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MEN'S INVOLVEMENT IN FAMILY PLANNING IN RURAL BANGLADESH

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Summary. Contraceptive prevalence has risen markedly in rural Bangladesh due in part to a doorstep-delivery system initiated by the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B). This study investigates effects of residence in the Matlab MCH-FP treatment area on men's involvement in family planning. The analysis compares for treatment and comparison areas knowledge of and attitudes toward contraception, as well as levels of contraceptive use, among 413 married men interviewed at the baseline of an ICDDR,B men's involvement project. Although residence in the MCH-FP area is associated with a higher overall contraceptive prevalence, it also is associated with a lower adjusted ratio of male-to-female method use, and lower odds of other indicators of men's involvement in family planning. Historical decisions to exclude men from contraceptive decision-making may place the 'burden' of contraception on women and may preclude the productive involvement of men. These and other implications and strategies for increased men's involvement are discussed.

Introduction

For decades, family planning programmes around the world have focused on women, providing an explicit framework within which a generation of men has participated in reproduction. By contrast, programmatic interest in men's involvement in reproductive health is relatively new, although men always have been involved in reproductive decision-making through their sexual, economic and social relationships with women. This study assesses the effects that an emphasis on female-focused family planning has had on men's participation in contraceptive decisions in Bangladesh. This analysis offers one of the first assessments of the potential legacy of female-centred family planning programmes on various dimensions of men's involvement in family planning.

Implied in recent studies of gender and reproductive health is the notion that enhancing men's involvement in reproductive life represents progress toward an

ultimate goal of gender equity (Wegner *et al.*, 1998; Robey *et al.*, 1998; Cohen & Burger, 2000). Historically, men have been excluded from family planning and reproductive health programmes, often because activists have viewed men as obstacles to women's contraceptive uptake and empowerment (Berer, 1996; Greene & Biddlecom, 2000). In practice, the effects that men have on their own and on women's reproductive lives may be more varied. Studying men, therefore, is important to understand the range of forces shaping reproductive decisions among women and men.

Here, a broad definition of men's involvement is proposed, where each component can be realized along a continuum from positive to negative. Involvement encompasses men's knowledge of reproductive health and family planning, attitudes about the use of contraception, communication with partners about topics related to family planning, choices about contraceptive methods, and emotional and/or behavioural participation in their partners' contraceptive use. These components come from studies and interventions related to men's involvement, many of which have concluded that each element alone does not constitute involvement (Khalifa, 1988; Adamchak & Mbizvo, 1991). Increased knowledge gives men, who often are the primary decision-makers in heterosexual relationships, the awareness of available contraceptive methods with which to make informed decisions (Adamchak & Mbizvo, 1991; Johns Hopkins Center for Communication Programs, 1997). Men's (and women's) attitudes about contraception are important potential barriers or facilitators of use, although attitudes about contraceptive use tend to be positive even where contraceptive prevalence is low (Mustafa & Mumford, 1984; Khalifa, 1988; Piotrow *et al.*, 1992; Kim *et al.*, 1996). The use of various methods, including men's use of male-controlled methods, indicates a willingness of both partners to use contraception, as well as a willingness of men to assume some of the physical, psychological and financial responsibilities of using family planning methods (L. Blum, personal communication, 2002). Finally, the nature and content of inter-spousal communication is important in combination with the other dimensions mentioned here (Landry & Camelo, 1994; Omondi-Odhiambo, 1997; Cohen & Burger, 2000).

Given this definition, this study examines men's involvement in contraceptive use and decision-making in samples of married men residing in the Maternal and Child Health-Family Planning (MCH-FP) intervention area and comparison area at the International Centre for Diarrhoeal Disease Research, Bangladesh's (ICDDR,B) field research setting in Matlab, Bangladesh. The longstanding presence of ICDDR,B in this otherwise homogenous region provides a rare opportunity to explore men's and women's roles in reproduction and contraception in two distinct service-delivery and normative environments.

Background

This analysis examines relationships between the components of men's involvement in family planning, drawing on resource theories of marital decision-making in social context. Rodman (1972) defines marital power as the ability of a spouse to influence decisions in marriage, given the distribution of valued resources between the husband and wife. Although Rodman focuses primarily on the role of economic resources such

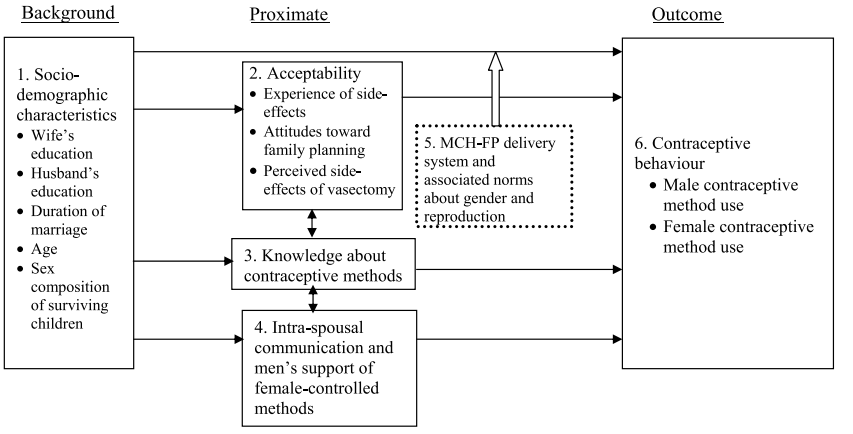

Fig. 1. Dimensions of men's involvement in family planning.

as income and occupation, this study expands the concept to include social resources like education, marital status and children, and it is expected that such resources will have direct and indirect effects on reproductive and contraceptive outcomes. Rodman also posits that the effects of husbands' and wives' resources on the distribution of marital power will vary according to the normative context. In highly patriarchal settings where norms stringently ascribe marital decisions to men, a husband's resources have little effect on the distribution of marital power and their behavioural outcomes. In more egalitarian settings where the expected influence of husbands and wives in marital decisions is more flexible, a husband's resources may play a greater role in marital decisions and their behavioural outcomes. Rodman's review demonstrates that increases in a wife's resources can increase her influence in major marital decisions across a range of normative contexts.

With regard to reproductive decisions in settings where men enjoy greater marital power, women may bear most of the responsibility for reproduction and contraception because both are defined as female domains – although selected exceptions are noted, including more patriarchal settings where the use of withdrawal reflects local notions of masculinity, such as Kuwait, Pakistan and elsewhere (see, for example, Douthwaite *et al.*, 1998). Programmatic initiatives have reinforced this arrangement by promoting female contraceptive methods to women, especially through active outreach by female family planning workers. Some scholars have argued that well-meaning efforts to empower women by providing them with the means to control their fertility paradoxically may have reinforced gender ideologies that equate women with reproduction and that circumvent men's productive participation in family planning initiatives (Schuler *et al.*, 1995; Ali, 1997).

Figure 1 adapts Rodman's modified resource theory to address the question of men's roles in reproductive decisions. The framework describes expected relationships between husbands' and wives' underlying socioeconomic resources, proximate determinants of men's involvement in family planning, and selected behavioural aspects of men's involvement in contraceptive use. Proximate measures of acceptability, knowledge and inter-spousal communication (boxes 2–4) will be associated directly

with behavioural measures of men's involvement (box 6). Background measures (box 1) will be associated with men's involvement in family planning directly and indirectly through the proximate variables. At the contextual level, different family-planning activities and associated norms (box 5) should modify the effects of socioeconomic resources on various aspects of men's involvement.

The socioeconomic resources of husbands and wives (box 1) are important in several ways. Women's schooling attainment (Schuler & Hashemi, 1994), men's schooling attainment (Khalifa, 1988; Dodoo, 1998; Islam *et al.*, 2006), the number and sex composition of living children (Chowdhury & Bairagi, 1990; Lee & Palloni, 1992; Rahman & DaVanzo, 1993) and the ages of women and men (Turner, 1991) reflect their positions in the family and social structure and may alter the balance of patriarchal versus egalitarian role expectations (Rodman, 1972). The resources of both spouses thus will be associated with the proximate determinants of men's involvement in family planning and with men's contraceptive behaviours.

The proximate measures of attitudes, knowledge and inter-spousal communication also are important in several ways. Attitudes toward family planning reflect the willingness of men and women to begin or to continue using contraceptives, and attitudes can affect behaviour whether they reflect or contradict local norms (Khalifa, 1988). Related to attitudes about contraceptive methods is the possession of accurate – or inaccurate – knowledge about them. At a minimum, the absence of inaccurate information about contraceptive methods may be associated with more positive attitudes about their use (Johns Hopkins Center for Communication Programs, 1997). Finally, the experience of adverse effects of contraceptives is associated with one's willingness to use certain methods in the future. Also important are the effects on *men's* involvement of *women's* experiences of negative side-effects while using female methods of contraception. In particular, a woman may encourage her husband to use contraception because she has endured adverse side-effects from one or more methods and wishes to be relieved of this burden (Solomon *et al.*, 2007).

Regarding other proximate determinants, accurate knowledge about family planning methods often is used as an outcome by researchers who see it as necessary for men's 'positive' involvement in family planning (Piotrow *et al.*, 1992; Terefe & Larson, 1993; Kim *et al.*, 1996). Although women may know more about reproductive health and family planning options than do men, men may continue to make decisions for the family based on inaccurate knowledge (Singh *et al.*, 1998). A husband's knowledge – whether accurate or inaccurate – therefore is important to consider in models of reproductive decision-making.

Programmes focused on men's involvement also have encouraged communication as an outcome itself (Becker, 1996; Johns Hopkins Center for Communication Programs, 1997) or as a way to increase the use of contraceptives (Omondi-Odhiambo, 1997; Blake & Babalola, 2002). From this perspective, increased communication suggests that spouses are sharing decisions about family planning, and thus are sharing marital power. Because the *content* of communication is rarely evaluated, however, its effect on men's behavioural involvement is uncertain. Thus, communication is included in the analytic model to evaluate its effects.

Given these anticipated relationships between husbands' and wives' socioeconomic resources, proximate determinants of men's involvement in family planning, and

selected behavioural aspects of men's involvement in contraceptive use, this analysis examines how these relationships differ for couples in Matlab *thana*. Matlab, ICDDR,B's field research setting, is divided into the Maternal and Child Health-Family Planning (MCH-FP) intervention area and a comparison area. Programmes in the MCH-FP area have, for decades, provided long-term and clinically controlled contraceptives to women, in part because these methods better facilitated the achievement of demographic goals, such as slowing population growth. In contrast, the comparison area is served by government health-related programmes, which have been less intensive. The widespread use of female contraceptive methods in the MCH-FP area results directly from the intensity of contraceptive delivery, which has encouraged female contraceptive use across all social strata. This system has remained essentially unchanged since 1977, whereas couples in the comparison area have negotiated marital power and reproductive responsibility in the absence of an intensive, female-centred family planning outreach programme. One possible by-product of an intensive doorstep-delivery system is reinforcement of the idea that reproduction and family planning are 'female domains' that need not involve men (Ali, 1997).

The above discussion motivates two hypotheses about men's involvement in family planning. First, male and female residents of the MCH-FP area have lived for a generation in a service-delivery and normative environment that is characterized by female-centred family planning outreach. It is anticipated that this exposure will alter the relationship between men's resources and their propensity to become involved in family planning. Specifically, *Hypothesis 1*: Higher education of men will be associated with men's proximate and behavioural involvement in family planning in the comparison area, but not in the MCH-FP area.

Second, after decades of promoting female family-planning methods to women throughout Bangladesh, governmental and independent organizations can be credited with increasing female-method use so substantially that a woman's social position no longer predicts female-method use in most parts of Bangladesh. This relationship does not hold for male-method use, however. Here, Rodman's resource theory of marital power predicts that in less patriarchal settings where family planning is less defined as an exclusively 'female' domain, men whose wives have more resources will be more likely to use a male method. Specifically, *Hypothesis 2*: Higher education of women will be associated with greater male-method use in the comparison than the MCH-FP area, but will not be associated with female-method use.

Setting

Since Bangladesh's independence from Pakistan in 1971, several factors have shaped the gendered roles and expectations that are important for a discussion of men's involvement in family planning. Bangladesh has a strong history of influence by Bengali identity and Islamic traditions, and both forces continue to constrain the social and legal status of women (O'Donnell, 1984). Bengali identity has been an important part of Bangladeshi national identity, and has also assisted the diffusion of ideals favouring population control (Basu & Amin, 2000). The patrilineal kinship system reinforces the dominance of men, and prescribes a narrow range of

appropriate roles for women. Women are discouraged from working in the formal labour force, and in many cases cannot do so because they lack access to education. Rates of literacy are lower for women than men throughout the country, but especially in rural areas (Asian Development Bank, 2001).

After independence, a rapidly growing population and weak infrastructure necessitated a heavy reliance on foreign aid – even today one third of Bangladesh's national budget comes from international financial assistance. At the time, especially in densely populated countries with weak economies, governments had to prove their commitment to reducing population growth in order to receive aid (White, 1992). Early population reduction programmes focused on sterilization (especially vasectomy), and some patients had such procedures without their full understanding and consent (Quddus *et al.*, 1969; Klitsch, 1990; Cleland & Mauldin, 1991). This history has important implications for men's contemporary involvement in family planning in Bangladesh.

Subsequent projects have tended to target women and have de-emphasized men's participation in reproductive decisions. The model for this type of programme is the 'doorstep' contraceptive delivery system, which is generally credited for the dramatic increases in contraceptive use in Bangladesh and began in a small area of south-east Bangladesh known as Matlab. The family planning programme in the MCH-FP area of Matlab *thana* has provided primarily female-controlled methods directly to women, with the initial goals of curbing population growth by increasing contraceptive prevalence and lowering rates of fertility (ICDDR,B, 1998). A distinctive trademark of the MCH-FP programme in Matlab *thana* has been its intensive doorstep-delivery system in which female outreach workers have visited women monthly in their homes to make various female-controlled contraceptive methods, including oral contraceptive pills and injectable contraceptives, available for regular use. The structure and history of the programmes in Matlab *thana* are well-documented elsewhere (e.g. Bhatia *et al.*, 1980; Phillips *et al.*, 1982, 1984), but certain differences between the services provided in the MCH-FP and comparison areas are notable. ICDDR,B community health research workers (CHRWs) visit women monthly in their homes in the MCH-FP area to encourage non-users to begin using contraceptives, resupply consumable methods of contraception to users, and collect data about demographic events. Information and education are also targeted at women, and CHRWs have visited each household in the entire ICDDR,B area regularly since 1977 to collect health-related data (ICDDR,B, 2002). Although government Family Welfare Assistants (FWAs) provide similar services throughout Bangladesh (including the comparison area of Matlab), they are less comprehensive and intense, and FWAs do not collect statistical information (ICDDR,B, 1998). Contraceptives of any type are not delivered to women's doors as frequently or as reliably, and couples that are motivated to decrease their fertility must take more active measures to do so (Khan, 1996).

As a result, increases in contraceptive use were earlier and higher in the MCH-FP area of Matlab than in the rest of Bangladesh. Contraceptive prevalence rose from 30% to 70% in the MCH-FP area between 1979 and 2000, but from 16% to 50% in the comparison area in the same time period (Saha & Bairagi, 2007). A related and salient difference between the two areas is the mix of contraceptive methods used.

Women in the MCH-FP area have consistently relied on injectable contraceptive methods for nearly 50% of modern methods used, with approximately 30% of the remainder accounted for by oral contraceptives in 2000. In the comparison area, pills represented over 50% of contraceptive use in 2000 (ICDDR,B, 2002). Although the failure rates of injectable and oral contraceptives are similar when used properly (Hatcher *et al.*, 2001), pills are easier to misuse or to discontinue. Finally, the costs of all methods are similarly low in both areas due to government subsidy (Khan & Bairagi, 2001) but access to injections is facilitated in the MCH-FP area because CHRWs are trained to perform injections in a client's home, but FWAs in the comparison area can offer only referrals to a static clinic (ICDDR,B, 1998).

Women in the MCH-FP and comparison areas report similar *desires* for smaller families (Koenig *et al.*, 1987). This similarity, however, also indicates that unwanted fertility is greater in the comparison area, where fertility rates remain higher. The total fertility rate in the MCH-FP area declined from 4·8 in 1979 to 2·9 in 2000, while fertility in the comparison area dropped from 6·3 to 3·5 (Saha & Bairagi, 2007).

These differences in the delivery system, educational programmes, method mix and extent of demographic surveillance are likely to have affected norms about gender and fertility in the two areas, in part by defining reproductive behaviour as a way to enact culturally prescribed gender roles. Reproductive 'choice' is introduced as a cultural concept, associated with modernity, in part through the work of the CHRWs and their provision of modern contraceptive methods and encouragements to limit fertility (Simmons, 1988). Intensification of women's reproductive responsibilities in this area may have implications for various dimensions of men's involvement in family planning.

Data

This analysis is based on data from a matched survey of married couples that was conducted during January–September, 2000. The sampling design involved selection of 300 married couples each in the MCH-FP and comparison areas, for a total of 600 married couples. Eligible couples were those currently married and currently living in the treatment or comparison area, and were randomly selected from the Health and Demographic Surveillance System, a comprehensive database of all residents of the MCH-FP and comparison areas in Matlab. Of the 600 identified couples, at least one spouse in 565 couples participated in the survey (269 and 296 couples in the MCH-FP and comparison areas, respectively). In cases in which only one interview was completed within a couple, the husband most often was not interviewed because he was out of the house, had emigrated, or was deceased. Thus, of these 565 couples, both the husband and wife completed their interviews in 414 cases, yielding a 69% response rate (414 dual interviews of 600 eligible couples). Because one of these 414 couples was no longer married at the time of the interview, the sample for this analysis includes 413 couples with complete data on the variables of interest (211 couples in the MCH-FP area, 202 couples in the comparison area). The analytic sample was not restricted by age and includes men aged 22–80 years, whose wives were 17–62 years old. A separate analysis of women aged 40 years and younger and their husbands, however, was largely consistent with the findings from the full sample (analysis not shown; available upon request).

Like all research in the Matlab area, CHRWs administered a structured questionnaire to participants in Bengali. Husbands and wives completed essentially the same questionnaire, which addressed topics pertaining to knowledge, attitudes and behaviours related to childbearing, contraceptive use, other topics concerning reproductive and sexual health, and child health. Interviews were conducted in the homes of respondents, and responses were entered into SPSS at the data-entry facility in Matlab. Because the analytic interests here are the correlates of men's knowledge, attitudes and behaviours pertaining to their involvement in family planning *as reported by them*, this analysis is based on information provided by husbands in the 413 couples. Other research with matched couple surveys in Bangladesh has shown that husband's and wives' responses are often divergent (Islam *et al.*, 2006). However, background characteristics pertaining to the wives (age and years of schooling) are drawn from the wife's survey because women are more likely to provide accurate information about themselves. These characteristics of the wives also are likely to be correlated with their own attitudes about contraception, and so help to control for any effects of women's attitudes about family planning in the models. Overall, men and women's responses to demographic questions (e.g. duration of marriage) were consistent, whereas their responses to attitudinal questions showed more variability.

Dependent variables

Two outcome variables denote ever-use of male and female contraceptive methods. Respondents were given a list of contraceptive methods and asked if they had ever used each method. An affirmative response to vasectomy, condoms or withdrawal was coded as ever-use of a male method; a positive response to oral pill, injection, IUD or tubectomy or tubal ligation was coded as ever-use of a female method. This method of measuring ever-use of contraceptive methods is highly correlated ($r=0{\cdot}78$, $p<0{\cdot}001$) with another question in the survey, 'Have you/your spouse ever used a male method?', suggesting that these measures of contraceptive use are reasonably reliable. Method mix did not differ significantly by area except in the case of injection, which is used much more often in the MCH-FP area than the comparison area (as reported by men and women).

Proximate variables

Proximate variables measuring men's attitudes, knowledge and communication about family planning are operationalized as follows. One variable measures attitudes about family planning and vasectomy with a series of six questions assessing approval (*yes*=1, *no*=0) of fertility limitation and family planning generally, male methods specifically, and other reproductive health issues. The questions used to construct this variable were the following:

- Do you think people should limit the number of children they can have?
- Do you think people should space childbearing?
- Do you approve of family planning?
- Would you recommend condom use as a family planning method?
- Do you recommend condom use for STI prevention?

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- If vasectomy is readily available would you recommend it for husbands who have completed their desired family size?

Scores for each question were summed and dichotomized (*low approval*=0–10, *high approval*=11–12). A second variable measures men's reports (*yes*=1, *no*=0) about whether any side-effects of oral pills, injections, IUDs, female sterilization, vasectomy and condoms are known. Again, these responses were summed and dichotomized (*few side effects known*=0–6, *many side effects known*=7–12). Basic knowledge of contraceptive methods was measured by summing scores (*yes*=1, *no*=0) for having heard of oral pills, injections, IUDs, female sterilization, vasectomy, condoms and withdrawal, and then by dichotomizing these scores (*few known*=0–5, *many known*=6–7). These scores are dichotomised at their median values to capture the strongest empirical relationship between them and the outcomes.

Two variables measure interaction between spouses. *Interspousal communication* refers to men's reports about whether they initiated the most recent conversation about family planning, or whether it was initiated by their wife, a health worker or someone else. A measure of *spousal support* is derived from the question, 'What role can a man have in resolving the problems [that may be caused by contraceptive use]?' Respondents could report various kinds of behavioural support (help her consult a family planning worker/paramedic/doctor; use a male method himself) or emotional support (advice for switching method; provide moral support), and respondents were classified according to those who reportedly provided behavioural and emotional support, behavioural support only, emotional support only or unsupportive or ambiguous responses. This variable measures a husband's problem solving around family planning concerns; for conciseness this concept is referred to as men's support. Both of these variables measure some component of spousal interaction, but both are limited by the extent of information that was gathered in the survey. Expressed attitudes are not compared to past actions or future intentions, and the content of spousal interaction – especially with respect to communication – cannot be assessed.

Background variables

Underlying resource variables include husband's and wife's age (continuous), number of surviving sons and daughters (continuous), men's education (none, any through completed primary (5 years), and more than primary), women's education (none, any) and duration of the current marriage (<5 years, ≥5 years). Since the number and proportion of women who had progressed beyond primary school was small, it was not possible to use the same categories of education for women and men.

Methods

Univariate, bivariate and multivariate analyses were conducted using SPSS v10·0. First, characteristics of respondents are compared across the MCH-FP and comparison areas and tested for differences in observed characteristics using chi-squared (χ^2) tests of independence. Associations between background characteristics and proximate and final outcome variables are estimated within the MCH-FP and

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Table 1. Means and percentage distributions of socio-demographic characteristics of husbands and wives, by MCH-FP and comparison area in Matlab, Bangladesh

	MCH-FP (n=211)		Comparison (n=202)		
	Husbands	Wives	Husbands	Wives	p
Means[a]					
Age in years	44·8	36·8	45·8	37·3	
Years of schooling	4·2	3·0	3·4	2·3	
Duration of current marriage in years	19·3	20·1	20·5	20·4	
No. living daughters	1·6	1·6	2·0	1·9	
No. living sons	1·7	1·7	2·0	1·9	
Percentage distributions					
Schooling attainment					
None	35·1	44·1	42·6	54·5	†
Any primary	32·7	35·1	35·6	29·2	
Any secondary or higher	32·2	20·9	21·8	16·3	
Duration of marriage					
<5 years	12·3	12·3	10·4	8·9	
≥5 years	87·7	87·7	89·6	91·1	

[a]Paired t-tests of mean differences (husband–wife) in age, length of marriage and years of schooling for couples in the MCH-FP versus comparison areas revealed no significant differences.

†$p<0{\cdot}10$, χ^2 test of independence for husband's characteristics by area.

comparison areas using χ^2 tests of independence, and then differences across areas in the strength of these associations are assessed using the Mantel-Haenszel χ^2 test statistic for categorical variables and the paired t-test for continuous variables.

In the multivariate analysis, logistic models of the associations of men's and women's underlying resources and proximate indicators of men's involvement for the MCH-FP and comparison areas are estimated separately. To test Hypothesis 1, associations are modelled between the background and proximate variables and behavioural indicators of men's involvement in family planning. For each outcome, two reduced-form models and one full model are estimated for the MCH-FP and comparison areas separately. Finally, the treatment and comparison samples are pooled and appropriate interaction terms are added separately to full, main-effects models to test for variation in the effects of husband's and wife's education by area of residence. This analysis provides a test of Hypothesis 2.

Results

Table 1 presents the socio-demographic characteristics of husbands and wives, by area of residence. In both areas, the mean age of husbands is about 45 years, and the mean

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Table 2. Scores and percentage distributions of proximate and behavioural dimensions of men's involvement in family planning, by area of residence in Matlab, Bangladesh

	MCH-FP $n=211$	Comparison $n=202$	p
Proximate dimensions of men's involvement			
Mean (median) score for approval of family planning (range 0–12)	9·8 (10)	9·8 (10)	
% reporting high approval of family planning (scored 11–12)	35·1	40·1	
Mean number (median) of contraceptives with reported side-effects (range 0–12)	6·4 (6)	6·2 (6)	
% reporting few contraceptives with side-effects (scored 0–6)	51·2	54·5	
Mean number (median) of contraceptive methods known (range 0–7)	5·9 (6)	5·6 (5)	
% reporting knowledge of many contraceptive methods (6–7)	67·3	49·5	***
% men reporting they initiated most recent conversation about family planning	17·5	15·3	
% reporting behavioural and emotional support[a]	8·1	13·9	†
Behavioural dimensions of men's involvement (%)			
Ever-use of a male method	32·2	27·7	
Current-use of a male method	6·2	4·5	
Ever-use of a female method	89·1	75·7	***
Current-use of a female method	60·2	44·6	**
Ever-use of male and female methods	30·3	24·3	
Lifetime-use of male methods only	1·9	3·5	
Lifetime-use of female methods only	58·8	51·5	

**$p<0·01$, ***$p<0·001$, †$p<0·10$ for χ^2 test of independence.

[a]Based on the following categories of responses to the hypothetical question 'What role *can* a man have in resolving the problems [that may be caused by contraceptive use]?': behavioural support (help her consult a family planning worker/paramedic/doctor or use a male method himself); emotional support (provide advice for switching method or provide moral support).

age of wives is about 37 years. Also in both areas, over one-third of husbands and wives have no formal schooling, and the mean duration of marriage for husbands and wives is 19–20 years. The lower average numbers of living sons and daughters among husbands and wives in the MCH-FP area is consistent with lower levels of fertility in the MCH-FP area than in the comparison area. Differences in age and educational attainment between spouses are not significantly different across the two residential areas, underscoring the general similarities in socioeconomic status throughout Matlab *thana*. Husband's educational attainment differs only marginally by area, with a slightly higher percentage of men in the comparison area having no education.

Table 2 summarizes the scores and percentage distributions of proximate and behavioural dimensions of men's involvement in family planning in the MCH-FP and comparison areas. As expected, 6–7 methods are significantly more often known (67·3% vs 49·5%), and ever-use (89·1% vs 75·7%) and current-use (60·2% vs 44·6%) of

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female methods of contraception are significantly more prevalent in the MCH-FP than the comparison area. The majority of female-method use overall is the pill, with 70% of men reporting its use, but a greater proportion of female-method use in the MCH-FP area is injectable contraceptives; this difference is due to differential availability based on differences in service delivery; CHRWs in the MCH-FP area can perform injections in the home, while FWAs in the comparison area must refer clients to a health centre (ICDDR,B, 1998).

A marginally higher percentage of men in the comparison area state that men can offer their wives two or more types of support to resolve problems with family planning (13·9% vs 8·1%). Help contacting a medical professional, a type of behavioural support (78·0%), and advice for switching methods with help contacting a medical professional, a type of emotional support (8·7%), were the most common types of support mentioned among men in the comparison area (not shown; available upon request)). Otherwise, the scores and percentage distributions of all other proximate and behavioural dimensions of men's involvement in family planning do not differ significantly across areas (approval of family planning, side-effects of contraception, husband-initiated last conversation about family planning; ever/current use of a male method, ever-use of male and female methods, lifetime use of male methods only, lifetime use of female methods only). Notably, ever- and current-use of male methods and ever-use of both female and male methods tend to be higher in the MCH-FP area, but differences are not significant, and exclusive reliance on male methods is rare in both study areas. The majority of male-method use was condoms, with 26·6% of men reporting ever using condoms.

Tables 3a and 3b show associations of the proximate and behavioural dimensions of men's involvement in family planning and the educational levels of men and their wives in the MCH-FP and comparison areas. These tables also show *p*-values for Mantel-Haenszel tests of difference in the strength of these associations across study areas. Although men with more formal education and with more-educated wives more often have ever used male methods in both areas, increases in male-method use with increasing education of husbands and wives are significantly greater in the comparison than the MCH-FP area (17·4% to 50·0% vs 20·3% to 44·1%, and 21·9% to 57·6% vs 28·1% to 47·7%, respectively). By contrast, neither the respondent's nor his wife's educational attainment are associated with use of female methods in either area.

In Table 3b, husband's education is significantly positively associated with men's knowledge about family planning in both areas of residence, significantly positively associated with initiating inter-spousal communication about family planning in the comparison area, and significantly negatively associated with the acceptability of family planning in the MCH-FP area. (Recall that 'acceptability of family planning' is a sum of the total number of contraceptives for which possible side-effects are known. Because more-educated men may have greater medical knowledge and experience, they may know more potential side-effects of contraceptive methods. Also, since more-educated men more often have used contraceptives, they have had more opportunity to experience side-effects.) Associations between husband's education and all remaining proximate dimensions of men's involvement in family planning are not significant in either study area. Associations of husband's education and proximate dimensions of his involvement also are not uniform across areas: husband's education

Table 3a. Percentage distribution of respondents who have ever used male and female methods of contraception by husband's and wife's education and area of residence in Matlab, Bangladesh

	Male methods					Female methods				
	MCH-FP	p^a	Comp.	p^a	p^b	MCH-FP	p^a	Comp.	p^a	p^b
Husband's education										
None	20·3	*	17·4	***	***	91·9		74·4		
Any primary	33·3		28·4			91·3		72·2		
Any secondary or more	44·1		50·0			83·8		84·1		
Wife's education										
None	28·1	*	21·9	***	***	88·6		75·7		
Any	47·7		57·6			90·9		75·8		

[a]*$p<0·05$, ***$p<0·001$ for χ^2 test of independence within area of residence.
[b]*** $p<0·001$ for Cochran-Mantel-Haenszel χ^2 test of general association.
Note: The p value in column p^a corresponds to a simple chi-squared (χ^2) test of independence between husband's and wife's educational attainment and each indicator for men's involvement *within* each area. The p value in column p^b corresponds to a test for any difference in the strength of the association of husband's and wife's education and each indicator for men's involvement *across* the MCH-FP and comparison areas.

has a stronger positive association with communication and knowledge in the comparison area, but a stronger negative association with acceptability in the MCH-FP area. Note also the much greater recognition of contraceptive methods among men with *less* education in the MCH-FP area, which suggests that ICDDR,B programmes successfully diminished gaps in such knowledge among men from varied social strata.

Table 4 presents estimated coefficients from logistic regression models for the effects of socioeconomic resources on proximate dimensions of men's involvement in family planning, by area of residence. Most notably, in the comparison area (Panel 2), men with any primary education and with secondary or more education have 6·8 and 14·9 times higher adjusted odds than men with no education of having initiated the last conversation about family planning, whereas the same association is not observed in the MCH-FP area. (Odds ratios discussed in the text are computed by exponentiating their respective coefficients in the tables.) Thus, more-educated husbands have higher odds of initiating communication about family planning in a setting with less-intensive doorstep delivery, and therefore less emphasis on reproduction as a female domain. Also in the comparison area, men with any primary education and secondary or more education have 3·1 and 6·1 times higher adjusted odds than men with no education of knowing 6–7 family planning methods. Only secondary or more education has such effects in the MCH-FP area (OR = 4·1). In both areas, men with more education have significantly lower odds of finding family planning acceptable, but the association appears to be stronger in the MCH-FP area.

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Table 3b. Percentage of respondents who have certain proximate characteristics of men's involvement by husband's and wife's education and area of residence in Matlab, Bangladesh

	Positive attitudes toward family planning				Family planning acceptable (few side-effects of contraception)				Initiated recent communication about family planning				Knowledge of 6–7 contraceptive methods				Offers multi-dimensional support of wife's contraceptive use			
	MCH-FP	p^a	Comp.	p^a p^b	MCH-FP	p^a	Comp.	p^a p^b	MCH-FP	p^a	Comp.	p^a p^b	MCH-FP	p^a	Comp.	p^a p^b	MCH-FP	p^a	Comp.	p^a p^b
Husband's education																				
None	28·4		41·9		60·8	*	59·3	**	12·2		3·5	*** ***	55·4	**	32·6	*** ***	12·2		14·0	
Any primary	37·7		36·1		53·6		56·9		17·4		19·4		65·2		56·9		7·2		13·9	
Any secondary+	39·7		43·2		38·2		40·9		23·5		31·8		82·4		70·5		4·4		13·6	
Wife's education																				
None	35·5		40·2		52·7		56·2		15·6		13·6	*	64·1	†	47·9	*	8·4		13·6	
Any	34·1		39·4		45·5		45·5		25·0		24·2		79·5		57·6		6·8		15·2	

[a]†$p<0{\cdot}10$, *$p<0{\cdot}05$, **$p<0{\cdot}01$, ***$p<0{\cdot}001$ for χ^2 test of independence within area of residence.
[b]*$p<0{\cdot}05$, **$p<0{\cdot}01$, ***$p<0{\cdot}001$ for Cochran-Mantel-Haenszel test of general association.
Note: The p value in column p^a corresponds to a simple chi-squared (χ^2) test of independence between husband's or wife's educational attainment and each indicator for men's involvement *within* each area. The p value in column p^b corresponds to a test for any difference in the strength of the association of husband's and wife's education and each indicator for men's involvement *across* the MCH-FP and comparison areas.

Table 4. Log odds of proximate dimensions of men's involvement in family planning, by spousal and familial characteristics, in the MCH-FP (Panel 1) and comparison (Panel 2) areas of Matlab, Bangladesh (unstandardized coefficients from logistic regression)

	Positive attitudes about family planning[a]			Knowledge of 6–7 contraceptive methods			Initiated recent communication about family planning			Family planning acceptable[b]			Offers multidimensional support of wife's contraceptive use[c]		
Variable (reference group)	Coeff.	(SE)	*p*	Coeff.	(SE)	*p*	Coeff.	(SE)	*p*	Coeff.	(SE)	*p*	Coeff.	(SE)	*p*
Panel 1: MCH-FP area															
Constant	0·11	(0·68)		0·62	(0·70)		−0·99	(0·80)		−1·01	(0·69)		0·55	(1·32)	
Husband's age	0·00	(0·03)		0·03	(0·04)		0·01	(0·04)		0·00	(0·03)		0·01	(0·06)	
Wife's age	0·00	(0·04)		−0·06	(0·04)		0·00	(0·05)		0·05	(0·04)		−0·12	(0·08)	
Husband's education (none)															
Any primary	0·57	(0·38)		0·52	(0·36)		0·52	(0·50)		−0·48	(0·36)		−0·41	(0·61)	
Any secondary or more	0·90	(0·43)	*	1·40	(0·47)	**	0·85	(0·54)		−1·27	(0·43)	**	−1·23	(0·89)	
Wife's education (none)															
Any education	−0·74	(0·47)		−0·12	(0·52)		−0·07	(0·53)		0·59	(0·46)		0·09	(0·87)	
Duration of current marriage (<5 years)															
≥5 years	−0·70	(0·50)		0·49	(0·54)		−1·03	(0·56)	†	0·45	(0·50)		0·36	(0·82)	
Number of living daughters	−0·15	(0·14)		0·01	(0·14)		−0·09	(0·18)		−0·21	(0·13)		0·21	(0·29)	
Number of living sons	−0·15	(0·15)		0·09	(0·16)		−0·19	(0·20)		−0·26	(0·15)	†	0·28	(0·29)	
Panel 2: Comparison area															
Constant	−0·20	(0·68)		0·31	(0·71)		−4·13	(1·15)	***	−0·07	(0·68)		−0·61	(0·95)	
Husband's age	0·03	(0·03)		0·00	(0·03)		−0·08	(0·06)		0·06	(0·03)	†	0·02	(0·04)	
Wife's age	−0·04	(0·04)		−0·05	(0·04)		0·11	(0·07)		−0·05	(0·04)		−0·06	(0·06)	
Husband's education (none)															
Any primary	−0·24	(0·33)		1·12	(0·35)	***	1·91	(0·67)	**	−0·08	(0·33)		0·02	(0·47)	
Any secondary or more	0·00	(0·41)		1·81	(0·46)	***	2·74	(0·72)	***	−0·84	(0·41)	*	−0·09	(0·59)	
Wife's education (none)															
Any education	−0·18	(0·45)		−0·47	(0·47)		0·35	(0·57)		−0·14	(0·44)		−0·22	(0·62)	
Duration of current marriage (<5 years)															
≥5 years	0·03	(0·55)		0·65	(0·57)		0·09	(0·83)		−0·25	(0·55)		0·06	(0·71)	
Number of living daughters	−0·09	(0·12)		0·16	(0·12)		0·04	(0·18)		−0·07	(0·12)		−0·05	(0·18)	
Number of living sons	−0·06	(0·13)		−0·03	(0·14)		0·03	(0·17)		0·01	(0·13)		−0·05	(0·21)	

[a]Reports high approval of fertility limitation and the use of family planning.
[b]Less often reports knowing of side-effects for specific methods of contraception.
[c]Expresses both behavioural and emotional solutions to resolving problems caused by family planning methods.
†$p<0·10$, *$p<0·05$, **$p<0·01$, ***$p<0·001$.

(Again, more-educated men may have greater medical knowledge and have more often used contraceptives, so they may know more potential side-effects or have had more opportunity to experience side-effects.) Wife's education is not significantly associated in either area with any measure of men's knowledge, attitudes or supportive behaviour with regard to family planning. Notably, in the MCH-FP area, men in marriages of five or more years are 60% less likely (OR = 0·4, $p<0·10$) to have initiated the most recent conversation about family planning; and an incremental increase in the number of living sons is associated with a 20% lower likelihood (OR = 0·8, $p<0·10$) of reporting that family planning is acceptable. Otherwise, only husband's age in the comparison area is marginally (positively) associated with finding family planning acceptable (knowing fewer side-effects). No other variables are significantly associated with these proximate measures of men's involvement in family planning in either area.

Estimates in Tables 5 and 6 show relationships between the underlying variables and proximate and behavioural dimensions of men's involvement in family planning (Fig. 1). The first model, predicting ever-use of a male method of contraception (Table 5), is consistent with the idea that socioeconomic variables operate in part through the proximate dimensions of men's involvement. In Models 1 and 4 (Table 5), measures of men's attitudes and knowledge are significantly positively associated with their ever-use of a male method in both areas. In Models 2 and 5 (Table 5), men's education is significantly positively associated with ever-use of a male method in both areas. However, in Models 3 and 6 (Table 5), which include socioeconomic variables as well as proximate measures of men's involvement, the significantly positive association between a husband's education and use of a male method is reduced in magnitude in both areas, loses significance in the MCH-FP area, but remains significant in the comparison area. Arguably, the association of men's education and ever-use of a male method may operate in part through men's attitudes and knowledge about family planning.

In the MCH-FP area, attitudes and knowledge are the only variables that are significantly (positively) associated with male-method use, but other variables also are associated with male-method use in the comparison area. Wife's education has a small positive effect, as does men's education and acceptability. Interestingly, men's support of wives is marginally *negatively* associated with ever-use of a male method in the comparison area, which may indicate that men are supporting their wives' use of female contraceptive methods to the exclusion of male methods.

Table 6 shows a slightly different pattern of association between underlying and proximate covariates and ever-use of a female method. Associations with female-method use in the MCH-FP area are more contradictory, and include a positive association of knowledge and a negative association of acceptability with female-method use. Also in the MCH-FP area, husbands with secondary or more education are 90% less likely (OR = 0·1) than husbands with no formal education of reporting ever-use of female-controlled contraceptive methods. In the comparison area, husband's education is not associated with ever-use of female-controlled methods, and among other covariates of interest, only husband's support for contraceptive use is marginally positively associated with female-method use. (Duration of marriage is strongly positively associated with ever-use of a female method in both areas.)

Table 5. Log odds of ever-use of male methods, by proximate measures of men's involvement and spousal and familial characteristics, in the MCH-FP and comparison areas of Matlab, Bangladesh (unstandardized coefficients from logistic regression)

	MCH-FP (n=211)									Comparison (n=202)								
	(1)			(2)			(3)			(4)			(5)			(6)		
Variable (reference group)	Coeff.	(SE)	p	Coeff.	(SE)	p	Coeff.	(SE)	p	Coeff.	(SE)	p	Coeff.	(SE)	p	Coeff.	(SE)	p
Constant	−1·88	(0·41)	***	0·16	(0·72)		−0·84	(0·84)		−2·39	(0·40)	***	0·60	(0·83)		−0·21	(0·96)	
Attitudes (negative)	1·03	(0·34)	**				1·06	(0·36)	**	0·97	(0·37)	**				1·12	(0·41)	**
Knowledge (low)	1·30	(0·39)	***				1·18	(0·41)	**	1·20	(0·38)	**				1·01	(0·43)	*
Communication (initiated by other)	0·53	(0·40)					0·41	(0·42)		0·82	(0·43)	†				0·67	(0·51)	
Acceptability (many side-effects)	−0·51	(0·33)					−0·33	(0·35)		0·48	(0·38)					0·92	(0·45)	*
Support (single type or none)	−0·92	(0·64)					−1·05	(0·68)		−0·74	(0·52)					−1·00	(0·57)	†
Husband's age				−0·02	(0·03)		−0·02	(0·04)					−0·03	(0·04)		−0·05	(0·05)	
Wife's age				−0·04	(0·04)		−0·03	(0·04)					−0·04	(0·05)		−0·02	(0·06)	
Husband's education (none)																		
Any primary				0·84	(0·40)	*	0·53	(0·43)					0·51	(0·41)		0·35	(0·46)	
Any secondary or more				1·10	(0·45)	*	0·48	(0·49)					1·43	(0·47)	**	1·28	(0·56)	*
Wife's education (none)																		
Any education				0·21	(0·45)		0·47	(0·48)					0·75	(0·46)		0·96	(0·51)	†
Duration of current marriage (<5 years)																		
≥5 years				−0·22	(0·52)		−0·02	(0·57)					0·08	(0·61)		−0·06	(0·68)	
Number of living daughters				0·14	(0·14)		0·19	(0·15)					0·15	(0·15)		0·13	(0·16)	
Number of living sons				0·20	(0·16)		0·25	(0·17)					0·03	(0·17)		0·04	(0·18)	
−2 Log likelihood	234·62			248·12			225·17			210·31			204·36			178·88		

†p<0·10, *p<0·05, **p<0·01, ***p<0·001.

Table 6. Log odds of ever-use of female methods, by proximate dimensions of men's involvement and spousal and familial characteristics, in the MCH-FP and comparison areas of Matlab, Bangladesh (unstandardized coefficients from logistic regression)

	MCH-FP (n=211)									Comparison (n=202)								
	(1)			(2)			(3)			(4)			(5)			(6)		
Variable (reference group)	Coeff.	(SE)	p	Coeff.	(SE)	p	Coeff.	(SE)	p	Coeff.	(SE)	p	Coeff.	(se)	p	Coeff.	(SE)	p
Constant	2·30	(0·52)	***	7·05	(1·43)	***	8·42	(1·93)	***	1·46	(0·35)	***	3·67	(0·84)	***	4·02	(0·94)	***
Attitudes (negative)	0·28	(0·52)					1·03	(0·71)		−0·28	(0·37)					−0·42	(0·41)	
Knowledge (low)	0·77	(0·46)	†				1·75	(0·74)	*	0·30	(0·37)					0·02	(0·42)	
Communication (initiated by other)	−0·63	(0·54)					0·11	(0·78)		−0·12	(0·46)					−0·15	(0·54)	
Acceptability (many side-effects)	−1·09	(0·51)	*				−1·99	(0·74)	**	−0·77	(0·38)	*				−0·68	(0·42)	
Support (single type or none)	0·77	(1·10)					−1·28	(1·27)		1·23	(0·68)	†				1·26	(0·72)	†
Husband's age				−0·10	(0·06)	†	−0·16	(0·07)	*				−0·05	(0·04)		−0·04	(0·04)	
Wife's age				−0·09	(0·07)		−0·05	(0·07)					−0·06	(0·05)		−0·05	(0·05)	
Husband's education (none)																		
Any primary				0·81	(0·76)		0·71	(0·84)					−0·02	(0·40)		−0·03	(0·44)	
Any secondary or more				−0·88	(0·69)		−2·61	(1·01)	**				1·00	(0·58)	†	1·00	(0·64)	
Wife's education (none)																		
Any education				0·24	(0·87)		0·77	(0·98)					−0·93	(0·57)		−0·93	(0·59)	
Duration of current marriage (<5 years)																		
≥5 years				3·18	(1·11)	**	3·91	(1·25)	**				1·74	(0·68)	*	1·76	(0·70)	*
Number of living daughters				0·18	(0·21)		0·17	(0·22)					−0·01	(0·14)		−0·04	(0·14)	
Number of living sons				0·45	(0·25)	†	0·40	(0·26)					0·14	(0·15)		0·14	(0·15)	
−2 Log likelihood	134·24			94·16			80·60			211·80			192·09			183·77		

†p<0·10, *p<0·05, **p<0·01, ***p<0·001.

Table 7. Tests for variation by area of residence in the effects of husband's and wife's education on the log odds of ever-use of male and female methods in Matlab, Bangladesh (unstandardized coefficients from logistic regression)

Variable (reference group)	Male methods			Female methods		
	Coeff.	(SE)	*p*	Coeff.	(SE)	*p*
Panel 1						
Constant	−0·64	(0·64)		4·35	(0·77)	***
Husband's education (none)						
Any primary	0·33	(0·43)		−0·13	(0·45)	
Any secondary+	1·08	(0·49)	*	0·76	(0·61)	
Area (comparison)	0·07	(0·45)		1·46	(0·57)	*
Area by husband's education						
Area by any primary	0·29	(0·60)		0·73	(0·82)	
Area by any secondary	−0·52	(0·62)		−1·54	(0·82)	†
−2 Log likelihood	415·71			283·06		
Panel 2						
Constant	−0·76	(0·62)		4·32	(0·75)	***
Wife's education (none)						
Any education	1·16	(0·48)	*	−0·59	(0·57)	
Area (comparison)	0·22	(0·29)		1·18	(0·37)	**
Area by wife's education	−0·94	(0·59)		0·25	(0·80)	
−2 Log likelihood	415·04			290·87		

†$p<0·10$, *$p<0·05$, **$p<0·01$, ***$p<0·001$.

Table 7 presents estimated coefficients for models that include interactions of area of residence with husband's education (Panel 1) and with wife's education (Panel 2). Husband's education is positively associated with ever-use of a male-controlled method, and this association is similar across area of residence, as indicated by the non-significant interaction term. Although ever-use of female-controlled methods is not associated with husband's education in the comparison area, adjusted odds of female-method use among educated versus non-educated men are approximately 80% lower (OR = 0·2) in the MCH-FP than the comparison area. As shown in Panel 2, adjusted odds of male-method use in the comparison area are 3·2 times higher among men whose wives have any education than among men with uneducated wives. Wife's education is not associated with the respondent's reported use of female-controlled methods, as would be expected due to high overall use of female methods (the positive association of residence in the MCH-FP area and female-method use is large).

Discussion

This paper addresses some of the long-term effects of intensive programmatic efforts to increase knowledge of family planning, access to contraception, and the prevalence

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of using female methods among women in Matlab *thana*. Although this type of programme has been replicated throughout Bangladesh and in other parts of the world, little research to date has investigated the intended and unintended effects of such programmes on men's involvement in family planning. Given the recent interest in men's roles in family planning, understanding how these programmes may affect various dimensions of men's involvement is important.

Implications for resource theories of marital power

Overall, findings show that the resources of husbands and wives do not have the same effects in the two areas. In the comparison area, where ideas that reproduction is an exclusively 'female domain' may be less intense, having more resources increases men's tendency to become directly involved in the family planning process. By contrast, men's involvement in the MCH-FP area is neither socially encouraged nor accommodated by the local service delivery system; therefore, having more resources does not promote involvement.

The findings suggest that men's education is significantly associated with contraceptive use as well as other aspects of men's involvement (Mustafa & Mumford, 1984; Khalifa, 1988; Omondi-Odhiambo, 1997; Kumah, 1999; Islam *et al.*, 2006). Findings show that men's educational attainment is directly associated with some contraceptive behaviours, and may be associated indirectly with these behaviours *through* men's attitudes about the use of family planning and knowledge about family planning methods. However, education alone does not account entirely for variation in contraceptive use. First, its association with male- and female-controlled method use is not the same. This difference is in part a result of differences in programmatic focus, which emphasizes female methods in both the MCH-FP and comparison areas. However, the proximate variables of attitudes, knowledge, inter-spousal communication, contraceptive acceptability and spousal support also play important roles, even when education is taken into account. In the MCH-FP area, men's education may influence male-method use largely through greater recognition of contraceptive methods, but men's education also may be directly associated with male-method use in the comparison area. This result is a further indication that education as a resource is associated with contraceptive use only in an area where doorstep delivery and the focus on women is less intense.

Hypothesis 1 proposed that higher education among men would be associated with men's proximate and behavioural involvement in the comparison area but not in the MCH-FP area. In bivariate analyses, men's education is more strongly associated with reported use of male-controlled methods in the comparison area than in the MCH-FP area. Men's education also is associated with important proximate dimensions of men's involvement in family planning, such as communication on topics related to family planning and knowledge of contraceptive methods. In full multivariate models, the positive association of husband's education with male-method use, contraceptive knowledge and positive attitudes about family planning remain significant in the comparison area. Together, these findings corroborate Rodman's theory of resources and marital power in that men's education plays a greater role in settings in which the promotion of contraception is less gendered. The

universally low prevalence of male-method use in Matlab *thana* suggests that other ways of participating in decisions about family planning (represented here by the proximate variables of attitudes, knowledge and communication) may better reflect men's involvement in this context.

Results also show that men's education is not associated with female-method use in the comparison area, whereas men's education is *negatively* associated with female-method use in the MCH-FP area. This result is difficult to explain using information from this survey, but several explanations are plausible. Most notably, multivariate models showing a significant net effect of men's education control for direct measures of men's knowledge, and so education may operate in ways beyond its role as a source of knowledge about family planning. Given that Bangladesh has three parallel educational systems (English medium, Bengali medium and religious education (SaniSoft, no date)), years of education by type may indicate the degree of exposure to different *ideals* about family, family size and contraception – some of which may include conservative ideologies about gender and family planning. Research among male workers in India, Israel and Bangladesh has shown, for example, that education is *not* associated with favouring women's equality in the public sphere (Miller, 1984). Therefore, the type and quality of schooling received could be at least as important as total years of schooling. Future research should measure exposure to education in a way that separates the effects of absolute years of schooling and the content and quality of the education obtained.

As mentioned above, specific contraceptive behaviours tell only part of the story of men's involvement in family planning, and the proximate dimensions of involvement may be especially salient in the Matlab context (Becker, 1996). Findings show that men's support of women's contraceptive use is the only proximate dimension of men's involvement that is associated with female contraceptive use in the comparison area. The same variable is not associated with using female methods in the MCH-FP area. This difference may result from the presence of the female outreach workers in the MCH-FP area – when female methods are so readily accessible, men's support is neither relevant nor necessary for women's use of female-controlled methods. Although not conclusive, such findings are consistent with the idea that the service-delivery environment in the MCH-FP area may not encourage men's involvement.

Finally, Hypothesis 2 proposed that higher education among wives will be associated with greater male-method use in the comparison area than in the MCH-FP area, but will not be associated with female-method use in the MCH-FP area. As expected, findings show that men with educated wives are marginally more likely to have used a male method of contraception in the comparison area, but that the education of wives is not associated with husbands' use of male methods in the MCH-FP area (Table 5). Also as hypothesized, women's education is not associated with use of female methods in either area. Rather, the most salient factor appears to be the long-term efforts of ICDDR,B and the Government of Bangladesh to increase contraceptive prevalence among women from all social strata.

Overall, and especially with respect to the proximate dimensions of men's involvement, these findings are largely consistent with Rodman's modified resource theory of marital power in social context, and support the hypothesis that differences in the MCH-FP and comparison areas with regard to service delivery and

corresponding norms about men's place in reproduction have had a real effect. This effect, however, is perhaps best summarized as a differential potential for men to participate equitably in decisions about reproduction and family planning.

Not surprisingly, the results provide little evidence that men are finding meaningful ways to become positively involved in the absence of opportunities for them to do so. This study was conducted prior to a men's involvement intervention; therefore, the most important question is not whether men's involvement already is present, but how past programmes have shaped the current environment and might affect future interventions. Here, results suggest that, in addition to its various other effects, ICDDR,B's programmes may limit men's ability to engage in the process of adopting and using contraceptive methods.

Lessons for programmes

Taken together, these findings underscore that programmes intended to foster men's involvement should provide an environment in which men's contributions to decisions about family planning are valued and desired and in which couples' rights to decide freely the number and spacing of their children is protected. Educating men about contraceptive-method choices can provide them with the tools to make informed decisions about their own and their wives' contraceptive use. ICDDR,B has been an international leader in providing contraceptives and education to women. Applying these lessons to men, both in Matlab and in other settings worldwide, will undoubtedly benefit future efforts to transform men's involvement in reproductive health. However, efforts to support men's decisions should include a commitment to meeting the reproductive needs of women. Without this component, men may be enabled to take the responsibility of contraceptive decision-making away from women (Piotrow *et al.*, 1992). This outcome is conceivable in the Matlab MCH-FP area, where men's support of women's contraceptive use is lower than in the comparison area. Awareness of this possibility is essential to design interventions that address the needs of women and men and to engage them equitably in contraceptive decisions.

Certain limitations of the study warrant comment. First, 31% of identified couples did not participate in the survey. If the contraceptive behaviours of unobserved couples differ significantly from those of observed couples, then the findings from this study may not be generalizable to residents in the study areas. Despite these concerns, response rates achieved here are not very different from those achieved in other studies of men's involvement in family planning in non-Western settings (e.g. Mistik *et al.*, 2003), and a comparison of the characteristics of couples with one spousal interview and couples with both spousal interviews reveals few observable differences between the groups. As mentioned, couples with one incomplete interview most often lacked information from the husband, often because the husband was deceased. Compared with women with complete spousal data (who were included in the sample), women with incomplete spousal data (who were therefore excluded) are significantly older and more often widowed but do not differ with respect to schooling attainment or the number of living daughters or sons. Men with complete spousal data compared with those with incomplete spousal data are similar on all observed characteristics (age, education, length of marriage and number of children), but small

numbers of men with incomplete spousal data precluded estimation of statistical tests of difference. Overall, the number of respondents available in the analytical sample was insufficient to permit detection of significant interaction effects of men's education and residence in the pooled multivariate analysis of male- and female-method use.

Second, the survey itself was subject to some structural challenges. For example, instructions for some questions provided insufficient guidance to understand the way in which these questions were asked (e.g. questions about the side-effects of contraceptive methods did not clearly indicate whether respondents were specifically probed or responded spontaneously and no interviewer check of the (biomedical) plausibility of responses was included). Because the accuracy and quality of the data on specific symptoms is uncertain, this analysis focuses only on men's yes/no response about knowledge of any side-effects. In the analysis, similarly difficult questions were avoided in favour of those that had clear instructions for their application. Also, attitudinal data can be difficult to collect in any structured survey and may be altered by the context of the interview. For example, there is potential bias introduced in this study due to the fact that female health workers, who may be widely known throughout the community, interviewed these men about potentially sensitive topics such as contraceptive use and other sexual behaviours. These influences may be especially pronounced in a survey on family planning in a setting where increasing contraceptive prevalence has been an explicit goal for over 25 years.

Third, information related to household standard of living is not available for analysis. Despite this gap, Matlab *thana* is a relatively small and homogenous area with respect to standard of living, and when asked, 'Do you have to pay for contraceptives?', most respondents (78·5%) reported that they did not. However, the percentage of respondents who reported having to pay was lower in the MCH-FP area than in the comparison area (9·0 vs 28·2, $p<0·001$). Although this difference by area suggests that information on standard of living may be relevant, it also provides a striking example of the differences in service availability across the two areas. For the purposes of this analysis, household standard of living may be partially correlated with husband's schooling, and therefore effects of education may in part capture those of wealth.

Finally, direct measures of women's attitudes about contraception were not included; however, major determinants of women's attitudes about family planning were included (e.g. age and education), and the focus of this analysis was on the correlates of men's knowledge, attitudes and behaviours relating to family planning as reported by them. Future research on the dimensions of men's involvement in family planning might include men's and women's attitudes about family planning as potential barriers and facilitators of use.

Given this discussion, the findings underscore that programmatic choices intended to improve women's access to contraception in a highly patriarchal context may have the unintended effect of reinforcing ideas that reproduction and contraception are exclusively female domains. Thus, the longstanding presence of public health interventions may change (or reinforce) societal norms in unexpected ways. A close examination of the effects of existing programmes therefore is essential to the thoughtful development of future interventions that will enable men and women to achieve their reproductive goals.

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References

Adamchak, D. J. & Mbizvo, M. T. (1991) Family planning information sources and media exposure among Zimbabwean men. *Studies in Family Planning* **22**(5), 326–331.

Ali, K. A. (1997) Modernization and family planning programs in Egypt. *Middle East Report* 40–44.

Asian Development Bank (2001) *Women in Bangladesh*. Asian Development Bank, Manila.

Basu, A. M. & Amin, S. (2000) Conditioning factors for fertility decline in Bengal: History, language identity, and openness to innovations. *Population and Development Review* **26**(4), 761–794.

Becker, S. (1996) Couples and reproductive health: A review of couple studies. *Studies in Family Planning* **27**(6), 291–306.

Berer, M. (1996) Men. *Reproductive Health Matters* **7**, 7–11.

Bhatia, S., Mosley, W. H., Faruque, A. S. G. & Chakraborty, J. (1980) The Matlab family planning-health services project. *Studies in Family Planning* **11**(6), 202–212.

Blake, M. & Babalola, S. (2002) *The Impact of a Male Motivation Campaign on Family Planning Ideation and Practice in Guinea*. Johns Hopkins Bloomberg School of Public Health, Center for Communication Programs, Baltimore.

Chowdhury, M. K. & Bairagi, R. (1990) Son preference and fertility in Bangladesh. *Population and Development Review* **16**(4), 749–757.

Cleland, J. & Mauldin, W. P. (1991) The promotion of family planning by financial payments: The case of Bangladesh. *Studies in Family Planning* **22**(1), 1–18.

Cohen, S. I. & Burger, M. (2000) *Partnering: A New Approach to Sexual and Reproductive Health*. Technical Paper No. 3. United Nations Population Fund (UNFPA), New York.

Dodoo, F. N-A. (1998) Men matter: Additive and interactive gendered preferences and reproductive behavior in Kenya. *Demography* **35**(2), 229–242.

Douthwaite, M., Miller, P., Sultana, M. & Haque, M. (1998) Couple communication and sexual satisfaction among withdrawal users in Pakistan. *Reproductive Health Matters* **6**(12), 4–49.

Greene, M. E. & Biddlecom, A. E. (2000) Absent and problematic men: Demographic accounts of male reproductive roles. *Population and Development Review* **26**(1), 81–115.

Hatcher, R., Nelson, A., Zieman, M., Darney, P., Creinin, M. & Stosur, H. (2001) *A Pocket Guide to Managing Contraception.* Bridging the Gap Foundation, Tiger, Georgia.

ICDDR,B (1998) *Health and Demographic Surveillance in Matlab: Past, Present and Future*. Special Publication No. 72. International Centre for Diarrhoeal Disease Research, Bangladesh, Dhaka, Bangladesh.

ICDDR,B (2002) *Health and Demographic Surveillance System Matlab: Registration of Health and Demographic Events 2000*. Scientific Report No. 89. International Centre for Diarrhoeal Disease Research, Bangladesh, Dhaka, Bangladesh.

Islam, M. A., Padmadas, S. & Smith, P. W. F. (2006) Men's approval of family planning in Bangladesh. *Journal of Biosocial Science* **38**, 247–259.

Johns Hopkins Center for Communication Programs (1997) *Reaching Men Worldwide: Lessons Learned from Family Planning and Communication Projects (1986–1996)*. Johns Hopkins University, Baltimore, Maryland.

Khalifa, M. A. (1988) Attitudes of urban Sudanese men toward family planning. *Studies in Family Planning* **19**(4), 236–243.

Khan, M. A. (1996) Factors affecting the use of contraception in Matlab, Bangladesh. *Journal of Biosocial Science* **28**(3), 265–279.

Khan, M. I. & Bairagi, R. (2001) Contraceptive use in Matlab with a special focus on condoms: Socio-economic correlates and future implications. *Journal of Health and Population in Developing Countries* **4**(2), 16–22.

Kim, Y. M., Marangwanda, C. & Kols, A. (1996) *Involving Men in Family Planning: The Zimbabwe Male Motivation and Family Planning Method Expansion Project, 1993–1994* (3). Johns Hopkins University, Center for Communication Programs, Population Information Program [PIP], Baltimore, Maryland.

Klitsch, M. (1990) Sterilization decision is not unduly influenced by cash compensation. *International Family Planning Perspectives* **16**(4), 156–157.

Koenig, M. A., Phillips, J. F., Simmons, R. S. & Khan, M. A. (1987) Trends in family size preferences and contraceptive use in Matlab, Bangladesh. *Studies in Family Planning* **18**(3), 117–127.

Kumah, O. (1999) Fostering male involvement and partnership: a stepwise process, reproductive health through advocacy. *Promotion et Education* **6**(2), 16–19.

Landry, D. J. & Camelo, T. M. (1994) Young unmarried men and women discuss men's role in contraceptive practice. *Family Planning Perspectives* **26**(5), 222–227.

Lee, Y-J. & Palloni, A. (1992) Changes in the family status of elderly women in Korea. *Demography* **29**(1), 69–92.

Miller, K. (1984) The effects of industrialization on men's attitudes toward the extended family and women's rights: A cross-national study. *Journal of Marriage and the Family* **46**(1), 153–160.

Mistik, S., Nacar, M., Mazicioglu, M. & Cetinkaya, F. (2003) Married men's opinions and involvement regarding family planning in rural areas. *Contraception* **67**(2), 133–137.

Mustafa, M. A. & Mumford, S. D. (1984) Male attitudes towards family planning in Khartoum, Sudan. *Journal of Biosocial Science* **16**(4), 437–450.

O'Donnell, C. P. (1984) *Bangladesh: Biography of a Muslim Nation.* Westview Press, Boulder and London.

Omondi-Odhiambo (1997) Men's participation in family planning decisions in Kenya. *Population Studies* **51**(1), 29–40.

Phillips, J. F., Simmons, R., Chakraborty, J. & Chowdhury, A. I. (1984) Integrating health services into an MCH-FP program: Lessons from Matlab, Bangladesh. *Studies in Family Planning* **15**(4), 153–161.

Phillips, J. F., Stinson, W., Bhatia, S. & Chakraborty, J. (1982) The demographic impact of the Family Planning-Health Services Project in Matlab, Bangladesh. *Studies in Family Planning* **13**(5), 131–140.

Piotrow, P. T., Kincaid, D. L., Hindin, M. J., Lettenmaier, C. L., Kuseka, I., Silberman, T. *et al.* (1992) Changing men's attitudes and behavior: The Zimbabwe male motivation project. *Studies in Family Planning* **23**(6), 365–375.

Quddus, A., Ratcliffe, J. & Croley, H. (1969) The unofficial vasectomy agent of East Pakistan. (Bangladesh). *Pakistan Journal of Family Planning* **3**(1), 17–26.

Rahman, M. & DaVanzo, J. (1993) Gender preference and birth spacing in Matlab, Bangladesh. *Demography* **30**(3), 315–332.

Robey, B., Thomas, E., Baro, S., Kone, S. & Kpakpo, G. (1998) *Men: Key Partners in Reproductive Health*. Johns Hopkins University Center for Communication Programs, Baltimore.

Rodman, H. (1972) Marital power and the theory of resources in cultural context. *Journal of Comparative Family Studies* **3**, 50–69.

Saha, U. R. & Bairagi, R. (2007) Inconsistencies in the relationship between contraceptive use and fertility in Bangladesh. *International Family Planning Perspectives* **33**(1), 31–37.

SaniSoft (no date) *Education in Bangladesh.* http://sanisoft.tripod.com/bdeshedu/systems.html (accessed 1st April 2003).

Schuler, S. R. & Hashemi, S. M. (1994) Credit programs, women's empowerment, and contraceptive use in rural Bangladesh. *Studies in Family Planning* **25**(2), 65–76.

Schuler, S. R., Hashemi, S. M. & Jenkins, A. H. (1995) Bangladesh's family planning success story: A gender perspective. *International Family Planning Perspectives* **21**(4), 132–137, 166.

Simmons, R. (1988) Beyond supply: the importance of female family planning workers in rural Bangladesh. *Studies in Family Planning* **19**(1), 29–38.

Singh, K. K., Bloom, S. S. & Tsui, A. O. (1998) Husbands' reproductive health knowledge, attitudes, and behavior in Uttar Pradesh, India. *Studies in Family Planning* **29**(4), 388–399.

Solomon, H. S., Yount, K. M. & Mbizvo, M. T. (2007) 'A shot of his own': The acceptability of a male hormonal contraceptive in Indonesia. *Culture, Health and Sexuality* **9**(1), 1–14.

Terefe, A. & Larson, C. P. (1993) Modern contraception use in Ethiopia: does involving husbands make a difference? *American Journal of Public Health* **83**(11), 1567–1571.

Turner, R. (1991) Most Zimbabwean men approve of family planning, but believe it should wait until after the first live birth. *International Family Planning Perspectives* **17**(3), 115–116.

Wegner, M. N., Landry, E., Wilkinson, D. & Tzanis, J. (1998) Men as partners in reproductive health: From issues to action. *International Family Planning Perspectives* **24**(1), 38–42.

White, S. (1992) *Arguing with the Crocodile: Gender and Class in Bangladesh.* Zed Books, London and New Jersey.