual intercourse

Awareness of STD	Number	Percent
Do not know about STDs	6,366	73.4
Know about STDs	2,308	26.6
Total	8,674	100.0

Table 3. Distribution of MWRA according to whether or not they had heard of syphilis and/or gonorrhea

Awareness of syphilis and/or gonorrhea	Number	Percent (N=8,674)
Did not hear	6,472	74.6
Heard about syphilis and/or gonorrhea	2,202	25.4
Unprompted	607	7.0
Prompted	1,595	18.4

Table 4. Distribution of reported knowledge about mode of transmission of syphilis and/or gonorrhea among those who had heard of syphilis/gonorrhea

Mode of transmission of syphilis/gonorrhea	Number	Percent
Know transmitted by sexual intercourse	936	42.5
From sexual intercourse	575	26.1
Infection spread from spouse	283	12.9
From sexual intercourse with more than one partner	78	3.5
Cited other sources of transmission	57	2.7
Lack of hygienic practice/cleanliness	35	1.7
Others	22	1.0
Don't know exactly how transmitted	1,209	54.6
Total	2,202	100.0

Table 5. Logistic regression odds ratios measuring the association between sociodemographic, programmatic and other factors and the awareness of syphilis and/or gonorrhea

Factors	Odds ratio	95% CI
Age	1.04***	(1.03, 1.05)
Maternal education		
None (RC)†	1.00	-
Primary	1.55***	(1.34, 1.78)
Above primary	2.93***	(2.38, 3.60)
Husband's education		
None (RC)	1.00	-
Primary	1.27***	(1.10, 1.46)
Above primary	1.68***	(1.42, 1.98)
Husband's occupation		
Farmer (RC)	1.00	-
Trader/businessman	1.12	(0.94, 1.36)
Professional	1.72*	(1.19, 2.49)
Service holder	1.36*	(1.02, 1.81)
Labourer	1.04	(0.91, 1.19)
Religion		
Non-Muslim (RC)	1.00	-
Muslim	1.36**	(1.13, 1.64)
Woman's mobility		
Does not go (RC)	1.00	-
Goes to cinema	1.19*	(1.18, 1.48)
Goes to mother's club	1.26***	(1.11, 1.42)
Woman visited H&FWC		
No (RC)	1.00	-
Yes	1.32***	(1.18, 1.48)

Continued...

Table 5: Logistic regression odds ratios measuring the association between sociodemographic, programmatic and other factors and the awareness of syphilis and/or gonorrhea

Factors	Odds ratio	95 % CI
Visited by FWA in prior 3 months		
Not visited (RC)	1.00	-
Visited	1.02	(0.91, 1.15)
Current use of contraception		
Not using (RC)	1.00	-
Pill	1.55***	(1.32, 1.81)
Injectables	1.03	(0.86, 1.26)
Permanent and IUD	1.37**	(1.13, 1.67)
Traditional	1.31**	(1.09, 1.57)
Condom	1.49*	(1.09, 2.03)
Area		
Other areas (RC)	1.00	-
Sirajganj	2.71***	(2.39, 3.08)

† RC=reference category; * $p < .05$; ** $p < .001$; *** $p < .0001$.

CHAPTER 2

Management of Reproductive Tract Infections in Rural Bangladesh

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Management of Reproductive Tract Infections in Rural Bangladesh

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Abstract

This study was undertaken to identify existing reproductive tract infection (RTI) treatment practices of the government family planning (FP) paramedics in rural Bangladesh. It also assessed the knowledge and perceptions of the clients about RTIs, as well as the service-seeking behaviour of the clients and their husbands.

Data on paramedic treatment practices were collected by observing paramedic-client interactions at the Health and Family Welfare Centres (H&FWCs) and Satellite Clinics (SCs). One hundred clients seeking RTI treatment were observed. The same clients were interviewed at departure from the health care facility to assess their knowledge and perceptions about RTIs as well as service-seeking behaviour of the clients and their husbands. Twenty four village practitioners were also interviewed to assess their knowledge on the subject.

Results of the study showed that in the treatment of RTI, paramedics of government family planning services commonly: (i) did not do a physical examination, (ii) used a substandard dosage of drugs, and (iii) made no attempt to notify or treat male partners. One-third of the 97 female RTI clients reported that their husband had some kind of genital problem.

It was revealed from the study that as an alternative to the government health and FP services, the clients and their husbands often first seek RTI treatment from the village practitioners, though the village practitioners' knowledge concerning RTI is poor.

Based on the findings of this study, it is recommended that the knowledge and skills of the paramedics and village practitioners for RTI treatment be strengthened. Prevention of RTI through awareness campaigns is essential for the control of RTIs, and especially of STDs.

Introduction

Interest in human reproduction has broadened from a purely demographic issue to a wider concern in its connection with overall, human well-being. One element of reproductive health that directly concerns human well-being is reproductive tract infection (RTI). Women and men are vulnerable to a variety of RTIs. RTIs are defined as infections of the reproductive tract caused by endogenous and/or exogenous organisms. Endogenous infections are caused by an overgrowth of organisms normally present in the reproductive tract. In Matlab, Bangladesh, for example, village women who used home-made rags to absorb menstrual blood were almost twice as likely to have bacterial vaginosis, an overgrowth of the normal flora of the reproductive tract, compared to women who used nothing during menses (Wasserheit *et al.*, 1989). Exogenous infections are of two types--sexually transmitted diseases (STDs) and provider-induced infections (iatrogenic). Sexually transmitted diseases are transmitted from one infected person to his/her sexual partner, primarily through sexual intercourses. Provider-induced infections result from procedures, such as abortion, childbirth, and IUD insertion performed under the unhygienic conditions (UNFPA, 1995; and Germain *et al.*, 1992). Postpartum infection, which falls into the latter category, has been found to account for up to 30 percent of maternal deaths in the developing countries (WHO, 1991).

Due to faulty study design, difficulties in reporting and specimen collection, and need for elaborate laboratory methods, data on the prevalence of RTI in the developing world are often difficult to interpret. According to population-based studies in Asia, the general prevalence of gonococcal cervicitis is 0.3-12 percent, and trichomoniasis ranges between 5 and 30 percent (Wasserheit, 1989). Infections of the lower tract are common. For example, in India, the prevalence of 'white discharge' was found to be as high as 50 percent (UNFPA, 1995).

Very few studies have been undertaken on the prevalence of RTI in Bangladesh. A community-based study conducted at Matlab showed that 22 percent of the women reported symptoms of RTI, of which 68 percent had laboratory evidence of infection (Wasserheit *et al.*, 1989). A study conducted in a family planning (FP) clinic in urban Dhaka found that about 95 percent of the female clients had one or more complaints suggestive of RTI (Chowdhury *et al.*, 1995). Final diagnosis after laboratory confirmation showed that 60 percent of clients reporting symptoms actually had RTIs. A further analysis demonstrated that there was a significant relationship between the prevalence of RTI among women, and their husbands' genital problems. This finding indicates that treatment of the affected husbands is essential for the management of RTI. Service data collected in 1994 from the Health Family Welfare Centres (H&FWCs) and Satellite Clinics (SCs) at Abhoynagar, a subdistrict of Jessore district of Bangladesh, showed that more than five percent of the women came with 'white discharge' as their chief complaint.

Common complications of RTI include infertility, ectopic (tubal) pregnancy, and cervical cancer, the most common cancer of women in the Third World (Germain *et al.*, 1992; and Harlap, Kost, and Forrest, 1991). RTI also causes foetal wastage, low-birth weight, and congenital infection. Furthermore, STD facilitates the transmission of HIV. The risk of HIV transmission increases three- to ten-fold if an individual has an STD (Jain, 1992).

Evidence suggests that a series of complicated relationships exist between RTI and contraceptive use (Jain, 1992). RTI may lead to low acceptance and low continuation of contraceptive methods in two ways: directly, when a contraceptive user believes that the symptoms of infection are contraceptive-related side-effects; and indirectly, by creating a fear of limiting or delaying fertility in the face of frequent RTI complications (Germain *et al.*, 1992). Studies in Bangladesh show that the most common reason given for discontinuing a contraceptive method is concern about its associated side-effects (Akbar *et al.*, 1981; and Bhatia, 1982).

In Bangladesh, contraceptive discontinuation is a major concern (Khuda *et al.*, 1996). The results of the 1993-1994 Bangladesh Demographic and Health Survey (BDHS) indicate that one-half of the contraceptive users discontinue use within 12 months of starting a given method (Bangladesh demographic and health surveys, 1994). Side-effects of the method or other health reasons are by far the most commonly cited reasons (21%) for discontinuation. Women with RTIs cannot be provided an IUD, and hence, are denied a long-term contraceptive option. Screening for RTI before IUD insertion is, therefore, essential in family planning services. RTIs themselves can also be caused by the improper insertion of an IUD.

Patients with RTIs can be treated at the Primary Health Care (PHC) facilities by general clinicians and paramedics, using a syndrome-based approach, following the STD guidelines proposed by WHO. Where neither examination nor laboratory facilities are available, treatment must be based on the patient's history and on the prevalence of different types of infection in the community (World Health Organization, 1994). In settings where a pelvic examination is possible, but laboratory facilities are not available, several authors have recommended treatment algorithms that use examination findings (such as the gross characteristics of the vaginal discharge and the location of abdominal tenderness), in addition to the patient's symptoms and the prevalence and morbidity of RTI (Methus, 1984).

Control of RTI caused by STD cannot be achieved by merely treating patients who attend health facilities. Partners need to be informed of their probable exposure to infection and offered medical and counselling services. The objective of partner notification is to break the disease transmission chain. Counselling and health education are equally important (Ahmed, 1996). Improving personal hygiene, avoidance of re-exposure, use of condoms, and referral of partners are the key aspects of counselling.

The FP service of the Ministry of Health and Family Welfare (MOHFW) of the Government of Bangladesh has an extensive network throughout the country. The availability of both male and female care-givers is the potential strength of service delivery to the rural men and women. The H&FWC, a static centre, serves every union (the smallest administrative unit of Bangladesh), with an average population of nearly 25,000. At each H&FWC there are two paramedics--one female Family Welfare Visitor (FWV) and one, usually male, Medical Assistant (MA). FWVs have 18 months' basic training in MCH-FP. MAs are trained for three years on managing general health problems. H&FWC is the focal point for providing of MCH-FP services. But, due to its static nature and distance from many of the union inhabitants, along with the limited mobility of Bangladeshi women, the government has mandated FWVs to organize SCs twice a week at various sites in each union. The performance of the union paramedics is supervised by a thana manager and a medical officer.

It is the responsibility of FWVs to provide health education and care to pregnant and postpartum women and treat mothers and children suffering from minor ailments at H&FWCs and SCs. FWVs also insert IUDs, provide menstrual regulation services, and treat contraceptive-related side-effects. MAs provide services at H&FWCs, but they also participate in the school health education forum. The services of H&FWCs and SCs are used primarily by women and children. Males comprise only 12 percent and three percent of the clients at H&FWCs and SCs respectively (Wirzba and Juncker, 1995).

Three-to-four female field-workers (Family Welfare Assistants; FWAs) work at the grassroots level in each union and visit homes, providing MCH-FP counselling, oral contraceptives and condoms.

At present, FWVs are primarily responsible for the management of RTIs. The Bangladesh government has provided FWVs with an IUD manual which contains a screening protocol for RTI. This protocol includes pelvic examination. The manual recommends that a supply of doxycycline be reserved at H&FWCs for the management of RTIs resulting from IUDs. Mycostatin pessaries (vaginal suppositories) are also available for the treatment of RTI. There is also a supply of other drugs, like metronidazole and gentian violet, which can similarly be used for the management of RTIs. Higher-level treatment of RTIs is available at the Thana Health Complex (THC), a 31-bed general hospital which acts as the first referral hospital of the unions under its jurisdiction.

Rationale for the Study

RTIs are common in Bangladesh, and their management is an essential component of reproductive health services. Management of RTIs are also important because of their relationship with STDs and AIDS. Currently, the union-level FP providers, FWVs, and MAs

are treating female clients for RTI. Identification of the treatment practices of these providers will provide us with a base, with which to work, to facilitate improvement in the quality of services.

Effective management of RTI requires treatment of the husbands too, but their use rate of union-level government FP services is currently very low. The existing service-seeking patterns of husbands, therefore, need to be explored. Being a disease of silence, RTI demands the exploration of client knowledge, service-seeking patterns, and perceptions. The disease can only be prevented and controlled once these factors are properly addressed.

Objectives

The overall objective of this study was to strengthen the management of RTIs through the use of the FP service-delivery system.

The specific objectives were to identify:

- (i) existing treatment practices for RTIs among the union-level FP service providers;
- (ii) client knowledge and perceptions of RTIs; and
- (iii) service-seeking behaviour of clients and their husbands.

Methodology

Study Design

In the present descriptive study, data were collected from four sources: (i) through observation of the interactions between RTI clients and paramedics of the union-level government FP services; (ii) through exit interviews taken with RTI clients; (iii) through interviews of the village practitioners; and iv) the service registers. Information collected through client-provider observation included physical examination, history, and advice given by the provider. For these clients, the register was consulted for the drugs used in the treatment of RTI. Exit interviews were taken with the same clients after they left the service centres. Clients were asked questions to determine their knowledge and perceptions about RTIs, as well as their service-seeking behaviour. Information about husbands was collected from the clients, and represents information from a wife's perspective.

Study Site

The study was conducted at Mohakal and Paira unions of Abhoynagar thana, Jessore district in south-western Bangladesh. Abhoynagar has a high- contraceptive prevalence rate (CPR). At the time of the study, the literacy rate of both males and females was higher than that of the

national average (Census 1991). Abhoynagar thana is one of the field sites of the MCH-FP Extension Project (Rural) of the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B).

Sample Size

One hundred clients who attended the two H&FWCs and 16 SCs (50 from each union) for treatment of RTI were observed and interviewed during June-October, 1995. These cases were observed on an experimental basis to fulfil the objectives of the study. Twenty-four village practitioners were also interviewed.

Instruments and Data Collection

Client-provider interactions were observed and recorded using a checklist. The list of drugs used by the providers was collected from the service registers using a pre-designed form. A questionnaire containing both closed and open-ended questions was used for collecting information from individual clients. A structured questionnaire was also used to conduct interviews with village practitioners. Observations of client-provider interactions, exit interviews, and data from the service registers were collected by two female Senior Field Research Assistants (SFRAs). Interviews of the village practitioners were conducted by two male Field Research Officers (FRO). All were trained in conducting interviews, and had good working experiences, while SFRAs were also paramedics, having 18 months of FWV basic training from government institutions. The collected information was coded by the investigators and analyzed by using the statistical software package (SAS).

Variables

The following were the key variables of the study:

- (i) General characteristics of the clients and their husbands;
- (ii) Reproductive characteristics of the clients;
- (iii) Symptoms of the clients and their husbands;
- (iv) Service-seeking behaviour of the clients and their husbands;
- (v) Client knowledge and perceptions about RTI;
- (vi) Knowledge of village practitioners about RTI.

Limitations

Information was collected from areas where ICDDR,B has been involved for more than 10 years. Many interventions have previously been implemented in these areas for the improvement

of the performance of paramedics in management and FP service delivery. But prior to this study, the clinical work of FWVs and MAs, especially in the treatment of RTI, has not been the target of intervention or training. Information about the husbands of the clients were not collected directly from the husbands, and must therefore be treated as secondary. Since only one geographical area was considered for the study, findings may not represent the whole country. Moreover, the sample size is extremely small, so the findings should be interpreted as suggestive rather than as constituting statistical proof.

Results

General Characteristics of Clients and their Husbands

One hundred clients attended H&FWCs and SCs for the treatment of RTIs. Ninety-seven of these were currently married. Two clients were widows, and one had never married. Husbands of 12 of the clients had at least one other wife, and 20 husbands were required, by their occupations, to spend some nights away from home (Table 1).

Reproductive Characteristics of Clients

Table 2 shows that one-half of the clients who attended for RTI services were mothers who had children aged less than one year. This could be due to unsafe delivery practices in rural Bangladesh. Sixty-nine clients were currently using a contraceptive method. At Abhoynagar, the rate of IUD use, as a method mix, was 6.5 percent in 1995. The proportion of IUD users seeking RTI services was much higher than that of other methods. This disproportion could be due to a lack of prior screening and/or unhygienic insertion of IUDs. Alternatively, IUDs may make clients more sensitive to the symptoms of RTIs. None of the clients were condom-users.

Symptoms of Clients and their Husbands

White discharge was the most common symptom of the clients, followed by lower abdominal pain and itching genitalia. Both white and colourless discharges were recorded as "white discharge" for the purpose of this study. Thirty-one clients reported that their husbands had some symptoms suggestive of an STD. The most common symptom was itching. Clients were also asked about the duration of their suffering. Most clients reported that they had not continuously suffered, but had experienced intermittent periods of well-being. Taking into consideration the continuity of the disease and the possibility of reinfection, the total period, or duration of suffering, was calculated. The mean duration of suffering was 4.5 years for the clients, and four years for their husbands (Table 3).

Service-seeking Behaviour of Clients and their Husbands

Clients were asked about the RTI treatment methods they had previously used. Ten of the clients reported that they had tried home remedies. Among these, three clients had reportedly tried "local application of a paste made from the leaves or peels of the plants, *Neem* and *Helancho*". Two other clients reported drinking "water soaked overnight with *Neem/Henna* leaves". Another client said that she drank "the juice/extract of roots of *Shish Akand*". Drinking holy water, a mixture made from coconut water, "*misree*" (unrefined sugar), and herbal substances made from *Hartaki* (Myrobalan), *Amlaki* (Emblie Myrobalan) were also tried by some clients. Washing the genitalia with a solution of common salt or potassium was also reported. None of the clients mentioned the use of home remedies by their partners for RTI/STD.

Thirty-three of the 100 clients interviewed had sought no previous treatment previously from other sources; the current visit to H&FWC/SC was their first attempt outside the home. Table 4 shows that 67 clients had sought some kind of services prior to their current visit to H&FWC/SCs. Of them, 31 (18+13) sought services from qualified providers, including paramedics of H&FWC/SC and MBBS private practitioners. None of the husbands, however, visited a H&FWC/SC for their problems, but 12 were treated by qualified practitioners. Clients reported that they visited non-qualified village practitioners, such as herbal (*kabiraj*), quack (practising allopathic) and untrained homeopath practitioners, with their husbands for RTI treatment.

Treatment by Paramedics

The treatment practices of the paramedics were assessed against four criteria: (i) history-taking procedure; (ii) physical examination; (iii) drugs used; and (iv) advice given to the clients. It was observed that in only 30 of the 100 cases, paramedics requested information regarding the history of the diseases. Even in these cases, the discussion was limited to the duration of suffering. The tendency was to prescribe drugs immediately after hearing the complaints. Although facilities for pelvic examination are available at all H&FWCs, none of the clients were physically examined - either externally or internally. Facilities are limited in SCs, since these are held in households. However, in some SCs of the study area, IUD insertion has been done.

Information on types of drugs and dosage prescribed for the 100 clients were collected from the service registers. Table 5 shows the drugs prescribed for RTIs by the number of clients. The '+' sign indicates the use of some additional drugs, such as paracetamol, spasmolytic, iron, penicillin, etc. The most commonly prescribed drug was metronidazole tablet. The other three clients were referred to Abhoynagar THC. Doxycycline should have been available at the static centres for the management of IUD-related side-effects, but in practice, it was only sporadically supplied. Of the clients who were treated with metronidazole 400 mg, three-fourths were prescribed less than the 14-tab standard dose.

Observation of the client-provider interactions revealed that paramedics provided some sort of advice to more than half of the clients. However, the advice were mainly drug-related. Table 6 shows the advice provided by paramedics. Personal hygiene-related advice was to use clean water and wear clean clothes. No advice was given regarding treatment of the husbands or safe sex.

Client Knowledge and Perceptions about RTI

All 100 clients who attended for RTI services were asked questions to identify their knowledge and perception about RTIs. Local terms used for white discharge include "*Dhatu bhanga*", "*Sada srab*", "*Kuskee dhatu*". Findings showed that about two-thirds of the clients were not familiar with the causes of RTI. "Physical weakness" (undernutrition) and "dryness" (wasting malnutrition/dehydration) were perceived as causes of RTI by 16 clients. Nine clients mentioned that contraceptives (injectable and IUD) caused RTI. Using an infected person's cloths, unclean menstrual rags, and bathing in unclean water were other reasons given by the clients.

Table 7 shows perceptions of clients. Three-fourths of the clients did not know how RTIs are transmitted. Further analysis show, however, that when sexual transmission was suggested, the response went up by more than 33 clients. Some of the clients mentioned that men who visit "red light" areas or have extramarital sex, transmit RTI to their partners. Two-thirds of the clients did not know how RTI is prevented. Ideas, such as using clean menstrual rags, washing genitalia after sex and using clean water after defaecation were all recorded as "maintaining personal hygiene."

"*Durbolata*" (general weakness) was reportedly experienced by 94 clients. Client perception surrounding the "white discharge" was that it "drains away all '*shokty*' (strength) leading to '*neeshokty*' (weakness)". Over one-half of those questioned reported that RTIs cause blurring of vision, dizziness and burning hands and feet. Six clients mentioned that "discharge causes sores at '*nareer mukh*' (opening of the uterus, cervix)". Clients were also asked about social notions surrounding RTI. The majority of the clients expressed that it is a matter of shame and guilt. Two of the clients said that their husbands were dissatisfied with sexual intercourse since they had contracted RTIs. Decreased libido and discomfort during sex were reportedly felt by three other clients.

Village Practitioners' Knowledge of RTI

Twenty-four unqualified village practitioners (13 practising allopathy, 11 practising homeopathy) of the study area were interviewed to assess their knowledge about RTI/STD. It was revealed from the interviews that RTI was not well understood among the respondents. None of the practitioners mentioned a microorganism as the cause of infection. Many of them mentioned the terms "syphilis" and "gonorrhoea" but could not relate these terms with symptoms. Some

misconceptions regarding the effects of RTI were found among them. These included early ejaculation, impotency and changes in shape of the genitalia. Perceived means of transmission and prevention are presented in Table 8. It can be concluded that knowledge of the unqualified practitioners was limited, but virtually all recognized that RTIs are often sexually transmitted, and safe sex is a means of prevention.

In comparison to the unqualified village practitioners, paramedics serving at H&FWCs and SCs received basic training, which includes the study of RTI. The IUD manual, available at the health centres for the use of the paramedics, emphasizes screening for RTI and procedures for hygienic IUD insertion. Knowledge of the paramedics was not assessed in this study because they were small in number. Their knowledge, however, is reflected in their use of drugs.

Discussion

Clients of this study generally share one of the following two characteristics - having a child aged less than one year, and IUD use. The high incidence of RTIs among these clients could be due to unhygienic delivery practices and improper IUD insertion. In Bangladesh, home delivery is almost universal (96%). The Bangladesh Demographic and Health Survey (BDHS) 1993-1994 showed that the majority of deliveries (90%) were attended by traditional birth attendants or relatives. Poor delivery practices may be assumed to be a major potential source of RTIs. Also, poor hygiene during IUD insertion appears to contribute to RTIs. About 37 percent of the IUD users have the device removed within the first year of use. The findings of this study strengthen the association between unhygienic delivery practices and IUD insertion with RTI.

RTI Knowledge among clients is low. About one-third of the clients did not have any idea of causes, means of transmission, or prevention of RTIs. About one-third of the husbands reportedly had some kind of genital problem. One-fifth of the husbands, due to the nature of their work, occasionally spent nights outside the home. Some of the husbands had other wives, and some of the women believe that their husbands were involved in extra-marital sex. These factors may be the indicators of high-risk sexual practice.

Clients and their husbands sought services from both qualified and unqualified providers. The findings reveal that the unqualified providers were consulted more by the clients and their husbands. Regardless of the lack of their training, however, most unqualified allopathic and homeopathic providers have correct but limited knowledge about the transmission and prevention of RTIs. The scope of this study does not include examination of the rationale of drug use, but the level of village practitioner knowledge observed during the study indicates that they are able to absorb new ideas.

FP paramedics have not been providing adequate RTI services to the clients, probably due to the limited facilities and the depth of training they have received. Steps, such as history-taking and physical examination, are critical in the proper diagnosis of a patient's problem. Paramedics did not ask about the duration or course of the problem, history of treatment, contraceptive use or husband characteristics, resulting in diagnosis taking place without any adequate information. Physical examinations reveal invaluable information. A simple abdominal examination can confirm lower abdominal pain associated with pelvic inflammatory disease (PID). Speculum examination permits the inspection of the cervix, and pelvic examination also helps diagnose. The duration of suffering of the clients studied, was long, which means one of two things: either the infection was chronic in nature, or reinfection occurred. Physical examinations would allow the provider to more readily identify the type and degree of the problem, which would subsequently help in drug choice.

Studies in Bangladesh (Wasserheit, 1989; and Chowdhury *et al.*, 1995) indicate that the most common type of infection for female RTI is bacterial vaginosis, which is sensitive to metronidazole. The clinics have been dispensing metronidazole, but in substandard dosages. Since they are trained paramedics, it can be assumed that they are aware of the proper dose. Substandard dosages may be due to the shortage of supply. A recent study, conducted on the disease patterns, treatment practices and drug requirements (Methus, 1984), has recommended a revision in the drugs supplied to H&FWCs and SCs.

Other deficiencies exist in the present FP programmes, which need to be addressed. Paramedics, in their current practice, do not provide health education to their clients regarding RTI. Their advice is limited to drug dosage, and needs to include such recommendations as husband notification and treatment. Since male paramedics are now only available at H&FWCs and not at SCs, the accessibility to service centres run by qualified providers is minimal for males. More emphasis on males by the FP programmes would help eliminate this inordinate segregation of services.

Recommendations

RTI is prevalent in Bangladesh and it is considered a disease of silence. Although RTI predominantly affects women, some RTIs are also STDs, which are transmitted from and to husbands (male partners). In Bangladesh, HIV infection is emerging, and the presence of RTIs will, indeed, facilitate HIV transmission. Hence, it is essential that women and men increase their knowledge about RTIs. The frontline workers of the government health and family planning programme can be used to disseminate required information.

Unqualified village practitioners have traditionally been involved with RTI/STD management. Women, and specially their husbands, seek services from such providers. Training at the local

level (THC) can improve the knowledge and skills of the village practitioners. A mechanism for referral could also be established from the village practitioners to THC.

The family planning programme of Bangladesh has reached a transition level. The national CPR is 45 percent. Increasing or even maintaining this rate will demand a higher quality of service. Furthermore, the International Conference on Population Development (ICPD, Cairo, 1994) has designated RTI management as a component of reproductive health services. Thus, measures to prevent provider-induced RTIs and promote proper management of RTI cases (including partner treatment), will be necessary to complete the constellation of family planning services.

Based on the findings of the study, it is recommended:

- (i) To organize an appropriate, awareness-raising campaign, targeting both rural males and females;
- (ii) To involve village practitioners in referral; and
- (iii) To organize refresher training of paramedics with emphasis on RTI management guidelines.

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Table 1. General characteristics of clients and their husbands

Characteristic	No. of clients (n=100)	No. of husbands (n=97)
Age (years)		
< =20	6	NA
21-35	76	NA
36-45+	18	NA
Education		
No schooling	47	43
1-5 years	35	24
5+ years	18	30
Occupation		
Housewife	90	-
Small business	8	-
Agriculture	-	47*
Business	-	26*
Service/professional	2	25
Labour	-	17
Other	-	2
Religion		
Muslim	75	75
Hindu	25	22

* Multiple responses counted

NA - indicates age information on husbands is not available

Table 2. Reproductive characteristics of clients

Characteristic	No. of clients	
No. of pregnancies	n=99	
0	6	
1-2	47	
3-4	29	
5+	17	
Age of last living child (years)	n=93	
<1	50	
1-2	16	
3-4	8	
5+	19	
Current contraceptive method-mix	Study area	Abhoynagar*
Oral pill	30.4%	39.8%
Injectable	30.4%	27.9%
IUD	27.5%	6.5%
Sterilization	11.7%	16.8%
Condom	00.0%	9.0%

* Entire thana

Table 3. Clients and their husbands' RTI symptoms

Symptoms	No. of clients (n=100)	No. of husbands (n=31)
White discharge	98*	-
Lower abdominal pain	30	-
Blood stained discharge	5	-
Itching genitalia	30	23
Burning during micturition	6	10
Ulcerous genitalia	1	1

* Multiple responses counted

Table 4. Service-seeking behaviour of clients and their husbands

Service provider	Clients (n=100)	Husbands (n=31)
Qualified	18	05
Unqualified	36	12
Qualified+unqualified	13	7
Never visited/don't know	33	7

Table 5. Types of drugs prescribed by paramedics

Name of drug	No. of clients (n=100)
Metronidazole 400 mg	53
Metronidazole +	10
Nystatin vaginal pessaries	18
Nystatin vaginal pessaries +	2
Gentian violet	10
Gentian violet +	1
Cotrimoxazole 480 mg	3
Others	3

Table 6: Providers' advice to clients

Advice	No. of clients (n=100)
Drug intake	47
Personal hygiene	9
Referral	0
Follow-up visit	1
Advice not given	43

Table 7. Means of Transmission and prevention of RTI as perceived by clients

Means of transmission/prevention	No. of clients (n=100)
Transmission	
Using clothes of infected person	21
Sexual contact with infected person	16
Using public toilet	3
Others	4
Don't know	75
(Multiple responses counted)	
Prevention	
Maintaining personal hygiene	20
Abstinence	5
Avoidance of multiple partners	3
Use of condom	1
Others	4
Don't know	47
(Multiple responses counted)	

Table 8. Means of transmission and prevention of RTI as perceived by village practitioners

Means of Transmission/Prevention	Unqualified practitioners	
	Allopathy (n=13)	Homeopathy (n=11)
Transmission		
Sexual contact	13	9
Clothing	4	7
Using unclean water	1	1
Passes through urine	3	2
Hereditary	0	1
Frequent sex	0	1
Food	0	1
(Multiple responses counted)		
Prevention		
Avoid multiple partners	12	8
Avoid clothing	1	1
Condom use	5	0
Don't know	0	3
(Multiple responses counted)		

CHAPTER 3

Abortion in Rural Bangladesh: Evidence from the MCH-FP Extension Project

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Abortion in Rural Bangladesh: Evidence from the MCH-FP Extension Project

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Abstract

Abortion is a major cause of maternal morbidity and mortality in Bangladesh. This paper analyzes trends in induced and spontaneous abortions in two rural areas of Bangladesh. The analyses are done using a unique data set obtained by the Sample Registration System (SRS) of the ICDDR,B's MCH-FP Extension Project (Rural) for the period 1982-1995. Out of 14,893 pregnancies, three percent (454) of the total pregnancies resulted in induced abortion and 6 percent (828), in spontaneous abortion. A logistic regression analysis showed that the probability of abortion increased with mothers' age, number of living children and prior contraceptive use. Alarming, one-quarter of the women had an induced abortion during the second trimester of pregnancy. About 15 percent of women reporting induced abortions had undergone multiple abortions. Although many women having induced abortions adopted contraception after the abortion, less than one percent adopted a permanent contraceptive method. A large number of the cases induced their own abortions or had them performed by untrained personnel. Findings suggest that there is a strong need for greater emphasis on health education, family planning, and postabortion contraceptive counselling in rural Bangladesh.

Introduction

Bangladesh, with a population of over 120 million people in a 144,000 sq. kilometre area, has the highest population density in the world. The per capita income is 220 dollars per year, one of the lowest in the world. Over 60 percent of the population lives below the poverty line. The adult literacy rate is only 30 percent with low female enrollment in school. About 96 percent of deliveries in Bangladesh take place at home, resulting in high maternal and neonatal deaths. The infant mortality rate is 87 per thousand, and the maternal mortality ratio is about 5 per one thousand live births (Bangladesh Demographic and Health Survey (BDHS) 1993-1994; 1994), one of the highest in the world.

Despite these socioeconomic constraints, the Bangladesh Family Planning Programme has achieved remarkable success in raising the contraceptive prevalence rate by six-fold in two decades, and consequently, bringing about fertility decline (Bangladesh Demographic and Health Survey (BDHS) 1993-1994; 1994). Currently, the contraceptive prevalence rate among all married women of reproductive age (MWRA) is 45 percent, and the total fertility rate (TFR) is 3.4. However, the Bangladesh Family Planning Programme remains plagued with such problems as low continuation rate, method failure due to reliance on temporary methods, and high unmet need for contraceptives, leading to increased induced abortions. Existing laws in Bangladesh, derived from the Penal Code of India, 1860, prohibit abortion, except to save the life of a woman. However, menstrual regulation (MR), an early termination within 6-10 weeks, without pregnancy confirmation, has been widely available through a network of government health services since 1978. Menstrual regulation is also provided by private practitioners. A significant proportion of abortions are unsafe, leading to a large number of maternal deaths.

Globally, it has been estimated that about half a million women die each year of pregnancy-related causes, with 99 percent of them in developing countries (International Conference on Population and Development (ICPD), 1994). One of the five major causes of death in women of reproductive age in many parts of the developing world is complication due to abortion. It has been estimated that abortion-related deaths account for a minimum of 23 percent of all maternal deaths around the world (Royston and Armstrong *et al.*, 1989). Two out of five abortion procedures are unsafe, and one out of every 400 women who undergo an unsafe abortion dies (Henshaw, 1990). Fourteen percent of all maternal deaths in South Asia can be attributed to unsafe abortion procedures.

It is critical to note that, in Bangladesh as in many parts of the developing world, complications related to pregnancy and child birth continue to be the leading cause of mortality among women of reproductive age. About 5,000 women in Bangladesh die each year due to complications from abortion (Khan *et al.*, 1986; and Kamal *et al.*, 1993). These deaths account for more

than one-quarter of all maternal deaths. Hemorrhage and complications of induced abortion accounted for almost 40 percent of maternal deaths in Matlab in the period from 1976 to 1985 (Fauveau *et al.*, 1988; and Koenig *et al.*, 1998).

Early hospital-based studies in Bangladesh found that approximately half of the admissions in gynecological units in major hospitals identified cases of complications of abortion (Begum, Khan, and Jahan, 1978). In 1978, about 60 percent of the induced abortions were being performed by untrained practitioners (Measham *et al.*, 1981). The majority of clandestine abortions were performed by insertion of foreign bodies like roots, sticks, etc.

Several studies on abortion practice have tried to estimate the number of abortions done annually in Bangladesh. It was found to be as high as 780,000 in 1978 (Measham *et al.*, 1981) and included all abortions done by the government service providers and by private and traditional practitioners. More recent estimates were 241,442 in 1985 (Begum, Kamal H, and Kamal GM, 1987) and 261,894 in 1991 (Kamal *et al.*, 1993). The two later studies considered abortions performed only by providers trained under the government MR training programme and did not include those done by private practitioners and traditional abortionists.

In the absence of adequate health care services and management of complications of abortion, lasting consequences, such as compromised reproductive function, infertility or even death, may occur. Regardless of whether it is legal or not, women resort to abortion to terminate unwanted pregnancies. One of the clearest indications of unmet need for family planning services is the high incidence of abortion worldwide (McLaurin *et al.*, 1993).

Research has demonstrated that contraceptive use increases following an abortion (Ross and Frankenberg, 1993). Women are highly motivated to use any method after they have experienced the pain and trauma associated with an induced abortion or have come for treatment for complications from an abortion. There is evidence that more than 80 percent of women coming to clinics for abortion accept a method immediately afterward (Bhatia *et al.*, 1980; Akter and Rider, 1983; Bangladesh Women's Health Coalition, Quarterly Reports for 1987; and Chabra *et al.*, 1988).

According to the Programme of Action (POA) of the International Conference on Population and Development (ICPD) in Cairo, highest priority should be given to prevention of unwanted pregnancies, and all attempts should be made to eliminate the need for abortion. In circumstances where abortion is not against the law, such abortion should be safe. In all cases women should have access to quality services for the management of complications arising from abortion (International Conference on Population and Development (ICPD), 1994).

Therefore, to improve maternal health, reduce maternal mortality and morbidity, and achieve further coverage of contraceptive use by satisfying the unmet need of the population, one of the foremost tasks of the Bangladesh Health and Family Planning Programme is to identify the characteristics of and contraceptive use by women who have had induced abortions. This will help in designing interventions targeting IEC activities for women at risk, raise their awareness about service use, as well as ensure both the provision of high quality services and the use of such services.

The objectives of this study were to: (a) assess the trends in abortion during the study period; (b) identify the characteristics of rural Bangladeshi women who have had abortions, who conducted the abortions, where the abortions were performed, and the pattern of contraceptive use by women before and after abortion.

Methodology

The data for this study were obtained from the Sample Registration System (SRS), a longitudinal data collection system administered by ICDDR,B's MCH-FP Extension Project (Rural) in two rural areas. Working within the government system, the Project conducts operations research to improve the health and family planning service delivery in rural Bangladesh.

The SRS data from Abhoynagar and Sirajganj thana (subdistrict) during the period 1982 to 1995 were used for this study. Abhoynagar is located to the south-west of the capital city Dhaka, and has good communications with the rest of the country. A sizeable portion of the labour force works in mills and factories. Literacy is slightly higher than the national rate (Mozumder *et al.*, 1994). The contraceptive prevalence rate (CPR) in the project area in Abhoynagar has increased from 23.5 percent in 1983 to about 56 percent in 1995 (ICDDR,B. Sample registration system reports 1983-1995; 1996). Sirajganj thana is located to the north-west of Dhaka on the banks of the Jamuna river. The economy is mainly agricultural and river is the primary route for travel. The literacy rate in this area lags behind the national average. Most households own no arable land (Mozumder *et al.*, 1994). The CPR has risen steadily from 7.5 percent in 1983 to 40 percent in 1991, and has remained unchanged since then (ICDDR,B. Sample registration system reports 1983-1995; 1996).

The SRS field interviewers have been visiting sample households regularly once every three months since 1982. They record vital events that have occurred since their last visit, including any pregnancy outcome events, menstrual and contraceptive use status of eligible women, and the visitation dates of government fieldworkers.

For the purpose of this paper, "induced abortion" is defined as any pregnancy terminated intentionally by deliberate action within 28 weeks of gestation. The termination could be

performed by medical, non-medical or clandestine means. The SRS records a pregnancy termination as induced when the respondent has provided information necessary to the interviewer to classify it as induced.

Any pregnancy termination within 28 weeks of gestation that occurred 'naturally' without deliberate action and intention to terminate the pregnancy is regarded as a spontaneous abortion. The SRS records a pregnancy termination as "spontaneous" when the respondent replies affirmatively to the question "did this occur 'naturally' without any deliberate action?"

However, as the interviewer classifies the type of abortion after talking with the respondents, it is quite likely that some of the reported spontaneous abortions were actually induced. It must be mentioned that abortion has always been a sensitive issue, and researchers have consistently faced problems in obtaining reliable information about abortion. Induced abortion is usually under-reported due to the social stigma associated with it. The induced abortion cases in this study refer to those which have been recorded in the SRS as induced as stated by the women themselves. Thus, although spontaneous and induced abortions are different entities that reflect different issues of etiology, risks, consequences, and preventive measures (Barreto *et al.*, 1992), both have been included in this analysis.

A woman was said to be a contraceptive user prior to abortion if she was using the method within a three-month period before conception. To record the contraceptive use status after an induced abortion, women were followed for one year from the date of abortion. During the study period, 10,080 women were covered by the SRS system. The observation periods for women varied, depending on the time of entry and exit from the system.

The proportions of induced and spontaneous abortions were compared for different categories of independent variables like age, parity, number of living children, education, dwelling space, provider and place of abortion and contraceptive use, etc. Bivariate analyses were carried out to determine the association of independent variables with the type of abortion, provider chosen, and with postabortion contraceptive use. Logistics regression was run to estimate the net association of the independent variables with both types of abortion.

Results

Fourteen thousand eight hundred and ninety-three (14,893) pregnancy outcome events were studied for 6,668 married women. These events included 454 (3%) cases of induced abortion and 828 (6%) cases of spontaneous abortion recorded for 1,087 women. Of these women, 158 (15%) had repeated abortions. The highest number of repeated induced abortion was four, and the highest number of spontaneous abortion was seven. Of the 1,282 abortion cases, the period of gestation could be calculated for only 863 cases, as data regarding last menstrual period were

collected only since 1986. More than half (one-third of the induced and about two-thirds of the spontaneous abortions) took place beyond 12 weeks of gestation.

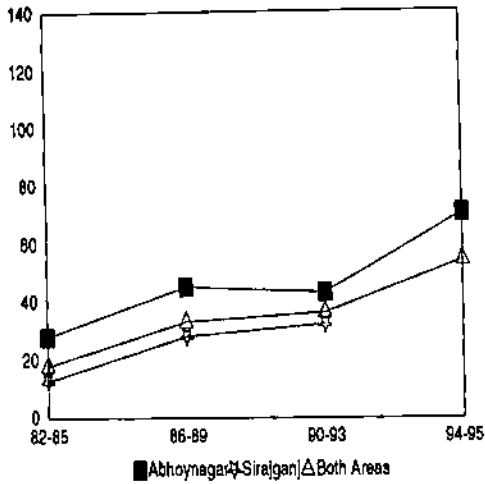


Figure 1. Rate of induced abortion per 1000 pregnancy events 1982-1995

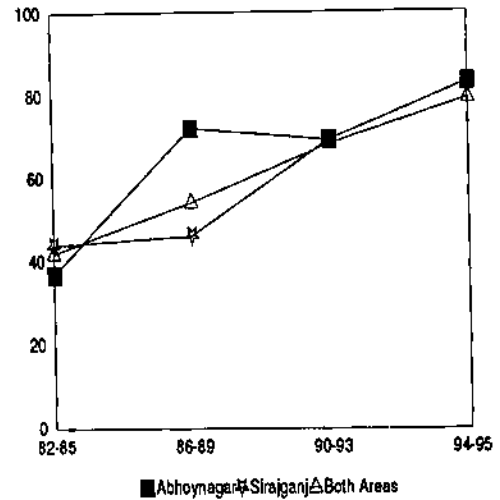


Figure 2. Rate of spontaneous abortion per 1000 pregnancy events 1982-1995

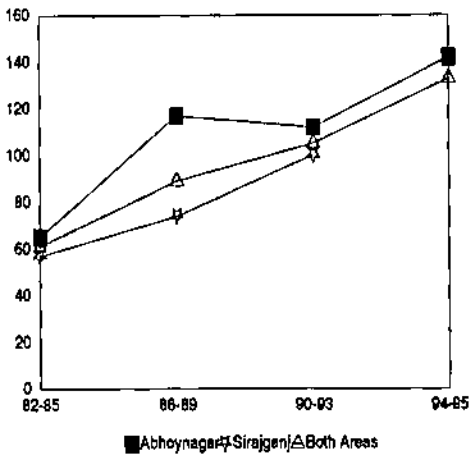


Figure 3. Rate of total abortion per 1000 pregnancy events 1982-1995

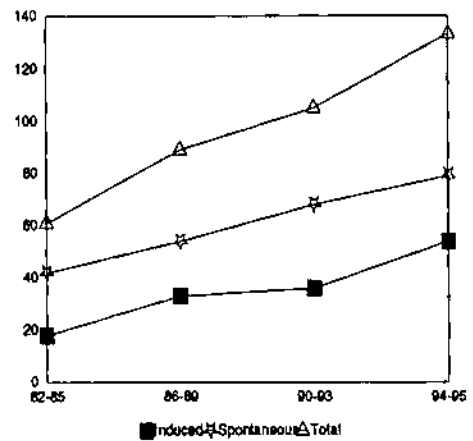


Figure 4. Rate of abortion per 1000 pregnancy events 1982-1995

Figures 1-4 show the rising trend in abortion rates in the study areas during the observation period. During 1994-95, 130 of 1,000 pregnancy outcomes were terminated in abortion. There has been a steady rise in spontaneous abortion over the years in both the study areas. In comparison, induced abortion has increased at a much higher rate at Abhoynagar. This may suggest that women at Abhoynagar, being socioeconomically better-off, are less inhibited about disclosing their experience of induced abortion than those in Sirajganj.

The mean age of women at the time of induced abortion was 28.9 years (median 28 years), and for spontaneous abortion, the mean age was 24.9 years (median 23 years). The youngest woman having an induced abortion was 14 years, and the oldest was 50.5 years. Two-thirds of all women in the study had no education, nearly one-quarter belonged to the below-primary level education group and about 11 percent had education above the primary level. One out of every eight women was non-Muslim. Less than two percent of all women were working outside their homes, and this population included 39 students. Table 1 presents the percentage of pregnancies aborted by different sociodemographic variables.

The percentage of pregnancies which ended in abortion was higher among educated women, and women who were employed including students. The probability of abortion was slightly higher for non-Muslim women. Induced abortion rose with age, while the pattern was less clear regarding spontaneous abortion.

The percentage of induced abortion increased with the number of living children, especially when the number was more than two. Spontaneous abortion was seen to be quite high during the first pregnancy in this study. Also, the rate of any types of abortion was high, when the age of the last born living child was less than one year (Table 2).

Place and Provider of Abortion Services

Figures 5 and 6 present data regarding place and provider of induced and spontaneous abortion services. Although home-delivery is universal in rural Bangladesh, this study shows that a substantial number of rural women sought medical help for induced abortion. It is, nevertheless, alarming that half of the induced abortions were performed by the woman herself or by untrained personnel. Also, 57 percent of the induced abortions were performed at home or at non-medical facilities.

Education of women played a significant role in determining the provider and place of induced abortion services (Table 3). The proportion of women who used Trained Traditional Birth Attendants (TTBAs), paramedics, and physicians, was higher among those with above primary education, and more than 60 percent of them had these abortions in hospitals or other medical facilities.

Area of dwelling space - an indicator of household economic status - was related to the type of provider sought for induced abortion. For example, the larger the dwelling space, the more likely the women were to go to paramedics and physicians (Table 4). About one-third of the induced abortion cases attended by paramedics and about one-fifth of those attended by physicians were done at home. However, 77 percent of the cases attended by paramedics and 62 percent of the cases attended by medical doctors occurred in a medical facility (Table 5). Interestingly, trained TBAs also used medical facilities for performing abortions. Out of the 828 cases of spontaneous abortions, only 21 were attended by trained paramedics or doctors, and only five managed at medical facilities.

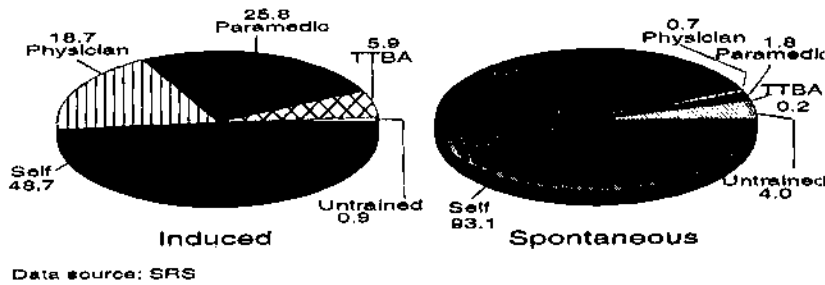


Figure 5. Percentage distribution of abortions by provider at Abhoynagar and Sirajganj: 1982-1995

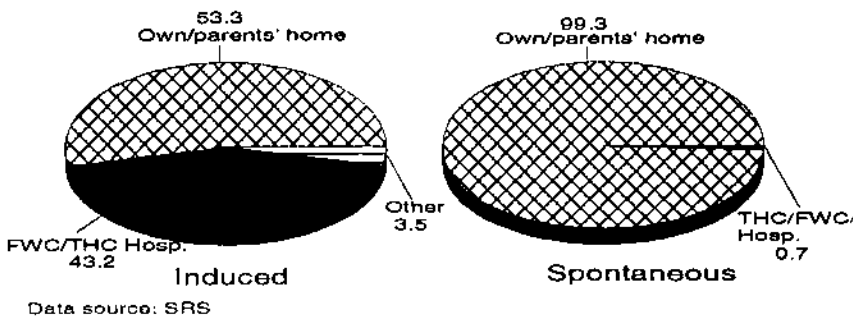


Figure 6. Percentage distribution of abortions by place at Abhoynagar and Sirajganj: 1982-1995

Patterns of Contraceptive Use and Abortion

Contraceptive use patterns among women who have had induced abortions are shown in Figure 7. There was no pre-abortion contraceptive information for 59 women. Although postabortion contraceptive information was available for these women, they were excluded from this particular analysis. Contraceptive use following induced abortions increased from 37 to 59 percent during 1982-88 and from 47 to 76 percent during 1989-95. During the period 1982-88, pill use more than doubled, and there was an increase in the use of intrauterine device (IUD). Use of injectables rose from zero to 6 percent. In the period 1989-95, postabortion pill use nearly doubled with a marked increase in both injectable and IUD use. There were two cases of women who had undergone sterilization

but became pregnant and had to undergo induced abortion. One was a case of tubectomy and the other's husband had a vasectomy. After the abortion, the latter switched to pills but the woman who had a tubectomy, did not accept any methods. Only two women went for sterilization after abortion during 1982-88, and there were no cases of sterilization during 1989-95, either before or after abortion, indicating the poor acceptance of permanent methods.

In the period 1982-88, post abortion contraceptive use was higher when the provider was a trained paramedic (Family Welfare Visitor). In the later period (1989-95), contraceptive use was higher among women having self-induced abortion. Table 6 shows that previous experience with a contraceptive method was related to the method adopted after abortion. About two-thirds of pill and condom users and 30 percent of IUD users, prior to induced abortion, returned to their old method. Forty-five percent of the traditional method users continued with the same method even after an induced abortion. Surprisingly, only half of the non-users adopted a FP method after abortion, and the remaining half continued without using any methods.

Logistic regression analysis, incorporating all the differentials studied, was done using three different models: one for induced abortions only, one for spontaneous abortions only, and one for both together. Table 7 shows the result of the regression for all three models. The odds ratios of some of the more important variables are illustrated in Figures 8-11. The result of the logistic regression, by and large, confirmed the findings of the relationship of the different variables in the bivariate analyses. Women at Abhoynagar were 29 percent more likely to

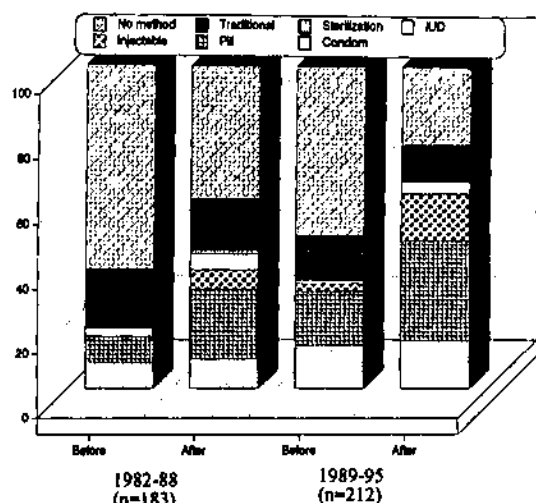


Figure 7. Contraceptive use before contraception and after-induced abortion at Abhoynagar and Sirajganj: 1982-1995

experience an abortion, and 37 percent more likely to have an induced abortion. These results were highly significant ($p < 0.001$). The number of abortions had increased over time, especially for spontaneous abortion. Induced abortion increased significantly with women's age; it also increased with education up to primary level although this finding was not significant. Women from households with less dwelling space were 30 percent more likely to experience spontaneous abortion, but this relationship was not significant for induced abortions. Induced abortion was positively and significantly related to the number of living children ($p < 0.001$). The first pregnancy and any pregnancy within two years of the last live birth was twice as likely to be terminated either by spontaneous, or induced abortion. Use of contraceptive methods within a 3-month period prior to conception was highly significant for abortion, especially for induced abortion ($p < 0.001$). The logistic regression analysis also showed that housewives were twice as likely to undergo an induced abortion than women who were employed. However, it may be mentioned that there were only 14 working women compared to 440 housewives who had undergone induced abortion.

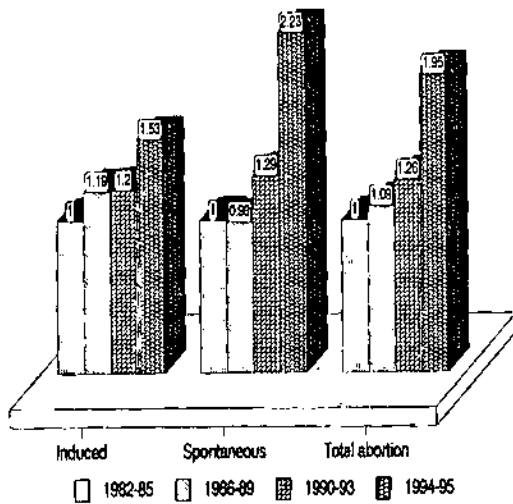


Figure 8. Odds ratio of the effects of year on abortion controlling for the effect of other covariates

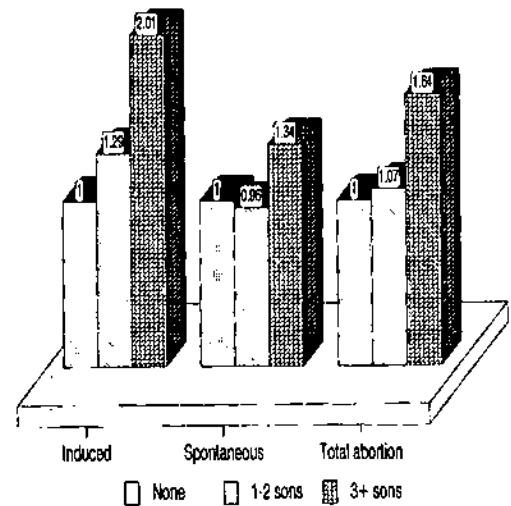


Figure 9. Odds ratio of the effects of number of living children on abortion controlling for the effect of other covariates

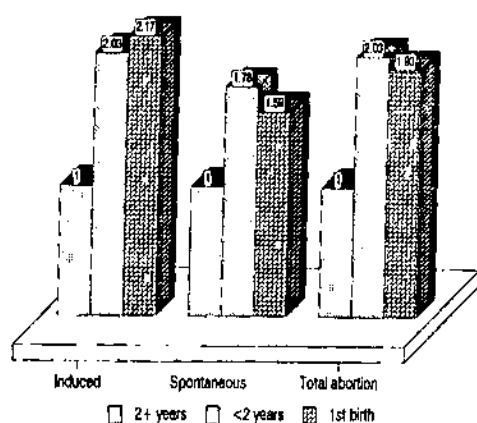


Figure 10. Odds ratio of the effects of age of last born living child on abortion controlling for the effect of other covariates

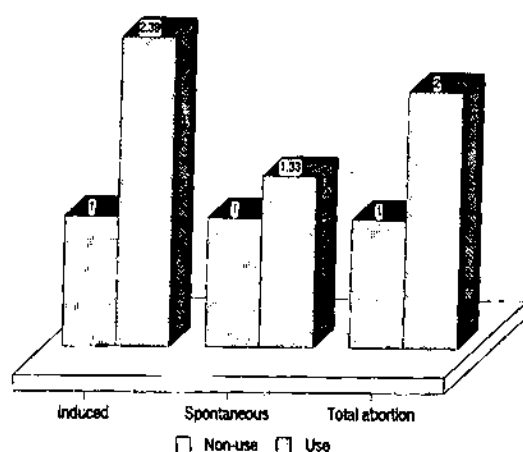


Figure 11. Odds ratio of the effects of prior contraceptive use on abortion controlling for the effect of other covariates

Discussion

Many rural Bangladeshi women are resorting to abortion, as indicated by the increase in the rate of abortion in recent years. The incidence of induced abortion in ICDDR,B's MCH-FP Extension Project (Rural) areas is comparable to that of the national average (Bangladesh Fertility Survey 1989; 1990). In a recent study, based on data from another rural area of Bangladesh, the rate of abortion was found to be 20 per 1000 live births (Ahmed, Sarkar, and Rahman, 1996). Most of the study women have low education and economic status.

It is alarming to note in this study that more than half of all abortions, including one-third of the induced and two-thirds of spontaneous abortions, took place beyond 12 weeks of gestation. Data from a rural hospital in one of the study areas (ICDDR,B. Annual Report on THC, Abhoynagar, 1991-1994; 1994) also showed that more than 45 percent of the cases of complications of abortion came after the first trimester of pregnancy. It is likely that some of the spontaneous abortions reported may have actually been induced. It is universally accepted that it is virtually impossible to obtain reliable data on abortion from demographic surveys (Bangladesh Fertility Survey 1989; 1990). About 20 percent of the respondents of the 1989 Bangladesh Fertility Survey reported having had a spontaneous abortion and only three percent said that they had an induced abortion (Bangladesh Fertility Survey 1989; 1990). Due to the social stigma attached to abortion, women usually try to conceal the fact. A woman may resort to abortion if she has little or no access to family planning services or has discontinued use because of side-effects or health-related reasons. Therefore, to terminate an unwanted

pregnancy, a woman is often willing to take any risk, including life-threatening assistance from non-medical and clandestine sources, or in extreme cases, even death.

That a substantial number of rural women seek medical help for induced abortion is perhaps a reflection of the impact of the MR programme in Bangladesh. However, this also reflects unmet need for family planning.

The study has shown that women with two or more children have the highest probability of having an abortion if they have a subsequent pregnancy. This indicates that rural Bangladeshi women are determined to plan their family size. Previous studies (Bangladesh contraceptive prevalence survey - 1985, 1986; and Bangladesh contraceptive prevalence survey - 1989, 1990) found that women who have induced abortions have an average of three living children and at least one living son. The probability of a pregnancy ending in abortion was very high, if it occurred within one year of the last live birth.

The study shows that half of the induced abortions were potentially unsafe, done at home by non-medical persons or by women themselves. The less educated and economically disadvantaged women did not utilize the government services and resorted to unsafe abortions. Different types of life-threatening complications result from unsafe abortions. Infection, hemorrhage and incomplete abortion are common problems and may be further complicated by trauma to the reproductive system and toxic reactions to chemical drugs or herbs used for abortion (Ladipo, 1989).

Abortion has a complex interrelation with contraceptive use (Ross and Frankenberg, 1993). Up to a certain point, a rise in contraceptive use is also accompanied with a rise in abortion. Higher contraceptive use leads to a higher contraceptive failure rate, and therefore, a greater need arises for termination of unwanted pregnancies. However, at a later stage of fertility transition, when effective use of modern contraceptive methods increases, abortion rates tend to fall (Ross and Frankenberg, 1993). In a recent study based on data from Matlab, Bangladesh (Bairagi and Rahman, 1996) where ICDDR,B has operated a comprehensive maternal and child health and family planning programme since 1977, it was shown that contraceptive failure is a major problem for users of all temporary methods except for injectables and IUDs. The cumulative probability of contraceptive failure within one year of method acceptance for the pill was as high as 15 percent. It was estimated that, even without considering the pregnancies terminating in abortion and stillbirth, about 25 percent of births in Bangladesh reflect contraceptive failure (Bairagi and Rahman, 1996). Data from later years show that side-effects are one of the main reasons for discontinuing modern methods (Khuda, Mirza, and Ahmed, 1994). A number of women in the present study had used contraceptive methods, but had failed to continue due to various reasons. A few of these, including one tubectomy case, were contraceptive failure cases. Therefore, there is a need to strengthen health education for grassroots workers so that

they can give appropriate messages to the community, such as, "contracept to avoid becoming pregnant and reduce the need for abortion in case of unwanted pregnancies."

In a study based on clinic data (Akhter and Rider, 1984) it was shown that women with MR experience had better contraceptive continuation, especially when they were over 25 years and had more than two children. This is an indication that contraception is effective after induced abortion. Similarly, in the present study, contraceptive use increased following induced abortions. This was more marked during 1989-95 when contraceptive use after abortion rose from 47 to 76 percent. This period coincides with time when the Government had increased the number of family planning fieldworkers from 13,000 to 23,500. These workers supply contraceptives to women in their homes. It is important to note that the remaining cases who did not accept any method represent "missed opportunities" for family planning services. Therefore, providing good quality reproductive health and family planning services will result in higher acceptance and continuation of contraception, and thereby, reduce the incidence of abortion. Also, a better method-mix in favour of longer-acting methods should be promoted, especially among older, high-parity women, to reduce the discontinuation rate, and thereby, the need for abortion.

About 15 percent of the women in this study had repeated abortions. This highlights the importance of postabortion contraceptive counselling. The postabortion period is an important time to accept contraceptives. Women who have unwanted pregnancies should have ready access to reliable information and compassionate counselling (International Conference on Population and Development (ICPD), 1994) so that they can take up an appropriate method and prevent another unwanted pregnancy. Thus, the accessibility and availability of reproductive health and family planning services need to be further improved by meeting the unmet demand for contraception.

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Table 1. Percentage of pregnancies aborted and number of pregnancy outcomes by sociodemographic variables at Abhoynagar and Sirajganj: 1982-1995

Characteristics	Induced abortion (n=454)	Spontaneous abortion (n=828)	Total abortion (n=1,282)	Total no. of pregnancies† (n=14,893)
Education (year)**				
0	2.3	5.5	7.8	10,292
1-5	4.1	5.5	9.6	3,330
5+	5.9	6.0	11.9	1,271
Age (year)**				
<20	1.8	6.5	8.3	3,932
20-24	1.8	5.2	7.0	4,436
25-29	3.4	4.9	8.3	3,050
30-34	5.2	5.4	10.6	1,918
35-40	6.3	4.8	11.1	1,113
40+	7.8	7.4	15.2	444
Occupation*				
Housewife	3.0	5.5	8.5	14,719
Working	8.0	7.5	15.5	174
Religion				
Muslim	2.9	5.6	8.5	13,367
Non-Muslim	3.9	5.0	8.9	1,526
Living children**				
0	1.3	6.7	8.0	4,450
1-2	2.1	4.6	6.7	5,825
3-4	3.9	4.1	8.0	2,964
5+	9.5	8.2	17.7	1684

* $p < 0.01$; ** $p < 0.001$

† Including livebirths and stillbirths

Table 2. Percentage of pregnancies aborted and number of pregnancy outcomes by age of the last born living child at Abhoynagar and Sirajganj: 1982-1995

Age of last born living child	Abortion			Total no. of pregnancies† (n=14,893)
	Induced (n=454)	Spontaneous (n=828)	Total (n=1,282)	
No previous birth	1.5	6.8	8.3	3,724
0 - 12 months	14.0	17.4	31.4	242
13 - 24 months	4.3	6.3	10.6	2,213
25 - 36 months	2.2	4.4	6.6	3,872
37 - 48 months	2.6	4.3	6.9	2,293
49 - 60 months	2.8	4.7	7.5	1,158
61 - 72 months	2.8	3.5	6.3	598
72 + months	9.0	5.9	14.9	793

† Including livebirths and stillbirths

Table 3. Percentage distribution of type of provider and place of abortion by women's education at Abhoynagar and Sirajganj: 1982-1995

Provider/Place	Induced abortion			Spontaneous abortion		
	No education (n=239)	Up to primary (n=139)	Above primary (n=76)	No education (n=568)	Upto primary (n=183)	Over primary (n=77)
Provider:						
Untrained						
- Relative	0.8	0.0	0.0	3.7	3.3	5.2
- Non-relative	0.4	0.7	0.0	0.2	0.6	0.0
Trained TBA	3.3	8.0	10.5	0.0	1.0	0.0
Other paramedic	22.6	29.0	30.3	1.0	3.3	4.0
Physician	14.0	18.0	35.5	0.5	0.0	4.0
Other (self)	59.0	44.6	23.7	93.5	91.2	84.2
No inform.	0.0	0.0	0.0	1.1	0.6	2.6
Total	100.0	100.0	100.0	100.0	100.0	100.0
Place:						
Own/parents' home	65.3	46.7	27.6	99.0	100.0	95.0
H&FWC/THC/Hospital	31.8	51.1	63.2	1.0	0.0	5.0
Other	2.9	2.1	9.2	0.0	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

Table 4. Percentage distribution of type of provider of induced abortion services by dwelling space at Abhoynagar and Sirajganj: 1982-95

Provider	Dwelling space (square ft.)		
	0 - 150 (n=40)	150 - 300 (n=126)	Over 300 (n=187)
Untrained relative	0.0	0.8	0.5
Untrained non-relative	0.0	0.8	0.5
Trained TBA	5.0	3.2	8.0
Other paramedic	20.0	28.6	26.2
Physician	12.5	13.5	22.0
Other (self)	62.5	53.2	42.8

Table 5. Percentage distribution of place for induced abortion by type of provider at Abhoynagar and Sirajganj: 1982-95

Provider	No.	Own home	Other's home	Parents' home	H&FWC/THC/Hospital	Other
Untrained relative	2	50.0	0.0	50.0	0.0	0.0
Untrained non-relative	2	100.0	0.0	0.0	0.0	0.0
Trained TBA	27	3.7	3.7	3.7	85.2	3.7
Other paramedic	117	24.0	4.3	3.4	66.0	2.5
Physician	85	13.0	1.2	3.5	73.0	9.3
Other (self)	221	75.0	1.4	6.3	15.0	2.3

Table 6. Percentage distribution of postabortion use of FP method by that of pre-conception FP method (induced abortion) at Abhoynagar and Sirajganj: 1982-1995

Pre-conception method use	Post abortion							
	Total (n=454)	FP method (n=164)	Cond (n=61)	Pill (n=113)	Inject (n=42)	IUD (n=18)	Sterili (n=2)	Trad (n=54)
No method	226	47	8	22	12	3.5	0.5	7
Condom	44	7	64	9	9	2	0	9
Pill	51	12	0	65	10	4	0	10
Injectable	5	20	20	20	20	20	0	0
IUD	7	29	14	0	14	29	14	0
Sterilization	2	50	0	50	0	0	0	0
Traditional	60	10	7	28	5	5	0	45
No information	59	64	17	12	0	2	0	5

Table 7. Logistic regression odds ratios: association between sociodemographic factors and induced and spontaneous abortion at Abhoynagar and Sirajganj, 1982-1995

Factors	Induced abortion	Spontaneous abortion	Total abortion
Area			
Sirajganj (RC)†	1.00	1.00	1.00
Abhoynagar	1.37***	1.17	1.29***
Maternal age	1.04***	0.99	1.02**
Year of abortion			
1982-85 (RC)	1.00	1.00	1.00
1986-89	1.19	0.99	1.09
1990-93	1.20	1.29*	1.26*
1994-95	1.53	2.23***	1.95***
Maternal education			
No education (RC)	1.00	1.00	1.00
Primary	1.27*	0.91	1.10
Above Primary	1.10	0.98	1.04
Woman's occupation			
Working outside home (RC)	1.00	1.00	1.00
Housewife	2.12	1.75	2.06
No. of living children			
None (RC)	1.00	1.00	1.00
1-2	1.29***	0.96	1.07
3 +	2.01*	1.34	1.64**
Age of last born living child			
First birth	2.17***	1.59*	1.93***
Less than 2 years	2.03***	1.75***	2.03***
2+ years (RC)	1.00	1.00	1.00
Prior contraceptive use			
Non-user (RC)	1.00	1.00	1.00
User	2.39***	1.35*	2.00***
Mobility			
No (RC)	1.00	1.00	1.00
Yes	1.03	0.81	0.91
Dwelling space			
0-150 (RC)	1.00	1.00	1.00
151-300	1.05	0.69***	0.82*
300+	1.12	0.74*	0.89
Likelihood statistics			
-2 Log likelihood	4269	4163	6797
χ^2	268	79	255
Observation	9220	9220	9220
DF	16	16	16

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Intercept

-5.78

-3.11

-3.84

† RC = Reference Category

CHAPTER 4

The Determinants and Consequences of Pregnancy Termination in Rural Bangladesh: The Wider Context

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The Determinants and Consequences of Pregnancy Termination in Rural Bangladesh: The Wider Context

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Abstract

This study examines the factors that motivate rural Bangladeshi women to terminate pregnancies, the decision-making process involved, the service providers used, the sources of information available to the women on pregnancy termination, and the broader consequences of terminating a pregnancy. These are issues of major policy interest in Bangladesh, a country with an inordinately high maternal mortality rate. Although the government-provided menstrual regulation (MR) services are available for the first 6-10 weeks, many abortions are conducted by unlicensed practitioners, often during the second trimester.

Forty-one currently-married women who had undergone pregnancy terminations, were interviewed to examine how specific circumstances affected the behaviour of individual couples. The primary reason given for terminating pregnancies was to limit family size, while the second-most-cited reason given was for birth spacing. Most of these women were not using any contraceptive methods, either because they did not believe that they required them or because they were concerned about possible side-effects. Other women reported that they were using methods incorrectly or that the method had failed. Most had subsequently adopted a contraceptive method, but none adopted any permanent methods, which is alarming, given the common desire to limit family size, concerns about side-effects and method failure.

Half of the respondents initially sought treatment from untrained providers or conducted their own terminations, despite the availability of trained government providers. This was due to greater familiarity with local providers, inadequate information about safer alternatives, and often low-quality government services, and in many cases, concerns over high charges in the government system for services that are intended to be free.

Introduction

This paper examines the factors that lead rural Bangladeshi women to induce abortion, the decision-making process involved, any distinctive health-seeking behaviours, the service providers used, and the broader consequences of an induced abortion. These are issues of major policy interest in Bangladesh, which has one of the highest levels of maternal mortality in Asia, a major contributor of which is believed to be complications due to induced abortion (Amin, 1996). In this paper, the term "induced abortion" will include menstrual regulation (early termination without pregnancy confirmation, within the first 6-8 weeks by a trained paramedic and 6-10 weeks by a physician), although a legal distinction is made in Bangladesh between induced abortion which is prohibited and MR which is not only legal but offered by the government service providers.

Background

Prior to the 1970s, all induced abortions in Bangladesh were illegal, except when a woman's life was considered to be endangered by the pregnancy. A study conducted in 1978 estimated that about 800,000 abortions were being conducted per year, which, if correct, implies that one-fifth of all pregnancies were being terminated (Rochat *et al.*, 1981). Furthermore, considering the controversy surrounding abortion, clandestine abortions must have accounted for a large percentage of those abortions which took place. Such concerns were supported by studies in hospitals of obstetric complications, which found that substantial numbers of abortions were being conducted using highly risky procedures, often at advanced stages of gestation (Burhanuddin, 1974; and Islam, 1992).

In 1974, the Government of Bangladesh (GoB) allowed a clinic in Dhaka to offer MR, and in 1978 began to train government doctors and paramedics to provide such services (Amin, 1996). In 1979, the GoB issued a circular distinguishing between abortion, which is illegal in Bangladesh, under legislation derived from British colonial law,¹ and MR, which was considered an interim method of establishing a non-pregnant state for a woman at risk of being pregnant, whether or not she was, in fact, pregnant (Dixon-Mueller, 1988).

MR services are available at all major government hospitals and health facilities. At the sub-district (thana) level, this includes the Thana Health Complex (THC), where MR is normally provided by physicians; and at the union level, the Union Health and Family Welfare Centre (H&FWC), where MR is provided by a female paramedic, the Family Welfare Visitor (FWV). At these facilities, MR is provided during the first 6-8 weeks of pregnancy by an FWV or a nurse and 6-10 weeks by a physician, using vacuum aspiration.

¹ Amin (1996) notes, however, that there have been no known prosecutions under this law.

Women who do not use MR may resort to illegal providers which include traditional midwives who primarily induce abortion by inserting a foreign object in the uterus or by providing indigenous (*kabiraji*) medicine for oral consumption (Islam, 1992). Woman may also use the services of local pharmacies and untrained village doctors.

The precise number of MRs and abortions being performed is unknown. While MR is legally provided by government workers, it is accepted that many are not officially recorded. In theory, MR is provided free of charge by government hospitals and health facilities. In practice, however, charges are often levied. Moreover, according to Kamal, Hossain, and Akhter, (forthcoming), clients who, according to the official criteria, are not eligible for MR, often unofficially receive MR. Even less is known about the number of abortions performed by illegal providers.

Some data are provided by the Bangladesh Demographic and Health Survey (BDHS), which asked a sample of 9,640 currently married women whether they had experienced a pregnancy which ended in a miscarriage, abortion, or still-birth: 1,674 women (17.4%) reported that they experienced such a pregnancy. Only a small portion of these, however, ended in induced abortion. Of the 9,640 women, 2,054 (21.3%) said that they had an unwanted pregnancy, of whom 181 said that they had the pregnancy terminated (1.9% of all respondents). Two-thirds of these terminations (65.2%) involved MR.

Whatever the level of induced abortion, it is clear that, for many women, MR has fulfilled an important need. While there may be some abuses of the provision of MR, its availability has, as Dixon-Mueller (1988) noted, almost certainly reduced the incidence of dangerous abortions and abortion-related deaths.

Nevertheless, it remains a concern that many women continue to receive abortion services from non-trained practitioners. A clinic-based study, undertaken by the Bangladesh Association for Prevention of Septic Abortion (BAPSA), found that 30% of all women seeking abortion were rejected, mostly because their pregnancies were too advanced. The lack of information about where services were available and knowledge about the gestation period up to which MR was allowable was identified to be responsible for nearly 90 percent of all rejections (Begum, Kamal H, and Kamal GM, 1987; and Kamal H *et al.*, 1993).

Objectives and Methodology

This study examines induced abortion, including MR, by interviewing a sample of women who underwent induced abortions between 1990 and 1995. The objective of the study was to examine the factors influencing a client's decision to terminate a pregnancy, how the decision was made, any distinct health-seeking behaviours, the provider chosen, and the consequences of undergoing

a termination. Forty-two married women of reproductive age (MWRA) were selected from the Sample Registration System (SRS),² the longitudinal data set of the MCH-FP Extension Project (Rural) of the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B). The selected respondents comprised all women living in Paira and Rajghat unions of Abhoynagar thana in western Bangladesh who reported having undergone induced abortion during 1990-1995. The women were asked about abortion in general, and specific follow-up questions, and were only asked if they, themselves, said that they had experienced an abortion. In only one case did a woman not volunteer the information that she had an abortion. This case was subsequently excluded from the study. The high proportion of women who offered the information that they had undergone abortions was not surprising given the fact that they had earlier reported their abortion to the SRS. The interviews were conducted by two experienced ICDDR,B women staff members, including one of the authors of this paper, Ms. Fazilatun Nessa, using a semi-structured questionnaire.

SRS data are regarded as being of high quality. Nevertheless, there may have been some understatement of pregnancy termination reporting. Since no clinical procedures were conducted to positively identify all pregnancies, the word of the client was considered true and has been recorded as such, in the data. Furthermore, since questions on pregnancy outcomes are only asked of MWRA, no data are presented here of unmarried, separated or widowed women having had pregnancy terminations. This is a significant limitation, since some authors argue that such women have been among the chief clients of abortion services (Islam, 1992). Clearly too, any data are restricted to survivors.

Both Paira and Rajghat unions are primarily rural. Rajghat is, however, situated on an important road, rail and water transport corridor, and several men work in jute mills. Although few women work outside their homes, about one-third of them undertake some activity within the household (such as poultry raising on the making of handicrafts) to earn cash income.

Of the women interviewed, 27 were Muslims and 14 were Hindus. The proportion of Hindus in the sample is marginally higher than that of the two unions as a whole, but is representative of women having terminations. Nineteen women (nearly half) had received no formal education, 12 had attended primary school (1-5 years), and ten secondary school. Of the 41 women interviewed, we were able to obtain information on 39 of the husbands. Sixteen of them had received no schooling, six had received primary schooling, and 17 had attended secondary school. Of the 39 husbands, 18 were farmers, 8 worked in mills (primarily in jute

² SRS collects data on a 60-day cycle (previously 90-day) on vital events which have occurred, including pregnancy outcomes, since the last visit. Data are also collected on changes in the reproductive status of married women of reproductive age (MWRA) and important family planning programme variables, such as contraceptive use.

manufacturing), four in business, three in small trade, two were agricultural labourers, one each was a government service worker, a fisherman, a student, and an unemployed.

Before analyzing the information gathered through the in-depth interviews, we will examine some background information drawn from SRS on abortion trends in Abhoynagar (Ahmed S et al., 1996; and Ahmed MK, Sarkar, and Rahman, 1996).

Between 1983 and 1995, SRS recorded 5,779 pregnancies in Abhoynagar, of which 240 (4.1%) ended in induced abortion. The proportion of recorded pregnancy terminations increased over time. During 1983-1989, there were 3,503 pregnancies at Abhoynagar, of which 131 (3.7%) ended in induced abortion. In comparison, during 1990-1995, there were 2,276 pregnancies at Abhoynagar, of which 109 were terminated (4.8%). It is possible that in the 1990-1995 data, a higher level of induced abortion was recorded because of better reporting rates, resulting from the increasing familiarity of the women with the SRS workers along with the increasing acceptance of MR over time. A small contribution to better reporting may have been made by a reduction in the SRS interviewing round from 90 to 60 days.

The proportion of pregnancies terminated was higher for women with more education, women who worked outside the home, non-Muslims, women who were older and of higher parity, and for women who had recently given birth (Ahmed S, 1996).

Findings

Who Terminate Pregnancies, and Why?

The respondents covered in the in-depth study reported that they had sought terminations primarily because they either did not want any more children, or wished to space births. What we found was that the reasons given for terminations were essentially the same reasons that Bangladeshi respondents give for practising family planning (Caldwell and Khuda, 1997). Three women reported that they had undergone terminations for reported ill-health. Twenty-five of the women said that the key reason for choosing to terminate their pregnancy was that they already had enough children. Of the 25 women, 17 specifically cited the economic costs of raising children, two referred to the specific costs of female children and of meeting the dowry for their marriage, and six said that they had been physically weak and that it would have either been difficult to bear or to raise a child.

Eight women indicated, as a principal reason for termination, the short interval since their last baby's birth; the physical and economic difficulties of looking after two young children; and the potentially detrimental effect on the child already born. Four women said that they had terminations because they already had grown-up children. Three respondents reported that they

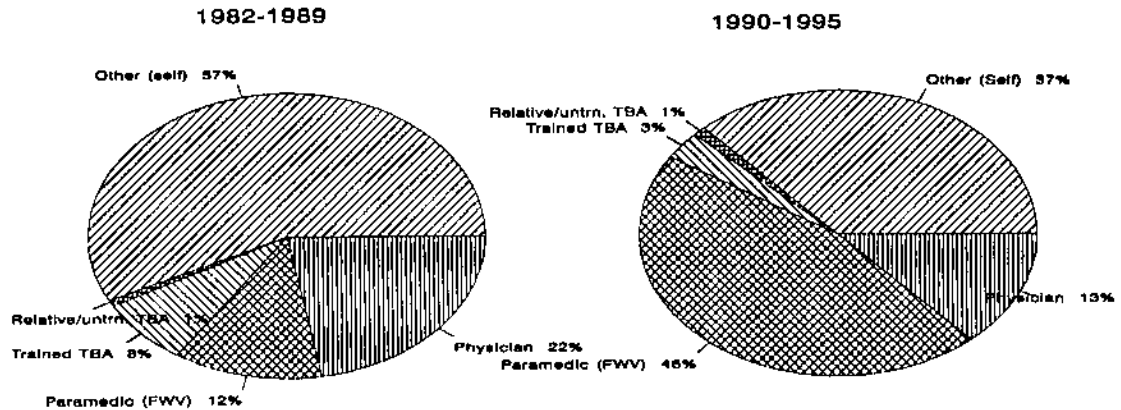
had undergone terminations because their husbands were unreliable, and were threatening to desert them, or in one case, had already done so.

The findings on the importance of family limitation and child spacing are in conformity with SRS data. The probability of a woman terminating a pregnancy sharply increases with her age and the number of living children. Less than two percent of women aged less than 25 years terminate a pregnancy, as compared to 6.3% of the women aged 35 to 39 years and 7.8% of the women aged over 40 years. Only 2.1% of the women with one or two children terminated a pregnancy but among women with five or more children, 9.5% did so. Similarly, women are more likely to have induced an abortion the shorter the time period between the previous live-birth and the current pregnancy (Ahmed S, 1996; and Ahmed MK, Sarkar, and Rahman, 1996).

Service Provider and Place

According to the SRS data (Figure 1), in nearly 60% of all pregnancy terminations during 1982-1989, the woman used an untrained provider (the data for Figures 1 and 2 are for two SRS field sites Abhoynagar and Sirajganj). In most cases, the provider did not attend the abortion but

Figure 1: Induced abortion by attendant



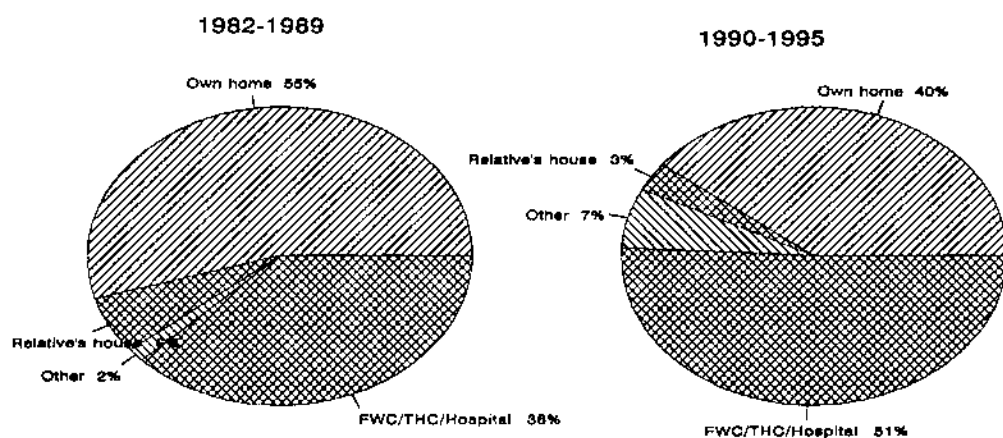
Source: SRS

provided an abortifacient. The proportion of pregnancy terminations without a trained provider declined between the 1982-1989 and 1990-1995 time periods. In the 1990-1995 data set, a paramedic was present (either a nurse or an FWV) in a little under half of the terminations. In another one-eighth of the cases, a physician was present; in six percent a trained TBA; and in

one percent of the cases, an untrained person attended. However, in nearly 40 percent of the cases, the woman was without a trained provider.

Figure 2 presents the data regarding the place of abortion, grouped into two time periods: 1982-89 and 1990-95. During 1982-89 over half (61%) of all induced abortions took place at the woman's house or a relative's house. While this proportion declined in the 1990-95 period, it continued to constitute over two-fifths (43%) of all abortions.

Figure 2: Induced abortion by place



Source: SRS

The place of the induced abortion was closely related to the identity of the provider. In cases where the provider was untrained, three-quarters of the terminations took place at the woman's home. As noted, in most cases, the provider did no more than supply an abortifacient. Likewise, in cases where terminations involved paramedics or physicians, most took place at health facilities. The increased proportion of terminations undertaken by paramedics indicates that more terminations are taking place in modern health facilities. While the proportion of induced abortions which take place at health clinics/hospitals has increased, it, nevertheless, remains a source of concern that many continue to take place at the woman's home.

Of the five terminations that the respondents in the in-depth study referred to as having been performed by physicians, three were conducted at the physician's private clinic, and two at THC. Of the 16 involving an FWV, 14 were conducted at H&FWC, one at FWV's house and one at a village doctor's house. Of the nine terminations involving a nurse, eight were conducted

at THC and one at the nurse's house, while terminations involving the provision of an abortifacient by a village doctor, homeopath, or other (self), the actual abortion generally took place at the woman's own home.

Health Care-seeking Behaviour

Which investigating data from the in-depth interviews, we found that selecting a provider for pregnancy termination is not a simple process. Of the 41 pregnancy termination cases in the sample, three of the women initially obtained services from a physician (MBBS), 13 from an FWV, eight from a nurse, eight from a "village doctor",³ four from a homeopathic practitioner⁴, one from an indigenous "*kabiraj*" doctor, and four conducted their own abortions by inserting a foreign object, such as a piece of a root or plastic "*catheter*." In the discussion that follows, we refer to physicians, nurses and FWVs as trained providers and all others as untrained, but this is not always accurate. The government has trained many Medical Officers (MCH) and FWVs in MR, but has not provided MR training to other physicians or nurses and they are not authorized to provide MRs.

One respondent who had received services from a village doctor had initially approached a government physician and an FWV, but had been refused because of two previous caesarian births. Two of the women who had received services from a village doctor, and one from a homeopath were unsuccessful in terminating their pregnancies, and subsequently, went to trained allopathic providers (physician, nurse, or FWV). One, who had successfully aborted her pregnancy under the direction of a village doctor, was subsequently treated successfully by a homeopath for complications. One woman who suffered severe bleeding from ingesting pills from a homeopath was subsequently "washed" by a nurse at THC (Figure 3 illustrates the process. On the left side is listed the provider first approached, on the right the provider who ultimately provided the abortion).

The respondents, in general, placed little emphasis on the risks of using untrained providers. A few women reported that they used the services of the government providers because their services were safer, but most women did not associate high levels of risk with abortion. For the 17 women who initially approached an untrained provider or conducted their own abortions, the risks as they understood them were minor when compared to the advantages of doing so. The reasons given for using the latter were principally: knowledge, familiarity, and trust of the

³ A village doctor is an untrained village practitioner, also known as a "quack," who dispenses western-style "allopathic" medical advice and drugs, such as antibiotics.

⁴ Homeopathic medicine originated around 1800 in Germany and involves the use of medicines that are supposed to possess qualities which resemble and, thus, counteract a client's symptoms. As practised in rural Bangladesh, it has evidently absorbed many aspects of the indigenous *kabiraji* or "*ayurvedic*" medicine as well.

provider (seven respondents); confidentiality (five respondents); and proximity to the respondent's house (three respondents). Cost was mentioned explicitly as determining the type of provider by only two respondents, but concern about cost was a common theme. An example of the first category of response was provided by a respondent who remarked that she had little knowledge of the government hospital, and, moreover, did not know anyone working there. She added that she would not advise someone to use the government hospital, because of the poor service there.

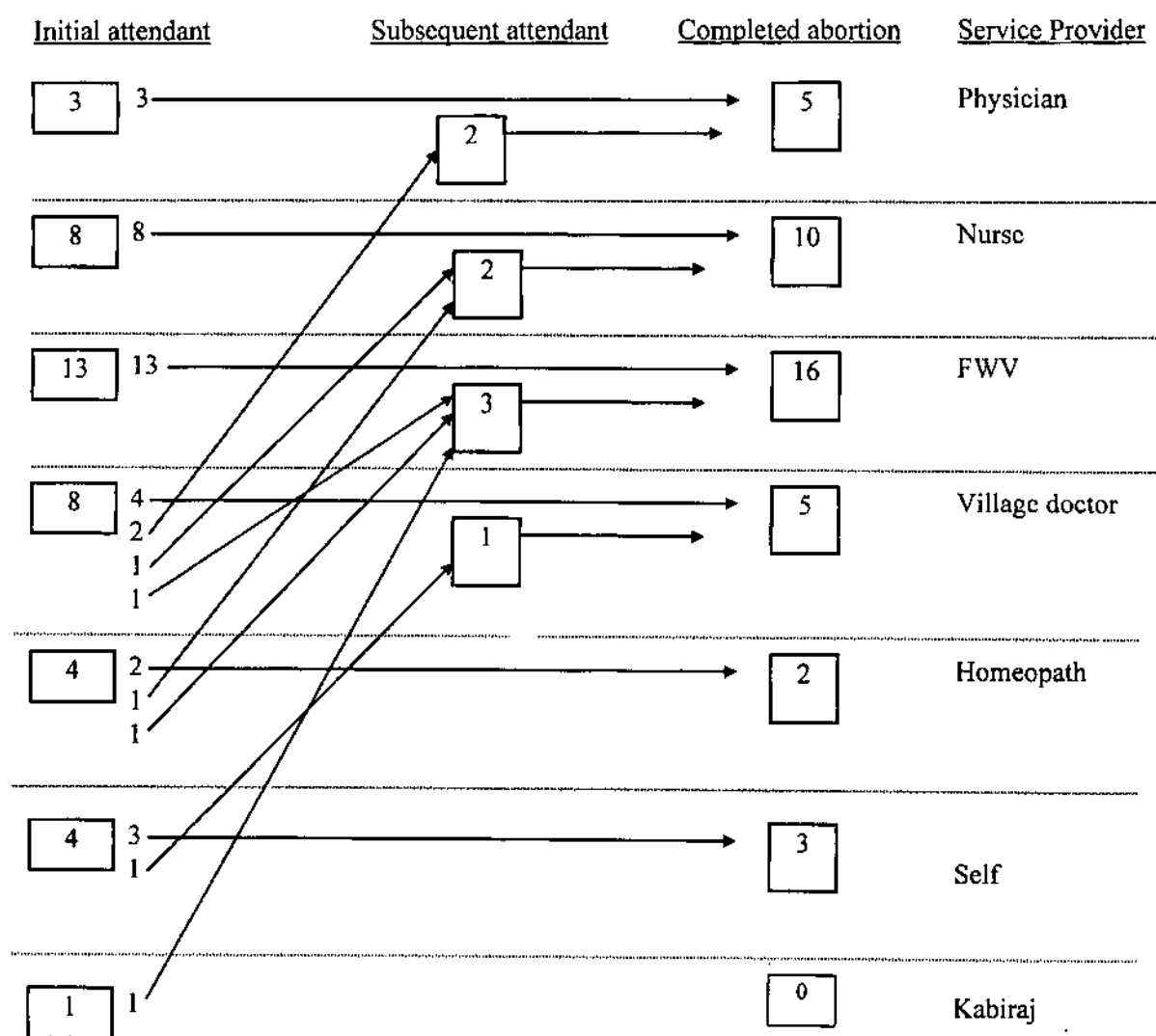
The issue of confidentiality is linked to the nature of government health services where it is apparent that people are attending a clinic for a particular purpose and where there is little privacy. In contrast, abortions involving village practitioners, generally involve the use of oral preparations to induce abortion and are inherently more private - provided no major side-effects ensue. Confidentiality is also related to whether a person can trust the provider who is closer at hand and whose custom depends on meeting the needs of his clients. An example of a breach of trust was given by a respondent whose MR was arranged by the FWA. When she only paid the FWA Tk.40 (US\$1.00) instead of the Tk.100 requested, the FWA told the woman's relatives and neighbours.

In theory, government service providers undertake abortions free of charge, but in reality, many providers charge a fee. The amounts generally cited by the respondents varied from Tk.100 to Tk.300 (US\$2.5 to \$7.00). The amount is small by western standards, but is significant in a Bangladeshi village.

While the cost of terminations involving trained personnel may discourage some people from receiving them, such costs are, in many cases, much less than the cost of the treatment following an unsuccessful abortion. One respondent reported that she paid Tk.60 for tablets from a village doctor, but she subsequently paid Tk.500 for the treatment of heavy bleeding. Another respondent conducted her own abortion but then suffered from heavy bleeding, and had to spend Tk. 600 for medicine.

The women who used trained providers rarely cited the greater safety in doing so. Rather they usually referred to their familiarity with the provider or to the FWA who often accompanied them to the provider. It is perhaps significant that a high proportion of cases among our small sample by both trained and untrained providers involved side-effects.

Interestingly, while most abortions were conducted by trained providers, the treatment of side-effects most commonly involved medicines from village practitioners. This reflects the general health-seeking care among rural inhabitants. The government health services generally have only a limited range of drugs available. Furthermore, they are often less convenient for many people, in terms of location and visiting times, than the local village doctors and pharmacists.

Figure 3. Attendant sought for termination (n=41)

* Two of the terminations performed by a nurse were supervised by a physician.

Several points stand out. First, 31 of the 41 women had been treated by trained paramedics or physicians, either initially, or subsequent to unsuccessful treatment by others. In all the cases attended by authorized attendants (nurse, FWV, physician), the women successfully had terminations, though some subsequently required further treatment. In contrast, in seven of the 14 cases in which the women were provided abortifacients by untrained providers, the women had not successfully aborted and subsequently went to trained providers. The term successful abortion used here is restricted to meaning completed abortion.

FWAs played an important, if indirect, role in at least eight cases in the final decision, with regard to the choice of provider and location. One respondent reported that the FWA had played a key role in advising her to use the services of the FWV at the H&FWC, and accompanied her to it. Another respondent said that the FWA had been the primary advocate of her termination. She had accompanied the respondent to the H&FWC and, after consulting the FWV, helped her conduct it.

Duration of Gestation

Gestation of the pregnancy is an issue of great concern. As noted earlier, MR is legal during the first 6-10 weeks of pregnancy. Health risks increase with later termination. During the 1982-1989 period, however, approximately 36 percent of the terminations were recorded as having taken place after the first trimester. This figure fell slightly to about 32 percent during the 1990-1995 period.

The number of late-term abortions involved was too small to record statistically significant results. Although limited, the evidence suggested that uneducated women were slightly more likely to have terminations at late term than educated women (Table). These figures also indicate that the reduction in late terminations has occurred primarily among the least educated, suggesting an improvement in access to MR service.

Thirty-seven percent of the second trimester terminations reportedly involved a paramedic as the attendant. This is alarming, since government paramedics are not provided training on abortion techniques required for more advanced pregnancies.

Most respondents in the in-depth survey reported that a termination should occur at around two months gestation and on the information provided most conformed to this. Among the 14 women who indicated that they waited until the pregnancy was more advanced, the reasons given were that they had tried ineffective methods from a village practitioner first (six); they had not known that they were pregnant (five); the respondent had followed a provider's recommendation to wait until she was more advanced in gestation to terminate the pregnancy (one), the woman waited for her husband to return (one) and that the couple lacked the necessary money (one).

What is Abortion? What is MR?

Dixon-Mueller (1988) has argued that MR is socially acceptable in Bangladesh, because people distinguish it from abortion. She suggests that Bangladeshi women perceive regular periods as part of good healthy life. The results of the in-depth study do not support this thesis. The respondents were asked what they actually associated with the terms "MR" and "abortion." None of the respondents, including those who had received an MR from the FWV, were able to make any distinction between MR by vacuum aspiration and abortion. A number of closely-related Bengali terms were used, including "*baccha naushto*," "*pete fela*," and "*baccha fela*." All of the terms used directly imply destroying the foetus. Only four of the respondents used the term MR. None of the respondents who had received MR expressed any doubt that they had been pregnant.

Decision-making

Initiation of the Discussion

The decision-making process usually involved the wife initiating a discussion on the need for a termination and the final decision being taken either jointly or by the husband alone. Twenty-three of the in-depth interview respondents reported that they had initiated the discussion on whether to have an abortion. Seven respondents said that they had raised the subject jointly with their husbands. In four cases, the husband had initiated it; in one case, the husband had consulted with the FWA; and in three cases, the respondent's mother was the initiator (these are the cases where the respondents' marriages had broken down). In summary, the woman was the primary initiator or was directly involved in the initiation in at least 30 of the 38 cases.

In the final decision to terminate a pregnancy, the wife took primary responsibility for making the decision in six cases. In ten cases, the wife and husband decided jointly. In 14 cases, the husband was the sole decision-maker. While the dominant role in deciding to have a termination was assumed by husbands with their wives, in eight cases, others had a significant role (e.g. FWA, mother, physician, brother-in-law, sister-in-law). In many more cases, others were consulted for their views (in eight cases, FWAs were either directly involved in the decision or were consulted).

Nevertheless, while others were on occasion influential, the key point is that in all but six cases both husband and wife were involved in the decision, and, in most cases, were the primary decision-makers. The exceptions were the three cases initiated by the wife's mother, and three cases where the husband decided alone (a respondent commented that 'I did not want to destroy my baby, but my husband decided to, because he did not want any more children'). Many respondents commented that a termination is a private matter for the couple. It is significant that

most couples having an abortion are older and less likely to accept interference from others in making their decision. The 1993 BDHS also showed that the older a woman is, the less likely other family members were to have a major role in whether a woman practiced family planning (Mitra *et al.*, 1994).

Contraceptives and Pregnancy Termination

The SRS data indicate that women who had previously used contraception were much more likely to terminate pregnancy. Most respondents of the in-depth survey responded positively when asked whether (in retrospect) contraception would have been a favourable alternative to pregnancy termination.

Type of Contraceptive Used at Conception of Unwanted Pregnancy

The three cases where effective contraception was clearly not an alternative to termination were the three newly-married women who had abortions due to marital breakdown. In these cases, the respondents stated that they, as newly-married brides, were not using any contraceptive methods, because they wanted to become pregnant. Of the remaining women, five said that they had been using a contraceptive method regularly, and that it had failed. These five had been using condoms. It is worth noting that condoms are often used in conjunction with rhythm, using the condom during the fertile period, which may explain, in part, the high failure rate (Gray *et al.*, 1997).

Contraceptive Use History

Twelve respondents (the largest single category) said that they stopped using contraception due to side-effects, and another four said they did not practise family planning due to the perceived fear of side-effects. The latter response, in particular, might well reflect a lack of motivation in using contraception. Nevertheless, surveys in Bangladesh record a high level of reported side-effects, perhaps related to inadequacies in the quality of services and a lack of proper information on side-effects (Rahman *et al.*, 1997). Two respondents reported that they stopped using condoms as a method; in one case, because she did not like it, and in the other, because her husband did not like it. One woman discontinued pill use when she was sick, on the advice of the doctor. Three of the women indicated that since they had been postpartum ammenorheic, they had not expected to become pregnant. Another was sub-fertile, having had one child three years after marriage and the second, some years later. And another woman had two children by caesarian section and reportedly believed that this would reduce her fertility.

Four of the women reported difficulties in using contraceptives on a regular basis. Of them, one said that she had stopped, because she had not been able to obtain pills; one had lapsed in taking

the pill, because she was away from home; one didn't have a condom when she needed it; one had stopped taking pills, because she found remembering to take it daily troublesome. Several other reasons the respondents gave specifically indicated an over-reliance on the delivery of methods to their houses by fieldworkers.

Postabortion Contraceptive Use

Most respondents had continuously used contraceptive methods since the abortion. The SRS data for the area indicate that contraceptive use following pregnancy terminations increased from less than 40 percent to about 59 percent during 1982-1988 and from 47 percent to 76 percent during 1989-1995.

Of the women in our in-depth study who were still married after their terminations, all but one indicated that they had begun to use contraception following the termination. Nine first used pills and another nine first used condoms. Seven used injectables; six IUD; one, withdrawal; and one, rhythm. It is alarming, given the strong emphasis on limiting child births, however, that while some respondents had changed their method since the abortion, none had moved to a permanent method.

Most of the respondents who used a trained provider for their terminations (MBBS, government nurse, or FWV) had been advised to use contraception, either by the provider or by FWA. Of the three women who had undergone more than one abortion, all were using contraception on the advice of the termination provider, one, IUD; one, injectable; and one, condom. Interestingly, while some providers recommended the use of more reliable methods, such as IUD or injectables, none recommended a permanent method.

Consequences of having Pregnancy Terminations

Physical

The respondents were asked about the physical consequences of the abortion and about any treatment which was necessary afterwards. Of the 41 respondents, 14 had experienced moderate to severe complications, five had suffered minor problems, and 22 had suffered problems not serious enough to require any further treatment. The only pattern in the severity of complications by provider was that three of the four women, who had inserted a foreign object, such as a root or plastic "catheter," to induce abortion, had all suffered from severe bleeding.

Of those who suffered severe side-effects, several referred to the inability to work for long periods, the high cost of treatment, and even to coming close to death. One respondent used a twig from a tree to induce abortion. She suffered severe bleeding for 14 days. 'After seven

days my husband came here and found that I was dying,' she said. 'He went to a village doctor, who did not come to the house but gave a prescription according to which my husband bought medicine and an injection. Then I delivered a dead baby.' She experienced bleeding, fever and weakness for three to four months. Another respondent said that she suffered from infection and fever, was in bed for 45 days, and could not do housework for one year. She borrowed Tk.5,000.00 (US\$120) to pay for treatment and Tk.400 (US\$10) for transport, in addition to Tk.700 (US\$17) she paid for the abortion. By village standards, these are huge sums of money. The story highlights, however, that expenditure for postabortion treatment, when required, may exceed the original cost of the treatment, and, given that the money is often borrowed, such expenditures may constitute a very heavy burden on the family.

Economic and Social

Of particular interest to our study was the perceived social impact of terminations, what the families and communities knew about the terminations, and to what degree the terminations had been supported or opposed. The in-depth investigation also set out to determine what the respondents believed to be the long-term consequences of having an abortion. The respondents were asked whether there had been any specific positive or negative consequences resulting from the decision to terminate the pregnancy, whether they would have an abortion again if in a similar situation, and whether they would advise someone else to have one.

In general, the respondents indicated that knowledge of termination was relatively restricted. In ten cases, knowledge was restricted to the immediate decision-makers, whereas in 14 cases, relatives outside the nuclear family also knew. In nine cases, non-relatives, such as neighbours also knew. Generally, knowledge was somewhat restricted, because it was not necessary for people to know, and not because secrecy was essential.

While several respondents said that some people who knew, disapproved, most of those who knew seem, according to the respondents, to have approved, or at least to have expressed no strong dissenting view. Social opposition was not considered by any respondent as a reason not to have a termination.

Of the women interviewed, 16 felt that there were few religious consequences. While eight women referred to abortion as being a necessary sin, 12 said that they felt guilty, but confident that if the situation arose again, they would make the same decision.

Virtually all respondents emphasized the economic necessity of having the termination to preserve the family's welfare. Some women, particularly those who had severe side-effects and had to stop work or had expensive treatment, emphasized the economic and physical costs of abortion, itself. They too, however, generally believed that the abortion had been necessary to

preserve the family's welfare. The only women who said they would definitely not have another abortion were women who had suffered severe side-effects from the abortion.

Several respondents said that, while under the same circumstances they, themselves, would have an abortion again, they would not recommend it to others, because to do so would, in itself, be inappropriate. The implication was that it was for each individual to make their own decision.

Discussion

In this study, we sought to understand the motivations and actions of individual women having terminations in a rural area of Bangladesh.

The low and declining use of permanent contraceptive methods is a major concern in the Bangladesh family planning programme and is due, among other things, to cultural resistance to permanent methods, internal conflicts between medical and non-medical personnel (Khuda *et al.*, 1994), and the success of the programme in providing modern temporary methods. The high rates of termination among the older women and women with very young children in our study indicate a need for better education on contraceptive use, particularly with regard to side-effect management, postpartum amenorrhoea, and the advantages of long-term methods, among the general population.

The increased acceptability of pregnancy termination reflects, in part, continuing social change which has increased the mobility and, to a lesser degree, the autonomy of women. More clearly, it reflects the impact of the provision of MR by the government health and family planning workers. MR services are becoming increasingly widespread and well known, even though the government has chosen not to widely publicize MR as part of the national family planning programme. The very existence of MR has undoubtedly helped legitimize the termination of unwanted pregnancies.

According to our study, paramedics - both FWVs and nurses - currently provide the majority of pregnancy terminations. Another smaller proportion are provided by physicians and TBAs (both trained and untrained). Terminations by untrained providers are probably higher than the country's average, because Abhoynagar thana is in an area regarded as relatively advanced, both socially and developmentally. However, many terminations continue to be provided by untrained providers indicating that the government-provided MR services have not fully been addressing the needs of all rural Bangladeshi women.

We found a low-success rate among the terminations assisted by untrained practitioners. The question arises, then, as to why a significant minority of women continue to undertake their own abortions, with the assistance of untrained practitioners.

Although MR is officially provided without cost, in practice it is often charged for. The impression given to the clients may, therefore, be that the worker is providing MR in her personal capacity, and that it is natural that he or she charges a fee, or conducts the procedure outside properly equipped clinics or health centres.

Some authors (Kamal H, Hossain, and Akhter, [forthcoming]) also note that most rural women rarely use any government health services, and indeed, that many have never used them. Most health services are provided by unqualified village practitioners, who are conveniently located and who will provide what assistance they can. And while social opposition may not stop women from having terminations, women do not want it widely known that they have had one. They often, therefore, prefer to use the services of a village practitioner with whom they are familiar, who is close by, and whose services are simple to use. Their actions reflect continuing concerns among clients about confidentiality, provider familiarity, and cost.

A high proportion of terminations were unattended. Whereas trained providers perform the termination themselves, using specialized equipment. Village practitioners usually provide only information and sometimes the substance for abortion, leaving the actual performance of termination to the woman. Unfortunately, although it offers the client privacy, the non-attendance of the provider also assures the provider a decreased sense of responsibility for the risks of termination to a woman (Islam, 1992). The greatest problem involved with the consultation of local practitioners, however, appeared to be that they were often ineffective and delayed the woman's visit to a trained provider until the pregnancy was advanced, often past the gestation date allowable for an MR.

The most risky abortions in our small sample appeared to be those involving no provider; where the woman herself inserted a foreign object. In three of the four cases where this was done the woman suffered from severe bleeding.

Women are, however, slowly becoming more familiar with government services and the service providers. A key role here is being performed by FWAs, who accompany many of the women to H&FWCs.

The final factor that may have contributed to an increased use of trained personnel is a diminishing concern among some women about the confidentiality of terminations. While some women did express strong concerns about confidentiality, others said that it really didn't matter, since both the decision and the consequences were the business of the woman and her husband, and no one else.

Conclusion

From an intensive in-depth survey of 41 women, this study attempted to understand the determinants and consequences of pregnancy terminations in rural Bangladesh. The results are complex, the women concerned are varied, and many different factors influenced their behaviour. Nevertheless, certain points stand out.

Results of the study showed that there was little awareness or apparent concern about the risks associated with abortion. None of the women interviewed in our study made any distinction between MR by vacuum aspiration and abortion. By not publicizing MR and its advantages, the health service is hampered in communicating essential health knowledge concerning abortion to the population at large.

Other issues we have raised, concern the side-effect management of contraceptives and the low use of permanent methods. The major reasons given for pregnancy termination were the desire to limit and space births. Since most women having terminations are doing so to limit the number of their children, a preferable solution may be to encourage many of these women to adopt longer-term and permanent methods of contraception. Another significant proportion of the respondents who required terminations did so because they did not use contraception for fear of side-effects. A renewed commitment toward providing women with better knowledge about appropriate contraceptive use and side-effect management, therefore, should receive priority in the Bangladesh family planning programme.

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Table: Induced abortions by percent distribution of trimester*, education level, and year

Education	1983-1989				1990-1995			
	Trimester				Trimester			
	1	2	3	Total	1	2	3	Total
0	43 (54)	36 (45)	1 (1)	80 (100)	57 (64)	29 (33)	3 (3)	89 (100)
1-5	32 (74)	11 (26)	0 (0)	43 (100)	39 (71)	16 (29)	0 (0)	55 (100)
6+	19 (79)	5 (21)	0 (0)	24 (100)	24 (80)	6 (20)	0 (0)	30 (100)
Total	94 (64)	52 (35)	1 (1)	147 (100)	120 (69)	51 (29)	3 (2)	174 (100)

Source: SRS

* Figures in parentheses indicate percentages of induced abortion by trimester.

CHAPTER 5

Determinants of Antenatal Care-seeking Behaviour in Rural Bangladesh

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Determinants of Antenatal Care-seeking Behaviour in Rural Bangladesh

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Abstract

Antenatal care practice affects maternal morbidity and mortality. Empirical evidence suggests that, in many developing countries, rural women are reluctant to seek antenatal services from health centres, even when they are provided free of charge. In Bangladesh, the use of antenatal care facilities is very low in rural areas. This study examines the antenatal care practices in rural Bangladesh, and investigates the demographic, socioeconomic, cultural and programmatic factors associated with antenatal care-seeking behaviour of rural women. The data for this study were drawn from a survey conducted in 1994, in six rural sub-districts, with a sample of 10,368 rural women of reproductive age. The data show that over one-third of the women did not consult anyone for antenatal care during their previous pregnancy. Among those who consulted someone, the majority consulted persons not competent to provide antenatal care (i.e. quacks, homeopathic practitioners, community workers, relatives, neighbours). Almost all the deliveries were conducted at home by untrained traditional birth attendants (TBAs), neighbours or relatives, and generally under unsafe and unhygienic conditions. Over one-third of the women had at some time suffered from delivery-related complications, and the majority consulted quacks and homeopathic practitioners who were not competent to provide antenatal care.

Results of the logistic regression analysis show that certain demographic, socioeconomic, cultural and programmatic factors were associated with the antenatal care-seeking behaviour of rural women. The young and educated women are more likely to seek antenatal care. Poor women, as well as women with lower parity are less likely to seek antenatal care. Women who have ever visited health care centres are also more likely to seek antenatal care. Poor and illiterate women are also less likely to consult a qualified person (e.g. doctor, nurse, and paramedic) for antenatal care. Those women who have ever visited health care centres are also more likely to consult a qualified person for antenatal care. The uneducated and older women, and those with higher parity are less likely to have their delivery attended by a qualified person, such as a doctor, midwife, paramedic, or trained traditional birth attendant.

Study results suggest that emphasis should be given to information, education and communication (IEC) activities to educate the community, particularly the poor and uneducated women, on the need for regular antenatal check-ups and safe delivery by qualified health personnel. Female education should also be promoted.

Introduction

Globally, over half a million women die of pregnancy-related complications each year, and 99 percent of these deaths occur in developing countries [ICPD, 1994; UNICEF Annual Report, 1996]. The situation in South Asia is more precarious, and accounts for about half of maternal deaths, globally (WHO, 1991). In Bangladesh, although there has been some recent improvement, the current level of maternal mortality (4.9 per 1,000 live- births in rural areas) is still very high, even by the standards of other developing countries (Mitra *et al.*, 1994).

Antenatal care is an acknowledged measure for the reduction of maternal mortality (Moller *et al.*, 1989). It can help detect and treat anaemia, hypertensive disorders during pregnancy, and certain infections and diseases, including reproductive tract infections and sexually transmitted diseases. Results of research have shown that women who do not obtain adequate antenatal care significantly reduce their chances of a favourable pregnancy outcome (Joshph, 1989). Ekwempu (1988), in his research, found antenatal care to be associated with lower maternal mortality. However, access to emergency obstetric services to deal with emergencies that arise during child birth is also an important factor in reducing maternal mortality.

The high maternal mortality rate in Bangladesh can be reduced, partially through changes in antenatal care practices in the rural areas. Results of a survey show that most rural mothers do not receive antenatal care. Among births that occurred during the three years before the 1994 DHS survey, almost three-quarters of the mothers received no antenatal care during pregnancy. Moreover, 96 percent of births were delivered at homes by illiterate traditional birth attendants or relatives or the woman herself, generally under unsafe and unhygienic conditions (Mitra *et al.*, 1994). Proper antenatal care during pregnancy, and delivery under hygienic conditions by trained personnel can significantly reduce the risk of maternal mortality.

The Government of Bangladesh (GoB) has been striving to provide maternal health care to rural women through the national health and family planning programme. The government health centres, such as Thana Health Complexes (THCs), Health and Family Welfare Centres (H&FWCs), and Satellite Clinics (SCs), provide maternal and child health services to the rural population free of charge. However, the use rates of these health centres are very low, resulting in high maternal and neonatal mortality (Juncker, 1994). Among the women visiting the H&FWCs, only 8 percent came for antenatal care (Khanam *et al.*, 1996).

About 80 percent of women in developing countries go through pregnancy and delivery without receiving any form of antenatal care. In these countries, maternal and child health services, including screening and referral of high-risk cases to better-equipped institutions, have to be integrated into social development schemes and designed in such a way that they are acceptable to the community (Viegas *et al.*, 1987).

The problem of antenatal care in developing countries must be considered from two perspectives: (a) areas where antenatal facilities are either absent or inadequate, and (b) areas where antenatal facilities are adequate, but for some reason they are not adequately used. Illiteracy or ignorance, traditional and cultural beliefs, prejudices, and the subordinate status of women are the most important barriers to adequate use of antenatal care facilities in developing countries (Nylander and Adekunle, 1990). A study in Bombay, India shows a similar hesitant nature among women to avail of nearby antenatal care, even when it is free of charge (Pandit, 1992). Another study in India shows that social, cultural and economic factors are important determinants in the use of antenatal services (Kanitkar and Sinha, 1989).

Conceptual Framework

Although there are provisions for antenatal care and safe delivery in the rural areas throughout the country through H&FWCs and SCs under the national health and family planning programme, rural women seem reluctant to avail of the services of these health centres. As illustrated by the following diagram, socioeconomic, demographic, cultural and programmatic factors influence the antenatal care-seeking behaviour of rural women.

Moller *et al.*, (1989) and Joseph (1989) observed that antenatal care services can significantly reduce the risk of maternal mortality in all societies. The use of antenatal care services in rural areas is largely influenced by the antenatal care-seeking behaviour of rural women, which is influenced by individual client characteristics, as well as socioeconomic, demographic and cultural factors. Again, antenatal care-seeking behaviour is also affected by programmatic factors, such as availability, accessibility, quality and cost of antenatal services. Antenatal care-seeking behaviour leads to the use of antenatal services, which affects pregnancy outcomes. Those women who use antenatal services during their pregnancies have more favourable pregnancy outcomes.

Objectives

The study examines the antenatal care practices in rural Bangladesh, and investigates the demographic, socioeconomic, cultural and programmatic factors associated with the antenatal care-seeking behaviour of rural women. The specific objectives are:

- (a) to investigate the antenatal care practices in rural areas;
- (b) to investigate the demographic, socioeconomic, cultural and programmatic factors associated with seeking antenatal care;
- (c) to investigate the socioeconomic, cultural, demographic and programmatic factors associated with consulting a qualified person (e.g. doctor, nurse, and paramedic) for antenatal care; and

- (d) to investigate the demographic, socioeconomic, cultural and programmatic factors associated with conducting deliveries by a qualified person (e.g. doctor, nurse, paramedic, or trained traditional birth attendant).

Rationale

To reduce maternal mortality, in rural Bangladesh, antenatal care-seeking behaviour will need to change. Rural women must be willing to seek antenatal care during pregnancy. It is, therefore, important to identify the demographic, socioeconomic, cultural and programmatic factors associated with antenatal care-seeking behaviour. Once these factors are identified, strategic and programmatic measures should be undertaken to encourage rural women to seek antenatal care from available health centres.

Limitations

Besides the demographic, socioeconomic, cultural and programmatic factors which have been included in the analysis of this study, a host of other programmatic (e.g. accessibility, quality and costs of antenatal services, etc.) and cultural factors (e.g. religiosity, prejudices, women's role in decision-making process, subordinate status of women, etc.) are also likely to influence the antenatal care-seeking behaviour of rural women. Unfortunately, due to data limitations, the effects of these programmatic and cultural factors on antenatal care-seeking behaviour could not be examined in this study.

Data Source

The data for this study were drawn from a cross-sectional survey conducted in six rural thanas during 1993-1994 by the MCH-FP Extension Project (Rural) of the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B). Two of these six thanas are the field sites of the MCH-FP Extension Project (Rural), where different interventions and strategies are field-tested to improve the efficacy, effectiveness and sustainability of the government health and family planning programme in collaboration with the Ministry of Health and Family Welfare. These two thanas are referred to in this report as Project Area I and Project Area II. The other four thanas, which are termed here as "Non-Project Areas," are the areas where government health and family planning programmes are in operation. Of these four non-project thanas, the two which are referred to as Non-Project Area II are the comparison areas of the MCH-FP Extension Project. The thanas were selected purposively, and 10,368 currently married women of reproductive age (MWRA) were selected as samples from these six selected thanas following systematic random sampling procedures. The samples were interviewed by the experienced and skilled interviewers (of ICDDR,B) using a structured questionnaire, to collect information on various demographic, socioeconomic, cultural and selected programmatic variables, including

public health issues, such as antenatal care practices, and use of services at government health care facilities.

Data Analysis

Descriptive statistics and multi-variate regression methods were employed in analyzing data. To examine the effects of demographic, socioeconomic, cultural and selected programmatic factors on the antenatal care-seeking behaviour of rural women, three separate logistic regression models were used. Model-I was designed to examine the effects of demographic, socioeconomic, cultural and programmatic factors on consulting someone for antenatal care during most recent pregnancy, while Model-II was designed to examine the influence of these factors on the type of persons consulted for antenatal care. Model-III was used for investigating the effects of these factors on the type of persons conducting deliveries. The variables which were included in each of these models are listed below.

Model - I

Dependent Variable

Consulted someone for antenatal care during most recent pregnancy (Yes/No)

Independent Variables

Age of women
Parity
Education
Employment status
Family expenditure
Religion
Satellite Clinic (SC) visit
Health and Family Welfare Centre (H&FWC) visit
Ownership of radio/TV
Geographical area

Model - II

Dependent Variable

Consulted qualified person (doctor/nurse/paramedic) for antenatal care during most recent pregnancy (Yes/No).

Independent Variables

The independent variables include all the variables which are listed for Model-I.

Model - III

Dependent Variable

Delivery conducted by qualified person (doctor/nurse/paramedic/ trained traditional birth attendant) during most recent pregnancy (Yes/No).

Independent Variables

The independent variables include all the variables which are listed for Model-I.

For the logistic regression analysis, only those women, who had at least one live-birth, were considered, and hence the total samples stood at 9,179.

Results

Antenatal Care Practices

Seeking Antenatal Care

Antenatal care during pregnancy is a crucial factor affecting maternal mortality. Proper antenatal care, such as regular antenatal check-ups during pregnancy and delivery under safe and hygienic conditions, can substantially reduce the risk of maternal mortality (Moller *et al.*, 1989; Joseph, 1989). However, Figure 1 shows that over one-third (41%) of the women did not consult anyone for antenatal care during their most recent pregnancy. The majority of those who did consult someone, however, consulted person who were not qualified to provide antenatal care.

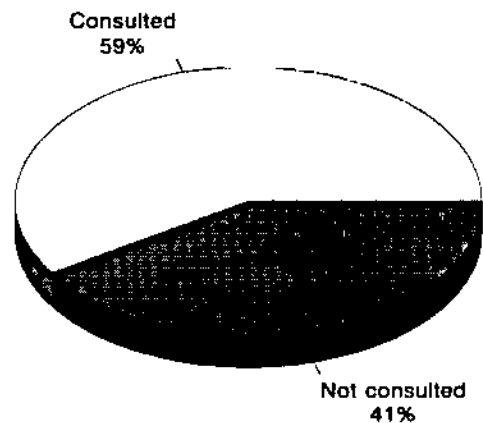


Figure 1. Percentage of women who consulted someone for antenatal care during last pregnancy

Table 1 (see page 101) shows that only a small proportion of the women consulted qualified persons, such as doctors (4%), nurses (0.3%), and Family Welfare Visitors (FWVs) (9%). However, the larger group (36%) consulted the female outreach workers of the national family planning programme, the Family Welfare Assistants (FWAs), during their routine home

visitation. The FWAs, themselves are not trained to provide antenatal care. During their routine home visitation, they are instructed to refer the pregnant women to the H&FWCs and/or SCs for regular antenatal check-ups by the FWVs (only nine percent of the women reported to have consulted FWVs for antenatal care). Trained traditional birth attendants and dais (untrained traditional birth attendants) were seldom consulted by the pregnant women for antenatal care. However, over one-third of the women reported that they consulted 'others' which consisted of quacks (unqualified medical practitioners), homeopathic practitioners, community workers, and relatives.

It is important to note that, while over half the women reported to have consulted someone for antenatal care, only 14 percent actually received antenatal care from qualified persons. Among those who consulted someone, the majority of them consulted unqualified persons, such as quacks, homeopathic practitioners, FWAs, community workers and relatives.

Figure 2 shows the number of consultations made with someone for antenatal care by the pregnant women during their most recent pregnancy. It shows that 41 percent consulted no one for antenatal care during pregnancy. Over one-fourth of the women did consult someone for antenatal care although it was only once or twice. And only five percent of the women received antenatal care six or more times. According to "Rule of Ten," a model for antenatal care, a pregnant mother needs to receive ten antenatal check-ups starting from her tenth week of pregnancy (Dawn, 1994). The data show that only one percent received complete antenatal care as per the Rule of Ten model.

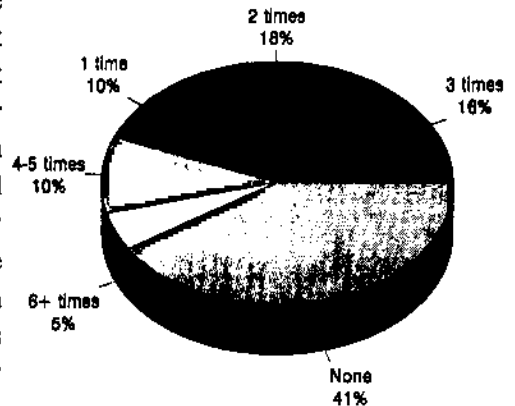


Figure 2. Number of consultations made by women for antenatal care during most recent pregnancy

Delivery Practices

Almost all the deliveries took place at homes, with only one percent of the deliveries conducted at hospitals, THCs, and H&FWCs. About three quarters of the deliveries were conducted at the homes of the women, while a little under a quarter took place at their fathers' homes (Figure 3). The deliveries which took place at homes were likely to be conducted under unsafe and unhygienic conditions.

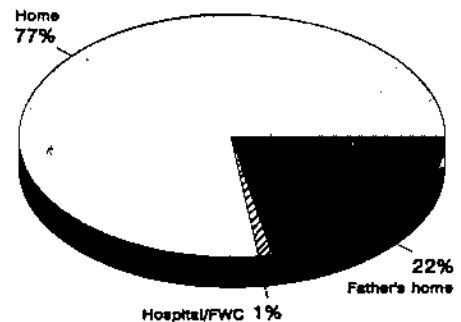


Figure 3. Distribution of places where deliveries were conducted

Most deliveries were conducted by untrained traditional birth attendants (*dais*), relatives or neighbours. This combination of unsafe practices often results in delivery-related complications, leading to maternal and/or neonatal morbidity and mortality. Only two percent of the deliveries were conducted by doctors, nurses, and/or paramedics, while another five percent were conducted by trained traditional birth attendants (TTBAs) (Figure 4).

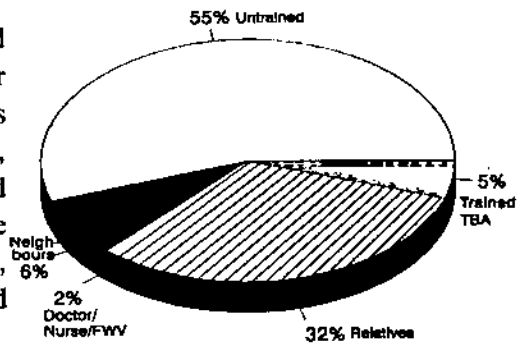


Figure 4. Types of persons conducting deliveries

Delivery-related Complications

Delivery-related complication is one of the leading causes of maternal mortality in Bangladesh (Ahmed *et al.*, 1996). Figure 5 shows the incidence of delivery-related complications, as reported by the sample women. It shows that over one-third of the women reported to have experienced delivery-related complications some time during their most recent pregnancy. The major delivery-related complications as reported by the women, included prolonged labour (71%), haemorrhage (18%), retained placenta (15%), eclampsia (7%), and laceration/tear (6%) (Figure 6).

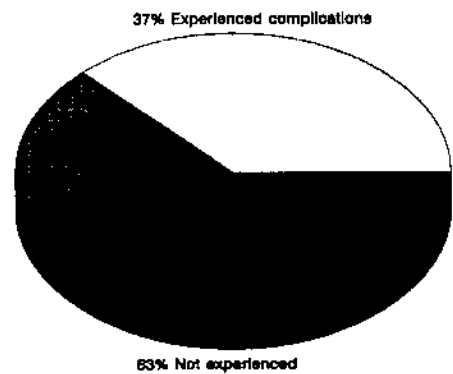


Figure 5. Pregnant mothers experiencing delivery related complications

Because they are self-reported (by the women who experienced them during their most recent pregnancy) the incidence of delivery-related complications may be high. Among those who reported to have experienced delivery-related complications, 71 percent reported "prolonged labour" which is undoubtedly very high. It is possible that the women could not actually recall the duration of their labour during their most recent pregnancy. Therefore, over-reporting may have occurred. Moreover, a normal labour may have been perceived by some women as "prolonged". This, also could account for the increased incidence of delivery-related complications reported by the sample women.

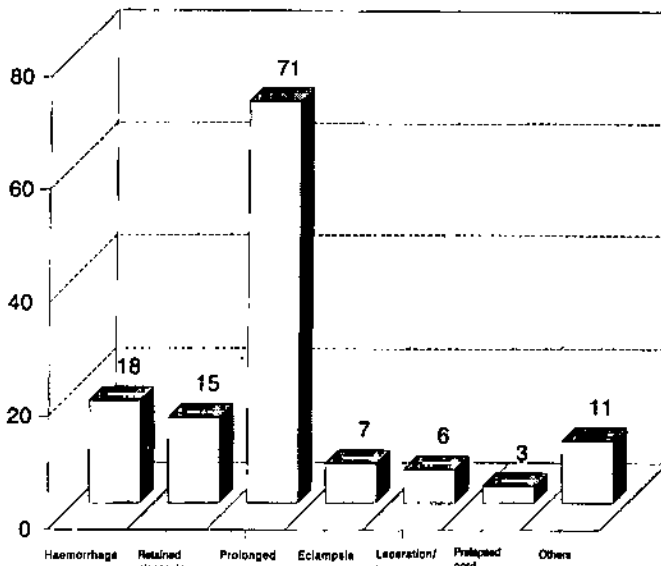


Figure 6. Types of delivery-related complications

* Multiple responses were accepted

For the treatment of delivery-related complications, the majority of the women (55%) went to quacks or homeopathic practitioners who may not have been competent in providing these services. Only five percent consulted government health care providers, such as government doctors, FWVs, MAs, and FWAs, for the treatment of delivery-related complications, while another 11 percent consulted qualified private physicians (medical graduate). However, approximately one-third of the women did not consult any one (Figure 7) for treatment of delivery-related complications.

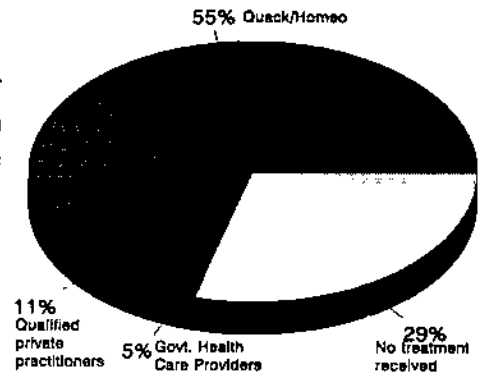


Figure 7. Types of persons consulted for treatment of delivery-related complications

Determinants of Antenatal Care-seeking

Factors Associated with Seeking Antenatal Care

Viegas *et al.*, (1987) observed that about 80 percent of women of the developing countries went through pregnancy and delivery without receiving any form of antenatal care. The data of the

present study also show that 41 percent of rural Bangladeshi women sought no antenatal care during their most recent pregnancy. This indicates that the current high rate of maternal mortality in Bangladesh could be reduced substantially through changes in antenatal care-seeking behaviour among rural women. To investigate the demographic, socioeconomic, cultural and programmatic factors associated with seeking antenatal care, a logistic regression analysis was done. In this analysis, the dependent variable was: consulting someone for antenatal care during the woman's most recent pregnancy (dichotomous variable); and the independent variables included a number of demographic, socioeconomic, cultural and programmatic variables (see Data Analysis section). The result of this analysis are presented in Table 2. The analysis shows that certain demographic, socioeconomic, cultural, and programmatic factors are significantly associated with seeking antenatal care.

Younger women are more likely to seek antenatal care than older ones. Women younger than 20 years have nearly twice the probability of consulting someone for antenatal care than those who fall in the age-group of 35 years and above. Plausible reasons may be that younger women are relatively more exposed to the modern ideas, including the use of health-care facilities, which lead them to seek antenatal care.

As expected, seeking antenatal care is positively associated with parity. Women with more than four children are twice as likely to seek antenatal care than those who have less than three children. This could be explained by the fact that women with higher parity understand that they are at higher risk of pregnancy-related complications. Thus they are more likely antenatal care.

Female education is significantly associated with seeking antenatal care. Rural women who have received four or more years of education have a 48 percent higher chance of seeking antenatal care than those who have no received education.

Poor women are less likely to seek antenatal care. Thus, economic condition was also significantly associated with seeking antenatal care. The probability of seeking antenatal care was higher for women belonging to households with an average monthly family expenditure of Tk.2,000.00 or above, compared to those with monthly household expenditures of less than Tk.1,000.00.

Religion was found to be associated with seeking antenatal care. The Muslim women were more likely to seek antenatal care than the Hindu women.

Visit to SC and H&FWC by the women was associated with seeking antenatal care. Women who had never visited SCs and/or H&FWCs prior to their pregnancy were less likely to seek antenatal care than those who had visited these health centres.

A significant regional differential in terms of seeking antenatal care is found. The women living in Project Area II and Non-Project Area I area were more likely to seek antenatal care than those living in Non-Project Area II, while the women in Project Area I were least likely to seek antenatal care.

Factors Associated with Consulting a Qualified Person for Antenatal Care

As noted earlier, a small proportion of pregnant women (14%) consulted qualified persons, such as doctors, nurses, and paramedics (FWVs) for antenatal care during their most recent pregnancy. To investigate the demographic, socioeconomic, culture and programmatic factors associated with consulting qualified persons, a logistic regression analysis was done. In this analysis, the dependent variable was: consulting qualified persons (e.g. doctors, nurses, and paramedics/FWVs) for antenatal care during most recent pregnancy (dichotomous variable); and independent variables included a number of demographic, socioeconomic, cultural and programmatic variables (see Data Analysis section). The results of this analysis are presented in Table 3. The analysis show that certain socioeconomic, cultural and programmatic factors were significantly associated with consulting a qualified person for antenatal care.

Female education was significantly associated with consulting a qualified person for antenatal care. Women who have five or more years education are twice as likely to consult a qualified person for antenatal care, as women who have received no education.

As expected, poor women were less likely to consult qualified persons for antenatal care. The women whose monthly family expenditure was Taka 4,000.00 or above had 65 percent higher probability of consulting a qualified person than those whose monthly family expenditure was less than Taka 1,000.00 only. This relationship was as expected, since consulting a qualified person always involves some costs on the part of the client. Poor rural women can not afford the consultation fees of qualified private practitioners and the cost of medicine prescribed by them. Besides, although health services at the THCs and H&FWCs are provided free of charge, the clients are often required to spend money for transportation and, in many cases, for buying medicine.

Contrary to commonly-held belief, housewives are more likely to consult qualified providers than those who work for earnings. One plausible reason for this may be that the housewives were economically better-off than those who are required to work outside the home. In rural areas, the scope of salaried jobs are very limited, and as such, economically better-off women do not work. Usually, it is the poorer women who earn money as day labourers. Another plausible reason could be that the working women have less available time to consult qualified persons for antenatal care.

It is interesting to note that religion was associated with consulting a qualified person for antenatal care. Muslim women are more likely to consult qualified persons for antenatal care than Hindu women. One plausible reason could be that Muslim households are more commonly frequented by the family planning fieldworkers (FWAs) (Rahman *et al.*, 1993), and, therefore more exposed to IEC activities of fieldworkers, and thus, more aware of the need for and availability of antenatal care services.

Familiarity with H&FWC and SC seems to have effects on consulting qualified persons for antenatal care. Those women who have ever visited the H&FWC and/or SC are more likely to consult qualified persons (e.g. doctors, nurses, and FWVs) than those who have never visited these centres.

Again, there is a significant variation among geographical areas with regard to consulting a qualified person for antenatal care. Women living in both the project areas are more likely to consult qualified persons than those living in the non-project areas. This could be explained by the fact that the SCs and H&FWCs are more regular, and their services are relatively better in the project areas, compared to those in the non-project areas. Moreover, because of the project's interventions, the women of the project areas are more knowledgeable of the services provided from H&FWCs and SCs.

Factors Associated with Delivery by Attendant

In rural Bangladesh, most deliveries are conducted by untrained traditional birth attendants, (*dais*), relatives, or neighbours. Only seven percent of the deliveries are conducted by qualified persons, such as doctors, nurses, paramedics, or TTBA. To investigate the demographic, socioeconomic, cultural and programmatic factors associated with deliveries conducted by qualified persons, a logistic regression analysis was done. In this analysis, the dependent variable was: conducting delivery by a qualified person (dichotomous variable); and the independent variables included a number of demographic, socioeconomic, cultural, and programmatic variables (see Data Analysis section). The results of this analysis are presented in Table 4. The analysis shows that certain demographic and social factors were significantly associated with conducting a delivery with the assistance of a qualified person.

The younger women and those with lower parity were more likely to have their deliveries conducted by a qualified person. One plausible reason for this is that rural women understand that the first-order birth usually carries some pregnancy-related complications. Thus, these deliveries are more likely to be conducted by a qualified person.

As expected, illiterate women are less likely to have their deliveries conducted by a qualified person. Women with 5 or more years education are twice as likely to have their deliveries conducted by a qualified person as women who have received no education.

Access to radio and TV was significantly associated with conducting delivery by a qualified person. The women who have radio or TV are more likely to have their deliveries conducted by a qualified person.

Significant variations among geographical areas were also observed. Women living in the project areas, and in Non-Project Area I had a higher probability of having deliveries conducted by a qualified person.

Discussion and Conclusions

Appropriate antenatal care undoubtedly reduces maternal mortality (Muller *et al.*, 1989). Antenatal care-seeking behaviour is a crucial factor that affects the use of antenatal care facilities. A study conducted in India shows reluctance among pregnant women to avail of antenatal care, even it is readily available and free of charge (Pandit, 1992). The results of this study suggest a similar conclusion. The data show that only 41 percent of the women consulted someone for antenatal care. A very small proportion of the women (14%) consulted doctors nurses/midwives, and paramedics (FWVs), working at government health centres (THCs, H&FWCs and SCs). Although, the national health and family planning programme provides antenatal care to rural women free of charge, they still seem reluctant to avail of the antenatal care services from these health centres. For the treatment of delivery-related complications, only five percent of the women went to the government health-care providers. This indicates gross under-utilization of the government health-care facilities.

Among those who sought antenatal care, the majority of them consulted unqualified persons (e.g. quacks, homeopathic practitioners, fieldworkers, relatives, and neighbours, etc.) who do not have the skills or training necessary in providing antenatal care. This indicates that rural women are either not aware of the availability of antenatal services provided from the health centres, or not conscious of the need for regular check-ups during pregnancy by competent health personnel.

According to the Rule of Ten model of antenatal care, pregnant mothers need to receive 10 antenatal check-ups, beginning the tenth week of pregnancy (Dawer, 1994). The data show that only one percent of the pregnant women received complete antenatal care as per the Rule of Ten model.

Most deliveries were conducted at homes by the untrained traditional birth attendants (*dais*), relatives, or neighbours. (only two percent of the deliveries were conducted by doctors, nurses, and paramedics, while another five percent were conducted by trained traditional birth attendants). This indicates gross under-use of the trained traditional birth attendants (one for each village) who have been provided training and delivery kits by the government.

The results of the logistic regression analysis show that certain demographic, socioeconomic, cultural and programmatic factors are significantly associated with the antenatal care-seeking behaviour of rural women. The poorer women were less likely to seek antenatal care or to consult qualified persons (e.g. doctor, nurse, and paramedic) for antenatal care. This was as expected in rural Bangladesh, since consulting a qualified person generally involves some cost on the part of the client. Moreover, although antenatal services are provided free of charge from the government health centres, the clients are often required to spend money for transportation and, in many cases, for buying medicine.

The young women, and those who have five or more years education are more likely to seek antenatal care than the older or uneducated women. Reasons for this could be that the young, and educated women are more exposed to modern ideas, including the availability of health-care facilities, which lead them to seek antenatal care.

Visit to health care centres prior to pregnancy appears to have an effect on antenatal care-seeking behaviour. The women who had previously visited health centres (H&FWCs and SCs) were more likely to seek antenatal care and to consult a qualified person than those who have never visited these health centres. This reinforces the inference that knowledge of health-care facility availability leads to seeking services from these facilities.

Younger, low parity women are more likely to have their deliveries conducted by a qualified person, such as doctor, nurse, paramedic, or TTBA. Reasons for this could be that rural women generally understand that first birth carries a high risk of pregnancy-related complications. Thus, these deliveries are more likely to be conducted by a qualified persons.

Recommendations

The results of the study indicate that there is a strong need to focus strategic measures upon the increased use of health-care facilities, such as the THC, H&FWC and SC. Emphasis should be given to the IEC activities of the national health and family planning programme so that the community, particularly the poor and uneducated women become aware of the need for regular antenatal check-ups and safe delivery by competent health personnel. Trained TBAs should be linked with the health and family planning service-delivery systems at different levels to ensure their utilization. Female education should also be promoted.

Lastly, there is further need for investigation with regard to the effects of programmatic (e.g. accessibility, quality and cost of antenatal services) and cultural factors (e.g. religiosity, prejudice against antenatal care, women's roles in the decision-making process, subordinate status of women, etc.) on the antenatal care-seeking behaviour of rural Bangladeshi women.

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Table 1. Types of persons who were consulted for antenatal care by women who consulted some one during last pregnancy

Types of persons	Consulted (%)
Doctor	4.1
Nurse/Midwife	0.3
Family Welfare Visitor	9.3
Family Welfare Assistant	35.7
Trained TBA	0.6
Untrained TBA	0.8
Others	42.7

Table 2. Logistic regression odds ratios: demographic, socioeconomic, cultural and programmatic factors associated with consulting someone for antenatal care

Variable	Odds ratio	Variable	Odds ratio
Age of woman (years)		Religion	
<20 (RC)†	1.00	Hindu (RC)	1.00
20-24	0.80	Muslim	1.17*
25-29	0.41***	Satellite Clinic visit	
30-34	0.18***	Never visited (RC)	1.00
35-39	0.08***	Ever visited	1.50***
40+	0.04***	H&FWC visit	
Parity		Never visited (RC)	1.00
1-2 children (RC)	1.00	Ever visited	1.17***
3-4 children	1.36***	Ownership of Radio/TV	
5+ children	2.36***	None (RC)	1.00
Education		Radio	0.96
No education (RC)	1.00	TV	1.20
1-4 years	1.07	Both Radio & TV	1.20
5+ years	1.48***	Geographical Area	
Employment		Project Area - I	0.71***
Housewife (RC)	1.00	Project Area - II	1.66***
Work for earning	0.09	Non-Project Area- I	1.24**
Monthly family expenditure		Non-Project Area-II (RC)	1.00
< Tk.1,000 (RC)	1.00		
Tk.1,000-1,999	1.19*		
Tk.2,000+	1.36**		

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$;

† RC = Reference category

Table 3. Logistic regression odds ratios: demographic, socioeconomic, cultural and programmatic factors associated with consulting qualified persons for antenatal care

Variable	Odds ratio	Variable	Odds ratio
Age of woman (years)		Religion	
< 20 (RC)†	1.00	Hindu (RC)	1.00
20-24	1.08	Muslim	1.30*
25-29	1.01		
30-34	0.94	Satellite Clinic visit	
35-39	0.77	Never visited (RC)	1.00
40+	0.94	Ever visited	1.68***
Parity			
1-2 children (RC)	1.00	H&FWC Visit	
3-4 children	0.88	Never visited (RC)	1.00
5+ children	0.77	Ever visited	1.65***
Education		Ownership of Radio/TV	
No education (RC)	1.00	None (RC)	1.00
1-4 years	1.32**	Radio	1.06
5+ years	2.05***	TV	1.60
Employment		Both Radio & TV	1.40
Housewife (RC)	1.00	Geographical Area	
Work for earning	0.79**	Project Area - I	1.23*
Monthly family expenditure		Project Area - II	1.72***
< Tk.1,000 (RC)	1.00	Non-Project Area- I	0.95**
Tk.1,000-1,999	1.44**	Non-Project Area-II(RC)	1.00
Tk.2,000 +	1.65***		

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

† RC = Reference category

Table 4. Logistic regression odds ratios: demographic, socioeconomic, cultural and programmatic factors associated with conducting delivery by qualified persons

Variable	Odds ratio	Variable	Odds ratio
Age of woman (years)		Religion	
<20 (RC)†	1.00	Hindu (RC)	1.00
20-24	0.95	Muslim	1.24
25-29	0.77		
30-34	0.52***	Satellite Clinic visit	
35-39	0.41***	Never visited (RC)	1.00
40+	0.35***	Ever visited	1.09
Parity			
1-2 children (RC)	1.00	H&FWC visit	
3-4 children	0.84	Never visited (RC)	1.00
5+ children	0.72*	Ever visited	1.12
Education		Ownership of Radio/TV	
No education (RC)	1.00	None (RC)	1.00
1-4 years	1.06	Radio	1.22*
5+ years	2.01***	TV	2.24**
Employment		Both Radio & TV	0.86
Housewife (RC)	1.00	Geographical Area	
Work for earning	1.06	Project Area - I	1.41*
Monthly family expenditure		Project Area - II	2.58***
<Tk.1,000 (RC)	1.00	Non-Project Area- I	2.92***
Tk.1,000-1,999	0.99	Non-Project Area-II(RC)	1.00
Tk.2,000+	1.14		

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

† RC = Reference category

THEME II

CONTRACEPTIVE USE DYNAMICS

CHAPTER 6

Determinants of Contraceptive Use Among the Young and Newly-wed Couples

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Determinants of Contraceptive Use Among the Young and Newly-wed Couples

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Abstract

Young newly-wed couples in rural areas are often underserved by family planning service providers for a number of possible reasons: (1) they couples lack knowledge about contraceptive methods and where to obtain them; (2) they have restricted access to family planning and health services due to *pardah*; financial constraints, and husband disapproval; and (3) there is a perceived lack of need for family planning services for newly-weds on the part of providers, especially fieldworkers.

The purpose of this study is to examine the sociodemographic and programmatic determinants of contraceptive use and non-use among the young and newly-wed couples.

Data were collected from surveys conducted during September-December 1993, and October 1994-June 1995, in six rural thanas of Bangladesh, the field sites or comparison areas of the MCH-FP Extension Project (Rural). Cross-tabulations and logistic regression were used for assessing the association between contraceptive use and demographic, socioeconomic, and programmatic variables, with special focus on contraceptive use behaviour of the newly-weds (married less than three years) and young women (less than 20 years old). The sample comprised 13,515 rural women of reproductive age, and the individual respondent was considered a unit of analysis.

The fieldworker contact rates were substantially lower for the teenage married women and the newly-weds. Young and newly-wed women who have not yet had any children were highly unlikely to use contraception, because most of them wanted to have children soon after marriage. Overall, desired family size was lower among the younger married women than others. Furthermore, current non-users' intention to use modern contraceptives in the future was significantly higher among the teenage married women than among the older non-using women. Once young women and newly-weds have had a child, prevalence of their contraceptive use is comparable to the levels of women in their twenties.

The analysis indicates that family planning workers should give special attention to the newly-wed couples and the young married women. Successful side-effect management and husband's involvement in family planning could increase contraceptive use among the newly-weds and the young married women. Young and newly-wed women need counselling on: (i) appropriate contraceptive methods; and (ii) the social and health advantages of delayed childbearing.

Introduction

Despite the wide variety of socioeconomic challenges facing Bangladesh in recent years, the Bangladesh National Family Planning Programme has made remarkable strides toward a higher quality of life for its people. One area of substantial improvement has been in the increase in contraceptive use.

Some elements identified as having contributed to the success of the programme are: (1) strong political commitment to the family planning (FP) programme by each successive government; (2) successful promotion of the small family norm through information and education activities and other multisectoral programmes; (3) establishment of a nationwide family planning service delivery network (which includes rural areas); (4) increased involvement of non-government organisations (NGOs) to supplement and complement the government's efforts; (5) policy and programmatic flexibility in response to emerging needs; and (6) strong support of the programme by the international aid community (Mitra *et al.*, 1994). One study by Khuda and Barkat (1994) states that the success of the Bangladesh family planning programme has been carried out in five distinct phases: (i) voluntary activities without government support (1953-1955); (ii) voluntary activities with limited government support (1955-1960); (iii) the first national family planning programme (1960-1965); (iv) the government-expanded family planning programme (1965-1970); and (v) a multi-sectoral and broad-based population and family planning programme, following the country's independence.

The population growth rate remains high, however, at 1.8 percent per annum. In 1994, the contraceptive prevalence rate (CPR) was 44.6 percent (for any method) and the total fertility rate (TFR) was estimated at 3.4 births per woman (Mitra *et al.*, 1994). To reach the Government of Bangladesh's goal of achieving replacement fertility by the year 2005, further increase in the CPR will be necessary.

The CPR for married women aged less than 20 years is only 24 percent, compared to a CPR of 44 percent for women in the 20-29 age group (Mitra *et al.*, 1994). This indicates that much of the increase in contraceptive prevalence is attributable to higher rates of contraceptive use and family planning acceptance among relatively older, higher parity couples. Married women aged less than 25 years, however, represent over one-third of the country's reproductive-age women. This group will, therefore, have a tremendous influence on contraceptive prevalence and fertility during the next ten years (Pinkham *et al.*, 1995). Social factors, particularly pressure to have children soon after marriage, will need to be addressed. The average age at marriage of women has risen steadily from 16.3 years in 1975 to 18.0 years in 1989. This increase in mean age at marriage has contributed to the decrease in fertility at young ages. However, the demographic importance of this group cannot be denied, considering the relatively young age structure of the

population, and current contraceptive trends. Clearly, a better understanding of this population subgroup with respect to family planning service requirements is needed (ICDDR,B, 1994).

The young and generally lower parity women are not well served by the existing family planning service-delivery system. The female fieldworkers who currently provide FP services at the door-step level are reluctant to visit this group of potential acceptors. Only one of every five married women of reproductive age (MWRA) and aged less than 20 years had been visited by female family planning workers (FWA) in the last six months (MOHFW 1994). Recent successful efforts by several NGOs to provide family planning services to newly-married couples, however, suggest that there is a demand for family planning and reproductive health services among this population subgroup.

In light of this, it has become imperative that we examine the influence of sociodemographic and programmatic variables on method use among couples aged less than 20 years. In this study, data from a cross-sectional, in-depth survey were used. Data were collected by the International Centre for Diarrhoeal Disease Research, Bangladesh's (ICDDR,B) Maternal Child Health and Family Planning (MCH-FP) Extension Project (Rural). The methodology and data are described in the next section. In the findings, cross-tabulations and multivariate regressions are used for examining the effect of social, demographic and programmatic variables on contraceptive use among the young MWRA and also among the newly-wed couples. The definitions of young women and of newly-wed couples are: married women aged less than 20 years, and married women with less than three years of marital duration, respectively. We will use these definitions for the rest of the analysis.

Methods and Data

Data for this study were provided by the ICDDR,B's MCH-FP Extension Project (Rural). The Project has been maintaining a longitudinal surveillance system since its inception in 1982, known as the Sample Registration System (SRS). In the SRS, a two-stage cluster sample is drawn. Within each thana chosen for the Project, a sample of unions (administrative subunits consisting of a population of approximately 25,000 each) was selected randomly as a first stage in the cluster sampling procedure, and households were randomly selected each with an equal probability of selection. An in-depth survey was conducted with the sample of 13,515 women in the SRS unions in 1993 and 1994. Data were collected from Abhoynagar, Bagerpara and Keshebpur thanas of Khulna division, Sirajganj Sadar thana of Rajshahi division, and Mirsarai and Satkania thanas of Chittagong division.

Trained and highly experienced interviewers collected data, using a structured questionnaire under continuous field supervision. Editing of the completed questionnaires was done at the field level, so that any inconsistencies could be immediately clarified. The in-depth survey

collected data on socioeconomic, demographic, reproductive health, and programmatic variables. We use CPR as the dependent variable and sociodemographic and programmatic variables as independent variables.

Objective

The purpose of this study was to determine the sociodemographic and programmatic variables that affect the use of modern contraceptive methods among the young and newly-wed couples.

Findings

In this study, we examined contraceptive use as it varies with sociodemographic and programmatic variables.

Table 1 shows sociodemographic characteristics of the sample of married women by age. The proportion of married women with no living children, or who were married less than three years, or who were never contacted by a family planning fieldworker all decrease dramatically with increasing age. From ages 18-19 years to 30 years and over there was a sharp increase in the proportion of women who have never attended school.

Use of Contraceptive Methods

Table 2 shows that at the time of the survey, 40 percent of the MWRA were currently using a contraceptive method in the six thanas included in the sample area. Only one of the six thanas in the survey sample (Abhoynagar) was an active MCH-FP Extension Project intervention thana at the time of the survey. It should be noted that the survey sample was not intended to be representative of the country as a whole. It includes project comparison thanas and thanas from the low-performing Chittagong division.

Of those women currently using contraception, the majority were using modern methods. Slightly over five percent of the women were using traditional methods. The use of contraception increased with age. The most popular method at all ages was the pill (14.3%), and the least popular method was the intrauterine device (IUD) (2.5%). Prevalence of injectables and sterilization was also low, although each increased substantially with increasing age. The use of injectables (7.5%) was higher than the national average (4.5%). In most areas of the country, injectables are available only at static centres through paramedics. In the Project areas, however, non-paramedics - female family planning grassroots-level workers, the Family Welfare Assistants (FWAs) administer injectables at the doorstep. This availability has noticeably raised the prevalence of injectable use in the Project areas. Condom use is very low (2.7%). Traditional methods were not reportedly used by the women aged 15 years or younger, but a

consistent rise was observed with each subsequently older age group. Only 2.2 percent of the women who were aged less than 20 years were using traditional methods.

Use of modern methods among the MWRA younger than 20 years was only 17 percent, whereas it was 27 percent among the 20-24-year age group, and 36 percent among the 25-29-year age group. That is, modern method use is more than twice as prevalent among women 25-29 years of age as it is among women aged less than 20 years. This indicates that the young married women are either eager and/or pressured by relatives to have children soon after marriage. In either case, the resulting effect is that use of the contraceptives is low in this group. Current efforts are focused on raising the level of contraceptive use among these women.

Women's Education

Female education has emerged as the single most important variable affecting contraceptive use. Overall, 40 percent of all women in the sample have received some formal schooling, and only three percent have exceeded 10th grade.

It is clear from Table 3 that ever-use and current contraceptive use in all age groups increase with increase in education, except among women aged 20-24 years among whom one-third of educated women were using contraception, regardless of the level of schooling completed.

Among women aged less than 18 years, who have passed the 10th grade, less than one percent are married. This indicates that education postpones marriage, and has a direct effect on fertility by reducing a woman's child-bearing period. Therefore, education has two effects: it raises age at marriage, and within the marriage, it ultimately increases the use of contraceptives, even among newly-married women.

With regard to contraceptive use, not much difference was observed between the husband's and the wife's corresponding levels of education. Almost 60 percent of the women received no formal schooling, while 44 percent of the husbands had no formal schooling (data not shown).

Women's Religion

Contraceptive use has also been examined according to religion (Muslim and non-Muslim). Eighty-four percent of the respondents were Muslims.

Table 4 shows that among all age groups, 62 and 73 percent of the Muslim and non-Muslim respondents respectively had ever used contraceptives. Within both religious groups, ever-use increased with age. A dramatic increase in ever-use for Muslim women occurred in the 18-19-year age group, after which the rate continued upward with the respondent's age. Among the

non-Muslims (mostly Hindu women), this dramatic increase occurred slightly later at the age of 20-24 years, after which the rate similarly continued to increase. Of the entire group of Muslim respondents, 37 percent were currently using contraceptives (lowest was 7.3% for the 15-year-and-under age group; highest was 44.9% for the 30+ age group). Of the entire group of non-Muslim users, 54.7 percent were currently using contraceptives. Within the small number in the 15-year-and-under age group, no one was using methods. The highest usage (68.4%) was among the 30-and-over age group of non-Muslims. Prevalence was generally higher among non-Muslims than among Muslims.

Number of Living Children

The CPR, as expected, was higher among the MWRA who had children than among those who had no children. Table 5 compares the CPR of women with no children to the CPR of women with one or more living children.

Ever-use among the women who had children was more than three times higher (69%) than among the women who had no children (19.7%). At the time of the interview, the CPR was 44.4 percent among the MWRA with one or more living children, whereas it was much lower (5.6 %) among the MWRA who had no children. The table illustrates that the CPR increased with age among the women who had one or more living children. However, no consistent pattern was observed for the women who had no children. In the 20-24-year age group, a drop in contraceptive use was observed among those women who had no living children. One reason for this may be that at this age, more women want to have their first child, and thus, establish the family. The very low CPR among the respondents who have no children may indicate a desire among the newly-weds for children soon after marriage, a continued desire for at least one child in the early reproductive years, or a perceived lack of need for contraceptives due to infertility.

Duration of Marriage

Contraceptive use is positively related to the duration of married life. Table 6 presents the respondents' duration of married life, by their age group and contraceptive use status.

Among all of the respondents at the time of the interview, the CPR was 42.4 percent when the duration of married life was more than three years, compared to only 11.5 percent when the duration of married life was less than three years (Table 6). Only 22.8 percent of the women who had been married less than three years had ever used a contraceptive method. Women who had been married longer than three years, on the other hand, were almost three times as likely (66.8%) to have ever used a method.

Family Planning Fieldworker Contact

Family planning fieldworker contact is an important motivational means which can be used when changes in contraceptive behaviour of a population are desired. Table 7 shows fieldworker visitation as it is related to contraceptive use. Over two-thirds (69 %) of all women in the survey sample had been visited by a family planning fieldworker in the previous six months, while about 61 percent of the married women aged less than 20 years had been visited within the previous six months.

Table 7 indicates that there is a positive correlation between FP fieldworker contact and contraceptive use. The respondents are divided into three categories: never contacted, contacted prior to six months, and contacted within the previous six months. Among those respondents who had been contacted prior to the previous six month period, and during the previous six month period, ever-use was 60 percent and 71.5 percent respectively. Among the respondents who had never been contacted, ever-use was only 26.5 percent. Only 14.5 percent of the clients who had never been contacted were currently using a method. Of the respondents who had been visited more than six months prior to and within the previous six months, 34.2 percent and 46.4 percent were using contraceptives respectively. This demonstrates the positive impact that fieldworker contact can have upon contraceptive use.

Figure 1 shows contact of FP fieldworkers by age of MWRA. Younger, married women are clearly much less likely to ever have been contacted by a family planning fieldworkers or to have been contacted within the previous six months.

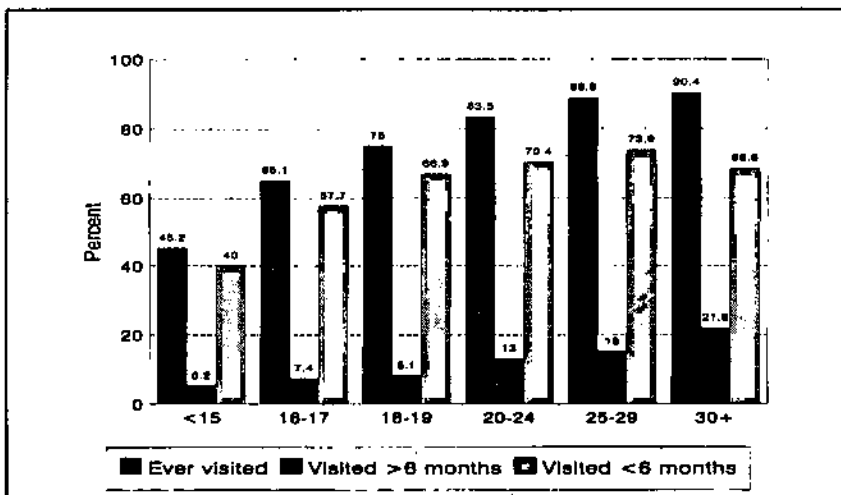


Figure 1. Percent distribution of couples according to visit status by family planning fieldworkers

Health and Family Welfare Centre (H&FWC) Visit

The H&FWC is a static service centre at the union level that serves the population of the union, especially mothers and children. The services are provided by the paramedics posted at the centre.

Table 8 indicates that half of the total respondents had ever visited H&FWC. However, less than one-third of the married women aged less than 20 years had ever visited the H&FWC. The contraceptive use rate among the married women who had ever visited the H&FWC is 48 percent, which is much higher than the rate of 32 percent for women who had never visited the H&FWC. Higher contraceptive use among the women who visited the H&FWC compared to women who had not visited the H&FWC was observed for all age groups.

Primary Reasons for Non-Use of Contraceptives

The non-users were asked for their reasons for not using contraceptives. Table 9 presents primary reasons given for not using modern family planning methods.

The most frequently cited reason for non-use (21.6%) was the desire for additional children. The desire for additional children was inversely related to the age of the respondents. Sixty-seven percent of the non-contracepting women aged 15 years or younger wanted additional children, whereas only 10 percent of the non-contracepting women aged over 30 years wanted more children. Another frequently cited group of reasons (38.8%) for not using modern contraceptives were that respondents were "Not at Risk" (i.e. either pregnant, postpartum amenorrhea/post-abortion amenorrhea or practising infrequent sex). Side-effects of contraceptives were one of the most important reasons (12%) for not using methods. And, although health workers have often attributed non-use to religious reasons, it was found that only 2.7 percent of the respondents actually gave this reason. Husband's objections were given by 5.1 percent of the respondents as a reason for not using modern methods. Only one percent gave limited access as a primary reason for non-use.

Knowledge of Methods Before Marriage

The respondents were asked whether or not they knew about FP methods before marriage. It was expected that knowledge of methods before marriage would lead to higher method use after marriage.

Table 10 indicates that the overwhelming majority (more than 80%) of the women aged less than 20 years had heard about FP methods before marriage. It is clear, however, from the table that knowledge of methods before marriage does not necessarily lead to higher method use among

the married women aged less than 20 years, indicating a comparatively strong desire for children directly after marriage among younger the women.

Desire for Next Child

All respondents, except those who were sterilized, pregnant, or wanted no more children, were asked when they wanted their next child. This interval was measured with respect to the birth of a previous child.

Table 11 indicates that the majority of the respondents (41.4%) desired their next child after a two-year interval. Twenty-eight percent wanted their next child within one year, whereas only 13 percent wanted children within an interval of 13-24 months. Seventeen percent of the women did not see the decision as theirs' to make. Many said that it was up to the God to decide if and when they would have another child. It is worth noting that this attitude, or fatalism, is more common in the older age group. Only 4.6 percent of the married women aged less than 16 years adhered to fatalism, whereas the figure was almost four times higher among the women in the 25-29-year age group (17%). Fatalism and uncertainty were even higher (34.6%) among those women who were aged over 30 years.

Figure 2 shows the distribution of women who adhere to a fatalistic belief system. It is the attitude of these women that family size and timing are not a question of desire, but are determined by God.

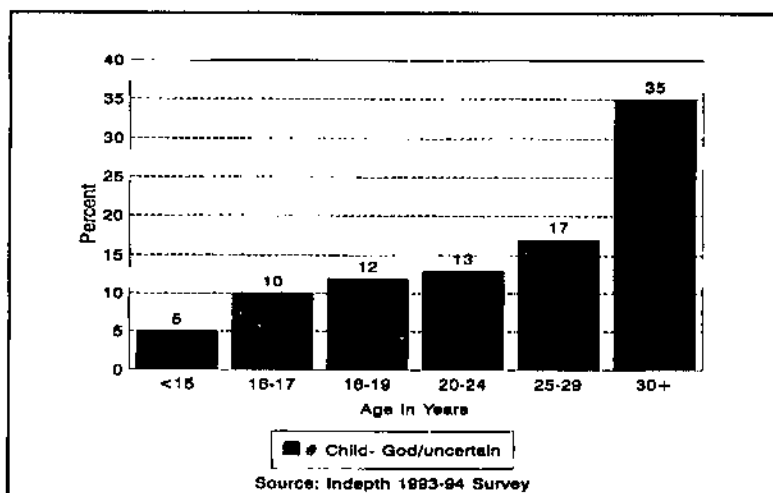


Figure 2. Percent of married women who have a fatalistic or uncertain attitude toward the number of children desired in the future

Experience of Complications During Pregnancy and its Relation to Contraceptive Use

It has been suggested that a woman who suffers from complications during or after a pregnancy may be more likely to use FP methods, either to space or to limit future births. Table 12 presents data illustrating the relationship between a history of pregnancy and/or delivery complications and subsequent contraceptive use behaviour.

In comparison to the women who had been pregnant during the previous five years, contraceptive use was much lower among the women who had never been pregnant or if the age of their last child was greater than five years (Table 12). Among the women who had ever been pregnant, a consistent pattern was observed. Of the women who had never been pregnant, or whose last child was aged five years or older, only 13 percent were currently using contraceptive methods.

Contrary to our hypothesis, women who experienced complications during or after childbirth were more likely to use modern contraceptive methods (34%) than those who experienced no childbirth-related complications (53%). This was true among all age groups of women who had ever been pregnant.

Intention to Use

The respondents, except those who were currently using methods, were asked whether they intended to use modern family planning methods in the future.

Table 13 shows that 63 percent of the respondents had intentions to use modern family planning methods some time in the future. Nearly five percent of the respondents stated that they were not sure whether or not they would use a modern method in the future, while one-third (32%) stated that they did not intend to use a modern method in the future.

The intention to use methods in the future consistently decreased with age. The highest proportion (95%) of non-users who expressed interest in future use of modern contraceptive methods was among the 15 years-of-age-or-younger group, and the lowest proportion (36%) was among the women aged 30 years or older. Uncertainty with regard to method use also appeared to be slightly higher in the older age groups. Among the women aged less than 20 years, a large proportion expressed intention to use modern methods in the future. However, a dramatic contrast was observed among the women aged 30 years and older. This indicates that the overwhelming majority of the younger MWRA are interested in using modern FP methods. If this intention is interpreted as potential future demand, the table clearly indicates a high future demand for contraceptives among the women who are now aged less than 20 years.

Satellite Clinic Visit

The satellite clinic (SC) is a static service centre which serves people in the community, usually close to their homes. The SC is run by a female paramedic who provides services on maternal and child health and family planning. It was expected that the CPR would be higher among those eligible couples who visit the centre.

Table 14 reveals that less than one-fourth of all the respondents had ever visited the SC. The contraceptive use rate is 1.5 times higher among those women who had visited the SC (51%) compared to 37 percent for women who never visited the SC. Slightly less than one-fifth of respondents aged less than 20 years had visited the SC. It may be because the mobility of young women is restricted, or because they are not aware of the SC, or because they do not think that they need the services offered at the SC. In all age groups, except the 15 years-and-under age category, the contraceptive use rate was remarkably higher among the women who had visited the SC, compared to women who did not visit to it.

Mobility of Women

More than 90 percent of the married women had permission to go out of the home for any reason. This pattern appeared to hold even for the younger women, which indicates that women's mobility may be less restrictive than in the past. It was thought that the women who had permission to go out would use family planning services more than the women who had no permission to go out. Table 15 reveals that women who had permission to go out were about two times as likely to be using contraceptives as women who had no permission to go out. A consistent rise in method use was observed with increasing age. It is clear from the table that women's mobility has a positive impact on contraceptive method use.

Desired Family Size

The respondents were asked about how many children they would prefer to have during their entire life. Women who were sterilized or pregnant were not asked this question. Table 16 shows the mean desired family size by age of the respondent, for those women who gave a numerical response.

The lowest mean desired family size was 2.3 for the age group ≤ 15 (Table 16). The highest mean desired family size was 3.0 for the women aged 30 years and over. The mean desired family size among the respondents younger than 20 years of age was 2.3-2.4 children, whereas this mean rises considerably from age 25 and above, indicating that the preferred number of children is higher among the older age group. The overall mean desired family size has been recorded at 2.5 for Bangladesh as a whole (Mitra *et al.*, 1994). This study indicated a slightly higher mean family size at 2.8 children per woman in the study area.

Logistic Regression Analysis

Table 17, 18 and 19 show the logistic regression estimates of the effects of selected sociodemographic and programmatic factors on current contraceptive use and on intention to use modern contraceptive methods in the future. In the first model, we took all the variables including the age and marital duration. In the second and third model we control the marital duration of less than three years and women who were aged less than 20 years respectively.

The results are as expected for most variables in the regression on current use (Table 17). A marriage duration of three years or more has a positive effect on current contraceptive use. It is likely that by this time in a marriage, the woman has already begun to bear children. Having living children has a significant positive association with current contraceptive use. Fieldworker contact also has a significant positive effect on current contraceptive use. Similarly, education, regardless of level, has a positive effect on contraceptive use. Non-Muslim women had significantly higher current-use than Muslim women. Women who desired no more children were more likely to be currently using than those who wanted a child soon or those who left it up to God. Another important finding is that the married women aged 20-24 years were not significantly more likely to be using modern contraception than the teenage married women, once other important variables had been controlled, such as parity and marital duration.

The regression analysis for intention to use modern FP methods in the future shows that, among non-contracepting women, there are a higher proportion of younger women (under 25 years) who are interested in future contraceptive use than older women (25 and over). The duration of marriage has a significant negative association to intention to use in the future. Fieldworker's visit has a significant positive effect on the intention to use modern contraceptives in the future. Other variables, such as increasing levels of education (except primary level) and having living children, have significant positive effects on the intention to use contraceptives in the future.

Fieldworkers' contact, women's education level, and parity have a significant positive effect on current contraceptive use among women married less than three years (Table 18). The effects of some programmatic variables in the multivariate analyses, such as ever visited SC and H&FWC, may have positive effects on contraceptive use, but these effects were not significant in the model.

There is evidence that women's contact with fieldworkers and having permission to go out of the home are positively associated with intention to use modern methods in the future, among women married less than three years.

The analysis of the effects of sociodemographic and programmatic variables on current use and future intended use of modern contraceptives among the women aged less than 20 years is shown

in Table 19. Fieldworker contact, women's level of education, parity, and previous visits to SC and H&FWCs showed significant positive relationships to current contraceptive use. However, the direction of causality is not clear in the relationships between exposure to programme services and current contraceptive use. For example, exposure to fieldworkers, SCs and H&FWCs may have led to adoption of contraceptive use, or it could also be that the need for family planning services led young women to seek these health service outlets.

With regard to intention of young women aged less than 20 years to use modern methods in the future, significant positive relationships were observed between intention to use in the future and women's parity, knowledge of family planning prior to marriage, and, having permission to go out of the home.

Discussion and Conclusion

The overall findings show that a very small percentage of young, married women aged less than 20 years are currently using modern contraceptives, and a nominal percentage use traditional methods. Relatively younger, newly-wed, and lower-parity women are reluctant to use contraceptive methods early in their reproductive years. If this is true throughout the country, the current high levels of contraceptive use primarily reflect use by older women who have been married for some time and already have living children. It was also found that the demand for additional children is stronger among the relatively younger women, although the overall mean desired family size is lower among this group. Another finding that makes the young, newly-wed group unique is their overwhelmingly high intention to use contraception in the future. Over ninety percent of the MWRA less than 20 years old expressed their interest in future use of contraceptive methods. Furthermore, women who already have living children are much more likely to use contraceptives than those who do not. The strong desire for at least some children and/or substantial social pressure to bear children directly after marriage are existing norms that favour an early establishment of a family. The advantages of young teen-aged married women to delay the onset of childbearing, for health reasons (until her body matures) or so she can finish her education or adjust to married life, may not be known by the woman or her spouse.

Our results also indicate that the majority of the women expressed a willingness to space their children. Fatalism is a factor related to lower contraceptive use among some women, but it is more common among the older women than in the younger, newly-wed groups.

Overall, the positive effect of formal schooling on modern contraceptive use is pronounced. However, knowledge of FP prior to marriage does not appear to translate into higher current use. The existing social pressures to have children soon after marriage may be the dominant factor in determining contraceptive use among the younger, newly-wed group. Qualitative in-

depth interviews and focus group discussions are needed to better illuminate the reasons for non-use and the fertility desires and fertility decision-making process of the young and newly-wed couples.

This study, in line with several other studies, has shown that the CPR is markedly higher among women who are regularly visited by FP workers (Phillips *et al.*, 1993; Hossain *et al.*, 1993). Women in the target age group (e.g. women aged less than 20 years), however, were found to have been contacted less frequently by FP fieldworkers than the other groups. The reasons for this could be that under the current system, fieldworkers receive little incentive or encouragement to visit the homes of young married women and newly-weds or assume that a need for family planning services does not exist for young and newly-wed couples.

Female education has emerged as an important variable affecting contraceptive use among the married couples. Education also contributes to delaying marriage, which also has a direct effect on fertility, by postponing a woman's childbearing career. Postponing marriage would be one way to curb the norm of early motherhood. Unfortunately, this approach cannot be used in the case of women who have already married and entered their childbearing careers. For the female population which has not yet entered into the childbearing age, education should be emphasized as a prudent alternative to an early marriage and early childbearing.

Two encouraging findings were: (1) the young and newly-wed women's overwhelmingly positive perceptions about family planning as reflected in the high proportion intending to use modern contraception in the future; and (2) the relatively weaker influence of the fatalistic attitude about childbearing and family size among the group of young and newly-wed women.

Fieldworker contact was found to have a significant positive effect on current contraceptive use. However, over 30 percent of the married teenage women surveyed had never been contacted by a family planning worker of any kind. A strengthened field effort could, therefore, have a positive effect on this target group. Current efforts have focused on contraceptive adoption after first child birth. This helps ensure spacing and possibly limiting of future births, resulting in an overall fertility reduction. However, young and newly-wed couples also need to be made aware of some of the social, economic, health, psychological advantages of delaying the onset of childbearing after marriage (especially women aged less than 18 years) and the advantages of spacing births farther apart. Many married teenaged women aged less than 18 years require more time to become emotionally, socially and/or physically mature enough to bear and raise children. It is also important for the husbands of these teenage wives to be aware of the health advantages of delaying childbearing until the women reach their twenties.

The findings may have important implications for the Bangladesh family planning programme. Although the family planning programme has focused on married women of reproductive age,

services for married women aged less than 20 years and newly-weds apparently have not been emphasized. To better meet the family planning and other reproductive health needs of young women, the following additional actions should be considered:

- (1) FP fieldworkers need to make greater efforts to extend their service to relatively younger, newly-wed and childless couples;
- (2) Supervisors of fieldworkers may need to be oriented more toward this target group and their special service needs. Expansion of MCH as well as family planning services to this target group, especially motivation, counselling, side-effects management, RTI/STD/HIV/AIDS prevention and antenatal care may also be needed. This could be accomplished by involving NGOs more and by providing government fieldworkers with additional training in these areas;
- (3) IEC efforts to ensure that the young and newly-wed husbands participate in family planning and other reproductive health services may also be needed;
- (4) Targeted IEC efforts should be undertaken to inform young teenaged women about the advantages of delayed marriage and childbearing, and about available family planning and health services in the community;
- (5) The development of a supportive structure in the community for increasing the educational attainment of females would help discourage the pattern of early marriage and childbearing.

As Hossain *et. al.* (1996) observed, initial demand often depends upon outreach service provision to motivate and then sustain the use of contraception. Given the expressed contraceptive intentions of the women presently in the young and newly-wed groups, effective service provision could present family planning as an option to them, and in this way, enhance demand. Taking into account the maturity of the National Family Planning Programme as well as the need for sustainability, alternatives to the current doorstep service-delivery approach are needed. However, continued targeted service delivery at the doorstep for the young women and newly-weds may help significantly increase contraceptive prevalence among this typically less mobile group. Furthermore, considering the large cohort of females entering into reproductive age, these efforts could have enormous implications for the reproductive health and well-being of the next generation of women of reproductive age in Bangladesh.

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Table 1. Sociodemographic characteristics of the sample of married women by age

Age group (years)	Variables					
	% having no schooling	% Muslim	% with no living children	% of women married < 3 years	% never contacted by FP workers	Total no. of women
≤15	49.7	89.0	94.2	96.8	54.8	(155)
16-17	43.6	86.3	72.9	73.6	34.9	(5,531)
18-19	43.2	88.2	63.7	31.6	25.0	(908)
20-24	51.0	85.5	14.7	7.3	16.5	(2,609)
25-29	59.3	84.7	5.3	1.0	11.1	(2,672)
30+	67.3	83.0	1.6	0.1	9.6	(6,618)
Total	59.8	84.4	11.6	7.9	14.0	(13,515)

Table 2. Percentage of MWRA currently using contraceptives by method and age group

Age group (years)	Not using	Total using	Currently Using							Total no. of women
			Con-dom	Pill	Inject-ables	Steri-lization	IUD	Total modern	Tradi-tional	
			%	%	%	%	%	%	%	
≤15	93.6	6.5	1.9	2.6	1.9	0.0	0.0	6.5	0.0	(155)
16-17	87.7	12.3	1.8	5.6	2.4	0.0	0.9	10.7	1.6	(553)
18-19	78.1	21.9	2.2	10.5	4.6	0.2	1.5	19.1	2.9	(908)
20-24	69.9	30.1	2.1	15.4	7.0	0.5	2.0	27.0	3.1	(2609)
25-29	59.0	41.0	2.9	17.0	9.4	3.5	3.4	36.3	4.7	(2672)
30+	51.1	48.9	3.0	14.2	7.9	14.2	2.6	41.9	7.1	(6618)
TOTAL										
%	60.1	39.9	2.7	14.3	7.5	7.7	2.5	34.7	5.3	100.00
N	(8120)	(5395)	(362)	(1927)	(1017)	(1046)	(334)	(4686)	(709)	(13515)

Table 3. Percentage of married women ever using and currently using contraceptives by education and age group

Age group (years)	Status of wife's education in years completed												Total no. of women
	No education			1-5			6-9			10+			
	Ever- use	Current use		Ever- use	Current use		Ever- use	Current Use		Ever- use	Current use		
	%	%	N	%	%	N	%	%	N	%	%	N	
≤15	11.7	5.2	(77)	23.6	5.5	(55)	21.7	13.0	(23)	*	*	(0)	(155)
16-17	16.6	7.5	(241)	25.3	12.4	(194)	31.3	21.4	(112)	*	*	(6)	(553)
18-19	37.2	19.9	(392)	42.7	22.2	(302)	42.4	24.9	(177)	46.0	27.0	(37)	(908)
20-24	54.8	26.4	(1331)	61.1	34.5	(704)	58.7	33.1	(441)	60.2	33.8	(133)	(2609)
25-29	67.3	38.2	(1585)	74.5	43.2	(702)	73.6	45.4	(280)	85.7	57.1	(105)	(2672)
30+	66.0	45.3	(4452)	75.9	54.8	(1615)	88.0	63.0	(443)	92.6	67.6	(108)	(6618)
Total N	62.0	38.1	59.8 (8078)	66.4	42.2	26.4 (3572)	65.7	42.2	10.9 (1476)	74.3	48.8	2.9 (389)	(13515)

* indicates fewer than 10 individuals - percentage not shown

Table 4. Percentage distribution of respondents ever and currently using contraceptives by religion and age group

Age group (years)	Religion						Total no. of women
	Muslim			Non-Muslim			
	Ever-use	Current use		Ever-use	Current use		
	%	%	N	%	%	N	
≤15	18.1	7.3	(138)	11.8	0.0	(17)	(155)
16-17	22.9	12.0	(477)	22.4	14.5	(76)	(553)
18-19	41.0	21.9	(801)	36.5	22.4	(107)	(908)
20-24	56.5	29.0	(2231)	61.1	36.5	(378)	(2609)
25-29	69.6	39.1	(2264)	76.0	51.7	(408)	(2672)
30+	67.5	44.9	(5493)	84.2	68.4	(1125)	(6618)
Total	62.0	37.2	11404	73.2	54.7	2111	13515

Table 5. Percentage of women ever using and currently using contraceptives by number of living children and woman's age group

Age group (years)	No living children			One or more living children			Total no. of women
	Ever-use	Current use		Ever-use	Current use		
	%	%	N	%	%	N	
≤15	15.1	4.8	(146)	*	*	(9)	(155)
16-17	17.1	5.5	(403)	38.0	30.7	(150)	(553)
18-19	23.0	7.1	(378)	52.8	32.5	(530)	(908)
20-24	18.5	3.7	(383)	64.2	34.6	(2226)	(2609)
25-29	23.9	7.0	(142)	73.2	42.9	(2530)	(2672)
30+	22.9	6.4	(109)	71.1	49.6	(6509)	(6618)
Total	19.7	5.6	(1561)	69.0	44.4	(11954)	(13515)

* indicates fewer than 10 cases, percentage not shown

Table 6. Percentage of women ever using and currently using modern contraceptives according to duration of married life and age group

Age group (years)	Married life < 3 years			Married life 3+ years			Total no. of women
	Ever- use	Current use		Ever-use	Current use		
	%	%	N	%	%	N	
≤15	16.7	6.7	(150)	*	*	(5)	(155)
16-17	21.1	11.3	(407)	27.4	15.1	(146)	(553)
18-19	25.4	13.2	(287)	47.3	25.9	(621)	(908)
20-24	26.7	13.1	(191)	59.9	31.4	(2418)	(2609)
25-29	28.6	14.3	(28)	71.0	41.3	(2644)	(2672)
30+	*	*	(4)	70.4	49.0	(6614)	(6618)
Total	22.8	11.5	(1067)	66.8	42.4	(12448)	(13515)

* indicates fewer than 10 cases, percentage not shown

Table 7. Percentage of women ever using and currently using contraceptives according to contact status of family planning fieldworkers

Age group (years)	FWA never contacted			> 6 months			< 6 months			Total no. of women
	Ever-use	Current use		Ever use	Current use		Ever -use	Current use		
	%	%	N	%	%	N	%	%	N	
≤ 15	12.9	7.2	(85)	*	*	(8)	24.2	6.5	(62)	155
16-17	7.8	4.2	(193)	17.1	4.9	(41)	32.6	18.2	(319)	553
18-19	18.1	9.3	(227)	37.8	14.9	(74)	49.1	27.5	(607)	908
20-24	26.0	11.8	(431)	52.1	19.1	(340)	65.8	36.4	(1838)	2609
25-29	37.4	15.5	(297)	62.3	29.9	(401)	77.2	47.1	(1974)	2672
30+	32.4	21.7	(636)	63.9	41.0	(1442)	77.7	55.3	(4540)	6618
Total	26.5	14.5	(1869)	60.0	34.2	(2306)	71.5	46.4	(9340)	13515

* Indicates fewer than 10 cases, percentage not shown

Table 8. Percentage of married women of reproductive age (MWRA) currently using contraception by whether they ever visited the Health and Family Welfare Centre and age

age

Age group (years)	% of MWRA currently using contraception				Total no. of women
	Ever visited H&FWC		Never visited H&FWC		
	%	N	%	N	
≤15	10.3	(39)	5.2	(116)	(155)
16-17	15.4	(169)	10.9	(384)	(553)
18-19	30.5	(312)	17.5	(596)	(908)
20-24	36.8	(1,148)	24.9	(1,461)	(2,609)
25-29	45.1	(1,482)	35.9	(1,190)	(2,672)
30+	55.5	(3,606)	41.1	(3,011)	(6,617)
Total	47.6	(6,756)	32.3	(6,758)	(13,514)

Table 9. Percentage distribution of primary reasons given for not currently using modern family planning methods by age group among non-users*

Reason	Age group (years)						Total	
	≤15	16-17	18-19	20-24	25-29	30+	%	N
	%	%	%	%	%	%		
Wants child	66.9	50.4	36.7	28.6	22.0	9.7	21.6	(1910)
Health reasons								
Health concerns	0.0	1.6	2.9	3.0	5.6	8.5	5.8	(509)
Side effects	1.4	2.8	5.2	7.7	11.7	17.1	12	(1057)
Difficult to get pregnant	3.5	0.4	1.0	1.1	2.1	3.9	2.5	(222)
Objections								
By husband	4.8	3.0	3.7	3.3	3.8	7.3	5.1	(454)
Religion	0.7	0.2	0.5	0.8	1.8	4.8	2.7	(236)
Not at Risk								
Currently pregnant	17.9	25.1	23.8	22.9	18.4	7.1	15.3	(1348)
PPA/PAA	2.1	11.3	17.3	21.8	21.3	11.0	15.7	(1385)
Infrequent sex/ Husband away	0.0	2.8	5.4	7.4	9.2	8.7	7.8	(686)
Access								
Limited access to supplies	1.4	1.2	1.2	0.9	1.4	0.8	1	(88)
Others**	1.4	1.0	2.3	2.4	2.8	21.2	10.6	(932)
Total (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
(N)	(145)	(494)	(735)	(1905)	(1703)	(3845)		(8827)***

* Excludes pregnant women.

** Others include family objections, high cost, does not like modern methods, too old to get pregnant, uterus removed, no longer menstruates, no suitable method available, lack of knowledge, opposed to FP, does not know the reason, use of traditional method.

*** Frequency missing = 4688

Table 10. Current contraceptive use status according to family planning knowledge prior to marriage

Age group (years)	Knowledge of family planning prior to marriage				Total no. of women**
	Yes	% with	No	% with no	
	Current contraceptive use	knowledge of FP prior to marriage	Current contraceptive use	knowledge of FP prior to marriage	
	Yes (%)	(%)	Yes (%)	(%)	
≤15	*	87.1	*	12.9	(155)
16-17	12.3	87.0	*	13.0	(553)
18-19	22.2	83.1	20.5	16.9	(906)
20-24	30.5	76.4	28.9	23.6	(2609)
25-29	39.1	56.4	43.4	43.5	(2671)
30+	53.0	21.7	47.9	78.2	(6613)
Total	34.8	46.7	44.5	53.3	13,507

* indicates fewer than 10 cases, percentage not shown

** Frequency missing=8

Table 11. Percentage distribution of respondents who desired more children, by desired interval from previous child, and age group

Desired interval between births	Age Group						Total no. of women	
	≤15	16-18	18-19	20-24	25-29	30+		
	%	%	%	%	%	%	%	N
Within 12 months	35.9	37.8	27.3	24.2	26.6	34.4	28.4	(1552)
13-24 months	22.9	15.1	10.5	12.8	14.5	10.9	13.0	(707)
25+ months	36.6	37.6	50.0	50.3	41.7	20.2	41.4	(2261)
Up to God or uncertain	4.6	9.6	12.2	12.7	17.3	34.6	17.2	(940)
Total %	100	100	100	100	100	100	100	
Total (N)	(131)	(450)	(752)	(1873)	(1262)	(992)		(5460)*

* Frequency missing=8055, which includes sterilized, pregnant and wants no more children

Table 12. Percentage of women currently using contraceptives by whether or not they have ever suffered from complications during pregnancy, or childbirth, and age group

Age group (years)	Never pregnant and/or last child age > 5 years	Ever pregnant		Total no. of women
		With complications	Without complications	
	% (N)	% (N)	% (N)	
≤15	* (7)	* (1)	* (2)	10
16-17	0.4 (21)	0.3 (15)	0.6 (32)	68
18-19	0.4 (22)	1.1 (61)	2.2 (116)	199
20-24	0.3 (14)	4.7 (252)	9.6 (519)	785
25-29	0.8 (44)	7.8 (423)	11.6 (628)	1095
30+	11.1 (600)	19.6 (1056)	29.3 (1582)	3238
Total	13.1 (708)	33.5 (1808)	53.4 (2879)	5395

* Indicates fewer than 10 cases, percentage not shown.

** Frequency missing = 8120.

Table 13. Percent distribution of respondents who were not using contraceptives at the time of interview, by age and intentions to use modern contraceptive methods in the future

Age group (years)	Future intention				Total no. of women
	Saying Yes	Saying No	Who don't know	Total non-users	
	%	%	%	N	
≤15	94.5	*	*	145	155
16-17	93.1	3.6	3.2	494	553
18-19	89.0	6.9	4.1	735	908
20-24	86.2	9.6	4.2	1903	2609
25-29	75.8	19.1	5.1	1703	2672
30+	36.3	58.5	5.2	(3845)	6618
Total %	63.2	32.1	4.7	(8825)**	(13515)

* Indicates fewer than 10 cases, percentage not shown

** Frequency missing=4690

Table 14. Percentage of women currently using contraception by whether they ever visited Satellite Clinic (SC) and age

Age group (years)	% of women currently using contraception				Total no. of women
	Ever visited SC		Never visited SC		
≤15	4.8	(21)	6.7	(134)	(155)
16-17	21.2	(85)	10.7	(468)	(553)
18-19	37.0	(208)	17.4	(700)	(908)
20-24	40.3	(630)	26.8	(1,979)	(2,609)
25-29	51.4	(700)	37.3	(1,972)	(2,672)
30+	60.4	(1,449)	45.7	(5,169)	(6,618)
Total	51.2	(3,093)	36.6	(10,422)	(13,515)

Table 15. Percentage of women currently using contraception by whether they have permission to go out for any reason, and age

Age group (years)	% of women currently using contraception				Total no. of women
	Permitted to go out		Not permitted to go out		
≤15	7.4	(136)	0	(18)	(154)
16-17	13.1	(497)	5.4	(56)	(553)
18-19	23.0	(839)	8.7	(69)	(908)
20-24	31.1	(2428)	17.1	(181)	(2609)
25-29	42.0	(2529)	23.8	(143)	(2672)
30+	50.2	(6218)	29.8	(400)	(6618)
Total	41.1	(12,647)	22.3	(867)	(13,514)

Table 16. Mean desired family size by age group

Age group (years)	(N)	Mean desired family size	Standard deviation
≤ 15	(129)	2.3	0.6
16-17	(446)	2.4	0.7
18-19	(768)	2.4	0.7
20-24	(2264)	2.5	0.7
25-29	(2371)	2.7	0.8
30+	(5637)	3.0	0.9
Total	(11615)*	2.8	0.8

* Excludes pregnant and sterilized women, and women who gave non-numerical responses (e.g. up to God; uncertain)

Table 17. Estimated effects odds ratios of sociodemographic and programmatic factors on current contraceptive use and on intention to use modern methods in the future logistic regression analysis

Factors	Current user of modern method	Intention to use modern method in future
Age (in years)	<u>Odds ratios</u>	<u>Odds ratios</u>
< 15	0.97	0.61
16 - 17	0.88	1.36
17 - 19	0.92	1.16
20 - 24 (RC)	1.00	1.00
25-29	1.49***	0.60***
30 +	1.79***	0.14***
Marriage duration (in years)		
< 3 (RC)	1.00	1.00
> 3	1.37*	0.27***
Fieldworkers' visit		
No visit (RC)	1.00	1.00
Visited	2.98***	1.24*
Woman's education		
No education (RC)	1.00	1.00
Primary level	1.34***	1.01
Secondary level	1.68***	1.22+
More than secondary	2.45***	1.56+
Religion		
Muslim	0.53***	1.08
Non-Muslim (RC)	1.00	1.00
Living children		
No child (RC)	1.00	1.00
Living children	4.28***	1.17
Family planning knowledge prior to marriage		
No knowledge (RC)	1.00	1.00
Knowledgeable	1.01	2.47***
Next child desired		
Do not desire (RC)	1.00	1.00
Within 24 months	0.33***	1.68***
25+ months	1.16*	2.20***
Up to God/uncertain	0.07***	0.36***
(Number of cases)	(12972)	(7921)

+p<0.10; * p<0.05; ** p<0.01; *** p<0.001; (RC) signifies reference category

Table 18. The effects of sociodemographic and programmatic factors on current contraceptive use and intention to use modern methods in the future among women having less than three years of marital duration: odds ratios from logistic regression

Factor	Current use of modern method	Intention to use modern method (non-users)
Fieldworkers' contact	<u>Odds ratios</u>	<u>Odds ratios</u>
No contact (RC)	1.00	1.00
Contacted	2.15**	2.13+
Women's education		
No education (RC)	1.00	1.00
Primary level	2.02*	0.89
Secondary level	3.35***	1.16
Religion		
Non-Muslim (RC)	1.00	1.00
Muslim	0.83	0.68
Living children		
No child (RC)	1.00	1.00
Living children	3.93***	1.18
Family planning knowledge prior to marriage		
No knowledge (RC)	1.00	1.00
Knowledgeable	0.77	1.80
Ever visited Satellite Clinic		
Never visited (RC)	1.00	1.00
Visited	1.39	0.87
Ever visited H&FWC		
Never visited (RC)	1.00	1.00
Visited	1.23	1.07
Woman has permission to go out		
No permission (RC)	1.00	1.00
Permitted	1.86	2.19+
(Number of cases)	(1040)	(905)

+p<0.10; * p<0.05; ** p<0.01; *** p<0.001; (RC) signifies reference category

Table 19. The effects of sociodemographic and programmatic factors on current contraceptive use and intention to use modern methods in the future among women aged less than 20 years

Factor	Current use of modern method	Intention to use modern method (non-users)
Fieldworkers' contact	<u>Odd ratios</u>	<u>Odd ratios</u>
No contact (RC)	1.00	1.00
Contacted	2.38***	1.16
Women's education		
No education (RC)	1.00	1.00
Primary level	1.34+	1.14
Secondary level	2.43***	0.97
Religion		
Non-Muslim (RC)	1.00	1.00
Muslim	0.95	0.69
Living children		
No child (RC)	1.00	1.00
Living children	6.10***	0.60*
Family planning knowledge prior to marriage		
No knowledge (RC)	1.00	1.00
Knowledgeable	1.03	2.69***
Ever visited Satellite Clinic		
Never visited (RC)	1.00	1.00
Visited	1.48*	0.92
Ever visited H&FWC		
Never visited (RC)	1.00	1.00
Visited	1.40*	1.16
Woman has permission to go out		
No permission (RC)	1.00	1.00
Permitted	1.84	2.27*
(Number of cases)	(1606)	(1321)

+p<0.10; * p<0.05; ** p<0.01; *** p<0.001; (RC) signifies reference category

CHAPTER 7

Determinants of Contraceptive Method Choice in Rural Bangladesh

**M. Mehrab Ali Khan
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Determinants of Contraceptive Method Choice in Rural Bangladesh

M. Mehrab Ali Khan, Mizanur Rahman

Abstract

Using the national Contraceptive Prevalence Surveys (CPS) of 1983 and 1991 and a regional survey in 1990, a study of contraceptive method choice was carried out in the MCH-FP Extension Project (Rural). Multinomial logit regressions were used for modelling the contraceptive method choice where the programmatic, demographic, and sociocultural factors were included as the independent variables.

Contraceptive use was positively associated with home visitations of the female family planning fieldworkers who distribute pills and condoms. The association was stronger for pills than for other methods. Injectable and IUD use was higher among the women who visited the fixed-site service centres than among those who did not visit the centres. Injectables and IUDs were more likely to be used by relatively young mothers or those with fewer children, whereas the permanent and traditional methods were more common among older women or those with more children. Pills, condoms, and traditional methods were used more by educated women, whereas injectables and permanent methods were used more by uneducated women.

The national family planning programme can be more effective if it undertakes information dissemination activities regarding the availability of clinical methods at fixed-site service centres and the proper use of pills and condoms. Improved management and quality of services at fixed-site service centres will increase the use of services at these centres, thereby raising the acceptance of injectables and IUDs.

Introduction

Bangladesh has experienced a dramatic decline in fertility, despite its poor social and economic conditions. The total fertility rate (TFR) declined from about 7 births per woman in the 1970s to around 3.5 per woman in 1993-1994 (ESCAP, 1981; Mitra *et al.*, 1994). The Bangladesh Family Planning Programme is recognized as a success story in the contemporary Third World (Cleland *et al.*, 1994). However, the country still has a high population growth rate and needs to reach replacement-level fertility as soon as possible. The national contraceptive prevalence rate (CPR) of about 45 percent in 1993 should be raised to over 70 percent to achieve replacement-level fertility.

The family planning programmes could enhance the efficacy of their services by broadening the contraceptive options offered to people in rural areas. Since individual contraceptive preferences, beliefs, and needs vary within populations, service programmes should accommodate the widest possible range of method preferences among potential contraceptive users (Phillips *et al.*, 1984). This does not necessarily mean that every family planning programme has to provide all methods, but overall programme efforts should be sufficient, so that prospective users have reasonable, if not absolutely equal, access to a variety of methods (Bruce, 1990).

While the programmatic and socioeconomic determinants of contraceptive use at the national and regional level have been studied in Bangladesh, very little is known about the determinants of contraceptive method-choice or method-mix. The objectives of this study are, therefore, to examine: (a) the programmatic, demographic, sociocultural, attitudinal, and regional determinants of contraceptive method-choice; and (b) the shifts in contraceptive method-mix over the last decade.

The 1993-94 Bangladesh Demographic and Health Survey (BDHS) reports that 45 percent of couples were using contraception (Mitra and others, 1994). Method-specific rates were: 17.4 percent pill users, 9.2 percent permanent method users, 8.4 percent traditional method users, 4.5 percent injectable users, 2.2 percent IUD users, and 3.0 percent condom users. Therefore, the method-mix of Bangladeshi contraceptive users is: about two-fifths use pills; more than one-fourth use permanent methods, and about one-fifth use traditional methods. In addition, about 10 percent use injectable, five percent use IUDs, and five percent are use condoms. As the effectiveness of these methods vary substantially, a key goal of the family planning programme is an effective method-mix. An understanding of the determinants of method-choice is required for developing a more effective family planning programme strategy.

Methods and Procedures

Data Sets

The study used data sets from both the national and regional surveys. The national Contraceptive Prevalence Surveys (CPS) of 1983 and 1991 had samples of 10,305 and 12,347 married women of reproductive age (MWRA), respectively (Mitra and Kamal, 1985; Mitra, Lerman, and Islam, 1991). In our analysis, we included MWRA from rural areas only; 7,682 and 8,873 women, respectively, from 1983 and 1991 of CPSs.

We also used the data set of a fertility survey conducted by the Maternal and Child Health and Family Planning (MCH-FP) Extension Project (Rural) of the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B). The fertility survey was conducted in 1990 among 5,839 MWRA in the Project field sites. Women who were pregnant during the surveys were excluded from the analysis, since they were not exposed to any contraceptive method-choices.

Family Planning Programme

Within the Bangladesh family planning programme, MCH-FP services are delivered through a community-based distribution (CBD) approach. At the community level, services are delivered by Family Welfare Assistant (FWA) at the door-step and by Family Welfare Visitor (FWV) and the Medical Assistant (MA) at the Health and Family Welfare Centre (H&FWC) and the Satellite Clinic (SC).

A female FWA is a grassroots-level worker who visits MWRA every two months to provide counselling on MCH-FP and deliver oral pills and condoms. MCH-FP services are also provided through FWV and trained paramedics located at H&FWCs. There is one H&FWC for about 4,000 MWRA and their family members, a total of about 25,000 people. Villagers can attend H&FWCs three days a week to receive MCH-FP and primary health care services. FWVs hold SCs (two SCs per week) at eight spots scattered in the catchment areas of the H&FWCs. MWRA can visit the SC spots and receive MCH-FP and primary health care services. Injectables, IUDs, and management of contraceptive side-effects are provided by FWVs at H&FWCs and SCs. FWAs refer clients to the service centres for these services.

FWAs and FWVs also motivate clients to obtain tubectomies and vasectomies which are provided at the Thana Health Complex (THC) located at the thana headquarters. A FWA usually accompanies a potential tubectomy or vasectomy client to the THC. Cash is given to a client as a compensation for wages lost on the day of surgery as well as for transportation. A new cloth is given to a client prior to surgery to prevent infection.

Variables

The following five categories of factors that may affect contraceptive use and method-choice of MWRA were considered in the analysis: programmatic, demographic, sociocultural, attitudinal, and regional.

Among the programmatic factors, we included household visitation by FWAs, MWRA's attendance at SCs, and MWRA's attendance at H&FWCs. We included one variable that captures the extent of the knowledge a MWRA has about contraceptive methods. This is an individual-level variable, but is strongly affected by the activities of the MCH-FP programme on information, education, and communication as well as by the activities of FWAs and FWVs.

Among the demographic and socioeconomic variables, we considered maternal age, number of living children, gender composition of living children, maternal education, and religion. We used attitudinal variables, "whether or not a MWRA or her husband approve of FP," in the MCH-FP Extension Project data set. Table 1 gives a brief description of the independent variables or factors that may affect contraceptive use.

The variables that may capture regional variation are also shown in Table 1. We compared contraceptive behaviour between four divisions -- Chittagong, Dhaka, Khulna, and Rajshahi. For the MCH-FP Extension Project data, we compared contraceptive use between Abhoynagar and Sirajganj, the two field sites of the Extension Project. Abhoynagar and Sirajganj are in Khulna and Rajshahi division, respectively.

Contraceptive use and method-choice are the dependent variables. The CPS of 1983 (Mitra and Kamal, 1983) shows that about 20 percent of MWRA used contraception: 3 percent used pills, 1 percent used injectables and IUDs, about 8 percent had tubectomies or vasectomies, and 2 percent used condoms and 5 percent used traditional methods (Figure 1). The BDHS of 1996-97 (NIPORT, Mitra and Associates, and Macro International, 1997) shows that 49 percent used contraceptives: about 21 percent used pills, 8 percent used injectables and IUDs, 9 percent had tubectomies and vasectomies, and 4 percent used condoms, and 8 percent used traditional methods. The method-mix of this method-specific rates are: 35 percent pill users, 11 percent IUD and injectable users, 26 percent permanent method users, 6 percent condom users, and 22 percent traditional method users.

Data Analysis

The association between contraceptive use and various factors was modelled, using logistic regression. The contraceptive method-choice was modelled, using multinomial logit regression (Maddala, 1983).

Categories of contraceptive methods, the dependent variable, in the multinomial logit regression were: (i) pills; (ii) injectables and IUDs; (iii) tubectomies and vasectomies (permanent methods); and (iv) other methods which include condoms, rhythm, withdrawal, abstinence, and indigenous/herbal methods of family planning. These categories apply to the CPS data analysis. For the MCH-FP Extension Project data, the categories were the same except that injectables and IUDs were separate categories. For the multinomial logit regression, the reference category of the dependent variable was the "non-user" of contraception. Table 1 shows the independent dummy variables and their reference categories as well as the means of the independent variables.

Results

Figure 1 and Figure 2 show the contraceptive method-mix of the national and regional surveys respectively. Contraceptive use in Bangladesh had more than doubled by 1991 compared to 1983 (Figure 1). The increase was attributed to an increase in all methods, but especially a marked increase in the use of pills. Most of the increase in contraceptive use in Abhoynagar and Sirajganj was attributed to the increase in the use of pills and injectables. The use of other methods increased only slightly, while the use of some methods remained static. There are two points worth mentioning. First, the Extension Project in Abhoynagar and Sirajganj introduced door-step injectable contraceptive services by FWAs at the end of 1983. In the rest of the country, injectables are provided by FWVs at H&FWCs and SCs. Injectables became quite popular among women there (Figure 2). Second, tubectomies and vasectomies never gained importance in the MCH-FP programme in Sirajganj (Figure 2).

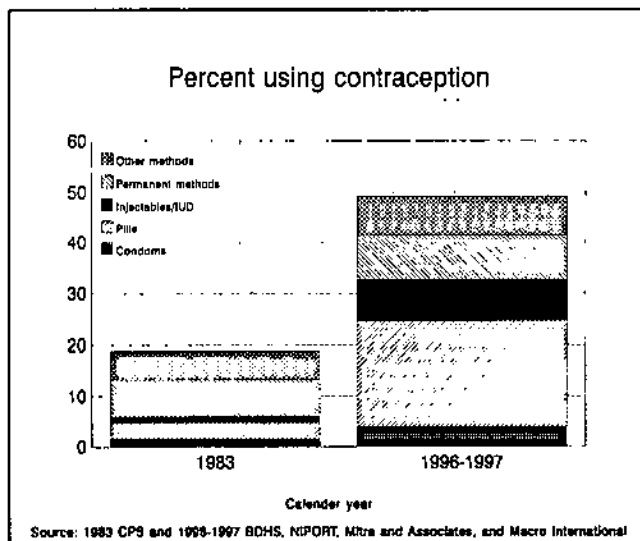
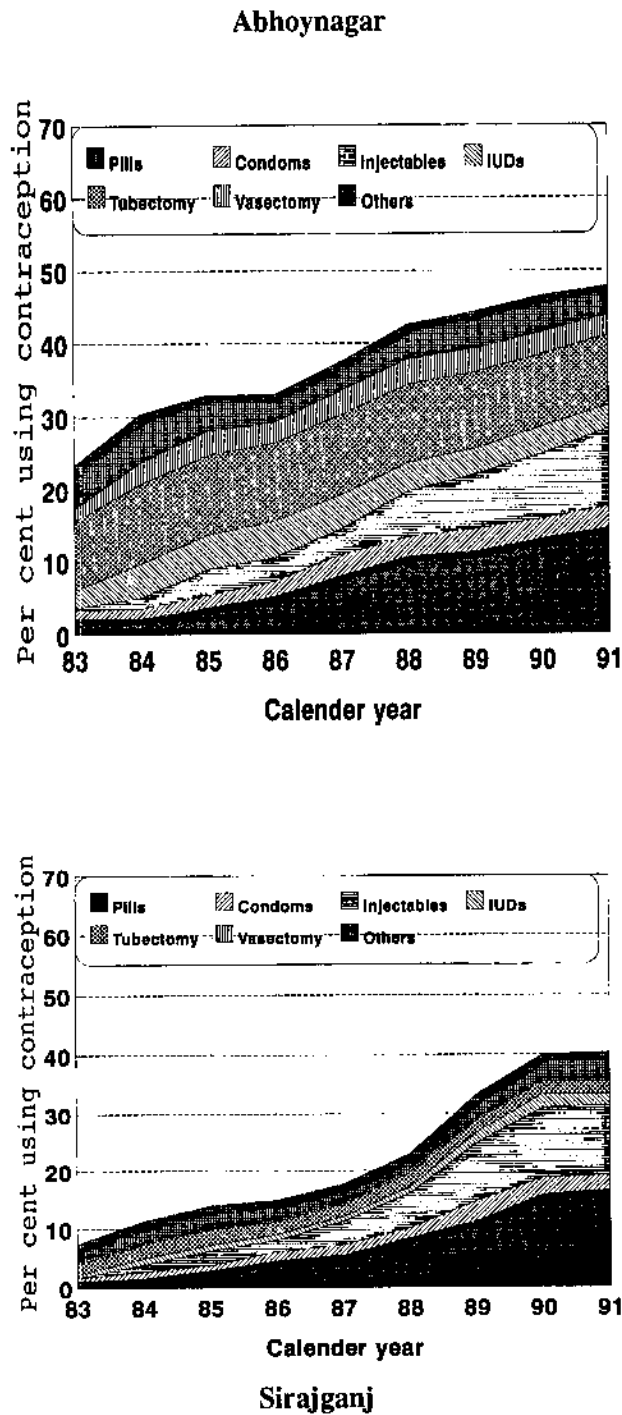


Figure 1. Method-specific contraceptive use in Bangladesh, 1983 and 1996-1997

Figure 2. Trends in contraceptive method-mix during 1983-1991 in Abhoynagar and Sirajganj



Logistic Regression Results

Table 2 presents logistic regression coefficients derived from the analysis of the national and regional data sets. A logistic regression coefficient can be exponentiated to translate it into an odds ratio, an approximation of relative risk (RR). For example, according to the 1991 CPS, the use of contraceptives by a woman was 1.76 [$\exp(0.567)$] times greater if she was visited by a FWA compared to that of a woman who was not visited by a FWA in the last six months (Table 2). Similarly, in 1991, a Muslim woman's contraceptive use was 0.51 [$\exp(-0.682)$] times that of a non-Muslim.

All programmatic factors are positively associated with contraceptive use. The CPS results showed that contraceptive use was higher among MWRA who were visited by a FWA than among those who were not visited by such a worker, indicating that an increase in the coverage of FWA home visitation may increase contraceptive use. This association, however, should be interpreted with caution because it is also possible that contraceptive users selectively receive more visits from FWAs than non-users. The strength of association between FWA visits and contraceptive use more than doubled from 1983 to 1991. This indicates that the community-based distribution (CBD) programme has become more effective in the last decade. Women who visited H&FWCs or SCs were more likely to use contraception. Contraceptive use increases with the number of contraceptive methods a woman is aware of.

Contraceptive use increased with maternal age but declined after 37.5 years in the national sample of 1991 and after 27.5 years in the Abhoynagar and Sirajganj sample (Table 2 and 3). The contraceptive users in Abhoynagar and Sirajganj were, on an average, 10 years younger than the users in the national sample. Contraceptive use was quite high among the younger women who used methods for spacing purposes in Abhoynagar and Sirajganj. In Abhoynagar and Sirajganj, there was a high use of injectables, which were more common the young women. There was a low prevalence of the permanent methods which were more common among the older women. The contraceptive method-mix made the age profiles of the two samples different. Contraceptive use increased with the number of living children but declined after five children, both in the national and regional samples. It also increased with the number of living sons, but declined after 3-4 sons, indicating that parents have a preference for a certain gender composition of children of both sexes.

Educated or non-Muslim women had higher use of contraception than uneducated or Muslim women. As expected, approval of FP by both wife and husband had a significant and positive influence on contraceptive use.

There was a strong regional variation in contraceptive use. In 1991, contraceptive use in Dhaka, Khulna, and Rajshahi divisions was, respectively, 1.88, 2.25 and 2.88 times that of Chittagong. Abhoynagar had 1.24 times higher contraceptive use than Sirajganj.

Differentials of contraceptive use increased between 1983 and 1991 for FWA's visit, demographic variables, and across divisions. An increased regional variation over time reflects a more rapid increase in contraceptive use outside of Chittagong division.

Multinomial Logit Results

Multinomial coefficients are presented in Tables 3 and 4.

Programme Factors

Use of all contraceptive methods was associated with FWA's home visitation, but the magnitude and direction were different, and the strength of association increased over time (Table 3). The association was stronger for pills, injectables, and IUDs than for other methods. It is encouraging to note that the use of traditional methods was also higher among women who were visited by FWAs. This finding probably indicates that FWAs were able to motivate couples to use contraceptive methods of any form, although FWAs do not record such methods in their record books. Higher use of traditional methods a FWA's area does not reflect her level of performance and, therefore, it is not likely that the FWA would encourage couples to use traditional methods. It may be possible that FWAs made frequent visits to the households of users of traditional methods with the expectation that they would be able to motivate women to use modern methods. This might have lead to a positive association between FWA home visitation and the use of traditional methods.

The strong and negative association between the adoption of tubectomies and vasectomies and FWAs home visitation indicates that FWA's are less likely to visit a couple who has adopted a permanent method.

The stronger association between the use of IUDs and permanent methods and attendance at H&FWCs probably indicates that their adoption was either at the H&FWC or the users were screened by the paramedics at the H&FWC (Table 4). The significant positive association between the use of injectables and IUDs and SCs probably indicates that the clients were either screened or provided with these methods at the SC. The use of pills and permanent methods was not associated with attendance at the SC (Table 4).

The use of other methods was not associated with attendance at the H&FWC or SC. Knowledge of a number of different modern contraceptive methods was positively associated with the use of all contraceptive methods (Table 3). The degree of association declined over time, except for permanent methods, indicating widespread knowledge of modern contraceptive methods.

Demographic Factors

We observed in the logistic regression analysis that there is an age pattern of contraceptive use, i.e. contraceptive use increased with age and number of living children and then declined. Multinomial logit coefficients indicate that the age pattern differed by methods. Injectables and IUDs were preferred by relatively young or low-parity women, indicating that these women tended to adopt a more effective and long-acting method for spacing. In contrast and as expected, permanent methods were preferred by the relatively older or high-parity women. The use of other methods (condoms and traditional methods) were preferred by relatively older women. The age effects on various methods were stronger in 1991 than in 1983 in the national sample (Table 3).

Socioeconomic and Cultural Factors

The use of pills and other methods (condoms and traditional methods) increased with education among national samples in 1983 and 1991 and the regional sample in 1990 (Tables 3 and 4), while the use of the permanent methods decreased with education among all samples. In Abhoynagar and Sirajganj, the use of injectables decreased with education, while the use of IUDs increased with education (Table 4). According to the surveys conducted in 1990 and 1991, pills and other temporary methods (IUDs, condoms, and traditional methods) were preferred by educated women, while injectables and permanent methods were more common among uneducated women. The higher adoption of permanent methods (tubectomy and vasectomy) by relatively poor or uneducated women is partially explained by the provision of incentives offered by the family planning programme (Cleland and Mauldin, 1991).

The higher use of pills, condoms, and traditional methods by educated women than by uneducated women is probably related to differential side-effects (actual or feared) of methods. Condoms and traditional methods have few or no side-effects. The users of injectables, however, have frequent complaints, including spotting, bleeding, and amenorrhoea, while the users of pills also have complaints, including headache, nausea, and weakness. It is possible that educated women have a higher tolerance of the side-effects and discomforts associated with pills, condoms, and traditional methods than those of injectables.

There may also be provider-biases in the areas of counselling. FWAs and FWVs probably assume that pills and condoms can be more efficiently used by educated women than by uneducated women. They probably counsel uneducated women to use injectables as a relatively long-acting method that does not require "user- skills." In contrast, educated women probably make their own decision on which method to use. Also, it is possible that educated couples procure pills and condoms from sources other than FWAs; thus, FWAs may not have much influence on the method-choice of these clients.

Muslims had lower use of any methods in 1983, although the method-specific religious differentials were smaller in 1991. Hindus had a higher use of contraception than Muslims, but the use of pills and injectables was higher for Muslims than Hindus in the recent survey. The findings indicate that birth spacing might be more common among Muslims, whereas family limitation might be more common among Hindus.

Approval of family planning by women had a strong influence on contraceptive use for almost all methods in the regional sample. The results showed that both the wife and husband's approval of the use of contraceptives was important for the adoption of any method (Table 4). However, the wife's approval was more important for non-permanent than permanent methods, usually a tubectomy.

Regional Variation

Table 4 shows that the higher contraceptive use in Abhoynagar than in Sirajganj in 1990 was largely explained by the difference in the use of the permanent methods. Table 3 shows that, in 1983, the regional variation of the use of pills, injectables, and IUDs was not important. The use of the permanent and other methods was substantially higher in Dhaka, Khulna, and Rajshahi than in Chittagong in both in 1981 and 1993.

Conclusions

We undertook a multivariate analysis of correlates of contraceptive method-choice in 1983, 1990, and 1991 among national and regional samples of women. We used multinomial logit models, an appropriate statistical technique, for contraceptive method-choice analysis.

We document programmatic, demographic, and sociocultural differentials of contraceptive method-choice. The use of pills, condoms, traditional methods, injectables, and IUDs was higher among women who were visited by FWAs than among those who were not visited by FWAs in last six months. FWA home visitation was low among users of permanent methods (tubectomy and vasectomy). The use of all methods, except traditional methods, was higher among women who visited H&FWCs than among those who did not visit H&FWCs. The use of injectables and IUDs was higher among women who visited SCs than among those who did not visit SCs. Injectables and IUDs were preferred by young or low-parity women, while permanent methods were preferred by older or high-parity women. Relatively older women preferred condoms and traditional methods. Pills, condoms, and traditional methods were more common among educated women while injectables and permanent methods were more common among uneducated women. According to the recent surveys, the acceptance of permanent methods, condoms, and traditional methods was lower among Muslims than Hindus. The wife and husband's approval of FP use positively influenced the adoption of all methods; however,

the wife's approval was more important for temporary methods than for permanent methods (usually tubectomy).

An understanding of how various factors considered in the study influence method-choice of rural Bangladeshi couples is not known from our study. Further qualitative studies should be undertaken to develop a clear understanding of the differentials of method-choice. However, the following comments may be helpful for improving the national programme. The Bangladesh family planning programme has achieved remarkable success in recent years, even without emphasizing the delivery of the two permanent methods, tubectomy and vasectomy. Recent success is believed to be due to the strengthening of the CBD programme where FWAs distribute pills and condoms at the door-step. This belief is corroborated by our findings that the use of all methods, except the permanent methods, was higher among the women who were visited by FWAs. Increased contacts with FWAs at the community level can further raise contraceptive use, particularly pills and condoms, especially in the low-performing areas of Chittagong division where the FWA contact rate is low.

The current CBD programme is expensive, requires huge management resources, and thus, is donor-dependent. Moreover, FWAs distribute only pills and condoms which have limited use-effectiveness (Bairagi and Rahman, 1996). Currently, pills represent two-fifths of the methods used and condoms and traditional methods one-fifth (Mitra *et al.*, 1994). The method-mix and limited use-effectiveness of the most commonly used methods are likely to limit the programme's impact on fertility reduction. Family planning education through mass media, FP workers, and other media dissemination about the proper use of pills, condoms, and traditional methods can increase the use-effectiveness of these methods. Counselling about the limited effectiveness of traditional methods may lead to a shift from these methods to more effective modern methods.

Clinical methods (injectables, IUDs, tubectomies and vasectomies) are more commonly used by the uneducated or poor women than their educated or richer counterparts. These methods are more effective and are provided from the fixed-site service centres and, thus are more cost-effective. The FP programme can become more cost-effective and have a greater impact on fertility if the delivery of clinical methods receives priority in the national programme.

Injectables, can be both delivered at the doorstep as well as at fixed-site service centres. Delivery of injectables from service centres would ensure better quality of care, would be less expensive, and would reduce the problems related to destruction of syringes.

Shifting the focus of the FP programme from non-clinical methods to clinical methods, with an assurance of quality of care and delivery from fixed-sites, would make the programme more effective and sustainable. However, it has been found that use of H&FWCs is low to moderate and that of SCs is very low (Mozumder, Khan, and Rahman, 1995; ICDDR,B, 1994). Delivery

of contraceptives from the fixed-site centres would bring women out of their homes which would indirectly help women's mobility. Women's mobility out of home would expose them to the outside world, new ideas, various contraceptive options, accessibility of child and maternal care, and other influences.

Management improvement, enhanced quality of care at H&FWCs and SCs, increased awareness of the availability of services at these centres and workers' motivation for higher use of these centres by villagers may increase the use of clinical methods of contraceptives. This will lead to a more effective method-mix of contraception in Bangladesh.

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Table 1. Mean characteristics of sample women

Factors	National survey (Contraceptive Prevalence Survey)		Regional survey
	1983	1991	1990
Programme:			
FWA visited woman's home in last 6 months (%) (RC=Did not visit)	30	41	85
Woman ever visited H&PWC (%) (RC=Never visited)	a	a	37
Woman ever visited Satellite Clinic (SC)(%) (RC=Never visited)	a	a	12
Number of modern contraceptive methods known by the woman	5	7	a
Demographic:			
Age of woman	28	28	30
Number of living children	4.7	3.0	2.9
Number of living sons	1.6	1.5	1.5
Sociocultural:			
<i>Education of woman:</i>			
primary	23	27	23
above primary (RC=No education)	6	11	9
Muslim (RC=Hindu)	88	88	87
Attitudinal:			
Woman approves of FP (RC=Does not approve of FP)	a	a	89
Husband approves of FP (RC=Does not approve of FP)	a	a	78
Region:			
<i>Division (RC=Chittagong):</i>			
Dhaka	28	28	b
Rajshahi	27	27	b
Khulna	20	19	b
Sample size (n)	6,859	8,209	5,248

^a Data not available; ^b Data are from two particular areas; RC= Reference category

Table 2. Logistic regression coefficients of programmatic, demographic, and sociocultural factors that are associated with the use of contraception

Factor	Contraceptive prevalence survey		Regional survey
	1983	1991	1990
FWA visited woman's home in last 6 months	0.247***	0.567***	0.289**
Woman ever visited H&FWC	a	a	0.549***
Woman ever visited SC	a	a	0.239***
Number of modern contraceptive methods known by the woman	0.340***	0.319***	a
Age of woman	0.189***	0.225***	0.165***
Age of woman squared	-0.003***	-0.003***	-0.003***
Number of living children	0.327***	0.413***	0.523***
Number of living children squared	-0.029***	-0.042***	-0.051***
Number of living sons	0.346***	0.351***	0.192***
Number of living sons squared	-0.043**	-0.050***	b
<i>Education of woman:</i>			
primary	-0.008	0.052	0.226***
above primary	0.570***	0.555***	0.382***
Muslim	-0.682***	-0.422***	-0.044
Woman approves of FP	a	a	1.663***
Husband approves of FP	a	a	1.547***
<i>Division:</i>			
Dhaka	0.478***	0.633***	c
Khulna	0.423***	0.813***	c
Rajshahi	0.682***	1.059***	c
Abhoynagar	c	c	0.255**
Constant	-6.988***	-7.737***	-7.251***
-2 Log-likelihood	6,348	10,959	7,229

** $p < .01$; *** $p < .001$; ^a Data not available; ^b Not included in the model; ^c Not applicable

Table 3. Multinomial logit regression coefficients of programmatic, demographic, and sociocultural factors that are associated with the use of contraception: the national surveys

Factor	Pills		Injectables/IUDs		Permanent methods		Others	
	1983	1991	1983	1991	1983	1991	1983	1991
FWA visited woman's home in last 6 months	1.021***	1.527***	0.592**	1.045***	0.083	-0.894***	0.238*	0.483***
Number of modern contraceptive methods known by the woman	0.459***	0.264***	0.467***	0.348***	0.266***	0.406***	0.400***	0.319***
Age of woman	0.058	0.178***	0.042	0.119+	0.438***	0.652***	0.106*	0.189***
Age of woman squared	-0.002	-0.003***	-0.001	-0.003*	-0.007***	-0.009***	-0.002*	-0.003***
Number of living children	0.472**	0.571***	1.119***	0.819***	0.572***	0.646***	0.306***	0.294***
Number of living children squared	-0.045**	-0.053***	-0.150***	-0.064***	-0.071***	-0.093***	-0.015+	-0.024***
Number of living sons	0.262**	0.095*	0.225	0.110+	0.191***	0.181***	-0.010	0.081*
Education of woman:								
primary	0.469**	0.181*	0.688*	-0.005	-0.641***	-0.430***	0.219+	0.371***
above primary	1.239***	0.840***	0.991*	-0.000	-1.190***	-0.864***	0.898***	1.016***
Muslim	-0.528*	-0.055	-0.813**	-0.222	-0.775***	-0.783***	-0.568***	-0.534***
Division:								
Dhaka	0.396+	0.428***	0.285	0.628***	0.716***	0.982***	0.354*	0.532***
Khulna	-0.627*	0.476***	-0.010	1.313***	0.790***	1.089***	0.371*	0.718***
Rajshahi	0.260	0.893***	0.785*	0.859***	0.937***	1.410***	0.585***	0.879***
Constant	-7.456***	-7.967***	-8.926***	-8.801***	-11.314***	-16.741***	-6.647***	-8.159***

+ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$;

Table 4. Multinomial logit regression coefficients of programmatic, demographic and sociocultural factors that are associated with the use of contraception in Abhoynagar and Sirajganj

Factor	Pills	Injectables	IUDs	Permanent methods	Others
FWA visited woman's home in last 6 months	1.907***	1.583**	1.954*	-1.229***	0.0525***
Woman ever visited H&FWC	0.395***	0.483***	1.736***	1.317***	0.135
Woman ever visited SC	0.076	0.465***	1.230***	-0.094	0.046
Age of woman	0.186***	0.070*	0.161	0.728***	0.187**
Age of woman squared	-0.003***	-0.002***	-0.004*	-0.009***	-0.003**
Number of living children	0.503***	0.737***	1.086***	0.045	0.531***
Number of living children squared	-0.047***	-0.069***	-0.115***	-0.031*	0.044***
Number of living sons	0.235***	0.242***	0.178+	0.251***	0.134*
<i>Education of woman:</i>					
primary	0.447***	0.017	0.168	-0.501**	0.700***
above primary	0.572***	-0.741**	0.884**	-0.741**	1.331***
Muslim	0.063	0.231	-0.462*	-0.199	0.035
Woman approves of FP	1.944***	3.257***	17.507	0.914*	1.272***
Husband approves of FP	2.000***	1.229***	0.963**	2.567***	0.793***
Abhoynagar	-0.038	-0.019	0.216	1.871***	0.164
Constant	-8.627***	-7.858***	-25.353	-20.657***	-8.664***

+ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

CHAPTER 8

Gender Composition of Surviving Children and Contraceptive Use in Bangladesh

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Gender Composition of Surviving Children and Contraceptive Use in Bangladesh

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Abstract

This paper describes contraceptive use trends and their relationship to the gender composition of surviving children in Bangladesh, and investigates whether the gender composition of surviving children is a constraint to further increases in contraceptive prevalence.

Data for the study come from two sources: (a) The 1993-94 Bangladesh Demographic and Health Survey (BDHS), and (b) the MCH-FP Extension Project (Rural) of the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B). The 1993-94 BDHS, a national-level sample survey, provides data on demographic events and selected maternal and child health issues. A total of 8,174 women were interviewed in the rural sample. Data from MCH-FP Extension Project were obtained from its Sample Registration System (SRS). The SRS data were based on interviews conducted at 90-day intervals since 1982, from a sample of 7,400 rural households. Descriptive results and logistic regression estimates are presented using data from 1984 through 1994.

Contraceptive prevalence rates (CPRs), both at the national level and in the Extension Project areas, have increased over time. However, this increase seems to have levelled off. The gender composition of a couple's surviving children remains an important factor in determining contraceptive use. Women with at least one son and one daughter had a higher CPR compared to women with only sons or those with only daughters over the study period.

The findings are consistent with previous studies, and suggest that there is still gender composition preference in Bangladesh. Contraceptive use among women with only daughters has increased, and the use of family planning methods and the desire for smaller families have become behavioural norms. However, there is still no indication that the gap in CPR between women having both sons and daughters and women having only sons or only daughters has declined over time. This finding illustrates an important constraint under which the family planning programme operates in Bangladesh.

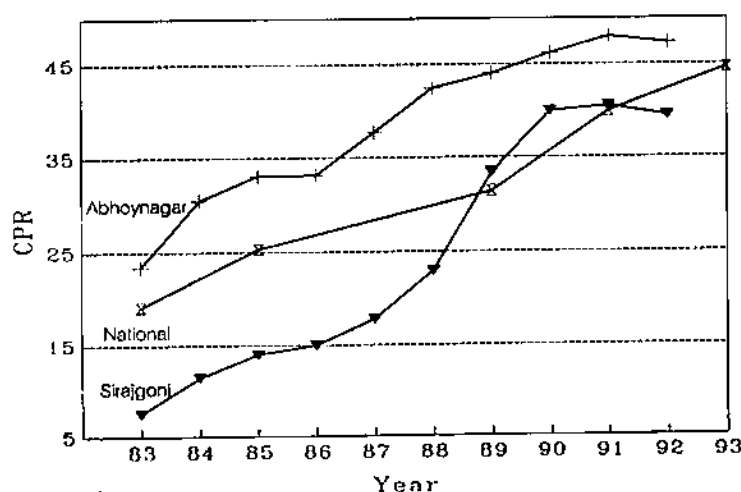
Introduction

The contraceptive prevalence rate (CPR) in Bangladesh in 1993-1994 was 45 percent (Mitra and Associates, 1994). Today, it is considerably higher in some areas of the country. For example, in Matlab, CPR is over 67 percent, whereas in Abhoynagar, it is 53 percent.

It is often argued that those who easily accept contraceptive methods have already been reached by the increased availability of supplies and services of the last decade, and that further work on improving the quality of care provided will be required to improve or even sustain the present CPR. Ahmed (1981) using data from a cross-sectional survey, found that women in Matlab had a larger family size preference and a stronger son preference. Several studies (Chowdhury and Bairagi, 1990; Rahman *et al.*, 1992; Rahman and Davanzo, 1993; and Rajaretnam and Deshpande, 1994) have shown that certain gender compositions of surviving children in a family can hinder further decline in the total fertility rate. A study in Nepal found that sons were preferred to daughters, largely for social reasons rather than for economic reasons (Karki, 1988). Chowdhury and Bairagi (1990) found that gender preference was stronger in areas where intensive family planning programmes prevail than elsewhere. The effect of gender composition becomes more evident as contraceptive prevalence goes up, particularly during the demographic transition period from high to low fertility. Rahman, 1993 (Rahman, 1993) found that the preference issue was not limited to sons, but extended to daughters once the desire for a son was achieved. Sathar and Akhtar (1988) also found that the gender composition of families influenced reproductive behaviour in Pakistan. The author added that the desire for at least one son persists even when a mother has four daughters and no sons, and for one daughter when there are five sons and no daughter.

Figure 1 shows the trends in contraceptive use, both for Bangladesh and the Extension Project areas. CPRs have increased for all areas. In Sirajganj and Abhoynagar, the contraceptive prevalence rates in 1982 were 11 and 22 percent respectively. The corresponding figures rose to 39 and 47 percent in 1992. During the same period, the national CPR increased from 18 to over 40 percent. The data indicate that fertility transition has already begun in Bangladesh. Given the rise in contraceptive prevalence in Bangladesh, it would be appropriate to determine whether gender composition of surviving children has any effect on contraception.

There is some evidence of a declining effect of sex preference on contraceptive use, however. (Chowdhury, Bairagi, and Koenig 1993), using longitudinal data from Matlab, found that although sex preference did not change during the 1977-1988 period, there was a decline in the effect of sex preference on contraceptive use. A study in India (Das, 1987) further found that, because of relatively smaller family size preference in urban areas where contraceptive prevalence is high, the effect of gender composition on contraceptive use is not strong. Data for almost all of the above-mentioned studies come from pilot projects. Thus, a study using national-level data would be useful.



Note: CPRs are reported for the last quarters of the years

Figure 1: Contraceptive prevalence rates (CPR) by area: 1983-1993

Objective

This study analyzes the trends in contraception over the last ten years by gender composition of surviving children, and investigates whether gender composition is a deterrent factor to further rise in CPR.

Data and Setting

Data for the present study come from two sources: (a) The 1993-94 Bangladesh Demographic and Health Survey (BDHS), and (b) the Maternal and Child Health-Family Planning Extension Project (Rural) of the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B).

BDHS, a national-level survey, provides data on demographic and selected maternal and child health issues. A total of 8,174 interviews were conducted in the rural sample. Information on their background characteristics, reproductive history, knowledge and practice of family planning methods, fertility preference, occupation and husband's background was collected. For the purpose of this study, data from BDHS were selected from rural areas only, so that they were comparable to data from the Extension Project areas. The Extension Project, a collaborative effort of ICDDR,B and the Ministry of Health and Family Welfare (MOHFW), is an operations research project in rural Bangladesh, which was set up in 1982 to transfer the successful elements of the Matlab maternal and child health-family planning pilot programme to the broader

public sector (Phillips, 1992). Over time, the Project has expanded its mandate to carry out operations research and field-test new interventions in the MCH-FP programme, especially in the areas of management improvement, quality of care, and sustainability. The project areas are located in Sirajganj thana of Sirajganj district and Abhoynagar thana of Jessore district. Since mid-1994, the Project has also been operating a laboratory area in Mirsarai thana of Chittagong district, though this study does not use any data from Mirsarai thana. The two sites, namely, Sirajganj and Abhoynagar, differ in terms of their socio-economic and demographic indicators. A comparative description of the two project sites at Sirajganj and Abhoynagar has been reported elsewhere (Banu *et al.*, 1985).

To assess the demographic impact of the Project and its effects on health and family planning service delivery, a surveillance system was set up in the Project field sites. The system, known as the Sample Registration System (SRS), has been in operation since 1982, and consists of quarterly longitudinal surveillance of a representative sample of approximately 4,200 households at Sirajganj and 3,200 households at Abhoynagar (Mozumder *et al.*, 1990). This longitudinal database is derived from interviews conducted at 90-day intervals. Although routine surveillance was initially limited to demographic events (births, deaths, migration, and changes in marital status), data collection was expanded in 1984 to include additional information on contraceptive use, as well as contacts between mothers and the government health and family planning outreach workers (Mozumder *et al.*, 1984; and Mozumder *et al.*, 1985). SRS has been augmented by detailed baseline surveys and a series of cross-sectional surveys on socioeconomic, attitudinal and behavioural characteristics of the population under surveillance.

Results

Table 1 shows the trends in contraceptive use among women by the gender composition of their surviving children, using the 1993-94 BDHS data. Differentials in the use of family planning methods were observed for women with different gender compositions of surviving children. Thirty-six percent of women with only daughters used contraceptives compared to 46 percent with only sons and 54 percent with at least one son and one daughter.

Figure 2 and Figure 3 show, respectively, the trend in contraceptive use among women by gender composition of their surviving children at Sirajganj and Abhoynagar. It is evident that women with at least one surviving son and one surviving daughter contracepted at a higher level than women with surviving children of other gender compositions. This was true for both the project areas. Also, while all groups with surviving children experienced a sharp rise in CPR during the 1986-1990 period, the gap, in 1990, between the women with at least one son and one daughter and the women with only sons or only daughters widened dramatically, revealing the desire for more children in the latter groups. There is no evidence from either of the two Extension Project areas that women with only sons contracepted at a higher level than women

with both sons and daughters at any point during 1986-1990. Moreover, in 1990, the gap in the CPR among women with only daughters and only sons has been narrowing at Sirajganj and widening at Abhoynagar. This illustrates that as the CPR rises, the gender preference of an area becomes evident. At Sirajganj, women with only sons wanted a daughter, and at Abhoynagar women with only daughters wanted a son. It became evident, in 1990, that women wanted children of both gender, and this desire for children was reflected in the CPR.

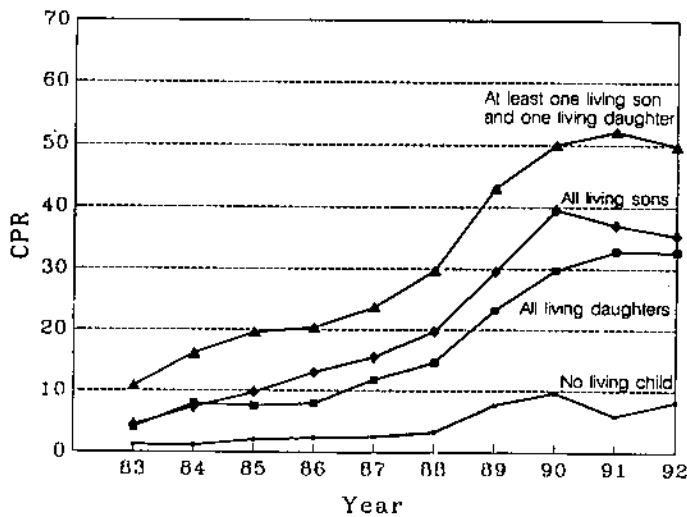


Figure 2: CPR by sex composition of living children of women at Sirajganj: 1983-1992

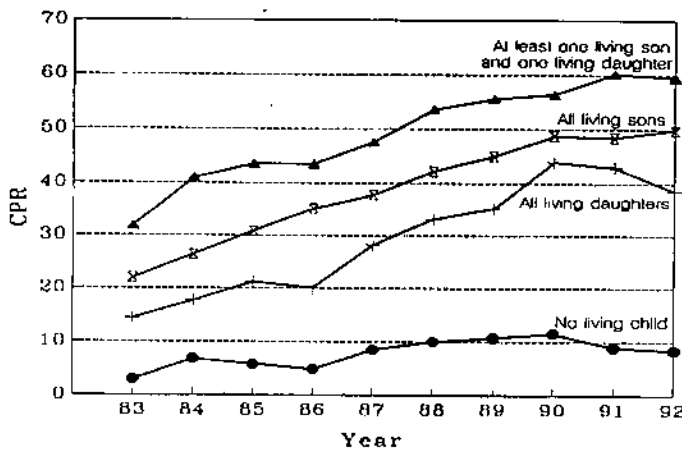


Figure 3: CPR by sex composition of living children of women at Abhoynagar: 1983-1992

The trend in contraceptive prevalence among all three groups of women with surviving children (women with surviving daughters only, women with surviving sons only, and women with at least one surviving child of each gender) followed the overall CPR trend. That is, when the overall contraceptive prevalence moved up or down, the CPR among these three groups also moved up or down. The rise and fall in the CPR of the three groups followed a similar direction and proportion, and this was true during the entire 1986-1990 period. However, this trend in the CPR among women with different gender compositions of children was not evident throughout the 1990-92 period.

Logistic regression procedures have been used for assessing the unique effect of the gender composition of surviving children on contraception. The distribution and the reference categories of variables included in the model are shown in Table 2. The socioeconomic, demographic and programmatic variables included as controls are maternal education, area of dwelling unit, maternal age, and visit of the Family Welfare Assistant (FWA). Since the level of contraception varied among the five divisions of the country as well as the two project sites, area was also included as a control variable. The gender composition of surviving children was recorded as a series of dummy variables, with women having at least one son and one daughter set as the reference category (RC).

The results of the logistic analysis are shown in Table 3. The dichotomous dependent variable, use of contraception, assumes the values of 1 if a woman used contraception and 0 if a woman did not. To facilitate interpretation, coefficients were exponentiated to reflect odds ratios in comparison to the omitted RC. Three time periods were chosen to determine the effect of time on the variables: 1984 was chosen as the base period since the longitudinal data on contraception were available beginning 1984; 1988 was chosen as the mid-period; and 1992 was the end of the study period. Additionally, the analysis used another variable, women with three or fewer children (small family) who were less likely to achieve the desired gender composition of children, and women with four or more children (large family). It was expected that the effect of the gender composition of surviving children on contraception would be greater among women with three or fewer surviving children than among women with four or more surviving children.

The results of logistic regression show the effect of the gender composition of surviving children on contraception, controlling for the effects of other socioeconomic, programmatic and demographic characteristics. In general, gender preference, which was evident in families of three or fewer children, was not apparent in the families of four or more children. In small families, women with only daughters were less likely to contracept compared to women with at least one son and one daughter during the entire study period. With the exception of 1984, women with smaller families and only sons were also less likely to use a family planning method than women with both sons and daughters. In 1984, women with only sons were more likely to use a family planning method than women with both sons and daughters. In large

families, the contraceptive behaviour of women with only sons was similar to that of women with both sons and daughters. Whereas in 1988, women with large families and only sons had a higher probability of using contraception than women with sons and daughters, though this difference was not statistically significant. No differential contraceptive behaviour between the two groups of women with only daughters and women with both sons and daughters was evident from the national data set or the early period (1984) of the Extension Project data. Perhaps, in large families, women with several sons or women with several daughters believed that they would not get the desired gender composition of children, even with an additional child. In the subsequent period (1988 and 1992), women with large families and only daughters contracepted at a lower rate than women with both sons and daughters.

Significantly higher contraception was evident among women with some education. This was true of both the small and large families, and was evident from both BDHS and the Extension Project data. The effect of size of sleeping room (a proxy for wealth) on contraception was not consistent. Women with three or fewer children, regardless of their household economic condition, used contraception at the same rates, with the exception of 1988 when women from wealthy families with three or fewer children contracepted at a lower rate. Again, with the exception of 1984, there was no difference in the contraceptive behaviour of women with four or more children, regardless of their household economic condition. In small families, there was no significant difference in the use of contraceptives between Rajshahi and Khulna divisions. However, in the Extension Project areas, women from Abhoynagar, Fultala, Bagherpara, and Keshobpur in Khulna division contracepted almost two to three times higher than those from Sirajganj in Rajshahi division throughout the study period. In large families, women from Khulna division were less likely to contracept than those from Rajshahi division. Family Welfare Assistant (FWA) visitation also emerged as a significant predictor of contraception. This was true, regardless of family size. Women having three or more visits in a one-year period (six month period for the BDHS data) had consistently higher contraception rates than women who had only one to two visits. Both the BDHS and the Extension Project data showed that women with three or fewer children who received no FWA visits were less likely to use contraception from 1984 through 1988 compared to women receiving one to two visits. The difference between these two groups disappeared in 1992. One or two visits from an FWA were clearly not enough to motivate women to adopt contraception successfully.

Discussion and Conclusion

The gender composition of surviving children appears to be an important factor in contraception differentials. CPR has risen considerably in all families with surviving children. However, the increase has tapered off since 1990, and the gap in CPR between women with at least one son and one daughter and women with only sons or only daughters has widened dramatically, revealing the desire for more children in the latter groups.

This finding substantiates the evidence of earlier findings that women want daughters in addition to sons. This appears to be true in both the Project sites, despite the differences in their sociodemographic conditions. Contraception is lower among women with only sons or only daughters than among women with both sons and daughters. This implies that women prefer sons, but once they have a son, they also want a daughter. This finding illustrates an important constraint under which the family planning programme operates. Unless a strong demand for smaller family size becomes the norm, regardless of the gender composition of the children, gender composition of surviving children will continue to be a constraint to rise in CPR in rural Bangladesh.

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Table 1. Percentage distribution of women using family planning methods by gender composition of surviving children: Bangladesh

Gender composition of surviving children	%	(N)
No children	14.6	(981)
Only daughter(s)	35.9	(1,165)
Only son(s)	45.9	(1,394)
Son(s) and daughter(s)	53.9	(4,098)

Source: 1993-94 BDHS

Table 2. Percentage distribution of variables by year and living children used in logistic regression

Variable	BDHS (Rural)		Extension Project (Rural)					
	1993-94		1984		1988		1992	
	LE 3 child	4+ child	LE 3 child	4+ child	LE 3 child	4+ child	LE 3 child	4+ child
Sex composition								
Only daughter(s)	26.4	2.6	25.9	3.0	25.6	3.1	25.7	3.6
Only sons(s)	31.7	3.0	31.5	5.0	31.2	4.2	31.0	4.4
Both sexes (RC)†	41.9	94.4	42.6	91.7	43.2	92.8	43.3	92.1
Age of women								
<20 years	13.9	-	15.5	-	12.2	-	9.6	-
20-29 years (RC)	61.7	16.7	62.6	18.7	62.4	13.8	58.7	9.8
30-39 years	19.8	46.9	15.6	54.7	19.8	52.5	26.0	48.3
40+ years	4.6	36.4	6.8	26.6	5.6	33.7	5.8	41.9
Education								
No education (RC)	56.0	64.9	70.9	76.3	66.6	75.2	61.0	71.5
Some education	44.0	35.1	29.1	23.3	33.4	24.8	39.0	28.5
Sleeping rooms^a								
One room (RC)	53.9	36.2	40.6	28.7	33.8	26.4	31.6	27.1
Two rooms	26.0	39.3	45.3	52.0	49.1	51.4	49.6	50.4
Three rooms or more	20.1	24.5	14.1	19.3	17.1	22.2	18.8	22.5
FWA visit^b								
No visit	52.4	56.7	36.9	35.0	26.4	27.9	15.5	17.6
1-2 visits (RC)	21.5	17.8	48.9	51.6	31.3	30.1	23.9	24.2
3+ visit	26.1	25.5	14.3	13.3	42.4	42.0	60.6	58.2
Area^c								
Rajshahi/Sirajganj(RC)	29.6	24.5	41.8	46.2	28.4	35.0	31.5	38.9
Khulna/Abhoynagar	14.1	12.4	33.2	31.0	28.0	22.0	35.5	26.6
Chittagong/Gopalpur	18.8	24.6	14.3	13.2	9.2	9.0	-	-
Barisal/Fultala	10.8	11.4	10.7	9.7	8.8	7.2	-	-
Dhaka/Natural Area	26.7	27.1	-	-	25.6	25.9	33.0	34.5
N	4,150	2,495	2,960	2,091	4,575	3,244	4,048	2,613

^a Housing space for Extension Project data (≤ 150 , 151-300 and 300+ sq. ft.).

^b Number of visits within six months for BDHS data and twelve months for Extension Project data.

^c Sirajganj, Abhoynagar, Gopalpur, Fultala and Natural area Bagherpara and Keshobpur are considered to be within the Extension Project.

† Reference Category

Table 3. Logistic regression showing the odds ratio of women contracepting by selected characteristics and years

Variable	BDHS (Rural)		Extension Project (Rural)					
	1993-94		1 9 8 4		1 9 8 8		1992	
	LE 3 child	4+ child	LE 3 child	4+ child	LE 3 Child	4+ Child	LE 3 child	4+ child
Sex composition								
Only daughter(s)	0.42***	0.64	0.34***	0.99	0.49***	0.51**	0.54***	0.44***
Only son(s)	0.66***	1.27	1.59***	1.04	0.73***	1.30	0.75***	0.92
Both sexes (RC)†	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Age of women								
<20 years	0.74**	-	0.44***	-	0.56***	-	0.56***	-
20-29 years (RC)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
30-39 years	1.87***	1.40**	1.42**	1.30	1.85***	1.52***	1.81***	1.96***
40+ years	0.64**	0.86	0.90	0.73*	0.85	1.08	1.17	1.45*
Education								
No education(RC)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Some education	1.46***	1.24*	1.76***	1.76***	1.64***	1.43***	1.29***	1.16
Sleeping rooms*								
One room (RC)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Two rooms	0.94	1.13	1.18	1.06	0.94	1.10	1.02	0.98
Three rooms or more	1.03	1.10	1.17	0.59**	0.77*	0.86	0.98	0.92

Continued...

Table 3. Logistic regression showing the odds ratio of women contracepting by selected characteristics and years

Variable	BDHS (Rural)		Extension Project (Rural)					
	1993-94		1984		1988		1992	
	LE 3 child	4+ child	LE 3 child	4+child	LE 3 Child	4+ Child	LE 3 child	4+ child
FWA visit^b								
No visit	0.54***	0.43***	0.80	0.74*	0.70***	0.93	1.14	1.00
1-2 visits (RC)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
3+ visits	1.39***	1.33*	1.67***	1.48**	1.84***	1.73***	2.04***	2.31***
Area^c								
Rajshahi/Sirajganj(RC)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Khulna/Abhoynagar	0.95	0.73*	2.92***	3.87***	2.36***	2.81***	1.31**	1.33*
Chittagong/Gopalpur	0.26***	0.31***	2.11***	2.35***	2.11***	1.99***	-	-
Barisal/Fultala	0.62***	0.47***	2.62***	3.36***	2.56***	2.54***	-	-
Dhaka/Natural area	0.49***	0.63***	-	-	2.17***	1.75***	1.20*	1.01
Intercept	0.75***	0.81***	0.13***	0.17***	0.24***	0.21***	0.50***	0.36***
-2LL	5075.38	3137.71	333.00	219.76	504.76	235.80	328.01	175.40
DF	14	13 13	12	14	13	12	11	
N	4,150	2,495	2,960	2,091	4,575	3,244	4,048	2,613

*** P<.001; ** P< .01; * P<.05.

^a Housing space for Extension Project data (≤ 150 , 151-300 and 300+ sq.ft.).

^b Number of visits within six months for BDHS data and twelve months for Extension Project data..

^c Sirajganj, Abhoynagar, Gopalpur, Fultala and Natural area Bagherpara and Keshobpur are considered to be within the Extension Project.

† Reference Category.

CHAPTER 9

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

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

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

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 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) are examined. Specific elements of quality of care examined include: adequacy of information provided, method choice, provider-client interactions, referrals, and the 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 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 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 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 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 married women had ever visited the H&FWC); (4) Quality care by fieldworkers and at 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 fieldworkers was associated with higher intention among 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 non-users, on their intention to use modern methods in the future; and (9) Age, 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 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 H&FWCs.

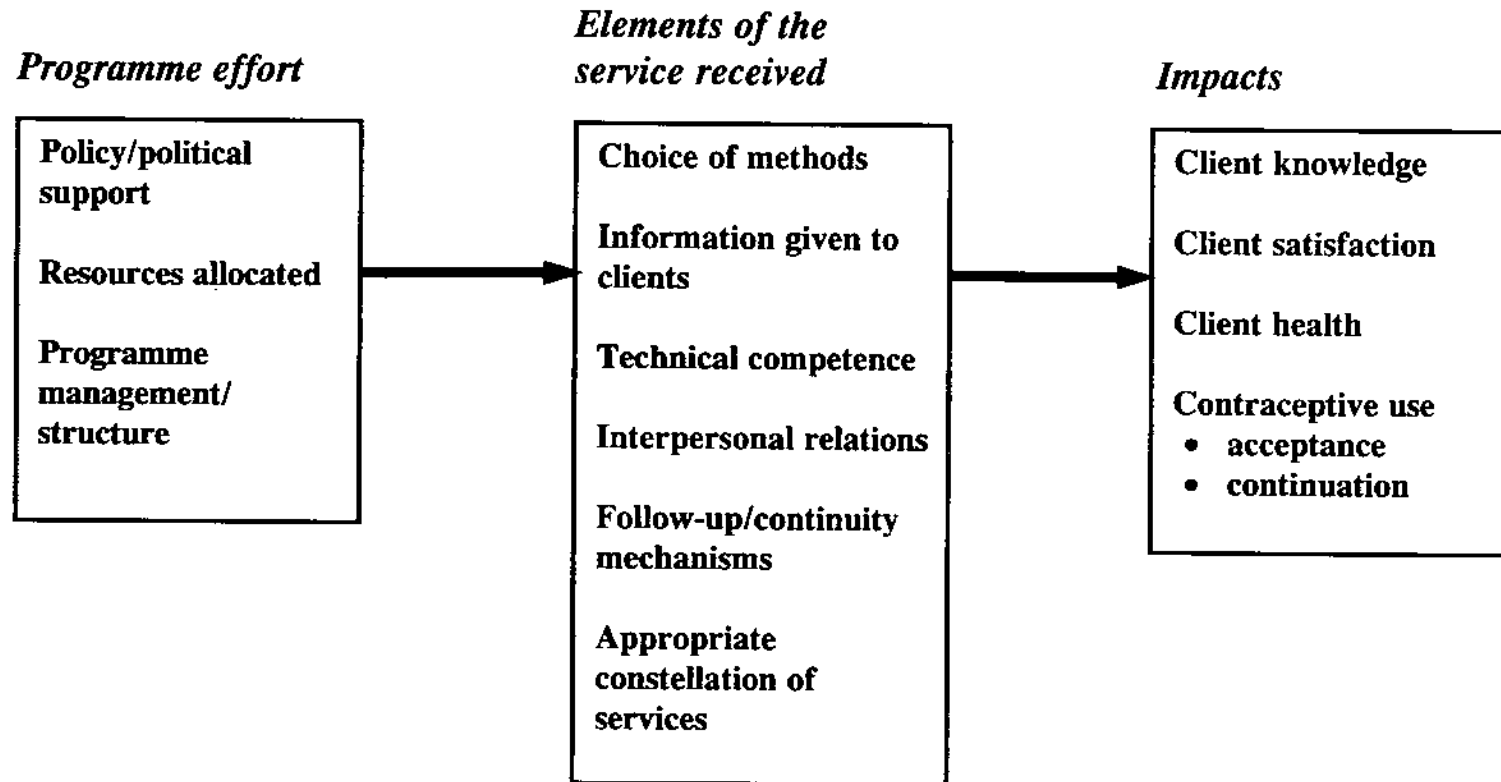
Introduction

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 the 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 (1989), Bruce (1990) 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 (Figure 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 (Koenig, Hossain, and Whittaker, 1992; Mensch, Arends-Kuenning, and Jain, 1994), while others have examined the effects of various elements of quality separately. During the 1990s, several researchers have examined various aspects of the quality of family planning and MCH services in Bangladesh, including the quality of fieldworker services (Whittaker *et al.*, 1993; Perry *et al.*, 1996), the quality of antenatal care services (Juncker *et al.*, 1996), clients' perspectives of service delivery at the H&FWCs (Khanam *et al.*, 1996), and the positive impact that fieldworker-client interactions have on contraceptive use and continuation (Koenig, Hossain, and Whittaker, 1992; Phillips *et al.*, 1993; Hossain and Phillips, 1996). Most studies, conducted to date, have generally shown a positive and sometimes significant association between 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 spent with them (in minutes) have also been linked to modern contraceptive use.

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) 64.

Perry *et al.*, (1996), 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 give 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 (Koenig, Hossain, and Whittaker, 1992) and/or continuity of contraceptive use (Hossain and Phillips, 1996).

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 nonusers, 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 (1990) 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; 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.

Fieldworker-Client Interaction Index

Six elements of the index are whether the FWA:

- (a) provides privacy;
- (b) is responsive to client questions;
- (c) shows sympathy and respect to client;
- (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 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 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 and 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 SC¹. 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.

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,

¹ 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 interventions.

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 FWAs but not satisfied with the quality of contact intended to use modern contraceptives in the future.

A graphic representation of the relationship of client satisfaction with 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 Figures 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.

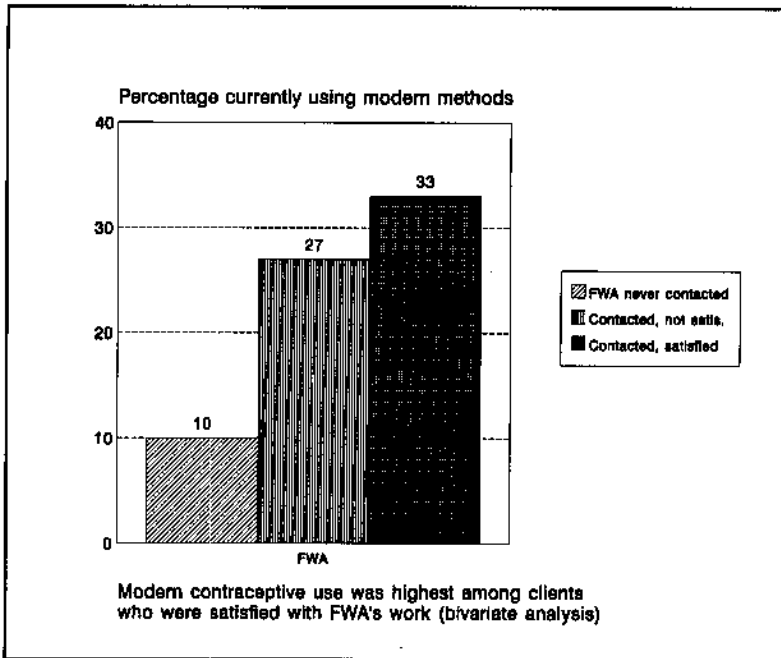


Figure 2. Client satisfaction with FWA and current use of modern contraception: Mirsarai and Satkania 1994

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

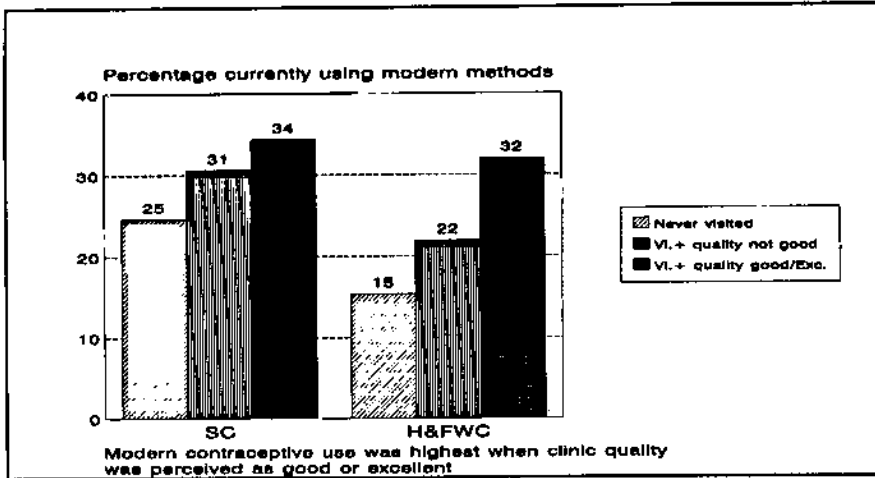


Figure 3. Client perception of SC and H&FWC quality of care and current use of contraception: Mirsarai and Satkania 1994

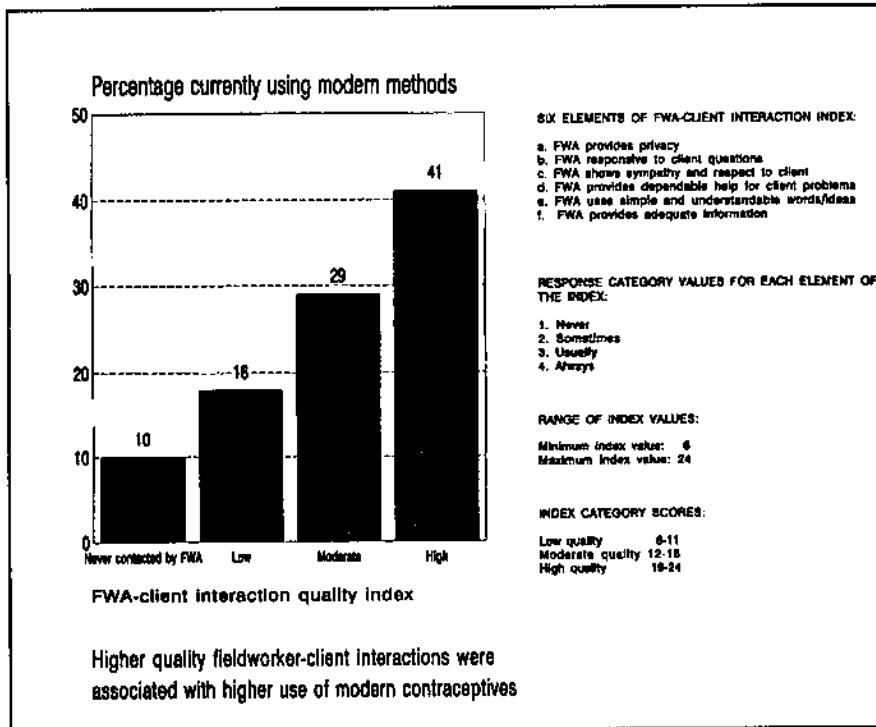


Figure 4. Current use of modern methods by quality of fieldworker-client interaction

The results of the multivariate regression analysis show 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.

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 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," "quality of FWA-client interaction index," and "quality of H&FWC." However, 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 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 was 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 was 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 determinant of current use of modern contraceptives and, among the non-users, on their intention to use modern methods in the future.
- (9) Age, 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 to the Study

There are some methodological limitations to 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. The authors plan to obtain objective direct measures of quality in future research on this topic.

Further Research

A longitudinal analysis of the impact of client ratings of the quality of care on 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 measures of the quality of family planning and other health-care services being provided will be collected in future surveys of the MCH-FP Extension Project (e.g. 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 (Bertrand, Magnani, Knowles, 1994). 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 quality services and reduce unmet need for family planning.

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 and a broader constellation of reproductive health services (e.g. antenatal 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.

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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)	Permission to visit Health Centre	
< 20	7.4	Yes	90.6
20 - 24	17.6	No	9.4
25 - 29	20.0	Total	100.0
30 - 34	19.7		
35 - 39	15.0	Radio/cassette in household	
40 +	20.4	Yes	32.8
Total	100.0	No	67.2
		Total	100.0
Number of living children		%Exposed to services	Percent (n=4967)
0	8.9	% ever contacted by FWA	73.4
1 - 2	32.4	% ever visited Satellite Clinic	7.8
3 - 4	31.5	% ever visited H&FWC	50.5
5 +	27.2		
Total	100.0	Satellite Clinic quality	
		Excellent/good	16.7
Education (years)		Not good/bad	6.4
None	55.8	Don't Know of SC	76.8
1 - 4	13.9	Total	100.0
5	11.9		
5 >	18.4	H&FWC quality	
Total	100.0	Excellent/good	48.1
		Not good/Bad	46.5
Religion		Don't Know of H&FWC	5.4
Muslim	80.3	Total	100.0
Hindu & others	19.7		
Total	100.0	FWA satisfaction	
		Yes	43.4
Thana		Somewhat/No	29.9
Mirsarai	70.4	Don't Know	26.7
Satkania	29.6	Total	100.0
Total	100.0		
Woman's employment status		FWA provided antenatal care during last pregnancy	
Work for income	27.2	Yes	12.0
Housewife only	72.8	No	88.0
Total	100.0	Total	100.0
Desire for more children		Current use of modern methods	
Desire more within 2 yrs	32.6	Yes	26.6 (1321)
Desire more after 2 yrs.	15.5	No	73.4 (3646)
Desire no more	51.9	Total	100.0
Total	100.0		

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

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

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

	Percent currently using modern contraception	Percent intending to use modern method in future ^a
<u>Client satisfaction with FWA</u>		
FWA Never contacted	10.3	64.6
Contacted, not satisfied	27.0	49.3
Contacted, satisfied	32.9	64.9
<u>Client perception of SC quality</u>		
Never visited	24.6	63.1
Visited, quality not good	30.6	62.7
Visited, quality good	34.4	70.5
<u>Client perception of H&FWC quality</u>		
Never visited	15.4	59.1
Visited, quality not good	21.9	60.3
Visited, quality good	32.0	68.9
<u>Quality of FWA-client interaction</u>		
<u>FWA provides privacy</u>		
Always	40.8	72.1
Usually	31.6	64.0
Sometimes	27.3	60.6
Never	25.2	55.1
<u>FWA responsive to client questions</u>		
Always	37.0	69.6
Usually	30.3	63.2
Sometimes	23.5	55.6
Never	13.9	43.6
<u>FWA shows sympathy and respect to client</u>		
Always	40.5	69.3
Usually	33.1	66.3
Sometimes	24.2	57.8
Never	16.8	48.2
<u>FWA provides dependable help for client problems</u>		
Always	42.5	69.3
Usually	39.3	68.8
Sometimes	29.7	65.1
Never	23.5	56.3

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

	Percent currently using modern contraception	Percent intending to use modern method in future ^a
<u>FWA provides dependable help for client problems</u>		
Always	42.5	69.3
Usually	39.3	68.8
Sometimes	29.7	65.1
Never	23.5	56.3
<u>FWA uses simple, understandable words/ideas</u>		
Always	35.0	66.8
Usually	28.8	60.5
Sometimes	29.7	58.9
Never	7.1	42.3
<u>FWA provides adequate information</u>		
Always	42.8	70.7
Usually	35.9	67.8
Sometimes	25.1	61.0
Never	21.7	49.1
<u>Number of contraceptive methods discussed by FWA</u>		
Three or more methods	37.0	73.9
Two methods	31.4	65.3
One method	54.7	57.7
No specific methods	19.7	55.7
Never talks about methods	16.4	48.4
<u>Has woman ever told anyone about good work of FWA?</u>		
Yes	43.5	61.1
No	28.1	72.9
<u>When FWA last contacted</u>		
< 3 months	37.7	68.5
3 - 6 months	27.0	67.5
6 + months	27.9	56.5

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

	Percent currently using modern contraception	Percent intending to use modern method in future ^a
<u>Amount of time spent by FWA with client (minutes)</u>		
1 - 5 minutes	30.2	62.0
6 - 10 minutes	38.9	71.0
10 - 15 minutes	41.3	66.7
16 + minutes	47.4	75.0
<u>FWA provided antenatal care during last pregnancy</u>		
Yes	31.4	81.5
No	26.0	62.0
<u>FWA-client interaction index</u>		
Never contacted by FWA	10.3	64.5
Low	17.5	50.0
Moderate	28.9	61.7
High	40.6	71.7

^aIncludes only current non-users of modern methods

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
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 ***

Continued...

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 ^a Odds ratio
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 ***
Quality of FWA-client interaction index		
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

CHAPTER 10

Factors Associated with Reported Side-effects of Oral Pills and Injectables in Rural Bangladesh

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Factors Associated with Reported Side-effects of Oral Pills and Injectables in Rural Bangladesh

Mizanur Rahman, Mehrab A. Khan, Bruce K. Caldwell, and Thomas T. Kane

Abstract

Between 1985 and 1997 prevalence of pill use has increased from 5.1 percent to 20.8 percent nationally, while prevalence of injectable contraceptive use increased from 0.5 percent to 6.2 percent during the same time period (BDHS, 1997).

Pills and injectables constitute over 65 percent of modern contraceptive methods in Bangladesh (BDHS, 1997). Use duration of these methods is low (44% of pill users and 51% of injectable users drop out during the first 12 months, and 55-70% of those who discontinue report side-effects as causes for discontinuation (BDHS, 1997)). This study examines the demographic, socioeconomic, and programmatic factors associated with the reported side-effects of pill and injectable users in logistic and/or multinomial regressions. Information was collected during 1992-93 and 1995-96 from about 12,000 married women of reproductive age living in 12 rural sub-districts.

Reported side-effects of pills and injectables were higher among the less educated women; poor women; women who got their pills from public, rather than private sources; women who reported lower quality contact with fieldworker; and women whose husbands were not involved in choosing the family planning method. These characteristics were similarly associated with higher pill/injectable discontinuation due to side-effects.

Quality contact with fieldworkers and husband's involvement in method choice lead to lower reported side-effects and lower discontinuation of pills and injectables. The health and family planning programme should design strategies that improve the quality of client-worker contact and promote men's involvement and support in family planning to help reduce perceived side-effects, and pill and injectable discontinuation.

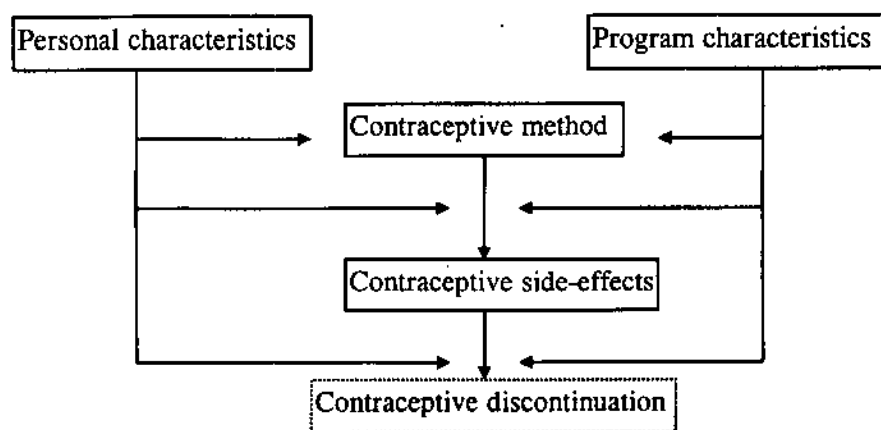
Introduction

Contraceptive use in Bangladesh has increased rapidly in recent years, with almost half of all couples now using a method. However, the majority of the users employ only temporary methods. The 1996-97 Bangladesh Demographic and Health Survey (BDHS) showed that at the time of the survey, 49 percent of the couples were currently using a method, and about 33 percent a modern temporary method (Table 1). Pills and injectables constituted about 55 percent of all the methods, 65 percent of all modern methods, and over 80 percent of modern temporary methods (NIPORT, 1997).

Unfortunately, use duration of most temporary methods is very low. The BDHS shows that 47 percent of the temporary method users discontinued the method by the end of the first year of use (NIPORT, Mitra and Associates, and Macro International, 1997). The twelve-month discontinuation rate was 44 percent for pills and 51 percent for injectables. Figure 1 presents first-year discontinuation rates and reasons for discontinuation of pills and injectables in four developing countries, with comparable contraceptive prevalence rates (CPRs)¹.

There is a wide variation in discontinuation rates between the countries. This is largely due to differences in stated side-effects or health reasons. Discontinuation due to method failure, desire for pregnancy, and other reasons are quite similar among the countries.

Figure 1. Conceptual framework on the factors associated with contraceptive side-effects and discontinuation



¹ During 1996-97, CPR was 49 percent in Bangladesh; and during 1987-88, CPR was 44, 48, and 50 percent in Ecuador, Indonesia, and Tunisia, respectively.

Health-related reasons or side-effects were the predominant reasons given for discontinuing pills and injectables in Bangladesh. About 24 of 44 (55%) of pill users and 36 of 51 (70%) injectable discontinuers discontinued because of side-effects. In cross-sectional surveys 40-50 percent of pill or injectable users report that they had experienced side-effects/discomforts/health related problems associated with the method (Mitra *et al.*, 1994). According to these estimates, about 3.0 million pill or injectable users believed that they were suffering from side-effects, discomforts, or health-related problems because of the method they were using. This, itself, is a public health issue which needs to be seriously considered by program planners and managers.

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There are also adverse programmatic and reproductive health implications to contraceptive discontinuation due to side-effects, such as low contraceptive prevalence, and unplanned/undesired/less-desired conceptions. Many of these conceptions are terminated through abortions, which, when performed under hygienically sub-standard conditions, lead to maternal morbidity and mortality. The excess births which result from side-effect-related contraceptive discontinuation cases may be subject to conscious or unconscious neglect leading to higher infant or child malnutrition and mortality.

Therefore, a study of the side-effects of pills and injectables is warranted. This study examines the characteristics of current and past pill and injectable users who reported side-effects in contraceptive prevalence surveys. The findings of such a study will potentially help improve the design of the current family planning delivery system, and will, in turn, lead to greater client satisfaction, higher contraceptive continuation, higher contraceptive prevalence, and better reproductive health.

Pill and Injectable Supplies in Bangladesh

The Bangladesh family planning programme has clear guidelines for family planning workers, to help them determine the most suitable method for each individual woman (MOHFW, 1989). The programme has provided screening checklists to be used in this process. The providers are instructed to inform a new user about the probable side-effects of a selected method, and what to do in case of such side-effects. When pills or injectables are chosen as a method, clients are informed that in most cases, side-effects disappear after several cycles of the method. If side-effects persist, a user is advised to see a female paramedic, known as the Family Welfare Visitor (FWV), available at the Health and Family Welfare Centre (H&FWC) or monthly Satellite Clinic (SC). There is one H&FWC, on average, for 6,000 women of reproductive age. The FWV also runs eight SCs per month, out of private homes, selected from the catchment area of the 6,000 women.

Oral pills are the dominant contraceptive method in Bangladesh, about 80 percent of which are supplied by the Family Planning Directorate of the Ministry of Health and Family Welfare. Prior to the end of 1995, the so-called standard-dose combined pill (0.050 mg of estrogen and 0.100 mg of progestin) was supplied, and, beginning in 1996, the low-dose pill (0.030 mg. estrogen and 0.150 mg. of progestin)² has been supplied. The Social Marketing Company (SMC) currently supplies low-dose oral pills, produced by multinational companies, to pharmacies and shops. Low-dose pills are also marketed through pharmacies and shops by other multinational companies. Depot-Medroxy Progesterone Acetate (DMPA) and Norethindrone Enanthate (NET-EN) are the injectable contraceptives offered from public sources in Bangladesh. The FWVs provide injectables to women at H&FWCs and SCs. The paramedics of some NGOs also provide injectables. ICDDR,B is currently involved in two projects, where female Community Health Workers (CHW) or Family Welfare Assistants (FWA) provide injectables at the homes of the clients. However, initial screening and selection of injectable clients is done by paramedics, like Lady Family Planning Visitors (LFPVs) or FWVs. Injectable clients with side-effects are referred to paramedics.

Pill and Injectable Use, and Side-effects

Contraceptives, in general, provide numerous benefits for a woman (i.e. allow the woman to control reproduction, thus reducing maternal and child health risks). But pills may also pose side-effects. Though rare, in some cases, pills can pose serious health conditions, such as cardiovascular complications (Hatcher *et al.*, 1994). Pill use can have side-effects like menstrual disturbances, nausea or vomiting, headaches, depression, and decreased libido (Hatcher *et al.*, 1994). Various complaints like nervousness, dizziness, tender breasts, weight gain, edema, leg

² One brand, "Femicon," supplied by SMC contains 0.030mg of estrogen and 0.300mg of progestin.

pain, and/or leukorrhoea have also been reported by pill users (Aznar-Ramos, Giner-Velazquez, and Lara-Ricalde, 1969; Dawson, 1979; Evans, 1976; Goldfield and Neinstein, 1985; Janowitz *et al.*, 1986; Lund and Baksaas, 1988). In addition to these problems, pill users in Bangladesh have reported that they experience general weakness, lower abdominal pain, burning extremities, and hyperacidity (Akhter *et al.*, 1996; Wirzba and Juncker, 1995).

Injectables also have side-effects like bleeding irregularities (spotting, break-through bleeding, or amenorrhoea, particularly among prolonged users), weight gain, breast tenderness, depression, and, in rare cases after use for a long period, decrease in bone density (Hatcher *et al.*, 1994). Headaches, nervousness, decreased libido, breast discomforts, and depression have also been reported by DMPA users (Schwallie and Assenzo, 1973). Amenorrhoea, spotting, headache, excessive bleeding, and weakness were reported by injectable users in Bangladesh (Mirza *et al.*, 1994; Mitra 1995; Wirzba and Juncker, 1995). In Bangladesh, Azim (1994) observed that injectable users report lower abdominal pain, weight gain, and burning sensations in eyes, in addition to the above mentioned side-effects.

The occurrence of side-effects due to the use of pills or injectables, and the discontinuation of these methods, due to side-effects, may be due to a combination of personal and programmatic characteristics. Reported side-effects, as obtained in surveys, may be higher than the actual prevalence of side-effects as diagnosed by a medical professional because a percentage of all reported side-effects may only be perceived as side-effects of the chosen method, when in fact they are not the result of method use. The reported symptoms which fall under this category do not tend to be particularly helpful in representing the nature of the contraceptive or its tendency to induce side-effects, but rather, reflect personal characteristics of the clients themselves (Stephens and Chamrathirong, 1988; Trlin and Perry, 1982). That the association of a side-effect with a method is in part subjective, however, does not mean that it can be ignored. Actual side-effects, if not addressed, may lead to method discontinuation or switching. Perceived side-effects can also lead to discontinuation of method use. Addressing client concerns is, indeed, part of the programme's role.

Personal Characteristics and Side-effects of Pills and Injectables

For biological reasons, a woman's age is associated with the risk of side-effects. For pill users, relatively older women are at higher risk for clinical side-effects (Hatcher *et al.*, 1994; Trlin and Perry, 1982; Stephens and Chamrathirong, 1988). However, most of these women have already borne children and may be strongly motivated to use contraception for the purpose of limiting future births. In such cases, they are likely to be more tolerant of the discomforts of side-effects, and, thus, may be less likely to report them or be less likely to discontinue the method after experiencing side-effects. Young women who are highly motivated to space births, probably find pills the most convenient method, and, similarly tend to be highly tolerant of side-effects.

In general, contraceptive users who do not want to have any more children are likely to be strongly motivated to use contraceptives and are thus, less likely to report side-effects. However, Erasmus and Mostert (1985) did not observe such an association among oral contraceptive users in a black population.

In rural Bangladesh, there are high social and psychological costs associated with contraceptive use because of the traditional nature of the society and poor socioeconomic and health conditions. Schuler *et al.* (1995) describe, based on their ethnographic study, various adverse familial and social situations women face in using contraception. Many users may remain dissatisfied while using a method because of these costs. A large portion of the reported side-effects may simply reflect such dissatisfaction.

Educated women may be more informed as to which discomforts are actually side-effects, and which ones are not. Educated women, and women from higher socioeconomic backgrounds may be more likely to seek advice or help from family planning workers or medical professionals when experiencing side-effects. Janowitz *et al.* (1986) find, in Brazil, that pill users who were more educated, were more likely to seek health care from professionals in case of side-effects. In Bangladesh, educated women are more likely to seek reproductive health care than less educated women (Rahman *et al.*, 1997).

Attitudes regarding family size and contraceptive use for the purpose of achieving a desired family size are still familial³ issues in rural Bangladesh. The men, in this case husbands, play a crucial role (Khan and Rahman, 1997; Schuler *et al.*, 1995). A woman whose husband is already convinced of the advantages of a small family is likely to be in a position to space or limit births because her husband is likely to motivate and/or support her to do so. Consider the example, however, of a woman who is convinced of the virtues of the small family and contraceptive use (say, through contact with community-based, female family planning workers), and her husband is not. She has to convince her husband (and often parents-in-law and other family members) that it is in the family's best interests to contracept before she can successfully begin a method. Discussion between the spouses is essential. The husband, thus, has an important role in family planning. If a husband is involved in selecting the method, it is highly likely that he will support his wife in the event of significant side-effects, and ensure that she receives counselling, advice or treatment for them. For this reason, it is expected that the prevalence of side-effects would be lower among users whose husbands are involved in the contraceptive method selection. In fact, contraceptive use has been found to be higher among women who had frequent discussions with their husbands about family planning in Bangladesh (Kantner *et al.*, 1996; Rahman and Sutradhar, 1996) and in Kenya (Lasee and Becker, 1997).

³ Family, here, refers to a broader context involving members of a nuclear and/or extended family as well as those of patrilineally-related families who reside in the same cluster of households, known as a *bari*.

Because of hormonal effects of both pills and injectables, side-effects do occur in some cases during the initial period of use. These, however, usually disappear after several cycles (Hatcher *et al.*, 1994; Akhter *et al.*, 1996). Thus, the prevalence of side-effects should decline with the duration of use. Women who cannot tolerate the side-effects, however, discontinue before the side-effects have had a chance to subside. Thus the prevalence of side-effects may not be associated with the duration of use of pills or injectables (the level of tolerance also depends on how motivated a woman is for birth spacing or limitation). Some side-effects, like amenorrhoea, may become more pronounced with prolonged use, in which cases the prevalence of side-effects may be positively associated with duration of method use (Akhter *et al.*, 1996).

Programme Characteristics and Side-effects

In Bangladesh, pills are supplied through public, NGO, and private sectors while injectables are supplied only through the public sector and a limited number of NGOs. Pills and condoms are delivered to women through house-to-house visits by female fieldworkers, known as FWAs, through the public sector. In some special project areas, FWAs or NGO workers also provide injectables at the homes of clients. An FWA is supposed to visit each married woman of reproductive age (MWRA) every two months to advocate a small family, provide information on contraceptives, supply pills and condoms, counsel on contraceptive side-effects, refer clients to SCs and H&FWCs for side-effects and provide antenatal and other maternal and child health-family planning (MCH-FP) services. High quality client-FWA contact has been demonstrated to have a positive effect on contraceptive adoption and continuation (Koenig *et al.*, 1992; Kane *et al.*, 1997). Counselling by providers on contraceptive choice and use has been found to be negatively associated with reported dissatisfaction and side-effects in various populations (Mtawali *et al.*, 1994; Anonymous, 1991; and Gommaa, 1991). These findings suggest that high-quality FWA contact should reduce the prevalence of reported pill and injectable side-effects, whereby reducing pill and injectable discontinuation.

While FWAs are trained in contraindications and side-effect management, the prevalence of side-effects may vary with the source of supplies. The 1996-97 BDHS showed that about 27 percent of pill users bought their pills from shops or pharmacies (a prescription is not required to buy pills from shops or pharmacies).⁴ The users of pills obtained from shops and pharmacies, therefore, might be expected to suffer more from side-effects. Pharmacists and other drug sellers, in most cases, do not screen pill users or provide side-effect management.⁵ Also, for various practical reasons, pharmacists/drug sellers are not in a position to implement the screening procedures or counselling formalities during the sale of pills. This effect, however,

⁴ Pharmacies and shops receive their supplies from SMC and other multinational pharmaceutical companies.

⁵ SMC has a program which provides basic training to pharmacists/drug sellers on screening of pill users.

may be counter-balanced by the higher levels of motivation among the couples who tend to buy their own supplies. Since the husband usually buys the method, he may provide more support to his wife in the event of side-effects. It is also possible, however, that a male partner may not be able to communicate effectively about concerns regarding pill contraindications or side-effects that may be experienced by his wife. Injectables, on the other hand, are for the most part available only from family planning workers, and thus, do not present the same variations with regard to screening for contraindications and side-effects counselling.

Data and Methods

The data for this study come from fertility and contraceptive prevalence surveys, conducted by the Rural MCH-FP Extension Project of the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B). The Project has made an important contribution to the success of the country's family planning programme through operations research and technical assistance in the areas of management improvement and quality of care. The surveys that provide the data under study were conducted in 1993 in Abhoynagar and Sirajganj thanas (sub-districts); and in 1995-96, in eight thanas of Chittagong district (Table 1).

The surveys were conducted by the Sample Registration System (SRS) of the Project, which was established in 1982 and has personnel who are involved in data collection, processing, and management. The present surveys were conducted by the permanent and temporary trained female interviewers who received specific training for these surveys. The interviewers collected information on structured questionnaires from 11,486 MWRA. The entire process of data collection, processing, and management was supervised at the field, as well as at the headquarters under the overall guidance of the SRS manager.

Abhoynagar is located about 300 km. south-west; Sirajganj about 200 km. north-west; and Chittagong about 300 km. south-east of Dhaka, the Capital of Bangladesh. Subsistence agriculture, primarily rice agriculture, dominates the economy of the entire area. Fishing is quite common in some thanas of Chittagong and Sirajganj. Literacy, particularly female literacy, is still low in all areas, but at Abhoynagar and Chittagong it is higher than at Sirajganj. Many thanas of Chittagong have easy access to Chittagong City, the second largest commercial and industrial city of the country. Abhoynagar is not easily accessible to Dhaka, but is quite near Khulna, the third largest commercial and industrial city of Bangladesh. Social institutions are predominantly traditional, although the influences of modernization are increasing through access to radio and personal commercial contacts with industrial areas. An appreciable proportion of young male adults of Chittagong district work in the Middle-East. Among the study areas, Abhoynagar is the least conservative area, while Chittagong and Sirajganj are relatively conservative areas. Sirajganj is the most remote area.

We consider maternal age, number of surviving children, maternal education, decision to adopt the method (whether or not husband was involved in the decision), and the perceived quality of the services provided by the FWA, as potentially important covariates of reported side-effects. Desired fertility and thus, demand for contraception were different between Abhoynagar and Sirajganj, and, therefore, regional variation was also considered as a factor which could possibly be associated with reported side-effects. The sources from which the pills, currently being used, were obtained was taken as an independent variable for the Chittagong data set, mainly because most clients in Abhoynagar and Sirajganj received pills from the FWAs. As a measure of motivation to use contraceptives, a variable assessing whether or not a woman wants to have more children was included in the Chittagong, Abhoynagar and Sirajganj data sets. The current method use duration was available in the Abhoynagar and Sirajganj data sets, and therefore, is included in the analysis of those data.

Household income was used as an independent variable, represented by household space, in Abhoynagar and Sirajganj. In Chittagong, "whether or not a household has electricity" was included as an independent variable. This variable may be an indicator of household socioeconomic condition or that of an advanced community. If there is electricity in a rural community, it is likely that almost all households, regardless of economic status, have electrical connections.

For the Abhoynagar and Sirajganj data, a score indicating the quality of contact between the client (respondent) and the FWA was derived, based on the responses to several questions in the survey. The questions were designed to determine whether or not the client perceived that the FWA: (i) spent sufficient time with the respondent; (ii) provided relevant information, if asked; (iii) maintained privacy during counselling, when appropriate; (iv) referred the client to a paramedic, when appropriate; (v) expressed sympathy, when appropriate; and (vi) exhibited reliability in handling problems related to the use of pills or injectables. Each item has a value of 0 or 1. The score was derived by adding the responses. For estimating the statistical models, a dummy variable was coded as 1 if the total score was six, because we consider that all six elements are required for the client-worker contact to be considered of high quality. Over 11 percent of pill and injectable users had scores of six (Table 3). For Chittagong, questions on the quality of FWA contact were not asked.

From the surveys in Abhoynagar and Sirajganj, information on contraceptive side-effects was obtained in two ways. First, the prevalence of side-effects was obtained from current contraceptive users; each user was asked if she was having any health problem which she associated with the use of her chosen method. Second, information was gathered from women who had used methods in the past. These women were asked about their reasons for discontinuing. The reasons were categorized into two groups: (a) side-effects and (b) others (for example, desire for more children or social or religious reasons). Those who reported method failure ($n=51$) were dropped from the analysis. The surveys in Chittagong district obtained data

only from current users. Table 2 shows the distribution of reported side-effects of pill users. Most of the side-effects are of a general nature, like headache or weakness. Analysis of the side-effects of injectables is restricted to Abhoynagar and Sirajganj, since it is only there, that injectables are provided by FWAs.

The association between side-effects of current pill or injectable use and the independent variables was examined in logistic regressions. The association between discontinuation of a method because of side-effects, having another child, or social reasons, and independent variables was examined in multinomial logit regressions. Respondents who had discontinued use of the pills or injectables because of (a) side-effects and (b) other reasons, were treated as two categories, while respondents who continued the same method were treated as the reference category in the multinomial model.

Results

Reported side-effects were lower among younger and older current users of pills or injectables than those users in the middle of their reproductive years, as indicated by the coefficients of maternal age and its square term (Table 4 and 5). This was true for current pill users in Chittagong (Table 4) and for current injectable users in Abhoynagar and Sirajganj (Table 5). The likelihood of reported side-effects was highest among current users aged 30-34 years. This relationship represents several aspects of contraceptive use dynamics. First, very young women (many of the women of the recent generation have positive attitudes toward small families and birth spacing) who were currently using a method may belong to a group which is likely to be highly motivated, and thus, relatively tolerant of side-effects. Therefore, they are less likely to report them (they are the spacers, and for them, the best options are pills or injectables). Second, given that older women are more likely to be limiters (who do not want to have more children), those who have adopted pills or injectables instead of longer-acting methods, like IUDs or tubectomies, are probably more tolerant of side-effects, and are similarly less likely to report them. Table 6 (column 3) similarly shows that the discontinuation of injectables due to side-effects was lower among younger and older women than the 30-34 year old women. These findings also support the idea that motivated women are less likely to discontinue a method because of side-effects.

The positive association between the number of surviving children and reported side-effects may also reflect the role of motivation on reported side-effects (Table 4). Between two women of the same age, the one who has the most children is likely to have been the one less motivated to use contraception. Because of her lack of motivation for small family, she did not use contraception when she had fewer children and thus has already achieved a large number of children. Since she is less motivated to use contraception, she is also, more likely to report side-effects. On the other hand, women who have more children, are motivated by economic reasons to contracept, even if they have side-effects. Further, a high-parity woman in poor

health (resulting from repeated pregnancies), who has been using the pill, may also perceive her illness as being associated with the pill. The negative association between the number of surviving children and contraceptive discontinuation for other reasons (Table 6) indicates that women who have fewer children are more likely to discontinue contraceptive use for having a child or social reasons. This finding was expected.

It would seem logical that a woman who does not want to have additional children and uses the oral pill would be highly motivated to use contraception. But the coefficient of the variable "Does not want to have more children" that is used to represent this motivation effect is small and statistically insignificant (Table 5). This indicates that the reporting of side-effects may not be associated with motivation to contracept. It may also mean that the variable "Does not want to have more children" is not an indicator of motivation to use contraceptives, particularly temporary methods.

Educated or wealthier pill users were less likely to report side-effects than uneducated or poor women (Table 4 and 5). Discontinuation of pills due to side-effects was also lower among educated than uneducated/less educated women. Pill use among educated women was higher than among uneducated women (Khan and Rahman, 1997). Lower prevalence of reported side-effects or lower discontinuation due to side-effects among educated or wealthier women can be explained in at least four ways. First, these women are more likely to be aware of the types of side-effects associated with their chosen method, less likely to report other unrelated discomforts as side-effects, and more likely to tolerate side-effects - leading to lower discontinuation. Second, it is possible that educated or wealthier women who use pills receive special attention from family planning workers (that is, superior counselling and referral), which may help reduce the prevalence of side-effects and the anxiety and health concerns related to the experience of side-effects - leading to lower discontinuation. Third, educated or wealthier women may consult private or public medical professionals for treatment, resulting in the lower prevalence of side-effects and higher method continuation. Fourth, educated or wealthier women are more likely to be healthier, thus having fewer symptoms of weakness or headache. Weakness or headache were the dominant among reported side-effects.

The association between maternal education and injectable side-effect-related discontinuation is in the opposite direction to that between education and pill side-effect discontinuation (Table 4, 5, and 6). Injectable discontinuation due to side-effects was higher among educated than uneducated women (Table 6). It should also be noted that injectable use is lower among educated than uneducated women (Khan and Rahman, 1997). This probably indicates that educated women are probably less likely to tolerate the side-effects of injectables than uneducated women, and are thus, more likely to discontinue use of injectables.

The variable "Electricity at home" does not seem to be associated with reported side-effects (Table 4) in Chittagong where it was positively associated with contraceptive use.

Pill users whose husbands were involved in the decision to adopt a method were significantly less likely to report side-effects (Table 5). Husband's involvement was also negatively associated with discontinuation of pills due to side-effects (Table 6). This finding can be explained in several ways. The husband may help his wife (a) in the choosing of a suitable method, (b) by providing support in the event of side-effects or anxiety resulting from method use, (c) in seeking treatment and/or (d) in switching to a different method, when appropriate. This association may also reflect a motivation effect because the husband's involvement in the contraceptive decision-making process may be associated with stronger motivation for birth spacing or limitation. This involvement could, therefore, lead to lower levels of reported side-effects.

The person(s) responsible for making the decision to contracept was categorized by two dummy variables: (a) Both spouses decided together and (b) Husband decided. Decision by the wife was treated as the reference category. The coefficient was positive for both dummy variables, being larger for "Husband decided." The variable "Husband decided" was significant only at the 10 percent level (results not shown). (The non-significance of association of these dummy variables may be due to small cell frequencies, however.) This implies that it is not inter-spousal communication, but the husband's involvement in the decision that is important in reducing the perception of side-effects.

In case of injectables, neither reported side-effects nor discontinuation due to side-effects was associated with husband's involvement in choosing the method. This finding and those on the negative association between maternal education and injectable use (Khan and Rahman, 1997) and the positive association between maternal education and injectable discontinuation probably support the argument of Khan and Rahman (1997). They argue that there is a provider-bias in the areas of counselling among clients' method selection and its continuation. The FWAs or FWVs probably can convince a section of women (e.g. women without education or women who do not consult with their husbands about method selection) to use injectables which is relatively longer acting and which does not require "user-skills."

Table 5 (column 1) shows that the likelihood of reporting side-effects does not change with the duration of pill use. We expected that the prevalence of side-effects would be higher within six months of use than users of prolong duration, as side-effects generally decline with continued use of pills. The lack of a parallel decline in the reporting of side-effects may indicate two things. First, pill users who experience side-effects shortly after acceptance discontinue the method. Second, the longer some women use the pills the more likely they are to attribute headaches and other unrelated discomforts to the pill. In the case of injectable users, the prevalence of reported side-effects was higher among those who had been using the method for a relatively longer duration. Amenorrhoea is an often-cited complaint among long-term users. The positive association, therefore, between reported side-effects and duration of injectable use

could suggest that injectables are not discontinued for relatively tolerable side-effects, such as amenorrhea, and that such side-effects possibly accumulate with duration of use.

A significant negative association between the quality of client-FWA contact and reported side-effects for pill and injectable use is illustrated in Table 5. This is a clear indication of the importance of a programme's emphasis on quality of care. A good worker really makes a difference.

Following is an example of the type of efforts that are made by contraceptive pill and injectable users with side-effects, what assistance is received from FWAs, and how satisfied the users are with the counselling they receive. Table 7 shows that in most cases, users who experience side-effects discuss these with their husbands as well as the FWAs. Over 90 percent of the pill and injectable users who consulted with FWAs received some kind of counselling from them, and about 60 percent of those with side-effects were satisfied with the counselling they received. Only 40 and about 50 percent of the women who experienced side-effects from pills and injectables, respectively, and received counselling from the FWAs, were satisfied with the counselling offered by the FWAs. This shows that the FWAs need further guidance on how to provide effective counselling for side-effects. The supervisors (Family Planning Inspectors) and managers (Family Planning Officers) can provide routine in-house IEC training to FWAs which will help to improve client-worker interactions. The paramedics (FWVs) and medical officers can provide routine in-house training to FWAs regarding information and counselling on contraceptive methods.

Pills obtained from family planning workers at the doorstep or fixed-site service centres are free of cost, while those sold at shops or pharmacies cost from about 10 cents to about 3.0 dollars for two month-long cycles. Additionally, pills available at shops and pharmacies are of different brands than those available with the family planning workers. Table 4 shows that reported side-effects were lower among pill users who bought their supplies from a private source, such as a pharmacy or medicine shop. This probably reflects a selectivity-effect. The users who buy from private sources may be more aware of the true nature of side-effects, more motivated to use pills, and more likely to receive treatment in the event of side-effects, all leading to lower levels of reported side-effects. In fact, this variable may have captured some income-effect on health. For example, wealthier women who are also likely to be healthier are more likely to buy their pills. The dominant side-effects (weakness and headache) are less likely to be suffered by the wealthier women. The variable "Source of method" might have also partially captured the effect of husband's involvement (the variable "Husband's involvement" is not included in the model because of lack of data), because in most cases, pills are procured from the shops and pharmacies by the husband. Additionally, users of different brands obtained from shops and pharmacies may perceive that these products are of higher quality and less likely to cause side-effects, resulting in lower reporting of side effects.

Pill and injectable discontinuation (for any reason) was higher at Sirajganj than at Abhoynagar (Table 6). This reflects an effect of motivation, rather than a difference in programme quality of care, since the two areas were similar with respect to the management and quality of care. Furthermore, the demand for a small family and birth spacing was lower at Sirajganj than Abhoynagar. Therefore, it is possible that women at Sirajganj were less motivated to use contraceptives than women at Abhoynagar.

Discussion, Conclusions, and Policy Implications

Many analyses of side-effects as reported by method users in cross-sectional surveys suffer from selectivity bias. The bias may arise from two perspectives. In a cross-sectional survey, temporary method users who have been using the method for a longer duration have a higher likelihood of being included as respondents. In this process, those who have discontinued pills or injectables due to side-effects or other reasons, after a short duration of use, have not been included in the sample. The onset of side-effects is usually high, shortly after the acceptance of pills or injectables and many of the users discontinue the method shortly after accepting it. The users who have been using the method for a relatively longer duration may have done so probably because they (a) have not experienced side-effects, or (b) have experienced mild side-effects, or (c) are more tolerant of side-effects. We tried to minimize bias in the analysis by collecting information on reasons for discontinuation from past users. The analyses of past users and current users reveal a common set of factors that are associated with discontinuation due to side-effects and the association is in the same direction.

Reported side-effects of current pill users were low among: the youngest and oldest women of reproductive age; mothers with fewer children; more educated women; relatively wealthier women; women whose husbands were involved in choosing the method; women who obtained the current method from private pharmacies or medicine shops; and women who perceived that the Family Welfare Assistants (FWA) provided a "quality contact." Reported side-effects of current injectable users were low among: the youngest and oldest women of reproductive age; relatively wealthier women; women who perceived that the FWAs provided a "quality contact;" and women who had been using injectables for a shorter duration.

Pill discontinuation due to side-effects was lowest among: more educated women; and women whose husbands were involved in choosing the method. Injectable discontinuation due to side-effects was lowest among: the youngest and the oldest women of reproductive age and uneducated women.

From a programmatic point of view, two very important findings emerged: (i) the impact of high quality FWA contact and (ii) the importance of the husband's involvement in choosing a method. Quality of FWA-client contact is negatively associated with reported side-effects of pills and

injectables. For pills, husband's involvement in choosing the method is negatively associated with reported side-effects and discontinuation.

The likelihood that a pill or injectable user reports a side-effect is about 70 or 45 percent lower if she is served by an FWA who provides a high-quality contact, than a user who is not served by such an FWA. High-quality contact (as evaluated by the respondents, and according to our definition) means that an FWA spends sufficient time with the user; provides relevant information, if asked; maintains privacy during counselling, when appropriate; refers the client to a paramedic, when necessary; expresses sympathy, when necessary; and exhibits reliability in handling method-related problems. An FWA exhibiting all these characteristics, can help reduce reported side-effects and, thus, discontinuation substantially. These are basic elements of provider-client contact in the delivery of contraceptive services. Yet, one must not forget the social and psychological costs, in addition to the clinical side-effects, that the user faces. A large portion of the reported side-effects may reflect dissatisfaction associated with the social and psychological costs of contraceptive use. An FWA, through her high-quality contact, can help to compensate for social and psychological costs, by providing emotional support and empathy while counselling the client on the clinical side-effects and by also emphasizing the social and economic benefits of contraceptive use (for example, reduced fear of unplanned pregnancy, better economic opportunities inherent to carefully planned families, among others).

The clinical side-effects may be handled either (a) by the FWAs through their improved skills in screening clients for methods and in side-effect management or (b) by referrals to the paramedics at the fixed-site service centres, if necessary. The SMC can strengthen their efforts to train pharmacists/drug sellers to provide side-effect-related information to pill buyers.

The association we observed, between the clients' perception regarding quality contact and reported side-effects brings up another question. Could those users who are dissatisfied with the methods also be dissatisfied with some elements of client-worker contact? If this is the case, it may have exaggerated the association between quality contact and reported side-effects.

We find that the involvement of husbands in choosing a method is significantly associated with lower reporting of side-effects, as well as lower discontinuation of pills. This suggests that the increased involvement of males in family planning activities may not only increase contraceptive acceptance but also reduce pill discontinuation due to side-effects. The current family planning service-delivery system is directed toward women. In other words, FWAs contact women personally, at their homes, once every two months to provide contraceptive information and supplies. Men are not approached in this way. If, at the community level, men could be motivated and counselled to share responsibility with their wives regarding fertility regulation and reproductive health, contraceptive prevalence might increase through increased adoption and decreased discontinuation of contraceptives due to side-effects.

The quality of care component of the family planning programme should seek to improve the skills of the workers on counselling, on screening for contraindications, and on management of side-effects of pills and injectables in particular, and in providing a variety of contraceptives, in general. The local-level programme managers, frontline supervisors, and paramedics could provide routine in-house training and refresher training on counselling skills and management of contraceptive side-effects and build more client-oriented and client-centred approaches to service-delivery. The NGOs devoted to the improvement of the quality of family planning services may take an initiative of a local-level training programme for this purpose. Moreover, the current innovative approach of delivering basic health and family planning services from fixed-site facilities through more highly trained personnel may significantly contribute to reducing pill and injectable side-effects, and thus increasing continuation.⁶

Further qualitative, quantitative, and epidemiological studies, as well as longitudinal research, should be undertaken to gain a better understanding of the consequences of pill and injectable side-effects. In order to improve quality of pill and injectable services it will be necessary to understand under what situations "perceived" side-effects lead to method discontinuation. The present study could not fully explain why perceived side-effects are higher in some groups than in others. For example, we hypothesized that less-motivated women would be more likely to report pill or injectable side-effects. However, supporting evidence was not forthcoming. It is also necessary to document what actions are initiated by users and what services are offered by the providers (for example, counselling and referrals for side-effects). In order to develop IEC materials for men, it is necessary to know what role a husband plays in choosing the method and subsequent support in case of discomforts or side-effects.

An operations research (OR) intervention could be undertaken to help reduce the incidence of reported pill and injectable side-effects and the dissatisfaction associated with these side-effects. Because of a traditionally early onset of childbearing in Bangladesh, most of the women complete their family size by 25 or 30 years of age and subsequently continue using pills or injectables for 15 to 20 years. The contraceptive literature recommends that women after 35 years of age avoid using pills. This OR may also try to motivate those women who are currently using pills or injectables for limiting purposes, to switch to permanent methods which have lower side-effects and higher effectiveness. A well-designed sterilization programme with a sound technical base, backed-up by strong family planning educational activities may help couples who want no more children in their decision to switch to permanent methods. Apart from reducing side-effects and discontinuation, this may also lead to a more effective contraceptive method-mix in Bangladesh.

⁶ The MCH-FP Extension Project (Rural) of ICDDR,B is undertaking operations research on basic health and family planning service delivery in some thanas of Bangladesh.

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Table 1. Method-specific contraceptive prevalence rate (CPR) per 100 eligible couples

Method	National 1996-97*	Abhoynagar and Sirajganj 1993	Chittagong district 1995-96
CPR	49.2	45.6	36.5
Modern temporary methods	32.7	34.1	25.0
Pill	20.8	15.2	17.1
Injectables	6.2	13.3	3.5
IUD	1.8	2.2	2.7
Condom	3.9	3.4	1.7
Sterilization	8.7	6.3	7.7
Traditional methods	7.7	5.2	3.8
(Number)	(8,450)	(5,712)	(5,774)

NIPORT, 1997

Table 2. Distribution of reported side-effects of current pill and injectable users in Abhoynagar and Sirajganj and current pill users in Chittagong.

Side-effect	Abhoynagar and Sirajganj, 1993				Chittagong, 1995-96	
	Pills		Injectables		Pills	
	Percent	Number	Percent	Number	Percent	Number
All side-effects	42.0	364	69.5	526	48.7	482
Headache/weakness	37.5	325	7.3	283	42.6	421
Irregular menstruation	0.7	6	20.6	156	2.7	27
Excessive menstrual bleeding	1.4	12	8.0	61	1.2	12
Others*	2.4	21	3.6	27	2.2	22
No side-effect	58.0	502	30.5	231	51.3	507
Total	100.0	866	100.0	758	100.0	989

* Burning sensation, vomiting, abdominal pain, spot bleeding, and weight gain.

Table 3. Characteristics of current pill and injectable users by area

Characteristics	Abhoynagar and Sirajganj		Chittagong
	Pill users	Injectable users	Pill users
Mean maternal age	29.5	30.2	30.5
Mean number of living children	2.9	3.2	3.2
% do not want to have more children	62	71	70
Maternal education (% distribution)			
None	55	68	34
Primary	28	26	25
Above primary	17	6	36
Household space (% distribution)			
Small	39	45	a
Medium	40	35	a
Large	21	20	a
% having electricity at home	a	a	46
% husband having involved in choosing the method	48	42	a
Duration of method use (% distribution)			
0-5 months	35	30	a
6-17 Months	24	30	a
18+ months	41	40	a
% reporting FWA provides high quality contact	11	14	a
Source of the method (% distribution)			
FWA at home	a	a	62
Shop/Pharmacy	a	a	30
Fixed-site health facility	a	a	8
% sample in Sirajganj	53	51	NA
(Number)	(866)	(758)	(989)

a = not available for use in the analysis; and NA = not applicable

Table 4. Logistic regression estimates of odds ratios of factors associated with reported side-effects during current use of pills in Chittagong district (n=989).^a

Independent variable	Odds ratio
Maternal age	1.22*
Maternal age squared	0.99**
Number of surviving children	1.17*
Does not want to have more children (RC = Wants more)	0.97
Maternal education (RC = None)	
Primary	0.58**
Above primary	0.64*
Electricity at home (RC = No)	0.83
Source of the method (RC= FWA at home)	
Shop/Pharmacy	0.58***
Fixed-site health facility	0.87

RC= reference category; * $P < 0.05$; ** $P < 0.01$; and *** $P < 0.001$

a	Constant	- 2.65*
	Log-likelihood	-1370.41

Table 5. Logistic regression estimates of odds ratios of factors associated with reported side-effects during current use of pills and injectables in Abhoynagar and Sirajganj.^a

Independent variable	Odds ratio	
	Pills (n=866)	Injectables (n=758)
Maternal age	1.06	1.16
Maternal age squared	0.99	0.99*
Number of surviving children	1.11	1.08
Does not want to have children	1.14	1.08
Maternal education (RC= None)		
Primary	1.03	1.09
Above primary	0.67 ⁺	1.29
Household space (RC = Low)		
Medium	0.91	0.64**
Large	0.56*	0.80
Husband was involved in choosing the method (RC = Wife chooses)	0.73*	1.09
Duration of use of the method (RC = <6 months)		
6-17 months	1.15	1.82**
18+ months	1.16	2.45***
FWA provides quality contact (RC = Poor-quality contact)	0.31***	0.54**
Sirajganj (RC = Abhoynagar)	1.08	1.41 ⁺

RC= reference category; ⁺ P<0.10; * P<0.05; ** P<.01 and *** P<0.001

^a Constant	- 0.93	- 1.99 ⁺
Log-likelihood	1124.78	- 890.57

Table 6. Multinomial logit estimates of odds ratios of factors associated with discontinuation of pills and injectables in Abhoynagar and Sirajganj.^a

Independent variable	Discontinued pills for (n=2,625)		Discontinued injectables for (n=1,731)	
	Side-effects (n=1,322)	Other reasons ¹ (n=440)	Side-effects (n=814)	Other reasons ¹ (n=157)
Maternal age	1.05	1.04	1.19***	0.89
Maternal age squared	0.99	1.00	0.99**	1.00
Number of surviving children	1.04	0.61***	0.98	0.83*
Maternal education				
None (RC)	1.00	1.00	1.00	1.00
Primary	0.90	1.10	1.25 ⁺	0.94
Above primary	0.68**	0.64**	1.72**	0.65
Household space				
Low	1.00	1.00	1.00	1.00
Medium	0.92	1.07	0.97	0.73
High	1.09	1.16	1.01	0.64
Husband was involved in choosing the method	0.84*	0.99	0.87	0.81
FWA provides quality contact	1.01	1.04	0.79	0.91
Sirajganj	1.18 ⁺	1.31*	1.40**	1.69**

RC - Signifies reference category

⁺ P<0.10; * P<0.05; ** P<0.01; and *** P<0.001¹ Includes desire for more children, social (objections against contraceptive use by husband, in-laws, or relatives), and religious reasons.

a	Constant	- 0.547	- 0.440	- 2.89***	0.937
	Log-likelihood	-2536.50		-1576.90	

Table 7. Efforts made by current pill and injectable users when experiencing side-effects in Abhoynagar and Sirajganj

Effort and outcome	Pill users (n=364)		Injectable users (n=527)	
	Percent	Percent of total	Percent	Percent of total
Discuss with husband	88 (321/364)	88 (321/364)	77 (406/527)	77 (406/527)
Discuss with FWA	75 (272/364)	75 (272/364)	89 (468/527)	89 (468/527)
Received advice from FWA	92 (250/272)	58 (250/364)	92 (429/468)	81 (424/527)
Satisfied with advice	58 (145/250)	40 (145/364)	60 (256/429)	49 (256/527)

CHAPTER 11

Contraceptive Switching Patterns in Rural Bangladesh

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Abstract

This study investigates contraceptive method switching patterns in rural areas of Bangladesh, including their sociodemographic determinants, and the effect of switching on prevalence, method-mix and contraceptive continuation.

The longitudinal data from the Sample Registration System (SRS) of the MCH-FP Extension Project (Rural) at Abhoynagar and Sirajganj sub-districts, collected over an 11-year period (1983-1993), are used for the analyses of a special cohort of 2,866 continuously married women of reproductive age (MWRA) who were in the age-group 15-39 in 1983 and were still present in the system in 1993 (ages 25-49). The frequency of method switching, reasons for switching, and the direction and sequence of switching patterns are analyzed, using cross-tabulations. The sociodemographic and programmatic determinants of switching behaviour among contraceptive users are examined using logistic regression models.

Method switching is prevalent in rural Bangladesh. About half of the contracepting women have switched methods at least once and almost one-third of the MWRA followed over a 10-year period had switched multiple times. The most frequent method-switching occurred between the two hormonal methods - pill and injectables. For the majority of the sterilization users, this was the first method ever used. Traditional method users were more likely to switch to sterilization than were hormonal method users. Education of the women and frequency of contact with government fieldworkers were positively related to number of switches. Side-effects and the need for more convenient methods were the two main reasons given for switching methods. Husband's objection was an important reason for switching from male methods like condoms and withdrawal, and also from 'safe period' to other methods.

Findings show that although method switching is prevalent in rural Bangladesh, switching from hormonal to long-term methods or barrier methods is rare. The family planning programme should underscore the importance of the different types of contraceptive methods available and counsel eligible couples according to their individual needs.

Background

During the past two decades, Bangladesh has witnessed a considerable success in its family planning programme with a six-fold increase in the contraceptive prevalence rate (CPR) and a decline in fertility almost by half (NIPORT, Mitra and Associates, and Macro International, 1997). However, to attain replacement-level fertility by 2005, a more difficult task lies ahead. According to the principles laid down by the International Conference on Population and Development (ICPD), family planning programmes must meet their goal, not by application of coercion, but by enabling couples to "decide freely and responsibly the number and spacing of their children and to have the information and means to do so and to ensure informed choice and make available a full range of safe and effective methods." Therefore, it has become crucial for the family planning programme to know and understand the individual needs and contraceptive use patterns. As contraceptive prevalence continues to rise, it is important to shift the focus from factors that affect contraceptive adoption to factors that affect the continuation of use and change in methods, or cause unintended pregnancy.

Of all aspects of contraceptive use dynamics, method switching, defined as the change from the use of one family planning (FP) method to another, perhaps, is the least studied. However, its importance cannot be denied. It is widely recognized that no single contraceptive method can meet the needs of an individual woman throughout the various stages of her reproductive life (Mehta, 1994). The contraceptive needs of a newly-wed couple will definitely differ from that of a mother of three or more children in her late thirties.

Several studies (Akhter and Ahmed, 1988; Hamill, Tsui, and Thapa, 1990; Kane, Gamiratne, and Stephen, 1988; Kost, 1993; Fergusson, 1992) have underscored the importance of investigating contraceptive method switching patterns in evaluating the family planning programmes in different parts of the world. The programmatic implications of method switching are still largely unknown (Kost, 1993). On one hand, a high rate of method switching may indicate a successful family planning programme (Akbar, Phillips, and Koenig, 1991), where women are exposed to an array of contraceptive methods and have the opportunity to change their method as their need changes. On the other hand, switching may imply a poorly managed programme with problems, such as contraceptive supply shortages, inadequate screening for contraindications, weak counselling services, and poor management of contraceptive side-effects.

The existence of longitudinal data sets from the ICDDR,B MCH-FP Extension Project (Rural) field sites provides us with an excellent opportunity to study the individual-level contraceptive use dynamics, including continuation rates, method failures, and switching of methods, in rural Bangladesh. Earlier studies (Akbar, Phillips, and Koenig, 1991; Salway, 1992; Bairagi, 1996), investigating contraceptive use dynamics in Matlab as well as the Extension Project areas, concentrated primarily on continuation and method failure rates. The success of the ICDDR,B

Matlab Family Planning Project has been attributed to the provision of alternative methods to women who terminate the first method adopted (Akbar, Phillips, and Koenig, 1991). It was also evident that, in Bangladesh, contraceptive failure is a major problem for all temporary methods users, except injectables and the IUD (Bairagi, 1996). Experience from the Extension Project has confirmed this fact and stressed the importance of logistics management and training of service providers before adding any new contraceptive methods into the programme. The need to investigate the reasons for discontinuation was also emphasized (Salway, 1991).

To fully understand the role method switching plays in determining the individual-level contraceptive use dynamics in rural areas, it is essential to study in detail the prevalent switching patterns. How many method-switching segments do women experience, prior to adopting a permanent method? Do women in these areas mix use of modern and traditional methods? Is there a particular method use pattern for younger women? Which sociodemographic characteristics affect switching patterns? Has method switching contributed to high all-method continuation rates and lower failure rates in recent years? Answers to these questions will be extremely helpful in designing future strategies in family planning programmes and in responding to key challenges, such as low contraceptive use among young married women, the decline in relative share of longer-acting methods, and high discontinuation rates (Khuda and Barkat, 1994).

Objective

The objective of this study was to understand the contraceptive method switching patterns in rural areas of Bangladesh, including sociodemographic determinants and the effect of switching on prevalence and method-mix.

Methodology

The data for this analysis have been taken from the longitudinal data set of the Sample Registration System (SRS) maintained by the ICDDR,B MCH-FP Extension Project (Rural) in two rural areas. Working within the government system, the MCH-FP Extension Project conducts operations research to improve the health and family planning service delivery in rural Bangladesh.

The SRS data from Abhoynagar thana and Sirajganj thana over an 11-year period, starting from 1983, have been used for the analysis. Abhoynagar is located to the southwest of the capital city, Dhaka. At Abhoynagar, communication with the rest of the country is good. A sizable portion of the labour force work at mills and factories. Here, literacy is slightly higher than the national rate (Mozumder *et al.*, 1994). The CPR of the project area at Abhoynagar has increased from 22 percent in 1982 to about 55 percent in 1993 (ICDDR,B 1996). Sirajganj thana is located to

the north-west of Dhaka, on the banks of the Jamuna River. The economy is mainly agricultural, and the river is the primary route of travel. Here, literacy lags behind the literacy rate of Bangladesh as a whole. The majority of the households own no arable land. The CPR increased from five percent in 1982, to 40 percent, in 1991 and has more or less stabilized since then (Mozumder *et al.*, 1994).

Since 1982, the SRS field interviewers have been visiting sample households once every three months. They record the vital events which have occurred since their last visit, including any pregnancy outcome event, menstrual and contraceptive use status of MWRA, and the visitation dates of the government fieldworkers.

A baseline survey was conducted in both areas for 5,757 ever-married women of reproductive age from SRS households in 1982 to collect detailed information on their fertility desires and contraceptive knowledge, attitude and practice. In 1993, a similar survey was carried out for 5,712 MWRA who were currently present in the SRS sample of the same areas.

During 1982-1993, about 9,800 MWRA were followed by the SRS surveillance system in these two areas. Some of them have continued with the system throughout the period. Others, however, had died or migrated out of the area or otherwise lost their eligibility through divorce, menopause, etc. during 1982-1993. A cohort of 2,866 MWRA who were present at the beginning and had continued throughout the reference period and were still of reproductive age, was selected for our analysis. For these 2,866 women, baseline data from the 1982 survey, follow-up data from the 1993 survey, and information on contraceptive use status from the longitudinal data for a total of 44 quarterly observations of the same women over the 11-year period were used in the analyses.

A woman is said to be a multiple method user when she has reported using more than one family planning method during the reference period. Method switching has been defined as a shift from the use of one contraceptive method to another over a period of time. Interrupted use of the same method, without adopting another method is not considered switching. A period of continuous use of a contraceptive method has been defined as a use segment. A three-month period of non-use (single SRS observation) not resulting in a pregnancy is ignored.

Data on reasons for discontinuation are available only since 1989. Whenever a woman discontinues use of a contraceptive method, she is asked about the reasons for doing so regardless of her adoption of a second method. For the cohort of women in our analysis, 2,022 such occurrences (events) of discontinuation or switching were recorded during 1989-1993.

The frequency of method switching, reasons for switching, and the direction and sequence of switching patterns (e.g. temporary to permanent, traditional methods to modern temporary, etc.)

were analyzed using cross-tabulations. The sociodemographic and programmatic determinants of switching and multiple switching behaviour among contraceptive ever users were examined, using logistic regression procedures. Women who have never used any contraceptive method during the reference period and those who were already using a permanent method at the beginning of the reference period were excluded from the multivariate analyses.

Limitations of the Study

It must be mentioned here that, following a "special group of women" may have contributed to a selection bias in our analysis and because the data are from only two thana the results are not generalizable for all MWRA in rural Bangladesh. As the aim of this study was to understand contraceptive-switching patterns on an individual basis, it was important to be able to determine exactly the origin and destination methods for each incidence of method switching. Therefore, only those women for whom origin and destination methods could be precisely determined were included in the analysis as method switches.

For our sample, we would expect an increase in contraceptive use over the total reference period, as the sample of MWRA grew older. However, we did not attempt to prove or disprove increases in the CPR over the reference period, or explain any changes in method mix in the study area. Moreover, about one-fifth of the total 9,800 women were included in the SRS for a period of less than a year while staying at their fathers' homes after marriage for a short time before finally leaving for their husbands' homes. They constituted a large proportion of the women who were omitted from our analysis.

Results

A summary of the sociodemographic profile of the sample women has been shown in Table 1. Out of the cohort of 2,866 women, 57 percent came from Sirajganj thana and the rest from Abhoynagar thana. The majority (74%) of the women were in the age-group 15-30 years in 1982, the mean age in 1982 being 25 years. About 87 percent of the women were Muslims. More than two-thirds of these women had no education, and the mean year of education was 1.4. Almost all (99 %) the women were housewives, but about two-fifths of them took part in income-generating activities in their homes. The husbands of half of our sample had no education. About 44 percent of the husbands were engaged in agriculture; one-quarter were working in factories or construction sites; one-fifth were engaged in business; and only five percent were service holders. During the reference period, about 50 percent of these women had been regularly (at least three times a year) visited by the government fieldworkers, and the rest had been visited less frequently.

In 1982, 11 percent (324) of the sample of women had no children; 34 percent had one or two children; 37 percent had three to five children, and the rest had more than five children. In 1993, only 38 women (1%) remained childless; 10 percent had limited their family size to less than three children; half had three to five children and the rest had more than five children. At the beginning of the reference period, the mean number of children born to a woman was 3.2. In 1993, it was 5.1. During the 11-year period, on an average, two children were born to a woman.

Table 2 shows the percentage distribution of the sample women currently using various contraceptive methods in 1982 and 1993. For comparison, method-specific distribution of all SRS MWRA from these areas during the 1982 and 1993 surveys, national data from the 1983 Contraceptive Prevalence Survey (CPS) and 1993-94 Bangladesh Demographic and Health Survey (BDHS) data are also shown. The 1996-97 BDHS data are also shown in this table.

Table 2 shows that although our sample contains only a specific cohort of women, their current contraceptive use patterns in 1982 and 1993 were quite comparable to that of the Project's SRS survey and also to the national surveys during these periods. The only exception was for the use of injectables in 1993, which was quite high in the project areas due to the special intervention of the MCH-FP Extension Project.

Figure 1 shows the trend in contraceptive use of the sample women over the 11-year period. We can see that there was a steep rise in contraceptive use, especially use of hormonal methods, such as pill and injectables, among these women from 1986 to 1990, after which the use rate has, more or less, stabilized. The increase in the use rate has been primarily due to the recruitment of additional female fieldworkers in the project areas during this period (ICDDR,B, 1988).

Table 3 presents a summary of data on ever-use of contraceptives at the baseline survey and during the reference period, including the number of methods used, number of switches, and the number of use segments. In the 11-year period, ever-use of family planning methods by the sample women has risen from 30 percent to more than 85 percent. In 1982, only about nine percent of the women had used more than one method. During the next 11 years, about 50 percent of these MWRA have used at least two different contraceptive methods, with six different kinds of methods being the maximum number reportedly used by any one woman. Some women switched back and forth between the same few selected methods. About one-third of the ever-users had used only one method for a continuous period of time during the reference period. More than three percent of the women had switched methods, including switch-backs to previously used methods, up to seven or more times.

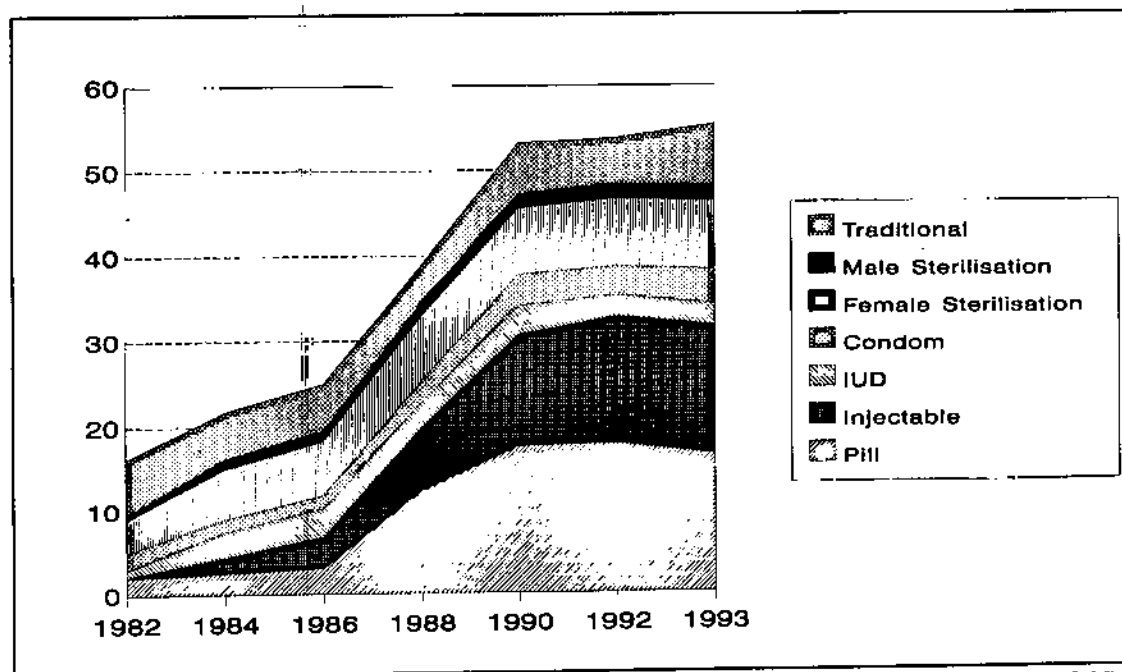


Figure 1. Percent distribution of the cohort women by FP method used and year (n=2866)

Method-switching Patterns

During the 1993 survey, the women were asked about the first contraceptive methods they had ever used. A cross-tabulation of the methods women were using in 1993, with the types of methods they reportedly used first, and also with the method they were using during the 1982 baseline survey, is shown in Table 4. For 64 percent of all women, the first ever-used method was a modern temporary method, and for 10 percent, it was a traditional method. Interestingly, for more than two-thirds (71 %) of the permanent method users, the current method had been their first method used. More than 44 percent of them had been already using a permanent method in 1982. There were eight cases that reported sterilization (5 - male and 3 - female) as their first method, but later adopted a different method, as is evident from this table. The longitudinal data confirmed that in all these cases women had started using other temporary methods after encountering method failure with sterilization.

For over half the traditional method users, a modern temporary method was the first method ever used. Except for sterilization users in 1993, the majority (84%) of these women had not been using a contraceptive method in 1982. For nearly 60 percent of the pill users in 1993, pill was the first method ever used. Five percent of these women had been using the same method at baseline. Less than one percent of the injectable users had been using this method in 1982.

In the following three tables (Table 5-7), switching behaviour of those women who have used multiple methods has been examined by looking at the very first switch, the subsequent switch, and the most recent switch the women made during the 11-year period. In Table 5, we cross-tabulate the first method adopted since 1982 with the subsequent method adopted. In Table 6, we examine the second switch event by looking at the third method selected, against the very first method. Table 7 cross-tabulates the most recent method used in 1993 with the immediate previous (penultimate) method the woman used.

Table 5 shows that there is a high rate of switching between the hormonal methods (pill and injectables). Almost three-quarters of the injectable users who switched, chose pill as their next method. The reverse is true for nearly half the pill users. There is also a group of users who mix modern methods, like pill and condom with traditional methods. In fact, pill is the most frequent destination method for switching from any other method. Switching to a permanent method is quite rare, especially for pill and injectable users. Some of the IUD and traditional method users do ultimately opt for sterilization.

In Table 6, we examine the third method adopted by the women switching methods, against their first method of use. About 60 percent of the multiple-method users switched family planning methods for a second time. Following the diagonal of Table 6, we find that, during the second switch event, the majority of the users, especially pill (72%) and injectable (59%) users, switched back to the first method they adopted. However, once the IUD users switched away from the IUD, less than one-fifth of them returned to it.

A similar pattern, as in Table 5, is observed for the most recent switch (Table 7). Frequent switching between pill and injectable is still high. Though pill has remained the most sought-after method for switching, injectables are rapidly gaining popularity. Almost half the permanent method users switched from traditional methods. Injectable users rarely switch to a permanent method.

Determinants of Method Switching

The sociodemographic and programmatic determinants of multiple switching of contraceptive methods have been examined in Table 8. The sample women are categorized into four groups (never, once, twice, and thrice or more) according to the number of times they have switched contraceptive methods. As mentioned earlier, women who have never used any contraceptive method during the reference period and those using a permanent method in 1982 were dropped. As a result, only 2,293 women were included in this analysis.

Incorporating all the differentials studied, a logistic regression analysis was done using three separate models: (1) for women who had switched at least once; (2) for women who had

switched at least twice; and (3) for women who had switched more than twice. Table 8 shows the results for all three models. The multivariate analysis was preceded by the extensive bivariate analyses. The bivariate results are very similar and not shown here.

The two factors which were most strongly and positively associated with the number of times women switched methods were: (a) education, and (b) frequency of family planning fieldworker visitation. Women who had more than five years of education, and those who were frequently visited by fieldworkers were, respectively, about three and six times more likely to switch contraceptive methods at least thrice during the reference period. These results were highly significant. Women who had undergone an induced abortion during the reference period were twice more likely to switch methods, indicating an intricate relationship between induced abortion and multiple method use. Likelihood of switching method also significantly decreased with age. Socioeconomic factors, such as husband's occupation and dwelling space, significantly affected the switching pattern of women who switched methods more than once. Women whose husbands were service holders or professionals were 90 percent more likely to switch methods than those whose husband were agricultural workers. Dwelling space positively affected the switching frequency. Those women who, at baseline, reportedly wanted no additional children were one and half times more likely to switch methods. The regression results for factors, such as desire for an additional child at baseline, parity at baseline and the number of children born during the reference period, indicate that women who switched more often were the ones who had an active, but more controlled reproductive life.

Reasons for Method Switching

In this section, we discuss the findings on reasons given for dropping or switching contraceptive methods. This information is available since 1989. An event is classified as a "switch event," when the woman had immediately started using another family planning method after discontinuing the previous one. Otherwise, the event is said to be a "drop" event. Of the 2,022 events recorded for the sample women, in 64 percent of the cases, women dropped using any method, and for the remaining 36 percent of the cases, they immediately switched to another family planning method.

Figure 2 shows that for both drop and switch events, side-effects were the most frequently cited reason (48 %) given for discontinuing a method. Desire for switching to a more convenient method was cited as a reason for discontinuing not only when the women immediately switched methods (37%), but also when they dropped (16%). Interestingly, supply shortage (15%) was also an important reason for dropping a method.

According to BDHS 1993-94 data, about 41 percent of all cases of contraception discontinuation for the previous five-year period were due to side-effects or health concerns; nineteen percent wanted to become pregnant, seven percent were due to husbands' disapproval, eight percent

were due to method failure, three percent cited supply shortage, and a little over six percent wanted a more convenient method. From the preliminary report of BDHS 1996-97 we find that almost half of all the cases of 12-month discontinuation were due to side-effects or health concerns. Despite the apparent disparity in BDHS and Project figures for reasons of discontinuations such as wanting more children, methods failure and supply shortage, the message that we distinctly get from all these data sources is that side-effects are the most important reason for discontinuing contraceptive use.

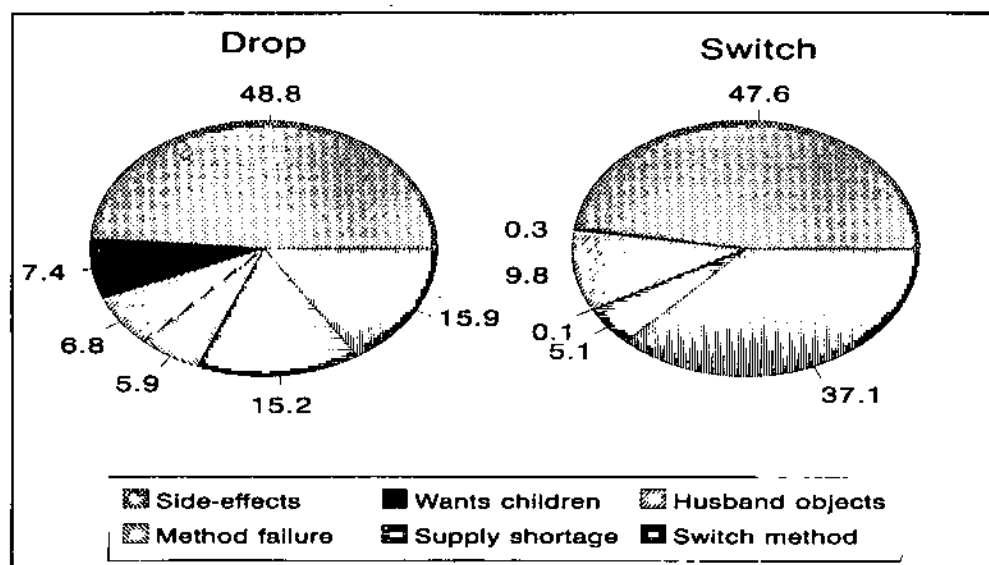


Figure 2. Percent distribution of drop/switch events of the sample MWRA by the reasons given for discontinuing the method used: 1989-1993

We found that the pill and injectable users more frequently dropped methods than immediately switched to another method (Figure 3). There is an intrinsic difficulty in directly switching methods for the hormonal method users since they cannot immediately start practicing methods like the safe period (Hamill, Tsui, and Thapa, 1990). Very few women mentioned "want more children" as a reason for discontinuation (Figure 2). Therefore, it appears that fear of side-effects and fatigue from using hormonal methods might have prevented these dissatisfied users from adopting another contraceptive method despite their need for it. These women may need motivation toward, and easier access to permanent methods or advice on other temporary use of condoms or traditional methods.

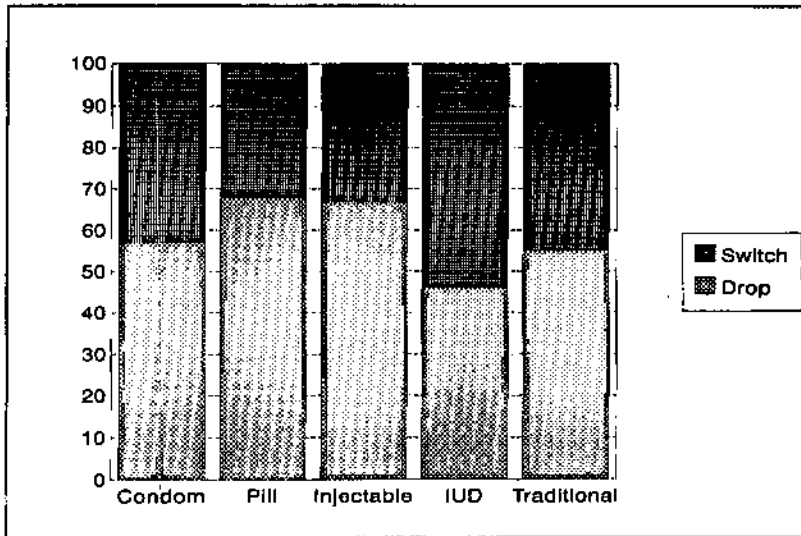


Figure 3. Percent distribution of drop and switch events by methods: 1989-1993 (N=2022)

Figure 4 shows the percentage of women who discontinued use and immediately became pregnant, according to the prior method used. Overall, there were 199 such cases. There were no immediate cases of pregnancy for IUD users, and very few for injectable users. There was a single case of method failure for female sterilization (not shown in the figure). This is one of the eight cases of sterilization failures, which occurred during the total reference period (Table 4). As expected, traditional method users, and to some extent condom users, quite often get pregnant while practicing their method. Because of the way the SRS records contraceptive use and pregnancy status during each round, it is difficult to determine whether women got pregnant while she was using a FP method or just after she discontinued. However, we consider the case a method failure when the woman has said so as her reason for dropping. As we see in Figure 5, 95 percent of these pregnancies were unwanted. For 36 percent of these cases, method failure was cited as the reason for dropping, while for 28 percent, side-effects were the main reason for discontinuation.

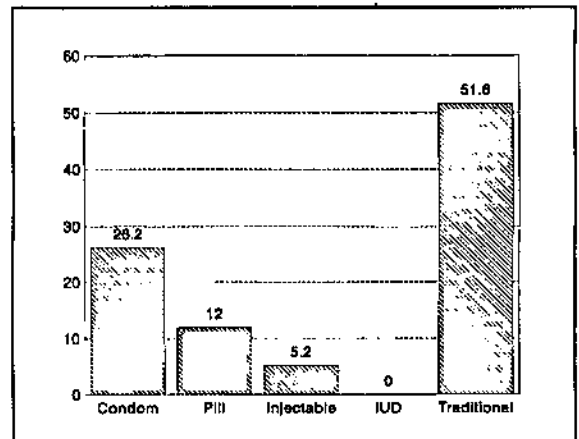


Figure 4. Percent of drop cases (women) who got pregnant by FP method: 1989-1993

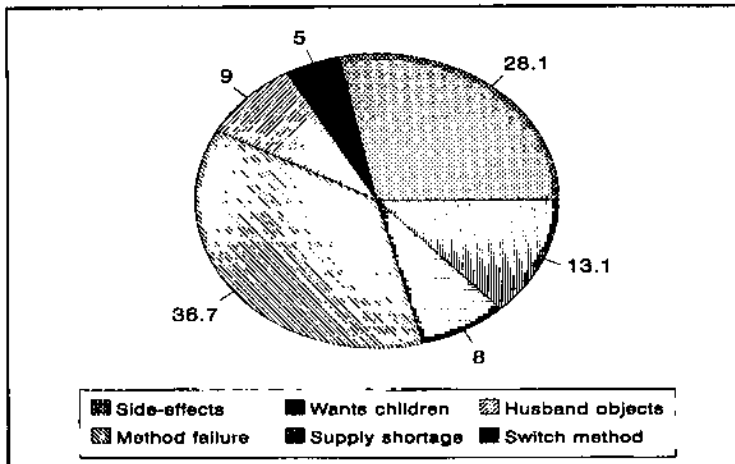


Figure 5. Percent distribution of women who became pregnant, by the reasons for discontinuation: 1989-1993

The reasons for discontinuation by method for the switch events only (723) have been shown in Table 9. For all the modern temporary methods (pill - 58 %, injectable - 77 %, and IUD - 65 %) except condom, the most frequently cited reason for discontinuation was side-effects.

Shift to a more convenient method was the second most common reason for switching (modern methods - 30 % and traditional methods - 81 %). However, injectable users rarely think that any other method is more convenient than injectables. Interestingly, the shortage of supply was the second most frequently cited reason for discontinuation by the injectable users, indicating that not only the clients, but providers, too, need to be thoroughly oriented on the importance of maintaining an accurate schedule of injectable doses. Husband's objection is an important reason for discontinuing male-dependent methods like condom and withdrawal, and for traditional methods like safe period.

Table 10 shows, in more detail, the reasons for switching from modern temporary methods by the origin and destination methods. There were only 601 of these cases. Maximum movement is between pill and injectable use and vice-versa, with side-effects as the main reason for the change. Switching to a permanent method is a relatively rare event, usually occurring only when the client is aware about its irreversibility and thoroughly convinced of its suitability. Most injectable users, who switched methods due to side-effects, subsequently chose another modern temporary method. Some of the injectable users subsequently adopted condom, when the regular supply of injectables was not available.

There was a single case in which a foam user, who had switched to withdrawal, gave supply shortage as a reason for discontinuation. There were more than a hundred (111) cases of dropping use where the first method was a traditional one (not shown in Table 10). In about

three-quarters of all these cases (50% for withdrawal, 75% percent for rhythm, and 90% for other traditional methods), the reason given for switching to a modern temporary method was that a more convenient method had been adopted. For 50 percent of the withdrawal method users and 13 percent of the "safe period" method users, husband's objection was the main reason for switching to a modern temporary method. Less than 10 percent of the traditional method users switched to another traditional method.

Discussion and Conclusion

In Bangladesh, the last decade has witnessed a dramatic rise in the prevalence of contraceptive use. The predominant contraceptive methods are now pills and injectables. Women in rural areas frequently use multiple family planning methods while in their twenties and thirties. The importance of studying method switching lies in understanding the reasons for switching, the timing of the switch, and the consequences of method switching for the user and his or her partner.

While investigating switching patterns in this study, it was found that about 60 percent of the modern temporary method users and 70 percent of the traditional users discontinued the method of the subsequent segment, while the remainder switched to another method. On an average, two-thirds of the modern method switchers chose another modern temporary method as their subsequent method, and only two percent opted for sterilization. Traditional method users were more likely to switch to sterilization than modern temporary method users were. A common pattern of switching back and forth between pills and injectables was observed during the switches from the very first to the subsequent methods and from the penultimate method to the current method. As in the studies by Akhter and Ahmed (1988), the pill was the most common destination for any type of method switch.

Detailed investigation of the continuation rates of modern temporary methods for the rural population in Matlab (Akbar, Phillips, and Koenig, 1991) showed that when the family planning programme is well established and properly managed providing a broad method mix, high contraceptive discontinuation, evident among first method adopters, is substantially mitigated by method switching. Women limited with one method, like the pill, IUD, or injectable only, do not continue it long, but they will practice family planning if alternative methods are available. (Akbar, Phillips, and Koenig, 1991) concluded that the best results could be achieved only when the family planning programmes were well equipped to deliver "a package of contraceptive services, including counselling and follow-up as well as a range of contraceptive choices - the pill, IUD, injectables together with permanent methods, and interim methods, such as the condom or vaginal foam - which permits switching to produce an effective overall pattern of contraceptive use."

In our study, we found that methods like condom, foam, traditional methods, and sterilization played only a minimal role in the overall switching dynamics. Specially conspicuous was the absence of sterilization as a destination method in switching events, considering the substantial number of high-parity women aged over 30 years in our sample, most of whom desire no more children. Sterilization played a much greater role in the overall switching pattern of the contraceptive users in Sri Lanka, where switching from the first method and the penultimate method to the current method showed a substantial movement towards sterilization (Kane, Gamiratne, and Stephen, 1988). On the contrary, sterilization users in our study (Table 4) were mostly first time users (more than 70%) and the majority of them had been sterilized prior to the 1982 baseline survey, indicating the greater emphasis of the family planning programme on sterilization in the seventies and early eighties. However, those women who adopted sterilization after a pregnancy during the reference period preferred to adopt it in their third segment of use, after two or three method changes. Similar patterns were observed in a previous study (Akhter and Ahmed, 1991), based on rural women in Bangladesh, where a higher proportion of switchers adopted female sterilization during their second method switch than during their first method switch.

Our study indicates that, since the popularization of the hormonal methods, very few women opted for sterilization. The switch from injectables to permanent methods is especially low. Similar results were found in a study on a rural population in Kenya (Fergusson, 1992), where injectables are rapidly becoming the first choice of many couples. Janowitz *et al.* (1986) found that pill discontinuers in Brazil tended to switch to less-effective traditional methods if they were not ready for sterilization. The importance of hormonal methods as a convenient temporary form of contraception, helping couples to space their children, is universally accepted. Consistent use of pills and injectables over several years, however, may eventually bring about a "weariness" or "fatigue" for the users (Kane, Gamiratne, and Stephen, 1988; Kost, 1992). This factor forces them to discontinue contraception completely in their late reproductive years when they should finally want to limit their family size, thus resulting in unwanted births if sterilization services are not really available. On the other hand, over-dependence on sterilization has its disadvantages too, as reflected by the modest impact of the Indian family planning programme (Khan, 1992). Permanent methods are popular only among couples with three or more children who want to limit their family size and are useless for the purpose of spacing childbirth (Rajaratnam and Deshpande, 1994). The ideal family planning programme must be able to cater to both spacing and limiting requirements of the couples of reproductive age to effectively bring about a decline in fertility. Nevertheless, the demographic impact and the financial considerations of the programme do require that adequate attention should be given to sterilization.

As it was observed, discontinuation was highest among the traditional methods and condom users. Method failure was also highest among the traditional methods users, more than half of whom discontinued due to method failure (Figure 4). Husband's objection is also an important

reason for low use of contraceptive methods having minimal side-effects, such as condom, withdrawal and safe period. There were very few instances where the side-effects of condoms were mentioned as the reason for discontinuation, and almost no one gave this reason for safe period or withdrawal.

The potentially important role of safe period, withdrawal and condoms as interim methods of contraception must not be disregarded. Worldwide, there are 38 million withdrawal method users and 35 million couples using safe period method. Together, they account for 26 percent of all temporary method use (PAI, 1991). In Bangladesh, about eight percent of the married women of reproductive age use traditional methods, and four percent use condoms (BDHS, 1996-97). The role of condoms as a preventive method for sexually transmitted diseases (STDs) and Acquired Immuno-deficiency Syndrome (AIDS) is indisputable, and its importance is rapidly rising. Acknowledging that these methods are generally much less effective than other methods discussed above, we cannot, however, forget the fact that they have no or very few side-effects and may be an attractive alternative for those who still desire more children and need only temporary contraception. Promotion of these methods calls for greater male involvement in the family planning programme in Bangladesh. Therefore, the service providers and health educators must reach out to the male population, convincing them of the advantages of male methods, and helping them to become more cooperative and supportive partners in their wives' overall reproductive life. Furthermore, promotion of the use of methods in combination, such as pills and condoms, may serve the dual purpose of effectively preventing pregnancy and STDs.

The two most significant factors affecting multiple method use are the woman's education and her contact rate with the fieldworkers. In fact, a recent study using data from the Extension Project areas, found that the odds of contraceptive discontinuation was substantially reduced if fieldworkers can maintain regular contact with women (Hossain and Phillips, 1996).

An interesting aspect of the current study was the relation between multiple switching and induced abortion. Frequent switching was associated with a higher number of accidental pregnancies, and most probably, with higher rates of induced abortions. It was found that pregnancies which occurred within three months after discontinuing contraception had a higher probability of being terminated by induced abortion (Ahmed *et al.*, 1996). Our results show that not only method failures, but also side-effects and desire to switch to other methods compel women to temporarily drop their methods, thus bringing about accidental pregnancies.

In summary, our analysis shows that, in rural Bangladesh, changing methods is a common phenomenon among contraceptive users. The findings indicate that method switching is higher among women who: (i) are better educated and (ii) have been regularly contacted by family planning workers. It was also found that adopting a more convenient method is an important reason for switching. This indicates that rural women are consciously changing methods by taking advantage of the array of contraceptive choices available. The fact remains, however, that

although contraceptive side-effects are an important reason for switching from hormonal methods, only a small proportion of women are switching to sterilization or other temporary methods, like condom with fewer side-effects, resulting in an overall high rate of discontinuation. This points a major weakness in the Bangladesh family planning programme with regard to the popularization of long-term methods, such as IUD and female sterilization, and male methods, like condom, male sterilization, and withdrawal.

In relation to the goals and principles laid down by the ICPD, the Bangladesh family planning programme must be strengthened further to address the special and changing contraceptive needs of each couple - be it through better provision of long-term methods at outreach centres, or improved screening and counselling of the couples about the correct use, side-effects and effectiveness of various methods, given the reproductive goals, health status, and sexual behaviour of these couples.

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Table 1. Sociodemographic profile of sample cohort of women (n=2,866) followed from 1982-1993

Characteristics	Number	Percentage	Characteristics	Number	Percentage
Area			Religion		
Sirajganj	1620	56.5	Muslim	2488	86.8
Abhoynagar	1246	43.5	Hindu	378	13.2
Age (in 1982)			Dwelling space (in sq.ft.)		
Less than 20	660	23.0	Less than 150	440	15.4
20 - 30	1447	50.5	151-300	1192	41.6
Over 30	759	26.5	More than 300	1234	43.1
Mean: 25.1					
Education			Children ever born (1982)		
None	1998	69.7	No children	324	11.3
1-5 years	661	23.1	1-2	977	34.1
6+	207	7.2	3-5	1070	37.3
Mean: 1.4			6+	495	17.3
			Mean: 3.2		
Husbands' education			Children ever born (1993)		
None	1477	51.5	No children	38	1.3
1-5 years	713	24.9	1-2	296	10.3
6+	676	23.6	3-5	1440	50.2
Mean: 3.1			6+	1092	38.1
			Mean: 5.1		
Occupation			Frequency of fieldworker contact per year		
Housewife	1774	61.9	Less than 1	210	7.3
Income at home	1057	36.9	Two	1182	41.2
Employed outside	35	1.2	Three	961	33.5
			More than 3	513	17.9
Husbands' occupation					
Agriculture	1204	42.0			
Business	545	19.0			
Service	159	5.5			
Other	958	33.4			

Table 2. Percentage of MWRA currently using contraceptives by method according to the SRS (for Abhoynagar and Sirajganj) and national surveys

Method	Sample women (n=2866)		SRS Survey (n=5144)	SRS Survey (n= 5300)	CPS (n=7662)	BDHS (n=8990)	BDHS (n=8450)
	1982	1993	1982	1993	1983	1993-94	1996-97
Total	16.2	55.3	15.5	53.0	19.1	44.6	49.2
Modern Temporary	5.0	38.2	4.2	37.1	6.3	27.1	32.7
Pill	2.0	16.4	1.7	15.4	3.3	17.4	20.8
Injectable	0.2	15.2	0.3	14.1	0.2	4.5	6.2
IUD	0.8	2.5	0.9	3.4	1.0	2.2	1.8
Condom or foam	2.0	4.1	1.3	4.2	1.8	3.0	3.9
Permanent	4.5	9.9	4.5	10.9	7.4	9.2	8.7
Male sterilization	0.6	1.9	0.8	2.6	1.2	1.1	1.1
Female sterilization	3.9	8.0	3.7	8.3	6.2	8.1	7.6
Traditional	6.7	7.2	6.8	5.0	5.4	8.4	7.7
Safe period	3.3	2.2	3.5	1.8	2.4	4.8	5.0
Withdrawal	0.7	2.1	0.7	1.8	1.3	2.5	1.9
Other	2.7	2.9	2.6	1.4	1.8	1.1	0.8

Table 3. Percent distribution of sample women by number of methods used, number of switches, and number of use segments (n = 2,866)

No. of different FP methods ever used	1982	1983-1993	Reference Period: 1983-1993			
	Percent distribution of MWRA	Percent distribution of MWRA	No. of switches*	Percent distribution of MWRA	No. of use segment	Percent distribution of MWRA
None	70.3	15.5	None	52.2	None	15.5
1	21.5	36.7	1	18.0	1	25.4
2	5.9	27.1	2	12.3	2	18.4
3	1.6	14.4	3	7.5	3	14.5
4	0.6	4.6	4	4.0	4	10.0
5	0.1	1.4	5	2.6	5	6.0
6	0.0	0.2	6+	3.4	6	4.5
					7+	5.7
Total	100.0	100.0	Total	100.0	Total	100.0
Mean	0.4	1.5	Mean	2.0	Mean	2.5

* Includes switchbacks to previously used methods

Table 4. Percent distribution of sample women by the first method reported to have ever used and by the method used at baseline according to the method used in 1993

Currently used method	First FP method ever-used as recalled in 1993								FP method used at baseline survey 1982							
	Pill	Injectable	IUD	Condom	Permanent	Traditional	Never used	Total	Pill	Injectable	IUD	Condom	Permanent	Traditional	Never Used	Total
Modern temporary																
Pill (n=470)	59.1	15.7	8.3	8.5	0.4	7.9	N/A	100	0.4	0.4	1.1	2.1	0.4	6.2	84.9	100
Injectable (n=436)	33.5	46.3	8.5	4.1	0.0	7.6	N/A	100	0.0	0.0	0.7	1.6	0.0	6.7	88.8	100
IUD (n=72)	22.2	15.3	44.4	9.7	0.0	8.3	N/A	100	0.0	0.0	4.2	6.9	0.0	12.5	72.2	100
Condom (n=118)	38.1	13.6	5.1	30.5	0.0	12.7	N/A	100	1.7	1.7	2.5	13.6	0.0	9.3	70.3	100
Permanent (n=284)	13.4	2.8	4.6	3.1	71.5	4.6	N/A	100	1.1	0.3	1.1	0.7	44.4	5.3	47.2	100
Traditional (n=208)	26.9	11.5	3.9	7.2	0.9	49.5	N/A	100	1.0	0.0	1.0	1.4	0.0	11.5	85.1	100
None (n=1278)	28.3	15.6	3.7	4.3	0.3	6.3	41.5	100	1.2	0.0	0.3	1.2	0.2	6.0	70.3	100
All women	32.7	18.7	6.3	6.3	7.5	10.0	18.5	100	2.0	0.2	0.8	2.0	4.6	6.7	83.7	100

* N/A – Not applicable

Table 5. Percent distribution of multiple method users by second contraceptive method adopted, according to the first method used: 1982-1993

Method first used (n=1400)	Second method adopted						
	Pill	Injectable	IUD	Condom/ foam	Permanent	Traditional	Total
Pill (n=298)	N/A	47.6	6.4	15.8	1.3	28.9	100.0
Injectable (n=245)	73.1	N/A	7.7	9.8	0.4	9.0	100.0
IUD (n=136)	48.5	25.0	N/A	14.0	4.4	8.1	100.0
Condom (190)	41.1	19.5	8.4	3.2	1.0	26.8	100.0
Traditional (n=531)	29.4	22.2	8.7	10.2	3.8	25.8	100.0

Table 6. Percent distribution of third-segment switchers by method according to the first method used: 1982-1993

First method adopted	Method (third) adopted during the second switch event							Women switching methods twice	
	Pill	Injectable	IUD	Condom	Permanent	Traditional	Total	Total number	Percentage
Pill (n=298)	72.0	11.4	0.5	6.7	0.5	8.8	100.0	193	64.8
Injectable (n=245)	9.4	58.7	6.2	12.3	3.6	9.4	100.0	138	56.3
IUD (n=136)	23.2	29.3	19.5	12.2	2.4	13.4	100.0	82	60.2
Condom (n=196)	28.0	12.8	4.8	40.8	1.6	12.0	100.0	125	65.8
Traditional (n=531)	27.3	22.0	3.6	8.9	2.1	36.2	100.0	282	53.1

Table 7. Percent distribution of current contraceptive users in 1993 who switched from another method by the penultimate method used: 1982-1993

Method currently used in 1993	Penultimate method						
	Pill	Injectables	IUD	Condom	Permanent	Traditional	Total
Pill (n=326)	N/A*	42.9	12.0	20.3	0.6	24.2	100.0
Injectable (n=314)	59.9	N/A	8.0	8.9	0.3	22.9	100.0
IUD (n=47)	42.6	27.7	N/A	10.6	0.0	19.2	100.0
Condom (n=96)	45.8	17.7	5.2	N/A.	0.0	31.3	100.0
Permanent (n=60)	18.3	13.3	15.0	0.0	5.0**	48.3	100.0
Traditional (n=146)	32.2	17.1	2.1	17.8	0.7	30.1	100.0

* N/A - not applicable

** There were 3 cases where the switch was from male sterilization to female.

Table 8. Logistic regression odds ratios: association between sociodemographic factors and number of times women switched contraceptive methods: 1983-1993

Total (n = 2293)	No. of times women switched FP methods		
	At least once	At least twice	Three or more times
Women's age	0.94***	0.95**	0.93***
Education of women			
No Education (RC)	1.00	1.00	1.00
1-5 years	1.73***	2.10***	1.89***
Beyond primary	2.25***	2.83***	2.93***
Religion			
Muslim (RC)	1.00	1.00	1.00
Hindu (n=308)	1.15	1.11	1.05
Income- generating activity			
No (RC)	1.00	1.00	1.00
Yes	0.96	1.13	0.99
Husband's occupation			
Agriculture (RC)	1.00	1.00	1.00
Business	0.82	1.01	1.19
Service	1.51	1.71+	1.95*
Other	0.96	1.17	1.21
Dwelling space(in sq ft.)			
0-200 (RC)	1.00	1.00	1.00
201-300	1.10	1.27	1.40+
301-400	1.17	1.17	1.51+
Over 400	1.39+	1.43*	1.66*
Frequency of FWA visits per annum			
0-1 (RC)	1.00	1.00	1.00
1-2	2.26**	1.85+	2.48+
2-3	3.50***	3.41***	4.34**
3+	5.13***	5.03***	6.57***
Children ever born in 1982			
0-1 (n = 650)	0.48*	0.49*	0.55+
2-3 (n= 779)	0.76	0.79	0.81
4-5 (n=499)	0.88	0.85	0.89
6+ (RC)	1.00	1.00	1.00

+ p <= 0.5, * p <= .01, ** p <= .001 *** p <= .0001

Continued...

Table 8. Logistic regression odds ratios: association between sociodemographic factors and number of times women switched contraceptive methods: 1983-1993

Total (n = 2293)	No. of times women switched FP methods		
	At least once	At least twice	Three or more times
Child desire in 1982			
Yes (RC)	1.00	1.00	1.00
No	1.38+	1.23	1.48+
Up to God	0.94	0.92	1.13
Number of children born during 1983-1993			
None	0.87	1.12	1.51+
1	1.10	1.36	1.68+
2	1.31	1.50+	1.49
3	1.46+	1.46+	1.18
4+ (RC)	1.00	1.00	1.00
Induced abortion during reference period			
No (RC)	1.00	1.00	1.00
Yes	2.51***	2.14***	2.13***
Likelihood statistics			
-2 Log likelihood	2837.3	2722.5	2142.0
χ^2	256.9	304.4	265.6
Observation	2293	2293	2293
DF	24	24	24

+ $p \leq 0.5$, * $p \leq .01$, ** $p \leq .001$ *** $p \leq .0001$

Table 9. Percent distribution of switching events with different reasons for discontinuation by the specific methods: 1989- 1993

Discontinued contraceptive method	Reasons for discontinuation as reported by the respondents						Total
	Side- effects	Want children	Husband's objection	Method failure	Supply shortage	Switch to more suitable method	
Modern temporary							
Pill (n=280)	57.9	0	1.1	0	3.6	37.5	100.0
Injectable (n=200)	77.5	0	0.1	0	9.5	12.5	100.0
IUD (n=31)	64.5	0	0	0	0	35.5	100.0
Condom (n=101)	6.9	1.0	47.5	0	7.9	36.6	100.0
Traditional							
Withdrawal (n=24)	0	0	50.0	0	0	50.0	100.0
Rhythm (n=47)	0	2.1	12.8	0	0	85.1	100.0
Other (n=40)	0	0	2.5	2.5	0	95.0	100.0

Table 10. Percentage distribution of women who switched from a modern temporary method to another method by reasons for discontinuing the first method: 1989-1993

Reason for discontinuing first method	First method : pill (n= 280)					First method : injectable (n=200)				
	Condom (44)	Injectable (170)	IUD (9)	Permanent (1)	Traditional (55)	Condom (22)	Pill (170)	IUD (4)	Permanent (1)	Traditional (3)
Side-effects	70.5	51.8	55.6	0	69.0	77.3	78.3	75.0	0	66.7
Want children	0	0	0	0	0	0	0	0	0	0
Husband objects	0	1.2	0	0	0	0	0.6	0	0	0
Supply shortage	0	1.2	11.1	0	12.7	18.2	8.8	0	0	0
Switch to a more suitable method	29.5	45.9	33.3	100	18.2	4.6	12.4	25.0	100	33.3
Reason for discontinuing first method	First method : condom (n=100)					First method : IUD (n=31)				
	Pill (54)	Injectable (17)	IUD (2)	Permanent (0)	Traditional (27)	Condom (3)	Pill (15)	Injec. (8)	Permanent (1)	Traditional (4)
Side-effects	11.1	0	0		3.7	100	60.0	62.5	0	75.0
Want children	1.9	0	0		0	0	0	0	0	0
Husband objects	46.3	64.7	50.0		40.7	0	0	0	0	0
Supply shortage	1.9	5.9	0		18.5	0	0	0	0	0
Switch to a more suitable method	38.9	29.4	50.0		37.1	0	40	37.5	100	25.0

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.

In 1994, the Centre began an Urban MCH-FP Extension Project 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.

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:

- To improve management, quality of care and sustainability of the MCH-FP programmes
 - Field sites to use as "policy laboratories"
 - Close collaboration with central and field level government officers
 - Intensive data collection and analysis to assess the impact
 - Technical assistance to GoB and NGO partners in the application of research findings to strengthen MCH-FP services.
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The Division

The reconstituted Health and Population Extension Division (HPED) has the primary mandate to conduct operations research to scale-up the research findings, provide technical assistance to NGOs and GoB to strengthen the national health and family planning programme.

The Centre has a long history of 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 the underserved and population-in-need. There are several projects in the Division which specialize in operations research in health, family planning, environmental health and epidemic control measures which cuts across several Divisions and disciplines in the Centre. The MCH-FP Extension Project (Rural), of course, is the Centre's established operations research project but the recent addition of its urban counterpart - MCH-FP Extension Project (Urban), as well as the Environmental Health Programme and the Epidemic Control Preparedness Programme have enriched the Division with a strong group of diverse expertise and disciplines to enlarge and consolidate its operations research activities. There are several distinctive characteristics of these endeavors in relation to health services and policy research. First, the public health research activities of these Projects focus on improving programme performances which has policy implications at the national level and lessons for international audience. Secondly, these Projects incorporate the full cycle of conducting applied programmatic and policy relevant research in actual GoB and NGO service delivery infrastructures; 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 programme performance through systematic provision of technical assistance; and scaling-up of applicable findings from pilot phase to the national programme at Thana, Ward, District and Zonal levels both in the urban and rural settings.

What is the Centre for Health and Population Research (ICDDR,B)?



ICDDR,B, or "The Centre", was established in 1978 as the successor to the Cholera Research Laboratory, which was created in 1960 to study the epidemiology, treatment, and prevention of cholera. The Centre is an independent, international, non-profit organization for research, education, training, and clinical services. Located in Dhaka, the capital of Bangladesh, the Centre is the only truly international health research institution based in a developing country. The results of research conducted over the years at the Centre provide, today, guidelines for policy-makers, implementing agencies, and health professionals in Bangladesh and around the globe. Researchers at the Centre have made major scientific achievements in diarrhoeal disease control, maternal and child health, nutrition, and population sciences. These significant contributions have been recognized worldwide.

How is the Centre Organized?

The Centre is governed by a distinguished multinational Board of Trustees comprising researchers, educators, public health administrators, and representatives of the Government of Bangladesh. The Board appoints a Director and Division Directors who head the four scientific divisions and the support service divisions of Finance, and Administration and Personnel.

The **Clinical Sciences Division** has three major functions in addition to providing care and treatment to the patients with diarrhoeal disease at the Clinical Research and Service Centre in Dhaka: (1) implementation of clinical research in diarrhoeal diseases and related areas of nutrition, and operations research; (2) training of health care providers (both Bangladeshi and international) in the case management of diarrhoeal diseases and associated complications as well as in clinical and operational research methodology; and (3) preventive health activities directed toward children and their mothers.

The **Public Health Sciences Division**, staffed with public health professionals, epidemiologists, social scientists, and economists, focuses on the evaluation of population-based interventions to improve reproductive and child health. The Division is responsible for the primary health care services in rural Matlab where there is a population of about 210,000 under demographic surveillance. The Division also has programmes in: Reproductive and Sexual Health; Child Health; Health and Demographic Surveillance; Social and Behavioural Sciences; and Health Economics.

The **Laboratory Sciences Division** has a research programme with branches in enteric bacteriology, molecular genetics, environmental microbiology, immunology, virology, parasitology, reproductive tract infections, and nutritional biochemistry; and a laboratory service programme with branches in clinical pathology, histopathology, biochemistry, and microbiology.

The **Health and Population Extension Division** undertakes operations research in family planning, reproductive and child health, epidemic control, and environmental health, and provides technical assistance to the Government of Bangladesh and non-governmental organizations in the application of the Centre's research findings. The Division comprises the two MCH-FP Extension Projects (Rural and Urban), the Epidemic Control Preparedness Programme, and the Environmental Health Programme.

The **Training and Education Department** coordinates efforts to provide a broad-based training programme that aims at contributing toward the development of global human resources in child survival and population programme research, planning, and implementation.

Computing Facilities: The Centre operates an IBM 4361 mainframe computer with eight megabytes (MB) of real memory and an on-line storage capacity of 3,000 MB. It is connected

to 25 terminals. This system provides the capacity to analyze large data sets, and is complemented by over 300 personal computers and a few Local Area Network (LANs) throughout the Centre. New e-mail facilities have been established in the Centre. A new information technology (IT) strategy is in the process of implementation to replace the old mainframe.

Dissemination and Information Services Centre: The Dissemination and Information Services Centre (DISC) provides access to the scientific literature on diarrhoeal diseases, nutrition, population studies, health, environmental, and behavioural studies in general by means of Current Contents (Life Sciences and Clinical Medicine), MEDLINE, AIDS and POPLINE databases, books, bound journals, reprints of articles, documents, some four hundred current periodicals, etc. DISC publishes the quarterly Journal of Diarrhoeal Diseases Research (and bibliography on diarrhoeal diseases within the Journal), two quarterly newsletters Glimpse (in English) and Shasthya Sanglap (in Bangla), a bimonthly bilingual staff news bulletin--the ICDDR,B News, working papers, scientific reports, special publications, monographs, etc.

Staff: The Centre currently has over 200 researchers and medical staff from more than ten countries doing research and providing expertise in many disciplines related to the Centre's areas of research. One thousand two hundred personnel are working in the Centre.

What is the Centre's Plan for the Future?

In the 37 years of its existence, ICDDR,B has evolved into a busy cosmopolitan research centre whose scientists have wide-ranging expertise. Future research will be directed toward finding cost-effective solutions to the health and population problems of the most disadvantaged people in the world. The Centre's Strategic Plan: "To The Year 2000" outlines work in the following key areas:

Child Survival: Diarrhoeal diseases are responsible for deaths of 3 million children every year. Acute and persistent diarrhoea and dysentery will remain priority areas for research on strategies for prevention, including modifications in personal and domestic hygiene behaviours, provision of appropriate water supply to and sanitation for the households, and the development of effective vaccines. The Centre's scientists will contribute to the improvement of the case management of diarrhoea based on better understanding of basic mechanisms, and national and international responses to epidemics. Risk factors for low birth rate and potential interventions, acute respiratory infections, nutritional deficiency states (including micronutrients), and immunization-preventable infectious diseases will also be examined, particularly as they interact with diarrhoea.

Population and Reproductive Health: The Centre has a long history of conducting pioneering research in the areas of population and family planning. The Centre played a key role in raising the contraceptive use rate among women of reproductive age in Bangladesh to almost 45% through technical assistance and operations research. So much so that the 1994 Cairo Conference hailed Bangladesh as a family planning success story. Matlab is now the model for MCH-FP programmes throughout the world, and the Centre is poised to make important contributions to maternal health and safe motherhood. In addition to continuing work in these areas, the Centre has initiated community-based research on reproductive health and STD/RTI/HIV infections.

Application and Policy: The Centre will continue to play a major part in improving both supply of and demand for existing health technologies, and in replicating the successful interventions piloted in its projects through health systems research. The Centre will increase its communication, dissemination and training efforts to influence international and national health policies in the areas of its expertise. ICDDR,B recognizes, and has given a high priority to, the need to transform research findings into actions.
